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Evaluating Event Effectiveness Across Alternate Platforms

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EVALUATING EVENT EFFECTIVENESS ACROSS
ALTERNATE PLATFORMS

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May 2015

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ABSTRACT

As technology continues to influence younger generations and demand a commanding presence in the workplace, more industries are trying to incorporate these advances. 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 (Fenich, et al., 2011; Pearlman & Gates, 2010). The goal of this research was to gain a better understanding of how alternate platforms can affect event effectiveness. Variables examined include satisfaction, loyalty, content retention, specific event satisfaction attributes, and time scarcity items. Although each meeting varies in terms of objectives and content, some important foundational results were found. Meetings with more difficult content should utilize in-person or online with moderator sessions to increase satisfaction, loyalty, and content retention. For meetings with less difficult content, the online with moderator session would not be an effective use of resources or an attendee’s time and cognitive space. This research is relevant to every educational based meeting session, whether it is in education, industry, or meetings specifically.

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CHAPTER 1

INTRODUCTION

As technology continues to influence younger generations and demand a commanding presence in the workplace, more industries are trying to incorporate 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 planners and organizations have tried to find the right balance for attendees and the bottom line.

While there has been significant industry 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. 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 (participants who attend an online meeting one year and then the in-person meeting the next year). These are all important factors, but how much of the information presented is actually retained? Does having a moderator in an online session influence content retention? Is this cost justified? As more organizations are incorporating technology in various aspects of the industry, both behind the scenes and directly with the attendee, these variables should be examined in addition to attendee satisfaction and loyalty metrics.

Historically, literature related to meetings and events have 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). In the past decade there has also been a steep rise in literature pertaining to sustainability and the influence of technology (Fenich, et al., 2011; Fenich, Scott-Halsell, & Ogbeide, 2012; Lee, 2011; Pearlman & Gates, 2010). Specifically, when discussing the influence of technology on the event industry, the majority of existing literature has focused on generational influences (Fenich, et al., 2011; 2012; 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). Currently, the scope of technological applications in the meetings and events industry ranges from desktop sharing and webcasts to fully immersive 3D environments and online multi-day conferences with tradeshow, though not all are used equally. There are several key advantages to incorporating technology into a meeting or event. Event organizers have the ability to increase revenue and cut costs, target specific markets, track attendees, increase scalability, permit rapid response, extend the brand, and broaden the brand community (Pearlman & Gates, 2010; Severt, Fjelstul, & Breiter, 2013). Though these features are seen as a “value-add” for the organization, it has not yet been examined how this technology affects the attendee’s overall experience and learning abilities.

Learning theories and technologies are situated in conceptual fields that are typically connected by information processing and knowledge acquisition (Lowyck, 2014). Researchers tend to focus on small fields within one of these two segments with mostly non-generalizable results (Lowyck, 2014). One of these segments focuses on the

physical aspect of technology in which instruction is presented to the learners. This has been referred to as the tools approach (McDonald & Gibbons, 2009) which states that using technological tools will affect learning outcomes. The tools approach is not questioning if these technological tools can contribute to learning, but rather how they can enhance and impact learning. Information and communication technologies are integral to function in today's society. The dichotomy of technology and applied science has been found to be in favor of synergy (Lowyck, 2014).

Problem Statements

This proposed research will answer the questions posited above across three different platforms: in-person, online with moderator, and playback. The purpose of this research is to evaluate how different platforms influence content retention, satisfaction, and loyalty. Research questions include:

What is the effect of different meeting platforms (in-person, online with moderator, and playback) on content retention? What factors contribute to retention?

What is the effect of different meeting platforms (in-person, online with moderator, and playback) on attendee satisfaction? What factors contribute to attendee satisfaction?

What is the effect of different meeting platforms (in-person, online with moderator, and playback) on attendee loyalty? What factors contribute to repeat attendance?

There are multiple research areas that need to be considered in order to answer these questions. First, relevant event literature and key event attributes need to be incorporated. Several factors to consider include the preconceived notion that events

should be face-to-face, generational preferences, and budgetary impacts. The second research area to be examined includes applicable technologies. Since one of the key areas of an event is content, relevant technologies focused on education and relaying content were examined. Next, the impact that new technology has on the event planner and the attendee will be considered. While developers create, publicize, and support features of emerging technologies, planners and attendees may become overwhelmed, confused, and frustrated with this technology (Lowyck, 2014). The next area of research will focus on learning and technology theories. The last area of research will concentrate on linking learning theories and technology in the event spectrum.

Project Benefits and Value

This research has significant value within the industry and in academia. This information will be useful to associations, corporate and association meeting planners, third party and independent planners, and individual organizations. The results will help guide planners and organizations in their future decisions, allowing them to maximize effectiveness of future meetings by increasing participation, retention, and return on investment. In academia, this research will be the first to conduct objective empirical comparative analysis and will become a benchmark for future studies. This research examines an important shift in event management and seeks to explain attendees' satisfaction, content retention, and loyalty. Beyond these specific goals, this research will provide insight to industry and academia concerning how different platforms can affect cognitive processes.

Research Design

In this research there is one independent variable, platform choice, with three levels, alternate platforms, being examined. The first platform is labeled as an “in-person” event. In this study, this is defined as a live face-to-face meeting with a live speaker who delivers content. The second platform is labeled as an “online with moderator” event. This is defined as a live face-to-face meeting with a live speaker who delivers content, which is captured and broadcast over the Internet to an attendee who is not physically at the event. This attendee views the content live from a computer and has interaction with a live moderator in real time. The third platform choice is labeled as a “playback” event. 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 their computer at any time convenient for the attendee.

There are several dependent variables being examined in this study. The first variable is content retention. This can be further subdivided into recall (unaided) and recognition (aided). Recall requires that a person retrieve information from memory without assistance from researcher-provided cues, not including comments about general contextual aspects of the exposure (Unsworth & Brewer, 2009). This is typically tested through fill in the blank questions. Recognition 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. The second variable examined is attendee satisfaction. Lastly, loyalty is examined. All of these variables are examined within and across the three platforms.

Methods

This research consists of two separate studies: a controlled experiment and a field study. Each of these studies is detailed individually below. This dual approach is advantageous as the variables can be examined in a controlled and a live environment. This research has the advantage of establishing cause and effect (experiment) and generalizability (field study).

Study 1 – Field Study

The field study is comprised of existing intact groups who attended their annual meeting and were surveyed after the meeting ended. The annual meeting that was chosen has offered all three of the platforms being examined for the past several years (in-person, online with moderator, and playback) and met the researcher's size requirement of a minimum of 1,000 attendees. Although the three groups were exposed to a different platform, the content was identical across all segments.

After a thorough literature review, a survey was developed and then pilot tested. After the survey was finalized and approved internally, the survey was sent to the show owner for approval. Once approved, the survey instrument was implemented using Qualtrics. After the event finished, the show owners emailed the entire population of attendees a thank you email and invited them to participate in the research. The researchers sent a link to complete the survey.

Study 2 – Experiment

For this study, a simulated meeting was designed and planned as if it were an actual event. The researcher referenced existing educational event components and combined this information with the researcher's event background. Logistically, the

researcher planned the face-to-face event and utilized a professional audiovisual company who provided and staffed the video camera. Both of the online sessions housed video on a website. Volunteers from one of the University event management classes staffed the face-to-face event.

The content was identical across all three platforms. There were two speakers, a break, and then two more speakers. The meeting was educationally based and included four speakers delivering content on broad subjects to include leadership skills, community service, encouraging the heart, and motivational skills. These generalized subjects were chosen to help appeal to a wider array of attendees. All three platforms were funded with existing materials, free online offerings, steep discounts, and donations acquired through the researcher's personal contacts and grant money.

The face-to-face session of the experiment was conducted utilizing convenience sampling due to time and financial constraints. An outside market research company was utilized for the two online portions of this study. Qualified participants were recruited and randomly assigned to one of the two online platforms. In order to qualify for the study, the attendee had to be a full-time employee, have an annual salary of more than \$50,000, and attended at least one meeting outside of his/her office with a general session in the past six months. The experimental study is vital to establishing cause and effect of the overall research since all aspects of this meeting can be controlled.

Definition of Terms

There are a considerable amount of terms used in this paper. The following definitions are from the Convention Industry Council APEX Industry Glossary (2011)

and are the terms and definitions used throughout this research. Terms that are used interchangeably throughout the paper are noted.

1. Asynchronous learning - Student-centered teaching method that uses online learning resources to facilitate information sharing outside the constraints of time and place among a network of people. Typically this is on-demand and can be video-on-demand (VoD), audio-on-demand (AoD), correspondence courses, email messages, bulletin boards, etc.
2. Audiovisual (AV) - Equipment, materials, and teaching aids used in sound and visual presentations, such as video projection, monitors, sound equipment, etc.
3. Conference – A participatory meeting designed for discussion, fact-finding, problem solving, and consultation. An event used by any organization to meet and exchange views, convey a message, open a debate or give publicity to some area of opinion on a specific issue. No tradition, continuity or timing is required to convene a conference. Conferences are usually of short duration with specific objectives, and are generally on a smaller scale than conventions. This term is often used interchangeably with events, meetings, and conventions.
4. 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.

5. Event - An organized occasion such as a meeting, convention, exhibition, special event, gala dinner, etc. An event is often composed of several different yet related functions. This term is often used interchangeably with conferences, conventions, and meetings.
6. Event site - Premises where an event will be held. This term is often used interchangeably with site and venue.
7. Event technology - Any technical/technology needs to support meetings or events. Includes items such as audio-visual, computers, software, power, networking, and connectivity.
8. General session - A meeting open to all those in attendance at an event. This term is often used interchangeably with plenary session.
9. Learning environment - The physiological, psychological, physiological social/cultural, industry, nutritional, technological, physical, service, personnel, and evaluation factors surrounding the learning experience.
10. Lecture - Informative and instructional speech.
11. Meeting - An event where the primary activity of the participants is to attend educational sessions, participate in discussions, social functions, or attend other organized events. There is no exhibit component. This term is often used interchangeably with conferences, conventions, and events.
12. Microphone - Instrument which converts sound into electrical signals for transmitting or recording sound.
13. Objective - Formalized statement of outcomes to be anticipated as a result of the educational process.

14. Online - Connected to a computer network, such as the Internet. Accessible via a computer or computer network.
15. Plenary Session - General assembly for all participants. This term is often used interchangeably with general session.
16. Podium - Raised platform where a speaker stands when delivering his or her remarks.
17. Presenter - Person explaining a given topic in an informational session. This term is often used interchangeably with speaker.
18. Program - Schedule of events, giving details of times and places.
19. Registration - Process by which an individual indicates his/her intent to attend a conference. The process of recording data about an attendee, sending a confirmation, and creating a badge used on-site.
20. Return on investment (ROI) - Net Profit divided by Net Worth. In meetings, net benefits divided by the full loaded meeting costs. A financial ratio indicating the degree of profitability.
21. Room based videoconference - Land-based system for videoconferencing designed to manage communication between one group of people, usually in a conference room setting, with another group or groups in similar settings elsewhere.
22. Site - Venue, area, location, property or specific facility to be used for an event. This term is often used interchangeably with event site and venue.
23. Speaker - The presenter of a program. Types of speakers include keynote, general session, seminar leader, trainer, workshop leader, and “change of pace” speakers

such as humorists and entertainers. This term is often used interchangeably with presenter.

24. Sponsor – A person or company underwriting all or part of the costs of an event.

Sponsors may or may not participate in any of the profit from the event. This includes an individual or commercial sponsor that provides financial backing for an event, and who, in return, receives recognition, advertising, registrations, or other benefits.

25. 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.

26. Streaming Media - Method for delivering audio and video over the Web.

Streaming refers to the ability of Web site visitors to access multimedia content without having to download an entire file first.

27. Synchronization - Sound and picture recorded or played back at the same time.

28. Teleconference - Type of meeting which brings together three or more people in two or more locations through telecommunications. This term is often used interchangeably with videoconference.

29. Venue - Site or destination of meeting, event or show. This term is often used interchangeably with event site or site.

30. Videoconference - A meeting between two or more people or groups across a distance, including video, audio, and potentially other data, utilizing

telecommunications or communications satellites for transmission of the signal.

This term is often used interchangeably with teleconference.

- 31. Webcast - An event that broadcasts the audio and/or video portion of a keynote presentation or other educational sessions over the Web in real-time or on-demand.
- 32. Webconference - Web browser-based videoconferencing.

CHAPTER 2

REVIEW OF LITERATURE

History of the Meetings Industry

There have been meetings of some kind taking place since recorded time (Ford, 2008). Up until the late 1890s, these meetings were mostly centered on religion, abolitionists, military, politics, social, agriculture, or education (Denton, 1950). Most meeting activity prior to the pre-train and pre-industrial growth followed an agricultural cycle and pace, with the need to meet limited by travel time and the attendees' discretionary time and income. Meetings were limited in size by lodging available in any particular place. Larger groups of the time, such as Civil War Veterans and the

Ku Klux Klan, would have to meet in encampments since the groups were too large for available housing (Ford, 2008).

Although meetings have taken place since recorded history, it was in the United States that the idea of conventions grew into an entire industry (Turner, 1958). It was noted as early as the 1830s that Americans somewhat uniquely liked to meet (de Tocqueville, 2003). In comparison, any new undertaking in Europe would be led by the government or a figure of prominent rank, whereas in America it would be led by an association (de Tocqueville, 2003; Ford, 2008). Key associations that began in this pre-Civil War era were the Writing Paper Manufacturers Association and the National Education Association. The American Medical Association began in 1847 and the American Bar Association began in 1878 (Ford, 2008).

The industrial revolution and the growth of the railroad were two key contributors to the development of the convention industry. As the industrial revolution created

tremendous growth in large-scale manufacturing, there became an increasingly vast amount of knowledge to be shared and new products to see. Meetings were an efficient and effective way to distribute this information and educate new salespeople. Since most consumers could not go from company to company, they began to attend trade shows and fairs where all of these products were brought together (Rathmell, 1954). Popular fairs of the time were Chicago's World Fair (1893) and the St. Louis International Exhibition (1904). The second key factor of the growth in conventions was the expansion of the railroads. These railroads expanded to move patrons in addition to traditional goods and products. The earliest convention cities were predominantly cities in the Midwest that were on the main rail route (Ford, 2008). These cities were centrally located and outside of the main population areas where there was more room for large groups to assemble and meet.

In the early 1890s, the panic of 1893 resulted in depression and created havoc in every city. Many of these cities believed that they could generate money by selling their city through conventions. They believed that as people came and saw how amazing their city was, that they would be inspired to move their businesses there. It was believed that conventions had two-fold value, both in the money conventioners spent and the advertising value to the city.

The meeting industry grew consistently in the early to mid-1900s. From 1979 to 1989, the meeting industry expenditures grew explosively, more than tripling (Bonn, Ohlin, & Brand, 1994). In the early 1990s, corporate travel declined due to the recession, however overall meeting and convention industry growth remained constant (Clark & McCleary, 1995). Since the mid to late 1990s, conventions have also been expanding

over the Internet, with the creation of online meetings. The first generally accepted online event started in the United Kingdom with the formation of Virtex in 1995, followed by RMR and Expocentric in 1999 (Edgar, 2002).

In the past several decades, the increasing presence of technology has played a key role in meeting growth. From an employer's perspective, conference attendance should not be about travel, it should be about learning and networking (Litvin, 2003). Therefore, with increased budget cuts and economic concerns, several organizations have increased their online presence through online conference elements. Typical conferences were built upon the Industrial model in which attendees sat passively listening to a presenter without much interaction. As meetings shift into the information age and increase the continuous exchange of information among all participants, the Internet platform has become more utilized (Palmer, 2010; Lee, 2011).

The purpose of a meeting is to educate, network, inspire, or motivate attendees to change behavior (Sperstad & Cecil, 2011). These meetings can range from 10 people to tens of thousands of people. Ranging from a local to a national level, conventions are recognized as a relevant contributor to economic growth (Hodur, Leistritz, & Wolfe, 2008). From the organizations viewpoint, meetings assist in delivering the brand and culture of a company (Sperstad & Cecil, 2011). They can be seen as a key element in marketing when discussing accelerating customer relationships and returns on investment (MPI, 2010). The attendees often determine the success of a meeting, although it is vital that meeting planners are cognizant of how to communicate with attendees (Severt, Fjelstul, & Breiter, 2013).

Destination Image and Site Selection

When it comes to tourism research, destinations are a fundamental feature. The concept and literature on destination image and site selection is deep and expands across multiple industries. The importance of a destination's image is universally acknowledged, as it affects an individual's subjective perception and, consequently, destination choice (Gallarza, Saura, & Garcia, 2002). In spite of the importance of this topic, several authors acknowledge that there is a lack of conceptual framework discussing destination image. By the early 2000s, after almost three decades of research on destination image, there was still no consensus on the process of destination image formation (Baloglu & Brinberg, 1997; Baloglu & McCleary, 1999; Gallarza, et al., 2002). However, several research studies since then have sought to correct for this (Pearce, 2014).

Seminal research focusing on destination site selection in the meetings and events industry was published by Fortin, Ritchie, and Arsenault in 1977. In addition to broad destination image variables, they applied an industrial buying process modeling approach. They examined three segments of influencers (staff, officers, and members) quantitatively. This was transformational thinking and represented the importance of the industry even then. Jumping ahead to the 1990s, there was a large increase in meetings and events that led to the rise of Convention and Visitor Bureaus. As the industry continued to mature into the 1990s, so did empirical research examining site selection and relevant factors. However, these studies often looked at topics individually and not on a broad conceptual foundation. Crouch and Ritchie (1997) established one of the first conceptual frameworks for destination site selection.

Figure 1. Convention site selection process. Adapted from Crouch, G., & Ritchie, B.

(1997). Convention site selection research: A review, conceptual model, and propositional framework. *Journal of Convention & Exhibition Management*, 1(1), 49-69.

One key consideration is the organization conducting the event. Associations and corporations have inherently different structures and therefore site selection processes vary. Crouch and Ritchie (1997) recognized this and placed it as one of the antecedent conditions for site selection (Figure 1). Corporations and larger associations may have permanent staff members, full committees, individuals with professional expertise and knowledge in planning events, or contract full time third party event planners. However, small businesses and associations may be structured differently. Despite these variances, typical site selection factors include accessibility, local support, extra-conference

opportunities, accommodation facilities, meeting facilities, information, site environment, and other (to include factors such as risks, profitability, past experiences, and novelty).

One of the most significant difficulties in developing a conceptual framework for destination site selection is in the very nature of meetings and events. Meetings and events are multi-industry and are conducted for a wide variety of target attendees. What is important for one attendee group may not necessarily be important for another attendee group. For example, while a home and garden show targeted to homemakers might not have availability of technology as an all-important factor, a high level technological event targeted to corporate executives would most likely place this factor as essential. Therefore it is a requirement to take event objectives and target market into consideration.

Destination image and site selection are directly relevant to the objectives of this study. If online platforms are available, decisions to attend in-person may be influenced by the convention location. If the destination image or site selected for the face-to-face portion of the study is not desirable, this could affect the percentage of attendees who choose to participate online rather than travel to the location. This could affect secondary and tertiary meeting markets that might be put at a disadvantage. These factors will need to be taken into consideration if an organization is considering its online presence and choosing different platforms for its events.

Attendee Decision Making

There is one overarching attendee question that guides this section. This question is whether to attend a conference or not. Unfortunately, this question involves many separate considerations and decision-making processes. Assuming that the meeting is a

non-required meeting, attendance usually depends on the level of interest in the purpose of the meeting and the priority a potential attendee assigns to the event (Zhang, Leung, & Qu, 2006). After this is decided upon, a similar, though distinctly different, question needs to be asked: which conference to attend?

Oppermann and Chon (1997) established the first attendee decision-making process conceptual model (Figure 2). Since this seminal research, the model has not changed substantially, with only minor additions within two of the four original factors (Zhang, et al., 2006). The original conceptual model was based on a site selection model for tourists and previously established consumer decision-making models. This tourism site selection model included the following steps: the tourist had to recognize the need to travel, search for information, evaluate alternatives, choose the product, decide, and conduct a post-evaluation (Oppermann & Chon, 1997). Opperman and Chon related this to conventions since attendees evaluate their need to attend, conduct an information search, evaluate alternate conferences, chose a conference, identify outcomes, and conduct a post-evaluation. As stated earlier, specific target markets and convention attendees have different wants and needs; they may choose to participate or not participate for completely different reasons. Therefore the grouping variables and items are broad and could impact the participant in a positive or negative way.

Var, Cesario, and Mauser (1985) first introduced variables pertaining to convention attendance. In their research, they identified determinants of convention attendance in various cities. Specific factors they proposed included accessibility, attractiveness, and cost. Rutherford and Kreck (1994) suggested that tourism activities might be significant. Non-meeting attributes, such as spousal participation, were also

seen as potential defining variables (Rogers, 1998). Oppermann and Chon built on previous work by Opperman (1996) that identified significant destination attributes including safety and security, sightseeing opportunities, and availability of nightlife. Oppermann and Chon utilized this existing research, in addition to general destination studies, to group all of the discerning variables that had been found to be significant. In their model they identified four distinct categories: conference factors, location factors, personal/business factors, and intervening opportunities.

Figure 2. Attendee decision making model. Adapted from: Oppermann, M., & Chon, K. (1997). Convention participation decision-making process. *Annals of Tourism Research*, 24(1), 178-191.

Based largely on this established conceptual model, a modified model was developed by Zhang, et al. (2006). This new model makes adjustments to two of the four original factors. The new model (Figure 3) splits “location factors” into two subcategories, attractiveness and accessibility, and adds additional items under each. The new model also adjusts the wording of “intervening opportunities” to “total cost factors” and further subdivides this into time and monetary costs. Additional items are also added under time cost.

Similar to site selection, there has been research completed since these models were introduced, though none of this research has significantly changed the model. One article focusing on attendee decision-making processes conducted an in-depth analysis of both previous literature and potential new items (Yoo & Zhao, 2010). However, similar to site selection, these items only reinforce and clarify specific factors, not change or expand the conceptual model. For example, Yoo and Zhao (2010) found that less experienced attendees tend to focus on educational aspects of the convention whereas respondents who attend conventions more frequently were found to be less concerned about destination, though destination still remained a factor.

Extant research has focused on attendee decision making by analyzing specific event satisfaction outcomes. In addition to the breakdown of attendee decision made by Oppermann and Chon (1997) and Zhang, et al. (2006), additional research by Severt, Wang, Chen, & Breiter (2007) examined conference performance, satisfaction, behavioral intentions, and conference-specific dimensions used to assess conference dimensions. They found that educational benefits are stronger predictors of satisfaction than opportunities for networking. Lee and Min (2008) addressed convention items that

affect multidimensional values. They found that word of mouth, education, and social networking play more powerful roles in event satisfaction than site-specific dimensions.

Figure 3. Updated attendee decision making model. Adapted from: Zhang, H., Leung, V., & Qu, H. (2007). A refined model of factors affecting convention participation decision-making. *Tourism Management*, 28(4), 1123-1127.

Although there is theoretical value in grouping together individual items that have been previously tested and divided into predetermined constructs, this study utilizes a broad range of event satisfaction attributes taken from several studies to test individually. This will help determine what specific event outcomes items affect overall satisfaction, loyalty, and content retention. Additionally, this will be highly practical as event planners can see what specific event related items attendees are happy or not happy with and can adjust accordingly. Having these specific results that are relevant to both face-to-face and online platforms can help lay a foundation to establish stronger constructs that include a variety of platforms in the future and develop theoretical foundations for these platforms around outcome variables. The platforms selected for this research also allow for more in-depth analysis of attributes that have been found to affect satisfaction in previous research. Relying on extant literature for relevant event satisfaction attributes, the following hypothesis is posited for this study:

H1: The three platforms (in-person, online with moderator, playback) result in a significant difference in ratings of satisfaction with event attributes.

Technology in the Events Industry

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, Scott-Halsell, Hashimoto, 2011; Pearlman & Gates, 2010). Currently, the scope of technological applications in the meetings and events industry ranges from desktop sharing and webcasts to fully immersive 3D environments and online multi-day conferences with tradeshow, though not all are used equally (CIC, 2014).

Although meeting planners and show organizers used to believe that offering virtual meetings and events was a threat to their existing business, recent consensus opinion is that advancing technologies supplement and improve face-to-face events rather than replace them (PCMA, 2013). 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. More options can cause confusion and sometimes organizations use the latest, trendiest technology rather than make choices based on achieving the desired objectives (Schaefer & Erskine, 2012).

Benefits of Utilizing Technology in the Event Process

There are several key benefits to incorporating technology into the preliminary planning process of a meeting or event. This can be seen from both a customer interaction and a behind the scenes planning process perspective. 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 & Gates, 2010; Severt, et al., 2013). Planners and organizers can also utilize technology through social media to engage prospects and customers in conversation. This allows planners and organizers to understand their customers' needs, develop relationships, and allow maximum interaction throughout the entire planning process. Technology also allows for online registrations, which are typically more efficient for both the attendee and planner.

During the behind the scenes planning process, one noticeable technology related shift seen in meetings over the past twenty years is a shift towards meetings with

planning lead times of three months or less (Fenich et al., 2011). This could be attributed to the increased availability of planner services online, faster connections from hotels and meeting venues to planners, and/or maintaining constant communication throughout the year. Electronic requests for proposals have shortened the lead-time required for events, although they have contributed to an increased workload when not utilized correctly. One research study found that incorporating technology into the planning process with distributed board meetings contributed to reducing the lead-time from an estimated six months to four weeks (Arkesteijn, Rooij, Eekhout, Gemuchten, & Behelmans, 2004).

As volunteer boards and employees responsible for event planning become more geographically dispersed, utilizing technology during the planning process becomes essential for information and document sharing. In previous research, it was found that utilizing technology for dispersed meetings increased the quality of the decision-making process and participant involvement increased (Arkesteijn, et al., 2004). Virtual team meetings can reduce perceptions of differences and establish a sense of equality among group members. When members perceive themselves to be relatively anonymous and without status, more idea sharing and idea generation may occur (Parks & Sanna, 1999)

Incorporating technology into the promotion of meetings and events has been an industry focus for the past decade. In addition to increased event marketing, a four-day exhibition can now become a four-month long promotional event. Through technology, planners and show organizers can target specific generations, cut costs and increase revenues, track potential attendees, extend the brand, and broaden the brand community (Pearlman & Gates, 2010; Severt, et al., 2013). Organizers and exhibitors can also access detailed reports at any time. In past research, the three most tracked areas online were

web site access, email access, and product data sheets. This availability of information increases promotions for exhibitors, as they are provided with a “visitor profile” which details their visitor’s movements on the website or show floor (Edgar, 2002).

Technology has allowed for the promotion of meetings and events through social media. Benefits of social media for event promotions include a low monetary investment, the ability to facilitate direct customer communication, and the ability to act as word-of-mouth promotion. It has been shown that people tend to believe social media and word-of-mouth promotions more than commercial advertising (Hailey, 2010). Throughout the meeting, attendees could perceive the use of social media as a tool to turn a meeting into an interactive session rather than a distraction (Lee, 2011). Social media also allows for increased promotion after the conclusion of the event, as event attendees’ most likely use these platforms to depict, reconstruct, and recall their trips (Tussyadiah & Fesenmaier, 2009). It is interesting to note that the level of Internet use for meeting promotion has historically varied considerably between the corporate and association sectors (Davidson, Alford, & Seaton, 2002).

During the production of the event, planners and organizers can utilize technology both in the physical aspects of the event and the service aspect. Technology has increased the availability of customization and offerings. Examples include customized materials with company logos, specialized backdrops for stages and tradeshow floors, increased quality and clarity of projectors and screens, the availability of real-time video playback, streaming technologies, and customized show plans. On-site registration and lead retrieval has become seamless through technology. Increased offerings in scanning devices and RFID technology make the production of the event easier for planners and

organizers in terms of exhibitors, tracking movements, and calculating ROI. Additionally, speakers and organizers now have the ability to amend computer graphics and presentations on a continuous basis.

Incorporating technology into the event production process removes the role of geography from the meeting experience (Fenich et al., 2011; Severt, et al., 2013; Shallcross, 1998). There are several benefits specific to online meetings for organizations to consider. These can include making the meeting open to a global audience, ease of accessibility, increasing levels of convenience, extending the company's brand, having the material available at all times, increasing scalability, increasing tracking abilities, and allowing for various revenue sources. It is easier for an organization to determine the return on investment for online meetings where everything can be tracked. While the cost of incorporating technology is relatively low, the impact can be significant.

Technology can enhance the attendee experience and overall service aspect during the event. 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 (Lee, 2011). Companies can communicate with fans and followers directly, in addition to monitoring first-hand suggestions and criticisms from its attendee base (Lee, Xiong, & Hu, 2012). This technology gives hosts and organizers a much more detailed and insightful array of metrics and instant polling (Singh, 2012). If utilized effectively, this can lead to real-time adjustments and corrections throughout the meeting experience to better satisfy attendees. In terms of online conferences, benefits for the attendees include ease of accessibility, convenience, ability to multi-task, the capability to display data in rich and insightful

formats, and overall low costs of attending. Online conferencing may be easier for attendees with disabilities who now have the opportunity to interact with the conference and other attendees (Rheingold, 2008).

Barriers to Utilizing Technology in the Event Process

Although there are considerable benefits to incorporating technology throughout the planning, promotion, and production processes, there are barriers as well. Some show organizers still believe that utilizing technology and online meetings are a threat to their existing business as opposed to a natural complementary evolution and source of new revenue (Pearlman & Gates, 2010). For a profession that has enthusiastically embraced email, listservs, and chat, incorporating technology and online components is a natural step. Overall, the 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).

An industry professional must know how and when to utilize technological methods to increase effectiveness and maximize return on investment (Pearlman & Gates, 2010). Unfortunately, planners have been known to choose a communication technology offering the most capabilities rather than one that would be most appropriate for the task and desired objectives. With more choices can come confusion, and using the latest technology for any particular meeting may not fit the team, the project, or the organizational culture (Schaefer & Erskine, 2012). Leaders may choose a more expensive and complex medium over a simple, yet effective, medium to appear trendy. It is advisable for leaders to consider group history, group member status and expertise, type and complexity of task, desired objectives, and organizational requirements when selecting technology for meetings (Schaefer & Erskine, 2012). It is extremely important

for leaders to be familiar with the medium chosen and to ensure that the learning curve for a medium is not too great (Schaefer & Erskine, 2012).

Barriers in the planning process are mostly centered on a lack of information and training. If meeting planners and show organizers are not trained or comfortable with event technology, then all aspects of the event could become less effective. IT has become a critical tool in the support of meetings and events over the past decade by providing opportunities for better business processes (Casanova, Kim, & Morrison, 2005; Yuan, Gretzel, & Fesenmaier, 2006). However, this inclusion of technology, in addition to constant upgrades and changes, makes staying informed and trained in the latest technologies difficult. This affects the planning and site selection processes for planners and organizers. This is evidenced by extant studies that show on-site technical support to be considered one of the most important determinants when selecting a meeting venue (Lee, 2011).

In geographically dispersed online planning meetings, the chair of the committee has to be well organized and assertive. The best meetings have occurred because the chair has released an agenda in advance and has utilized proper pacing (Richards, 2004). Barriers in planning meetings can be caused by lack of preparation, frustration when someone does not feel included, when miscommunication occurs, when there is a reduction in communication, or when the technology fails (Cramton & Orvis, 2003; Hertel, Geister, & Konradt, 2005; Schaefer & Erskine, 2012). In previous research, significant frustrations arose within teams when individual members were late, had technological problems, when refreshing the page was required, or when participants wanted to review chats later (Schaefer & Erskine, 2012). Some teams reported that it was

hard to keep track of the conversation because there were multiple sub-conversations happening within the meeting (Schaefer & Erskine, 2012).

These barriers derived from technology in the planning process directly affect the production of an event. Similar to the benefits of utilizing technology, the barriers occur from both a service and physical production aspect. One thing to consider is that meeting planners are not used to dealing with real-time feedback. Traditionally, they are used to feedback in the form of evaluations after the meeting is over (Palmer, 2010). This can affect the event if meeting planners do not institute the feedback received immediately. Webinars, and similar online meetings that only allow for one-way communication, can impact service as well. One major consideration in these platforms is decreased satisfaction due to lack of interactivity, technological difficulties, decreased attention due to multi-tasking, and information overload.

In physical production, the main barriers are cost, timeliness, and availability. Having the most up to date technology is expensive and often requires constant upgrades. One industry example would be hotels that have spent fortunes integrating and updating technology. They paid to install wired Internet only to switch to wireless Internet; they invested in portable screens to then install drop-down screens, and now are investing in smart boards; they invested in wired microphones to then switch to wireless and headset microphones. These are only a few examples. Availability is also a key factor limiting the rate of adoption of technology in events. To what extent do the targeted participants have the skills and equipment required? It is essential that meeting planners and organizations examine the profile of potential participants.

In summary, there are many advantages and barriers to utilizing technology. When examining the profile of potential participants, it is also important to consider their perceived limitations. Even when the Internet was not as dominate; the majority of people have indicated a convenience oriented mindframe, or that the ability to use the Internet has saved them time (Breiter & Gregory, 2003). This is due to the perception that they are time-poor. As attendees have increasing perceptions of unavailability, meeting professionals are considering online platforms as an outlet to reach attendees who might be too time poor to attend the conference face-to-face. Time scarcity has been found to be an important variable in the integration of technology and online platform decisions (Breiter & Gregory, 2003). Based on extant literature concerning the advantage and barriers of technology use, combined with the concept of time scarcity, the following hypothesis is posited for this research:

H2: The three platforms (in-person, online with moderator, playback) result in significant differences in ratings of time scarcity.

Generational Differences

Relevant to all aspects of the event process is potential generational differences. Generational predispositions should be acknowledged. Matures, those born prior to 1945, are least likely to accept the use of technology. They are typically not comfortable with electronic communications since they consider it to be impersonal (Solheim, 2012). Baby Boomers, those born from 1945 to 1964, are likely adopters of technology (Yang & Jolly, 2008) and credited with being pioneers in the field of technology (Schoch, 2012). Despite this, they are not always comfortable with technology. Generation X, born between 1965 and 1980, are more comfortable with technology than baby boomers because they were

exposed earlier in their lives (Venkatesh & Morris, 2000). This generation is considered technologically savvy, adaptable, and can multitask with ease (Solheim, 2012).

Generation Y, those born after 1980, are also known as the millennial or Internet generation (Solheim, 2012). This generation has received the most attention in extant literature, as they are the largest group of meeting and event attendees and growing. This generation prefers collaborations through technology and some studies have found millennials to favor online meetings over face-to-face meetings in the workplace (Schoch, 2012). In general, they enjoy social networking, being on the Internet, and sharing ideas through virtual communities (Schoch, 2012). In specific reference to meetings and events, they tend to prefer short meetings with no breaks, love to be asked questions and to get involved, crave interactivity, multi-task, are considered an interactive/team-oriented learner, have a short attention span, rely on being connected to peers, and are considered flexible (Welch, 2007). In one focus group asking what Millennials want in their meetings, the responses included free Internet, accessibility to Internet hook ups, more electronic signage, increased interaction, networking via social media, hands-on activities, texting during sessions, jump drive resumes, scanning name badges, RFID, online registration, and podcasts (Fenich, et al., 2011). Clearly, technology is something that planners and show organizers must incorporate to stay relevant.

Theoretical Framework

This research focuses on two individual segments. The first is technology based. Information and theories discussing technology and interaction are an important foundation for this study. The majority of technological theories implicitly assume that behavior and outcomes are determined only by technological factors, therefore other

theories are important to examine. Technology based theories include the foundational social presence theory that led to media richness theory, which both led to media naturalness theory.

The second segment is learning focused. Meetings are centered on sharing and learning content. Therefore information and theories discussing information processing and learning are an important foundation for this research. Informational-based theories include the seminal information processing theory, which led to cognitive load theory and many others.

Social Presence Theory

Short, Williams, and Christie (1976) developed the social presence theory by examining face-to-face, audio, and interactive television encounters. This theory has since become a starting point and foundation for many theories since. This includes the media richness theory, media naturalness theory, and others. The social presence theory describes various communication media along a social presence scale where the degree of social presence is equal to the degree of awareness of the other person in the interaction (Figure 4). Based on this scale, a face-to-face interaction would have the highest level of social presence, whereas a text based communication would have the least amount of social presence.

As technology rapidly expanded, so did the social presence theory. Social presence was demonstrated by the way messages were posted and how others interpreted those messages. This defined how the participants related to one another and how this affected their ability to communicate effectively. A consistent definition for social presence has not been defined within previous research; however an overall look at the

various definitions and explanations has offered a combination of factors. These factors include intimacy such as eye contact, proximity, and body language, and immediacy such as the verbal and nonverbal cues in speech (Argyle & Dean, 1965; Burgoon, Buller, Hale, & deTurck, 1984; Walther, 1992).

Figure 4. Social presence theory. Adapted from Short, J. A., Williams, E., & Christie, B. (1976). *The social psychology of telecommunications*. London: Wiley.

Applying the social presence theory to distance education has many implications for improving instructional effectiveness. Social presence within distance education is thought to have three dimensions: social context, online communication, and interactivity (Tu, 2000; 2001). Social contexts involve task orientation, privacy, topics, social relationships, and social process (Argyle & Dean, 1965; Steinfield, 1986; Walther, 1992).

Social presence theory has implications for conferences that rely heavily on technology for communication. Gunawardena (1991) suggests that communications in these situations begin with light and casual conversation so that users can develop a

comfort level with the technology. Norton (1986) identified eleven communication styles that can be associated with online communications. These are: impression leaving, contentious, open, dramatic, dominant, precise, relaxed, friendly, attentive, animated, and image. The communication style used impacts social presence.

A historical analysis of theoretical developments in online communication suggests that many social theories were developed to fill a gap arguably left by technological theories (Kock, 2005; Markus, 1994). One key assumption made by proponents of technological theories is that individual behavior is not only predictable but also uniform (Kock, 2005). The social presence theory was instrumental in formulating the media richness theory.

Media Richness Theory

Among technological theories, perhaps the best known is media richness theory (Daft & Lengel, 1986; Dennis, Fuller, & Valacich, 2008; Lengel & Daft, 1988; Markus, 1994). This theory was developed before the advent of most of the online communication tools used today and was very influential among online developers and researchers (Kock, 2005).

Media richness theory was developed by Daft and Lengel (1984). It is most frequently used to rank and evaluate the richness of certain communication media such as phone calls, emails, and video conferencing (Figure 5). In short, media richness theory states that the more ambiguous and uncertain a task is, the richer the format of media needed. Based on information processing theory, it was originally developed to describe and evaluate communication mediums within organizations (Daft & Engel, 1986).

Although this theory relates to media use, not media choice, it is often studied empirically in terms of media choice.

Figure 5. Media richness theory. Adapted from Daft, R., & Lengel, R.

(1986). Organizational information requirements, media richness and structural design. *Management Science*, 32(5), 554-571.

In short, communications that take a longer time to convey understanding are less rich and those that can overcome varying frames of reference and clarify ambiguous issues are considered richer (Dennis & Valacich, 1999). This theory is based on a framework evaluating low to high equivocality and low to high uncertainty (Figure 5). Media richness is a function of characteristics including the following (Daft & Lengel, 1984; Lengel & Daft, 1988):

1. Ability to handle multiple information streams simultaneously
2. Ability to facilitate rapid feedback
3. Ability to establish a personal focus
4. Ability to utilize natural language

The most influential application of media richness theory has been in assisting decision makers in choosing a communication medium (Rice, 1993). Typically, richer media are better suited for non-routine messages while leaner media are better suited for routine messages. It is important to note that there are several key determinants to media selection. A person may not have a choice in the matter due to an organization's norms and resources that support one medium.

In addition to potential resource conflict, another criticism of this theory is in its deterministic nature. This theory only considers richness as a deciding factor. Previous research has argued that social pressures can influence this process and there are limitations among various populations dependent on cultural and social backgrounds (Gerritsen, 2009; Ngwenyama & Lee, 1997). Additionally, communication mode and cognitive style preferences can also play a role in media preference and selection. Several studies have critiqued this theory and its single dimensional approach to categorizing different communication methods. Some have also argued the hypotheses lack a scientific basis.

Media richness theory was a huge breakthrough in an early technological age. This theory has led to several additional studies that have become generally accepted theories in their own right. Media richness theory has been used as a basis in several convention related articles (Arnfolk & Kogg, 2002; Détienne, et al., 2013; Schaefer &

Erskine, 2012). This previous research has focused on drivers and barriers for technology choices and what factors influence attendee's behavior and satisfaction. More recent research incorporating the media richness theory 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). It was also found that underlying socio-psychological factors influence users to select a media based on satisfaction with the media rather than the effectiveness of information processing capability (Lim & Benbasat, 2000). Based on extant literature, media richness theory, and the potential effects of generational differences, the following hypothesis is posited for this study:

H3: Attendee satisfaction and loyalty are not equal across the three platforms when controlling for age, gender, education, and income. The two platforms utilizing richer mediums (in-person and online with moderator) experience higher satisfaction and show more loyalty than the playback session.

Information Processing Theory

The information processing theory is based on the idea that humans process the information they receive rather than simply respond to stimuli (Lowyck, 2014). This idea compares the mind to a computer, with the mind being responsible for analyzing information from the environment. In fact, many psychologists and researchers believe that computers influenced the information processing theory (Newell & Simon, 1972).

Specifically, the mind contains three parts: attention mechanisms for bringing information in, working memory for actively manipulating information, and long term memory for holding information so that it can be used in the future. This theory emphasizes a continuous pattern of development, which differs from previous theories that thought development occurred at specific stages in time (Bransford, Brophy, & Williams, 2000).

Information processing models helped reestablish internal thought processes as a legitimate area of scientific research (Lowyck, 2014). Cognitive processes include perception, recognition, imagining, remembering, thinking, judging, reasoning, problem solving, conceptualizing, and planning. These can emerge from human language, thought, imagery, or symbols. The most popularly studied is altered states of mind, language acquisition, visual perception, auditory perception, short term memory, long term memory, storage, retrieval, and perceptions of thought (Lowyck, 2014). Information is taken in, encoded to give meaning and combined with previously stored information, working memory is enacted, and finally information is stored where it can later be retrieved when needed.

The information process theory is based on four fundamental assumptions: thinking, analysis of stimuli, situational modification, and obstacle evaluation. Thinking includes the activities of perception of external stimuli and encoding and storing data. Analysis of stimuli is the process in which encoded stimuli are interpreted to enable decision-making. Situational modification is when an individual uses his previous experiences to handle or alter the situation as presented. Obstacle evaluation is when an

individual takes into account the actual nature of the obstacle or problem in addition to his own mental processes (Lowyck, 2014).

Figure 6. Information processing theory. Adapted from Miller, G. (2003). The cognitive revolution: a historical perspective. *Trends in Cognitive Science*, 7(1), 141-145.

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 processed 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. As an individual grows and matures, the maturation of the brain may cause faster processing speeds. This speed permits faster mental movement from one item to another and increases an individual's ability to keep a number of different items in working memory 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. This information lies dormant until it is called into working memory and put to use. Knowledge in long-term memory that is not actively being used is considered inactive, but can be retrieved and manipulated in short-term memory when necessary. Theorists would argue that the most important factor influencing learning is the active mental processing of information (Van Merriënboer & Bruin, 2014).

Cognitive Load Theory

Utilizing the seminal research from information processing theory, cognitive load theory suggests that learning happens best under conditions that are aligned with human cognitive architecture. This theory seeks to provide guidelines to assist in presenting information that encourage optimal intellectual performance (Sweller, Van Merriënboer, & Paas, 1998). The information processing theory shows that short-term memory is limited in the number of elements that it can contain simultaneously. Recognizing and understanding this, the cognitive load theory addresses schemas, or combinations of elements, as the cognitive structures that make up an individual's knowledge base (Sweller, 1988). This differentiation is one of the main differences between the two theories.

Cognitive load is a term in cognitive psychology referring to the overall amount of information related to the executive control of working memory. The cognitive load theory contends that the amount of information that must be processed during complex learning activities either overloads or does not meet the finite amount of working memory that an individual possesses (Paas, Renkel, & Sweller, 2004). Unlike information processing theory, every element must be completely processed before

meaningful learning can continue. The more a person may attempt to learn in a shorter amount of time, the more difficult it is to process that information into working memory. Additionally, short-term memory can only retain so many units of information before information loss begins to occur.

Figure 7. Cognitive load theory. Adapted from Sweller, J., Van Merriënboer, J., & Paas, F. (1998). Cognitive architecture and instructional design. *Educational Psychology Review*, 10(3), 251–296.

The cognitive load theory has roots that can be traced back to the 1950s and the work of Miller (Miller, 1956). Sweller (1988) officially developed cognitive load theory in the late 1980s while studying problem solving. Gaining popularity, this theory was applied to various contexts in the 1990s and led to several learning effects. Providing a general framework for instructional design, the cognitive load theory allows designers to control the conditions of learning within the environment. The theory defines three

distinct types of cognitive loads: intrinsic, germane, and extraneous (Sweller, Van Merriënboer, & Paas, 1998).

Intrinsic cognitive load is the inherent difficulty level associated with a problem and cannot be altered by an instructor (Sweller, et al., 1998). Extraneous cognitive load is generated by the way information is presented to learners. The instructional designer controls this type of cognitive load. The format of instructional materials can either promote or limit learning (Sweller & Chandler, 1991). This element is most directly related to technological platforms. Germane cognitive load is the load devoted to the processing, constructing, and automation of schemas. Grouping information into meaningful parts increases the chances of remembering the information and can help to reduce overloading the short-term memory. Overall, the most important factor influencing cognitive load would be the limited processing capacity of the human mind (Van Merrienboer & Bruin, 2014).

Learning Theories Applied to Technology

Information processing theory is important for event planners to understand the capabilities and limitations of the information processing system. Otherwise, organizers could easily have unrealistic expectations for event attendees and realistic learning objectives. It is then, and with this knowledge, that cognitive load theory is utilized effectively. This theory is best applied in the area of instructional design, especially of cognitively complex or challenging material. This theory specifically focuses on why people have difficulty learning material.

Linking learning theories and technology began optimistically as is suggested by the term “educational technology”. However, in-depth scrutiny revealed complexity in

both conceptualizations and realizations. An analysis of articles on educational psychology between 2003 and 2007 shows that only 5.6% of articles addressed the links between learning theory and technology (Nolen, 2009). Currently, their relationship is interdependent, though not parallel, and they both draw inspiration from each other.

Aligning learning theories to technology requires consistency and stability. In some situations, learning theories call for complex processes that cannot be realized due to the limited capacities of technology (Lowyck, 2014; Van Merriënboer & Bruin, 2014). 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 Merriënboer & Bruin, 2014). These participants are co-designers of their learning processes, which affect knowledge construction and information processes. Therefore, it is essential to derive data from the event attendees to determine key contributing factors. Evolution in learning theories and technologies leads to more coherence and synergy through products that invest in theory building through continuous refinement. As such in meetings, powerful technologies are often used for lower-level learning goals, such as information delivery. This is a key element in meeting platforms and content delivery to event attendees.

These learning theories lead to conceptions of information processing and knowledge acquisition that influence technology use (Lowyck, 2014; Van Merriënboer & Bruin, 2014). The central function of meetings and education in general, is to assist learners to acquire declarative, procedural, and conditional knowledge. Therefore, event attendees learning and technology are interrelated.

Each of these theories relates to the effects of technology on event attendees' learning outcomes in distinct ways. Information processing systems describe how attendees would perceive, store, integrate, retrieve and use the presented information internally. This theory focuses on the load to the learner's cognitive system (Paas & Van Merriënboer, 1994; Van Merriënboer & Sweller, 2005). Cognitive load theory focuses on cognitive processing for meaningful learning such as visual channel overloads, utilizing segmenting and pre-training, limiting extraneous material, and eliminating redundancy. Both of these theories are essential to the event attendees learning, however information processing theory is more internal and cognitive load theory is more applied through presentations and technology (Mayer & Moreno, 2003).

Both information processing theory and cognitive load theory impact this study in specific ways. In terms of learning the material presented, it would be suggested by these theories that more difficult material to learn would take considerably more working memory and more information would be lost. Longer conferences would also affect the amount of information that is retained as opposed to shorter conferences. According to media richness theory, more difficult material is better conveyed through richer mediums such as face-to-face and online with moderator. More generalized material can be conveyed effectively across a variety of platforms. The field study in this research is a multi-day 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 mediums. 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 these two learning theories and the media richness theory, the following hypotheses are proposed for this study:

H4a: Attendee content retention (field study) is not equal across the three platforms. The two platforms utilizing richer mediums (in-person and online with moderator) have higher content retention rates than the playback session.

H4b: Attendee content recall (experiment) is not equal across the three platforms. The two platforms utilizing richer mediums (in-person and online with moderator) have higher content recall than the playback session.

H4c: Attendee content recognition (experiment) is not equal across the three platforms. The two platforms utilizing richer mediums (in-person and online with moderator) have higher content recognition than the playback session.

It is important to note that the field study and experiment have different hypotheses in relationship to this category only. To assess the differences and similarities in content retention across platform, 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. In the field study, four sessions were selected for analysis which would total eight potential recall and eight potential recognition questions per attendee. However, due to the variety of session options occurring at one time, the vast majority of field study attendees only attended one of the four sessions being analyzed. With low outcome possibilities (0,1,2 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.

CHAPTER 3

METHODOLOGY

Introduction

This section provides an overview of the methods as relevant to these research questions. First, the project benefits and value are explained to provide context, then the purpose of this study is defined, and then the research design is presented. This section provides an overview of the study participants, data collection, and data analysis as appropriate for the chosen design.

With a wide variety of meeting options available to meeting planners and organizations, it is difficult to truly determine what the best meeting platform to use is. The overall platform choice should be dependent upon the meeting objectives and audience; and though the specifics of these two vary from meeting to meeting, there are several key variables that relate to audience that should be taken into account when these decisions are made. These variables include overall attendee satisfaction, loyalty, and content retention. This study examines these variables across three different platforms in a three cell experimental design: an in-person meeting, an online with moderator meeting that is broadcasted to an online audience at home, and a playback format where attendees can log on to the Internet at their leisure and watch a pre-recorded video of the meeting. This research is exploratory and analyzes feedback from a varied background of meeting attendees. This makes this study unique among the majority of extant research that typically utilizes live meetings and/or meeting planner samples. This study specifically analyzes the variables of satisfaction, loyalty, and content retention.

Research Questions

This study examines attendee-focused variables across three different event platforms. The purpose of this research is to evaluate the effectiveness of various meeting options through attendees' experiences and perspectives. This research evaluates how these three different platforms influence the variables of content retention, satisfaction, and loyalty across various meeting platforms from the perspective of the attendee. These variables were identified as essential to meetings and were specifically selected for inclusion in this study based on extant studies (Baloglu & Love, 2005; Brieter & Gregory, 2003; Lee, Xiong, & Hu, 2012; Yoo, & Zhao, 2010). With an understanding of the factors that event planners face moving their meetings into various types of platforms, strategies can be identified that will help improve the attendees' experience. Research questions include:

What is the effect of different meeting platforms on content retention? What factors contribute to retention?

What is the effect of different meeting platforms on attendee satisfaction? What factors contribute to attendee satisfaction?

What is the effect of different meeting platforms on attendee's loyalty? What factors contribute to repeat attendance?

Research Design

This research design can be classified as both intrinsic and instrumental. Intrinsic research seeks to understand the experiences of the study participants. Specifically, this research investigates the particular experiences and perspectives of the event attendees concerning their meeting to identify the experiences they encountered. Instrumental

research aims to generate insight into the theoretical underpinnings of the larger issues being examined. Specifically, this study seeks to generate an understanding of the direct issues that coordinators could be facing in their transition to incorporate various technology based platforms.

This research was designed in a two-study process. This research consists of two separate studies: an experiment and a field study. Each of these studies is detailed individually below. The rationale for this design choice is in the dual approach. This dual approach is advantageous as the variables can be examined in a controlled and a live environment. This has the advantage of establishing cause and effect (experiment) and generalizability (field study). The next two subsections address each phase individually in terms of attendee population. The chapter then continues by discussing survey design and variables that are mutually utilized for both studies.

Study 1 – Field Study

The field study comprised members of an existing intact group who attended their annual meeting and were surveyed after the meeting ended. The meeting offered all three of the platforms being studied and had over 1,000 attendees. This study utilized an online survey to analyze each of the three platform groups. Although each of the three groups were exposed to a different platform, the content is identical across all segments. The sample for the field study is all participants who participated in each platform of the sessions chosen. The sample size varied for the field study group but each session platform had a minimum of 80 attendees. For this phase, assignment to conditions was not applicable.

After a thorough literature review, a survey was developed and pilot tested. After the survey was finalized and approved within the committee and the IRB, the survey was sent to the show owner for approval. Once approved, the survey instrument was implemented using Qualtrics. After the event finished, the show owners emailed the entire population of attendees within each chosen session with a thank you email and an introduction to this study.

Study 2 – Experiment

For this phase of the study, a simulated meeting was designed and planned as if it were an actual event with speakers and content. Logistically, the researcher planned the face-to-face event and had a professional audiovisual company provide equipment and staff the video camera that streamed and recorded the sessions.. Volunteers from one of the event management classes staffed the in-person event for on-site registration and food and beverage breaks.

The content was identical across all three platforms. There were two speakers, a break, and then two more speakers. The meeting was educationally based and included four speakers delivering content on broad subjects to include leadership skills, community service, encouraging the heart, and motivational skills. These generalized subjects were chosen to help appeal to a wider array of attendees. All three platforms were funded with existing materials, free online offerings, steep discounts, and donations acquired through the researcher's personal contacts and grant money.

For the experimental phase of this study, the in-person group was recruited by convenience sampling from the local population. Fifty attendees were recruited, attended the meeting, and completed the survey. The two online groups were recruited utilizing a

market research company and randomly assigned to platform conditions. In order to qualify for the study, the potential participant had to be currently employed full-time, had to have an annual salary of more than \$50,000, and had to have attended a meeting outside of his/her office that included a general session speaker in the past 6 months. Upon calling the participants, the research company only offered the pre-determined platform choice to the participant. The participant did not know there were other platform options. There were 50 people recruited through convenience sampling for the in-person group and 33 people were recruited for each of the two online groups.

Variables

Specific to this research, there is one independent variable (platform) and three dependent variables (satisfaction, content retention, and loyalty). The one independent variable, platform choice, has three levels (different platforms) being examined. The first platform is labeled as an “in-person” event. In this study, this is defined as a live face-to-face meeting with a live speaker who delivers content. The second platform choice is an “online with moderator” event. This is defined as a live face-to-face meeting with a live speaker who delivers content; this is captured in real time and broadcast over the internet to an attendee who is not physically at the event. This attendee views it live from a computer and has interaction with a live moderator while viewing the content. The third platform choice is a “playback” event. This is defined as a live face-to-face meeting with a live speaker who delivers content; this is recorded and played at a later time for an attendee to view on their computer at any time.

There are several dependent variables being examined in this study. The first variable is content retention. This can be further 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 most 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 ideas (Unsworth & Brewer, 2009). This is most typically tested through multiple choice questions. For each speaker, there were two multiple-choice questions and two open-ended questions. The content retention questions were graded as either correct or incorrect and then converted into a percentage. Three percentages were calculated: the percent correct of aided recall questions (multiple choice), the percent correct of unaided recall questions (open ended), and the total percent correct of all questions per person.

The second variable examines attendee satisfaction. Satisfaction variables were evaluated on a seven-point Likert scale adapted from Oliver (1980). Lastly, loyalty is examined. The loyalty measurement was evaluated by four statements on a seven-point Likert scale as adapted from Zeithaml, Berry, and Parasuraman (1996). Content retention was specific to the sessions being analyzed and quizzed the attendee based on the content in the session. Specific event variables were examined individually. These include outcome items that are relevant to all three platforms. For example, food and beverage would not apply to the two online groups, but quality of session programs and topics would be relevant to all three platforms. These items were measured on a seven-point Likert scale and were adapted from Lee and Back (2008) and Lee and Min (2013). Measurement statements for this research can be seen in Table 1.

Table 1

Measurement Items by Scale

<p style="text-align: center;"><u>Satisfaction Scale</u> Adapted from Oliver (1980) (Strongly Disagree – Strongly Agree; 7 point Likert scale)</p> <p>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 I am happy with my decision to attend this conference</p>
<p style="text-align: center;"><u>Loyalty</u> Adapted from Zeithaml, Berry, and Parasuraman (1996) (Strongly Disagree – Strongly Agree; 7 point Likert scale)</p> <p>I will say positive things about this meeting to other people. I would recommend this meeting to a friend or colleague I would encourage friends and colleagues to attend this meeting. I will attend this meeting in the future</p>
<p style="text-align: center;"><u>Event Satisfaction Attributes</u> Adapted from Lee and Back (2008) and Lee and Min (2013) (Strongly Dissatisfied – Strong Satisfied; 7 point Likert scale)</p> <p>Session programs and topics Exchange of knowledge and ideas Keeping up with changes in my profession Acquiring knowledge about educational trends Quality of speakers Ability to expand my relationship with others Professional social networking opportunities Quality of education that I need Ability to gain job information</p>

Survey

Survey research is arguably the most often utilized type of research (Marshall & Rossman, 2010). The purpose of survey research is to test the inherent characteristics of the subjects being tested, oftentimes their opinions and beliefs (Marshall & Rossman, 2010). A survey was developed for this research, as it is the best instrument to evaluate

the selected variables from an attendee's point of view. In this survey, attendees rated their personal satisfaction with different variables of the meeting, factors that affect loyalty, and received a short quiz to test their content retention. The surveys between the two studies were identical except the content retention questions, which were based on the meeting specific speakers. Once the questions were approved, they were converted into an online format utilizing Qualtrics.

The survey consisted of 40-55 questions and was distributed electronically 24 hours after the conclusion of the meeting. Questions include multiple choice, numerical rating scales, Likert-scales, and open-ended response. First, the participants were asked about their experience with face-to-face and online meetings similar to the event they attended. After familiarity was established, the second section asked attendees about time scarcity variables to evaluate his/her resistance to change, feeling time pressured, and desire for variety. These questions are taken from extant literature that supports the Innovation-Diffusion Theory and Time-Poverty Model, both seen to impact satisfaction with online platforms (Breiter & Gregory, 2003). Third, the attendees were asked about their satisfaction with specific aspects of the event as described in the previous section. These items are frequently used in industry and academic surveys in relationship to meeting satisfaction (Denstadli, et al., 2012; PCMA, 2013). Then, the participants were asked four questions related to loyalty to include positive word of mouth, recommendation intention, encouraging friends to visit, and intention to attend the event in the future (Zeithaml, Berry, & Parasuraman, 1996). Then, the participants were asked four questions related to overall satisfaction (Oliver, 1980). The conclusion of this section is one question evaluated on a slider scale from 1-10 asking the attendees how the event

rated against their personal expectations of the event (Keiningham, Cooil, Aksoy, Andreassen, & Weiner, 2007).

The next section of the survey focused on content retention items. For each speaker, the attendee was asked questions directly relating to the session they attended. These questions included aided, or recognition, questions (multiple choice) and unaided, recall, questions (open ended). For each speaker, there were two multiple choice questions. One question was based on something that speaker said and also mentioned on his/her PowerPoint and one question covered something that the speaker vocally mentioned multiple times without any visual representation. One unaided recall question for each speaker was based on a story that the speaker mentioned in his/her presentation and the other question was focused on an important fact or figure that speaker discussed and showed visually. 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. In the last section of the survey, attendees were asked to provide demographic information that included age, gender, education, and income. All of the attendees across each of the three platforms within each respective study received the exact same survey layout.

The surveys were constructed utilizing Qualtrics and distributed via email to all of the session participants. Email addresses were collected from registration for each of the attendees. Emails were composed of a cover letter of informed consent with a link to the survey in the body of the email. The cover letter communicated an overview of the survey, details concerning risk and confidentiality, and included a statement that

explained that by clicking the link the attendee agrees to participate and that they are over 18 years of age. Attendee surveys for all groups were distributed electronically to attendees 24 hours after completion of the meeting and were available to be accessed for 48 hours. This small window of availability was designed intentionally to control for content retention aspects that may become confounded over time.

Pilot Study

Prior to the two studies, a pilot study was conducted utilizing the prospective speakers for the actual experiment to evaluate and refine the survey instrument. The pilot study utilized the same 3-cell experimental design consisting of three meeting platforms: in-person, online with moderator, and playback. To create the experimental conditions, the researchers conducted a live face-to-face meeting that was recorded by a professional audiovisual company. Students of a university event management class recruited event attendees, to include coworkers, friends, family, and other students. The format of the meeting was similar to a large conference in a general session environment.

Similar to the stated research design, all of the meeting participants were sent an electronic survey 24 hours after the meeting ended. The survey link remained active for two days to help control for content retention variables. As the participants were a convenience sample, raffle drawings with prizes were completed for each of the platforms to incentivize participation in the meeting. The results from the pilot study caused several changes to the survey instrument and a change to one of the speakers.

Limitations - Error, Validity, and Reliability

This research has the potential for error from the participant perspective, the instrument perspective, and the researcher perspective. First, response bias could exist if

the respondents gave incorrect or incomplete answers. When emails were sent to attendees after the meeting concluded, not everyone completed the survey. This introduced non-response error as the researchers cannot assume that answers from the respondents would match the responses of non-respondents. Central tendency bias could occur if the respondent rarely, or never, chooses the extremities of an answer (a one or seven on a seven point Likert scale). This is partially controlled for by having a seven-point scale instead of a five-point scale, which allows for the possibility of more range within each question.

The survey instrument itself could be the cause for error. If questions were worded poorly, ambiguously, double-barreled, or if the length of the survey was too long then error could have been introduced. This was controlled for by conducting pilot tests to ensure that the questions asked resulted in the desired variables to answer the research questions. Researcher error could include administrative errors if the results were not entered or coded properly.

In general, validity is whether the instrument measures what it says it is measuring. This includes both internal and external validity. Internal validity is whether or not the conclusions can be implied from the independent variables. When a researcher feels confident to attribute the changes in the dependent variable on the independent variable, then it is said to be internally valid. In experimental studies, researchers often manipulate the independent variable to see what effect it has on the dependent variable. Specific to this research, the event platform is being manipulated to see the effect it has on attendee satisfaction, content retention, and loyalty. There are various threats to internal validity that were taken into consideration. These included ambiguous temporal

precedence, confounding variables, selection bias, history, maturity, repeated testing, instrument change, regression toward the mean, mortality, selection-maturation interaction, diffusion, compensatory rivalry, and experimenter bias (Brewer, 2000).

Specific to this research, the major threat to internal validity would be the existence of confounding variables. Confounding variables are an extraneous variable that correlates, either directly or inversely, with both the dependent and independent variables. In this research, several other potential variables that could have affected the independent and dependent variables were being examined to help control for this. For example, a predisposition to technology was examined. By increasing the types and numbers of comparisons performed in the analysis, there is a reduction in the potential of the effect of confounding factors. This research also had threats to internal validity in terms of selection bias in the field study and non-random assignment for the face to face event in the experimental study. This research utilized a sound survey that was pilot tested to check the consistency of variables, standardization of the conditions under which the research study was carried out, detailed procedures in writing, and the use of a research design that does not include pre-testing (which can eliminate testing as a potential threat). The internal consistency of this research has been addressed and has been found acceptable.

External validity examines the generalizability of the results to a group larger than the group that participated in the study. The variables being examined should be similar to ones that exist in the larger population. The three main threats to external validity are non-representative samples, an artificial laboratory environment, and testing effects

(Brewer, 2000). In quantitative research, external validity is typically more of a concern than internal validity, although both need to be addressed.

In this study, the main threat to external validity was having a non-representative sample. If the participants of the experiment were not individuals that would normally attend a conference for work or educational purposes, then the results would not be generalizable to the target population. There was a potential for artificial laboratory threats as well. Although the experiment was conducted in a conference space and conducted like an actual conference, since the participants know they are being studied they may act differently than they would normally. This could produce unintended or inaccurate results. One example would be that regular conference attendees may not pay complete attention to a speaker or session; however since the experiment utilized attendees being paid for their time, they might have been more prone to pay attention during the sessions. This could affect the content retention scores during testing. These threats were minimized by utilizing a proper research design. By not including pretesting, only assigning one treatment per subject, and utilizing random assignment as possible for the two online sessions these threats were minimized. The inclusion of an experiment and a field study, such as in this research, also helps with generalizability.

In order for the results from a study to be considered valid, the measurement procedures must first be reliable. In quantitative research, the measurement procedure consists of variables that may make up a construct. The assumption that the variable the researcher is measuring is constant is a central concept of reliability. It is the belief that if a variable produces the same results across multiple scenarios, then less error is introduced. Provided that the error component within the measurement procedure is

limited, the scores that are attained are consistent. Statistical tests were used to examine reliability, such as Cronbach's alpha. Specific to this research, there is the potential for error as detailed in this section. However, the use of well-established scales from extant research, pilot testing, and the two-phase research design all helped to maximize reliability of the chosen measures and establish internal and external validity.

Method of Analysis

To analyze this data, SPSS 21 was used. First, a factor analysis approach was taken to validate the scales used in this study. These factors were extracted using principal axis factoring. After these factors were calculated, the eigenvalues were analyzed. All questions related to satisfaction and loyalty constructs were analyzed in the factor analysis. Both of these factors loaded uniquely on the respective factor and the scales were validated similar to previous literature. Next, Cronbach's alphas values for the factors were determined to measure scale reliability (.70 and above). The factor analyses are discussed in detail in Chapter 4.

Hypothesis one (H1) utilizes MANOVA to determine any differences across platform choices (independent variable) when examining event satisfaction attributes (dependent variables). Hypothesis two (H2) utilizes MANOVA to determine any differences across platform choices (independent variable) when examining time scarcity ratings (dependent variables). Hypothesis three (H3) utilizes MANCOVA to determine any differences across platform choices (independent variable) when examining attendee satisfaction and loyalty (dependent variables) while controlling for age, gender, education, and income (covariates). Hypothesis four (H4) utilizes ANOVA to determine any differences across platform choices (independent variable) when examining attendee

content retention (dependent variable). After the analysis was completed, the null hypothesis was rejected in favor of the alternate hypothesis if the results were significant (below or equal to .05). If these results were not significant, then the null hypothesis failed to be rejected. Chapter four discusses the data analysis and results.

CHAPTER 4

RESULTS

Introduction

The purpose of this research is to explore the similarities and differences that attendees experience when attending a conference in a variety of ways. This chapter presents the results of the descriptive and inferential analyses of the data that explore these similarities and differences across platforms on satisfaction, loyalty, and content retention. This paper consists of two separate studies: a field study and an experimental study. The first section of chapter four analyzes the field study. The second section analyzes the experimental study.

All conference attendees were given the 40-55 question survey. Using principle component and scale reliability analyses, the survey consisted of two scales: satisfaction and loyalty. Content retention was measured on an aggregate basis. Event satisfaction attributes and time scarcity items were analyzed individually utilizing MANOVA.

Field Study

Data Collection and Sample

The field study was conducted by sending a follow-up survey to an existing group of convention attendees 24 hours after they completed their annual conference. The convention attendees had a choice of three different ways that they could view the conference content: by attending the convention in-person during the live convention dates, by viewing the content on the computer and interacting with an online moderator from their own personal computers from any location while the conference was underway, or by logging into the web portal after the conference was completed and

viewing the content after the fact. Of the conference attendees who attended onsite, four sessions were selected for analysis. The four sessions had 396 attendees, therefore 396 surveys were emailed to participants, 78 surveys were started, and 67 surveys 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 emails were sent of which 62 were started and 41 were completed. This equates to a response rate of 24.4%. Over the course of three months, attendees who missed the live conference and online with moderator portion could log on to the web portal and view the content at any time they chose (similar to a YouTube video). For this platform, 68 people completed the session video and 68 surveys were sent. Of these 68, 47 were started and 30 were completed. This equates to a response rate of 44.1%. A total of 632 people attended the sessions being examined, and an email was sent to each of them. Of these emails sent, 138 were completed across all three platforms for an overall response rate of 21.8%. These samples are large enough to identify large effects at a .05 and .01 level (Cohen, 1992). All socio-demographic information for the field study group can be seen in Table 2.

Of the respondents for the in-person group, 54% were females and 46% were males. The highest level of education completed was Graduate/Professional Degree (61.5%) followed by Bachelor's Degree (17.3%). This was expected based on the type of educational conference that was being analyzed. The majority of attendees classified themselves as Caucasian (90%) and between the ages of 45-54 (38.5%) followed closely by 55-64 (26.9%). The largest proportion of attendees made more than \$250,001 (28.2%) followed by \$50,001-\$100,000 (20.5%).

Table 2

Socio-Demographic Profile of the Field Study Sample

		In-person		Online with Moderator		Playback	
		n	%	n	%	n	%
Age							
	21-34	8	15.4	16	39.0	4	16.7
	35-44	6	11.5	0	0.0	4	16.7
	45-54	20	38.5	8	19.5	5	20.8
	55-64	14	26.9	13	31.7	11	45.8
	65 or older	4	7.7	4	9.8	0	0.0
	Total	52	100.0	41	100.0	24	100.0
Gender							
	Male	23	46.0	20	48.8	20	90.9
	Female	27	54.0	21	51.2	2	9.1
	Total	50	100.0	41	100.0	22	100.0
Education							
	High School/ Some College	4	7.6	0	0.0	0	0.0
	Associates	7	13.5	0	0.0	0	0.0
	Bachelors	9	17.3	2	4.9	1	4.2
	Graduate	32	61.5	39	95.1	23	95.8
	Total	52	100.0	41	100.0	24	100.0
Ethnicity							
	Asian	2	4.0	5	12.5	0	0.0
	Hispanic	3	6.0	5	12.5	1	6.3
	Caucasian	45	90.0	30	75.0	14	87.5
	Other	0	0.0	0	0.0	1	6.3
	Total	50	100.0	40	100.0	16	100.0
Income							
	Under \$50,000	3	7.7	1	2.9	2	20.0
	\$50,001-\$100,000	8	20.5	8	22.9	1	10.0
	\$100,0001-\$150,000	5	12.8	15	42.9	4	40.0
	\$150,001-\$200,000	6	15.4	1	2.9	2	20.0
	\$200,001-\$250,000	11	15.4	1	2.9	1	10.0
	Above \$250,000	6	28.2	9	25.7	0	0.0
	Total	39	100.0	35	100.0	10	100.0

Of the respondents for the online with moderator group, 51.2% were females and 48.8% were males. The highest level of education completed was Graduate/Professional Degree (95.1%) followed by Bachelor's Degree (4.9%). The majority of attendees classified themselves as Caucasian (75%) and between the ages of 25-34 (39%) followed closely by 55-64 (31.7%). The largest proportion of attendees made \$100,001-\$150,000 (42.9%) followed by those making above \$250,000 (25.7%).

Of the respondents for the playback group, 90.9% were males and 9.1% were females. The respondents' highest level of education completed was Graduate/Professional Degree (95.8%) followed by Bachelor's Degree (4.2%). The majority of attendees classified themselves as Caucasian (87.5%) and between the ages of 55-64 (45.8%). The largest proportion of attendees made \$100,001-\$150,000 (40%).

All three groups had some similarities and notable differences. The majority of attendees across all three platforms were between the ages of 45-64. The online with moderator group had a larger presence of 25-34 year olds than the other two groups. All three groups of respondents consisted mainly of Caucasians. The largest noticeable difference is in gender between the sessions involving engagement (in-person and online with a moderator) and the playback session. While the engagement sessions were roughly split between male and female, the playback group consisted of 90.9% males and 9.1% females. This has the potential to impact subjective scales such as satisfaction, loyalty, and time scarcity. The in-person group had a wider variety of attendees with lower completed education. Whereas the two online platforms consisted solely of attendees who had attained at least a bachelor's degree, the in-person group had 21.1% of respondents that had only achieved high school, some college, or an 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); however, the playback group did not have a single attendee above \$250,001.

Platform Effects

To analyze this data, SPSS 21 was used. This data validates the existing established satisfaction scale (Oliver, 1980). The satisfaction factor had a Chronbach's *alpha* of .937, which indicates high internal reliability. This data also validates the existing established loyalty scale (Zeithaml, Berry, & Parasuraman, 1996). The loyalty factor resulted in an *alpha* value of .962, which indicates high internal reliability.

Data used to answer the hypotheses posited in this study were analyzed using ANOVA, MANOVA, and MANCOVA methods. These methods require that certain assumptions are met before determining if ANOVA and MANOVA methods are appropriate (Hair et al., 2013). The first assumption is that the dependent variable should be measured at an interval or ratio level and that the variables are continuous. This data passes this assumption. The second assumption is that the independent variable should consist of two or more categorical, independent groups. This study consists of three independent groups and therefore this assumption is met. The third assumption is that there needs to be independence of observations. This means that there is no relationship between the observations in each group or between the groups themselves. This study utilizes different participants in each group and therefore this assumption is met. The fourth assumption is that there should be no significant outliers. The data contains no

univariate or multivariate outliers and therefore this assumption is met. The fifth and sixth assumptions are tested specifically through SPSS.

The fifth assumption is that the dependent variable should be approximately normally distributed for each categorical independent variable. This assumption can be tested in a variety of ways, such as looking for an acceptable degree of skewness and kurtosis, using the central limit theorem, or utilizing the Shapiro-Wilks test of normality. The satisfaction scale has acceptable levels of skewness and kurtosis (-.99, .79) as does overall content retention (-.16, -.75). However, the loyalty scale has levels ranging outside of the acceptable -1 to 1 range at -1.07 and 1.16 respectfully. The central limit theorem states that the distribution of the mean will follow a normal distribution even if the population is not normal (Howell, 2012; Montgomery, 2001). Since ANOVA and similar statistical tests are concerned only with differences between means, the central limit theorem says these tests work well even when the populations are not perfectly normal (Howell, 2012; Montgomery, 2001). For this to be valid, the samples have to be large enough for the tests to be run. Assuming the population does not have a very unusual distribution, a sample size of 10 or larger is generally enough to invoke the central limit theorem (Howell, 2012; Montgomery, 2001). Since each group had more than 10 members, this scale is still able to satisfy the normality assumption with the Central Limit Theorem.

The sixth and last assumption that must be met is that the data contains homogeneity of variance. Analyzing the Levene's Test for Equality of Error Variance can be utilized to see if the data passes this assumption. The satisfaction scale has a non-significant result, $F(2,135) = 2.402, p = .094$, as does overall content retention with a

non-significant result, $F(2,135) = 1.778, p = .173$. This means that the assumption of homogeneity of variance is upheld for these two variables. The loyalty scale has a significant value, $F(2,135) = 18.379, p < .001$; this means that the assumption of homogeneity of variance is not upheld.

Therefore, data used to answer the second hypotheses concerning loyalty across platform choices was analyzed using an ANOVA method appropriate for data with non-normal distributions, unequal group sizes, and unequal variances. While ANOVA is robust against violations of the assumptions of normality and equality of variances, in instances where these assumptions are violated the Brown Forsythe adjusted F test with an a priori alpha level set at $p < .05$ is used. In instances when these ANOVAs resulted in significant main effects, post hoc tests were conducted utilizing Games-Howell modification of Tukey's HSD test as recommended for situations of unequal sample sizes and unequal or unknown variances (De Muth, 2014; Toothaker, 1991).

Utilizing mean composite scores from the three variables - loyalty, satisfaction, and overall content retention – a series of ANOVAs was conducted to assess differences relative to the type of platform used to attend the meeting (in-person, online with moderator, playback).

Event Satisfaction Attributes

The first two hypotheses examine the differences in multiple dependent variables as related to the three different platforms. The first of these hypotheses examines various specific event satisfaction attributes by platform. Examples of event satisfaction attributes include: exchange of knowledge and ideas, acquiring knowledge about educational trends, quality of speakers, and ability to gain job information. The second hypothesis

examines time scarcity ratings by platform. Examples of time scarcity items include: I like to experiment, I usually seem to be in a hurry, I like a great deal of variety, and my life is fast paced.

Due to the nature of one categorical independent variable (with three levels) and multiple dependent variables, a Multivariate Analysis of Variance (MANOVA) was utilized for each of these hypotheses. This procedure is used to determine which of the means differed significantly between the in-person, online with moderator, and playback platforms. The hypotheses were tested at alpha value .05.

The first hypothesis examines the differences in specific event satisfaction attributes as they relate to platform choice. In MANOVA, there are several additional assumptions to the six listed above. First, multivariate normality must be met. This assumes that the means of the various dependent variables in each cell and all linear combinations of them are normally distributed (Hair, et al., 2013). This can be difficult to show explicitly, however it is generally accepted that if there is at least 20 cases in the smallest cell, then the test is robust to violations of multivariate normality even when there is an unequal n . The data upholds this assumption. The second assumption that must be met is the assumption of multicollinearity. This is checked by conducting correlations among the dependent variables. In this case, the dependent variables are all moderately related. The last additional assumption that must be met is the assumption of homogeneity of covariance across the groups. This can be checked utilizing Box's M Test of Equality of Covariance Matrix (Hair, et al., 2013). Since sample sizes are unequal, if this test is significant ($p < .001$) then a violation has occurred and the robustness of the test is questionable. This data reveals a Box's Test of $F = 4.795, p <$

.001. Since this assumption is violated, the data is analyzed using Pillai's Trace criterion instead of Wilks' Lambda.

Wilks Lambda demonstrates the amount of variance accounted for in the dependent variables by the independent variable. It is a multivariate generalization of the univariate F-distribution. Since it is the easiest to interpret, it is most often used in research (Anderson, 2003; Rees, 2000). Pillai's Trace is the sum of the variance that can be explained by the calculation of discriminant variables. Pillai's Trace is considered the most reliable of the multivariate measures and offers the greatest protection against Type I errors with small sample size (Anderson, 2003; Rees, 2000). It calculates the amount of variance in the dependent variables that is accounted for by the greatest separation of the independent variables.

Table 3 shows the results of the MANOVA using the Pillai's Trace test. Using an alpha level of .05, this test was found to be significant, $Pillai = .338$, $F(18, 256) = 2.897$, $p < .001$, multivariate $\eta^2 = .169$. This significant F value indicates that there are significance differences among the platforms in respect to event attribute outcomes. The multivariate $\eta^2 = .169$ indicates that approximately 16.9% of multivariate variance of the dependent variables is associated with the choice of platform (Cohen, 1992; 2003).

Table 3

Event Satisfaction Attributes by Platform (MANOVA)

	Value	Hyp df	Error df	F	Sig.	Eta ²
Pillai's Trace	.338	18	264	2.897	.000***	.169

Note. *** $p < .001$

Because the MANOVA was significant, univariate ANOVA results were examined (Table 4). These tests are identical to separate one-way ANOVAs that would have been performed if MANOVA was not utilized. The p values for the ANOVAs on the MANOVA output do not take into account that multiple ANOVAs have been conducted. To protect against Type I error, the Bonferroni procedure was followed. This lowers the acceptable p value by dividing the starting value, .05, by the number of dependent variables, 10, for a new significance value of .005. Though several items are significant at the original $p < .05$ level, no items are significant on the new familywise error rate and therefore no post hoc tests are conducted. Therefore, although it was found that there should be a statistically significant difference between platform choices on the combined dependent variables, it could not be determined which items had significant differences between the platforms (Pallant, 2011).

Table 4

Platform Choice by Event Attributes

	Mean	Sum of Squares	Mean Square	F	Sig	Eta ²
Session program and topics	6.09	2.734	1.367	1.161	.316	.017
Exchange of knowledge and ideas	6.15	1.371	.685	.543	.582	.008
Keeping up with changes in my profession	6.27	.052	.026	.026	.975	.000
Acquiring knowledge about educational trends	6.05	2.303	1.151	.808	.448	.012
Quality of speakers	6.20	5.725	2.862	2.140	.122	.031
Quality of education that I need	6.12	.676	.338	.288	.750	.004
Professional social networking opportunities	5.54	19.680	9.840	3.128	.047*	.044
Ability to expand my relationship with others	5.56	24.732	12.366	3.925	.022*	.055
Ability to gain job information	5.91	1.515	.758	.309	.735	.005

Note. * $p < .05$

Time Scarcity

The second hypothesis examines the differences in time scarcity items as they relate to platform choice. This data upholds the assumptions of normality, linearity, and outliers. The other assumption that must be met is the assumption of homogeneity of covariance across the groups. This data reveals a Box's M Test of $F = 2.594, p < .000$. Since the assumption of homogeneity of covariance is violated, the data was analyzed using Pillai's Trace criterion instead of Wilks' Lambda.

Table 5 shows the results of the MANOVA using the Pillai's Trace test. Using an alpha level of .05, this test was found to be significant, $Pillai = .280, F(16, 258) = 2.627, p = .001$, multivariate $\eta^2 = .140$. This significant F value indicates that there are significance differences among the platforms in respect to time scarcity item outcomes. The multivariate $\eta^2 = .140$ indicates that approximately 14% of multivariate variance of the dependent variables is associated with the choice of platform (Cohen, 1973; 2003).

Table 5

Time Scarcity by Platform (MANOVA)

	Value	Hyp df	Error df	F	Sig.	Eta ²
Pillai's Trace	.280	16	258	2.627	.001***	.140

Note. *** $p < .001$

Because the MANOVA was significant, ANOVA results were examined (Table 6). To protect against Type I error, the Bonferroni procedure was utilized. This lowers the acceptable p value by dividing the starting value, .05, by the number of dependent variables, 8, for a new significance value of .006. Though several items are significant at

the original $p < .05$ level, only one item is significant at the new familywise error rate of .006. The item “I like to experiment” was significantly different across platforms, $F(2, 138) = 5.787, p = .004, \eta^2 = .079$.

Table 6

Platform Choice by Time Scarcity

	Mean	Sum of Squares	Mean Square	F	Sig.	Eta ²
I like to experiment	5.30	13.363	6.681	5.787	.004***	.079
I usually seem to be in a hurry	5.03	8.067	4.033	3.133	.047*	.044
I like a great deal of variety	5.33	5.050	2.525	1.725	.182	.025
My life is fast paced	5.25	2.280	1.140	.677	.510	.010
I never seem to have enough time to do the things I want to do	5.06	7.981	3.990	2.326	.102	.033
I feel very time pressured	4.96	2.702	1.351	.738	.480	.011
I think we should continue doing things the way they are being done	4.02	19.991	9.996	3.823	.024*	.054
I do not like to make changes if I do not have to	4.45	9.418	4.709	2.331	.101	.033

Note. * $p < .05$, ** $p < .01$, *** $p < .006$

The results of the differences between groups are shown in Table 7. To be consistent with the decision to utilize Bonferroni methods to control for Type I error across the univariate ANOVAs, the post hoc comparisons for the dependent variable also needs to be adjusted. To maintain this familywise error rate across comparisons, each comparison is tested at the alpha level for the ANOVA divided by the number of comparisons. In this case, this would be .006 divided by 3, for a new significance value of .002. As can be seen from the post hoc results, there is a significant difference between the in-person and online with moderator groups at the .002 alpha level. The online with

moderator session scored higher than the in-person group; this means that the attendees of the online with moderator session like to experiment significantly more than the in-person group.

Table 7

Differences in Time Scarcity Between Platform Choices

Differences Between Groups			
	In-person Meeting	Online w/ Moderator	Playback Meeting
I like to experiment	5.00 _b	5.71 _a	5.43 _{ab}

Note. * $p < .01$, ** $p < .001$; Means without common subscripts are significantly different using Tukey's HSD test

Satisfaction and Loyalty

The items in these scales were averaged to derive mean scores as recommended by Hair et al. (2013). The overall satisfaction mean score was 6.10 on a scale from 1 to 7, indicating positive overall satisfaction with the conference. The overall mean score for loyalty was 6.19 on a scale from 1 to 7, indicating high levels of loyalty with the conference.

Hypothesis three examines if attendee satisfaction and loyalty are equal across the three platforms when controlling for age, gender, education, and income. This would be analyzed as a multivariate analysis of covariance (MANCOVA). 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 since they are relevant to satisfaction and loyalty attributes.

The method for calculating MANCOVA's is similar to MANOVA with additional assumptions. There must be at least two dependent variables, with interval data, and reasonably normally distributed data. Again, multivariate normality is quite robust to violations if the sample size per group exceeds 20 (Hair, et al., 2013). Covariates must be interval and normally distributed across the independent variable. Independent variables must be categorical and there should be at least reasonable correlation between the dependent variables and between the dependent variables and the covariates. Outliers should be avoided and there should be homogeneity of between-group variance (Hair, et al., 2013).

In respect to this data, the correlation between the covariates and satisfaction and loyalty are acceptable. There is no significant difference in age ($F(2, 114) = .461, p = .632$) or income ($F(2, 81) = 1.674, p = .194$) between the different platforms so there is independence of the covariate. However, there is a significant difference in gender ($F(2, 110) = 7.625, p = .001$) and education ($F(2, 114) = 11.476, p < .001$) which violates this assumption. 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 non-significant. There is no significant interaction between the covariates and the independent variable for either dependent variable: age in respect of loyalty ($p = .108$) and satisfaction ($p = .069$); income in respect of loyalty ($p = .126$) and satisfaction ($p = .104$), therefore this assumption is upheld.

There is a highly significant multivariate effect across the platforms (Table 11) for the combined dependent variables of satisfaction and loyalty; $Pillai = .301$, $F(4, 158) = 7.009$, $p < .001$. The “income” covariate was significant; $Pillai = .078$, $F(2, 78) = 3.296$, $p = .042$. However, the “age” covariate was not significant, $p = .693$. It would appear that the income covariate has reduced some of the error variance. The univariate outcomes show that satisfaction ($F(2,79) = 13.870$, $p < .001$) and loyalty ($F(2, 79) = 8.795$, $p < .001$) differ significantly across the platforms after applying the income covariate (Table 12). 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 ($p < .001$) and the online with moderator attendees ($p < .001$). There were no other between-group differences elsewhere for either dependent variable.

Table 8

Loyalty and Satisfaction by Platform (MANCOVA)

	Value	Hyp df	Error df	F	Sig.	Eta ²
Age	.009	2	78	.368	.693	.009
Income	.078	2	78	3.296	.042*	.078
Platform	.373	4	158	7.009	.000***	.151

Note. * $p < .05$, *** $p < .001$

Table 9

Loyalty and Satisfaction by Platform (Univariate)

	Means	Sum of Squares	Mean Square	F	Sig	Eta ²
Satisfaction	6.086	54.442	27.221	32.276	.000***	.364
Loyalty	6.188	15.326	7.663	13.169	.000***	.189

Note. *** $p < .001$

Table 10

Differences Between Groups (Bonferroni)

	Attend (I)	Mean	Attend (J)	Mean Diff (I-J)	Std. Error	Sig
Loyalty	In-person	6.289	Playback	.997	.257	.001***
			Online w/ Mod	-.042	.168	1.000
	Playback	5.292	In-person	-.997	.257	.000***
			Online w/ Mod	-1.039	.257	.000***
	Online with Moderator	6.331	In-person	.042	.168	1.000
			Playback	1.039	.257	.000***
	In-person	6.103	Playback	1.468	.351	.000***
			Online w/ Mod	-.379	.230	.308
Satisfaction	Playback	4.635	In-person	-1.468	.351	.000***
			Online w/ Mod	-1.847	.351	.000***
	Online with Moderator	6.482	In-person	.379	.230	.308
			Playback	1.847	.351	.000***

Note. *** $p < .001$

Overall Content Retention

To assess the differences and similarities 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. These are two metrics that are often separate in the literature. 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, the vast majority of attendees for the field study only attended one of the four sessions being analyzed. With low outcome possibilities (0,1,2 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 results presented in Table 10 include the ANOVA for the content retention scores by platform choice. The ANOVA test indicated a significant main effect for platform $F(2,138) = 6.116, p = .003$. The $\eta^2 = .083$ indicates that approximately 8.3% of the variance in the dependent variable is associated with the choice of platform. This is considered a small effect (Cohen, 1992; 2003).

Table 11

Content Retention by Platform Choice (ANOVA)

	Sum of Squares	df	Mean Square	F	Sig.	Eta ²
Platform	.940	2	.470	6.116	.003**	.083
Error	10.372	135	.077			
Total	11.312	138				

Differences Between Groups

	In-person Meeting	Online w/ Moderator	Playback Meeting
Content Retention	.53 _a	.57 _a	.35 _b

Note. *** $p < .001$; Means without common subscripts are significantly different using Tukey's HSD test

Since normality and homogeneity of variance was upheld in the content retention variable, a Tukey HSD post hoc was utilized. The Tukey post hoc results used to

determine the significant differences between the groups can be seen in Table 10. It was found that the in-person platform ($M = .53$) and online with moderator ($M = .57$) platform were both significantly higher than the playback session ($M = .35$). It is also interesting to note that the online with moderator platform was the group with the highest content retention.

Experimental Study

Data Collection and Sample

The experimental study was conducted by hosting a meeting where all variables could be controlled. The meeting was then recorded and both played online with a moderator and then broadcasted for attendees to view at their leisure similar to the field study. The researchers sent a follow-up survey to the attendees 24 hours after they completed the meeting. Fifty attendees were invited through convenience sampling onsite and provided an incentive for their attendance and successful completion of a follow up survey. For the two online portions, a recruiting company was utilized and random assignment was conducted. Thirty-three people were recruited to attend the online with moderator session of which 25 people logged in to the session for the entire duration and completed the follow up survey. Thirty-three people were recruited to attend the playback session by watching the recorded video at their leisure. Of these 33 recruits, 30 people logged in to the session for the entire duration and completed the follow up survey. All socio-demographic data for the experimental study can be found in Table 13. These samples are large enough to identify large effects at a .05 and .01 level (Cohen, 1992).

Table 12

Socio-Demographic Profile of the Experiment Sample

		In-person		Online with Moderator		Playback	
		n	%	n	%	n	%
Age							
	18-20	13	26.0	0	0.0	0	0.0
	21-24	27	54.0	0	0.0	1	3.3
	25-34	5	10.0	8	32.0	8	26.7
	35-44	2	4.0	2	8.0	10	33.3
	45-54	2	4.0	9	36.0	5	16.7
	55 or older	1	2.0	6	24.0	6	20.0
	Total	50	100	25	100.0	30	100.0
Gender							
	Male	17	34.0	14	56.0	17	56.7
	Female	33	66.0	11	44.0	13	43.3
	Total	50	100.0	25	100.0	30	100.0
Education							
	High School	5	10.0	1	4.0	1	3.3
	Some college	20	40.0	5	20.0	5	16.7
	Associates	11	22.0	0	0.0	2	6.7
	Bachelors	13	26.0	13	52.0	14	46.7
	Graduate	1	2.0	6	24.0	8	26.7
	Total	50	100.0	25	100.0	30	100.0
Ethnicity							
	African American	1	2.1	1	4.2	8	26.7
	Asian	15	31.3	0	0.0	2	6.7
	Hispanic	9	18.8	3	12.5	4	13.3
	Caucasian	20	41.7	20	83.3	14	46.7
	Other	3	6.3	0	0.0	2	6.7
	Total	48	100.0	24	100.0	30	100.0
Income							
	Under \$50,000	19	50.0	2	8.3	4	13.3
	\$50,001-\$100,000	8	21.1	16	66.7	12	40.0
	\$100,0001-\$150,000	6	15.8	4	16.7	9	30.0
	\$150,001-\$200,000	0	0.0	1	4.2	4	13.3
	\$200,001-\$250,000	3	7.9	0	0.0	0	0.0
	Above \$250,000	2	5.3	1	4.2	1	3.3
	Total	38	100.0	24	100.0	30	100.0

Of the respondents for the in-person group, 66% were females and 34% were males. The highest level of education completed was some college (40%) followed by Bachelor's degree (26%). The majority of attendees classified themselves as Caucasian (41.7%) and between the ages of 21-24 (54%). Attendees typically made under \$50,000 (38%).

Of the respondents for the online with moderator group, 56% were males and 44% were females. The highest level of education completed was Bachelor's degree (42%) followed by Professional/Graduate degree (24%). The majority of attendees classified themselves as Caucasian (83.3%) and between the ages of 45-54 (36%) followed closely by 25-34 (32%). Attendees typically made \$50,001-\$100,000 (66.7%) followed by those making \$100,001-\$150,000 (16.7%).

Of the respondents for the playback group, 56.7% were males and 43.3% were females. The highest level of education completed was Bachelor's degree (46.7%) followed by Graduate/Professional degree (26.7%). The majority of attendees classified themselves as Caucasian (46.7%) followed by African American (26.7%). Attendees averaged between the ages of 35-44 (33.3%) and made \$50,001-\$100,000 (40%).

It is interesting to note the similarities and differences between the attendees of each platform. Participation across all sessions had similar breakdowns between male and female attendees and the vast majority of attendees made under \$100,000 a year. The largest noticeable difference is in the age and education levels between the in-person group and the two online sessions. The in-person group had 80% of the attendees aged below 24, whereas the two online groups only had 3.3% of attendees in this age group. The in-person group also had lower completed education levels than the online groups,

with the largest portion having some college, as compared to the online groups who had largely already received a Bachelor's degree. These differences are most likely due to the convenience sampling method for the in-person group and the random sampling and assignment for the two online sessions. One interesting thing to note is the large presence of African American attendees (26.7%) in the playback group. This is different than all of the other sessions both within the experiment and the field study.

Platform Effects

To analyze this data, SPSS 21 was used. This data validates the existing established satisfaction scale (Oliver, 1980). The satisfaction factor had a Chronbach's *alpha* of .947, which indicates high internal reliability. This data also validates the existing established loyalty scale (Zeithaml, Berry, & Parasuraman, 1996). The loyalty factor resulted in an *alpha* value of .947, which indicates high internal reliability.

Data used to answer the hypotheses posited in this study were analyzed using ANOVA and MANOVA methods. These methods require that certain assumptions be met before determining if ANOVA and MANOVA methods are appropriate (Hair et al., 2013). The first assumption is that the dependent variable should be measured at an interval or ratio level and they the variables are continuous. Our data passes this assumption. The second assumption is that the independent variable should consist of two or more categorical, independent groups. This study consists of three independent groups and therefore this assumption is met. The third assumption is that there needs to be independence of observations. This means that there is no relationship between the observations in each group or between the groups themselves. This study utilizes different participants in each group and therefore this assumption is met. The fourth

assumption is that there should be no significant outliers. The data contains no univariate or multivariate outliers therefore this assumption is met. The fifth and sixth assumptions are tested through SPSS.

The fifth assumption is that the dependent variable should be approximately normally distributed for each categorical independent variable. This assumption can be tested for in a variety of ways, such as looking for an acceptable degree of skewness and kurtosis, using the central limit theorem, or utilizing the Shapiro-Wilks test of normality. The satisfaction scale has acceptable levels of skewness and kurtosis (-.883, .750) as does content recall (-.084, -.970) and content recognition (.284, -.987). However, the loyalty scale has levels of skewness and kurtosis ranging outside of the acceptable -1 to 1 range at -1.190 and .960, respectfully. The central limit theorem states that the distribution of the mean will follow a normal distribution even if the population is not normal (Howell, 2012; Montgomery, 2001). Since ANOVA and similar statistical tests are concerned only with differences between means, the central limit theorem says these tests work well even when the populations are not perfectly normal (Howell, 2012; Montgomery, 2001). For this to be valid, the samples have to be large enough for the tests to be run. Assuming the population doesn't have a very unusual distribution, a sample size of 10 or larger is generally enough to invoke the central limit theorem (Howell, 2012; Montgomery, 2001). Since each group had more than 10 members, this scale is still able to satisfy the normality assumption with the Central Limit Theorem. Since each group had more than 10 members, this scale is still able to satisfy the normality assumption with the Central Limit Theorem.

The sixth and last assumption that must be met is the homogeneity of variance assumption. The Levene's Test for Equality of Error Variance can be analyzed to check for this assumption. It was found that several scales in this study violate this assumption: the satisfaction scale has a significant result at $F(2,1102) = 5.081, p = .008$, the loyalty scale has a significant result at $F(2,102) = 6.118, p = .003$, and content recall has a significant result at $F(2,102) = 3.416, p = .037$. Content recognition resulted in a non-significant result at $F(2,102) = .567, p = .569$; this means that the assumption of homogeneity of variance is upheld for content recognition variables.

Therefore, data used to answer the first three hypotheses were analyzed using ANOVAs appropriate for data with non-normal distributions, unequal group sizes, and unequal variances. While ANOVA is robust against violations of the assumptions of normality and equality of variances in instances where these assumptions were violated, the Brown Forsythe adjusted F test with an a priori alpha level set at $p < .05$ was used. In instances when ANOVA resulted in significant main effects, post hoc tests were conducted using Games-Howell modification of Tukey's HSD test as recommended for situations of unequal sample sizes and unequal or unknown variances (De Muth, 2014; Toothaker, 1991).

Utilizing mean composite scores from the four variables - loyalty, satisfaction, content recall, and content recognition – a series of ANOVAs were conducted to assess differences in these factors relative to the type of platform used to attend the meeting (in-person, online with moderator, playback).

The first two hypotheses examine the differences in multiple dependent variables as related to the three different platforms. The first of these hypotheses examines various

specific event satisfaction attributes by platform. Examples of event satisfaction attributes include: exchange of knowledge and ideas, acquiring knowledge about educational trends, quality of speakers, and ability to gain job information. The second hypothesis examines time scarcity items by platform. Examples of time scarcity items include: I like to experiment, I usually seem to be in a hurry, I like a great deal of variety, and my life is fast paced.

Due to the nature of one categorical independent variable (with three levels) and multiple dependent variables, a Multivariate Analysis of Variance (MANOVA) was utilized. This procedure is used to determine which of the means differed significantly between the in-person, online with moderator, and playback platforms. The hypotheses were tested at alpha value .05.

Event Satisfaction Attributes

The first hypothesis examines the differences in specific event satisfaction attributes as they relate to platform choice. In MANOVA, there are several additional assumptions. First, multivariate normality must be met. This assumes that the means of the various dependent variables in each cell and all linear combinations of them are normally distributed (Hair, et al., 2013). This can be difficult to show explicitly, however it is generally accepted that if there is at least 20 cases in the smallest cell, then the test is robust to violations of multivariate normality even when there is an unequal n. The data upholds this assumption. The second assumption that must be met is the assumption of multicollinearity. This is checked by conducting correlations among the dependent variables. In this case, the dependent variables are all moderately related. The last additional assumption that must be met is the assumption of homogeneity of covariance

across the groups. Examining Box's M Test of Equality of Covariance Matrix can identify if there are any issues with this assumption (Hair, et al., 2013). Since sample sizes are unequal, if this test is significant ($p < .001$) than a violation has occurred and the robustness of the test is questionable. The data revealed a Box's M Test of $F = 1.364$, $p = .013$. This assumption is therefore upheld and Wilks Lambda was utilized.

Wilks Lambda is utilized as a probability distribution, where the smaller the value represents the larger the difference between the groups being analyzed. It demonstrates the amount of variance accounted for in the dependent variables by the independent variable. Wilks Lambda is a multivariate generalization of the univariate F-distribution and is the easiest to understand and therefore the most frequently used measure (Anderson, 2003; Rees, 2000).

Table 13

Event Attributes by Platform (MANOVA)

	Value	Hyp df	Error df	F	Sig.	Eta ²
Wilks Lambda	.806	18	188	1.192	.271	.102

Note. * $p < .05$

Table 14 shows the results of the MANOVA utilizing the Wilks Lambda test. Using an alpha level of .05, this test was found to be non-significant, $Wilks = .802$, $F(18, 188) = 1.192$, $p = .271$, multivariate $\eta^2 = .102$. This non-significant F indicates that there are no significance differences among the platforms in respect to event attribute ratings. Therefore, no follow up tests were utilized.

Time Scarcity

The second hypothesis examines the differences in time scarcity as it relates to platform choice. The data upholds the assumptions of normality, linearity, and outliers. The other additional assumption that must be met is the assumption of homogeneity of covariance across the groups. This data reveals a Box's M Test of $F = 1.361, p = .023$. This assumption is therefore upheld and Wilks Lambda was utilized.

Table 15 shows the results of the MANOVA utilizing the Wilks Lambda test. Using an alpha level of .05, this test was found to be significant, $Wilks = .760, F(16, 190) = 1.749, p = .041$, multivariate $\eta^2 = .128$. This significant F indicates that there are significance differences among the platforms in respect to time scarcity item outcomes. The multivariate $\eta^2 = .128$ indicates that approximately 12.8% of multivariate variance of the dependent variables is associated with the choice of platform.

Table 14

Time Scarcity by Platform (MANOVA)

	Value	Hyp df	Error df	F	Sig.	Eta ²
Wilks Lambda	.760	16	190	1.749	.041*	.128

Note. * $p < .05$

Since the MANOVA was significant, univariate ANOVA results were examined (Table 16). The p values for the ANOVAs on the MANOVA output do not take into account that multiple ANOVAs have been conducted. To protect against Type I error, the Bonferroni procedure was followed. This lowers the acceptable p significant value by dividing the starting value, .05, by the number of dependent variables, 8, for a new α

value of .006. Though several items are significant at the original $p < .05$ level, only one item is significant at the new familywise error rate of .006. The item “I like to experiment” was significantly different across platforms, $F(2, 104) = 8.939, p < .001$. One additional item was moderately significant, “I usually seem to be in a hurry” across different platforms, $F(2, 104) = 12.744, p < .01$. Due to its moderate significance level and its effect size, .091, this item was also analyzed in post hoc analysis.

Table 15

Platform Choice by Time Scarcity

	Mean	Sum of Squares	Mean Square	F	Sig.	Eta ²
I like to experiment	5.82	19.322	9.661	8.939	.000**	.149
I usually seem to be in a hurry	4.57	1.174	.587	.233	.792	.005
I like a great deal of variety	5.79	12.744	6.372	5.132	.008*	.091
My life is fast paced	4.01	2.170	1.085	.452	.638	.009
I never seem to have enough time to do the things I want to do	5.30	2.408	1.204	.627	.536	.012
I feel very time pressured	5.05	2.115	1.058	.376	.687	.007
I think we should continue doing things the way they are being done	4.82	4.735	2.368	.948	.391	.018
I do not like to make changes if I do not have to	3.91	1.402	.701	.321	.726	.006

Note. * $p < .01$, ** $p < .001$

The results of the post hoc analysis are shown in Table 17. As can be seen from the post hoc results, for the first item “I like to experiment” there is a significant difference between both the online with moderator ($M = 6.36$) and playback ($M = 6.10$) groups compared with the in-person ($M = 5.38$) group. The online with moderator and playback groups scored significantly higher than the in-person group; this means that the

attendees of the online with moderator and playback groups like to experiment significantly more than the in-person group.

For the second item “I like a great deal of variety” there is a significant difference between the playback ($M = 6.23$) group and the in-person ($M = 5.44$) group. The playback group scored significantly higher than the in-person group; this means that the attendees of the playback group like a great deal of variety significantly more than the in-person group.

Table 16

Differences in Time Scarcity Items between Platform Choices

	In-person Meeting	Online w/ Moderator	Playback Meeting
I like to experiment	5.38 _b	6.36 _a	6.10 _a
I like a great deal of variety	5.44 _b	5.96 _{ab}	6.23 _a

Note. Means without common subscripts are significantly different using Tukey’s HSD test

Satisfaction and Loyalty

The items in these scales were averaged to derive mean scores as recommended by Hair et al. (2013). The overall satisfaction mean score was 5.68 on a scale from 1 to 7, indicating positive overall satisfaction with the conference. The overall mean score for loyalty was 5.54 on a scale from 1 to 7, indicating high levels of loyalty with the conference.

Hypothesis three examines if attendee satisfaction and loyalty are equal across the three platforms when controlling for age, gender, education, and income. This would be

analyzed as a multivariate analysis of covariance (MANCOVA). 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 since they are relevant to satisfaction and loyalty attributes.

In respect to this data, the correlation between the covariates and satisfaction and loyalty are acceptable. There is no significant difference in gender ($F(2, 102) = 2.701, p = .072$) or income ($F(2, 89) = 1.595, p = .209$) between the different platforms so there is independence of the covariate. However, there is a significant difference in age ($F(2, 102) = 51.029, p < .001$) and education ($F(2, 102) = 1.595, p < .001$) which violates this assumption. By including gender and income as covariates in the model, this may help reduce error variance. To satisfy the assumption that correlation between satisfaction and loyalty versus gender and income do not differ across the platforms, the interaction terms should be non-significant. There is no significant interaction between the covariates and the independent variable for either dependent variable: gender in respect of loyalty ($p = .805$) and satisfaction ($p = .751$); income in respect of loyalty ($p = .107$) and satisfaction ($p = .152$), therefore this assumption is upheld.

There is a highly significant multivariate effect across the platforms (Table 11) for the combined dependent variables of satisfaction and loyalty; $Pillai = .147, F(4, 174) = 3.455, p = .01$. The “income” covariate was significant; $Pillai = .116, F(2, 86) = 5.656, p = .005$. However, the “gender” covariate was not significant, $p = .770$. It would appear that the income covariate has reduced some of the error variance. The univariate outcomes show that satisfaction ($F(2,87) = 5.058, p = .008$) and loyalty ($F(2, 87) = 7.122,$

$p = .001$) differ significantly across the platforms after applying the income covariate (Table 12). Post hoc (Bonferroni) analyses of the univariate outcomes, adjusted for income, showed that the playback attendees were significantly more satisfied and more loyal to the conference than the online with moderator attendees ($p < .001$). There were no other between-group differences elsewhere for either dependent variable.

Table 17

Loyalty and Satisfaction by Platform (MANCOVA)

	Value	Hyp df	Error df	F	Sig.	Eta ²
Gender	.006	2	86	.261	.771	.006
Income	.116	2	86	5.656	.005**	.116
Platforms	.147	4	174	3.455	.010**	.074

Note. ** $p < .01$

Table 18

Loyalty and Satisfaction by Platform including Age and Income (Univariate)

	Means	Sum of Squares	Mean Square	F	Sig	Eta ²
Satisfaction	5.682	12.649	6.325	5.058	.008**	.104
Loyalty	5.538	20.572	10.286	7.122	.001***	.141

Note. ** $p < .01$, *** $p < .001$

Table 19

Differences Between Groups (Bonferroni)

	Attend (I)	Mean	Attend (J)	Mean Diff (I-J)	Std. Error	Sig
Loyalty	In-person	5.595	Playback	-.453	.308	.436
			Online w/ Mod	.783	.323	.052
	Playback	6.048	In-person	.453	.308	.436
			Online w/ Mod	1.236	.330	.001***
	Online with Moderator	4.811	In-person	-.783	.323	.052
			Playback	-1.236	.330	.001***
Satisfaction	In-person	5.676	Playback	-.444	.287	.377
			Online w/ Mod	.532	.300	.241
	Playback	6.120	In-person	.444	.287	.377
			Online w/ Mod	.975	.308	.006**
	Online with Moderator	5.144	In-person	-.532	.300	.241
			Playback	-.975	.307	.006**

Note. *** $p < .001$

Content Recall

To assess the differences and similarities 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. These are two distinct metrics that are often separate in the literature. Four sessions were utilized in the analysis, which total eight recall and eight recognition questions that were analyzed separately. The content questions were marked as correct or incorrect and the percentage correct for each attendee in each category was tabulated.

Since the content recall variable did not uphold the assumption of homogeneity of variance, $F(2,102) = 3.416$, $p = .037$, the Brown Forsythe adjusted F test with an a priori alpha level set at $p < .05$ was used. The results presented in Table 20 include the ANOVA

for the content recall scores by platform choice. The ANOVA test indicated a significant main effect for content recall $F(2,63.765) = 11.493, p < .001$. The $\eta^2 = .195$ indicates that approximately 19.5% of the variance in dependent variables is associated with the choice of platform. This is considered a small effect (Cohen, 1992; 2003).

Since the assumption of homogeneity of variance was not met, post hoc tests using 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 post hoc results (Table 20), there is a significant difference between both the in-person ($M = .45$) group and the playback ($M = .20$) group at the .05 alpha level. The in-person group scored significantly higher than the playback group; this means that the attendees of the in-person group remembered significantly more un-aided content than the playback group.

Table 20

Content Recall by Platform Choice (ANOVA)

	df1	df2	F	Sig.	Eta ²
Platform	2	63.765	11.493	.000***	.195

Differences Between Groups

	In-person Meeting	Online w/ Moderator	Playback Meeting
Content Recall	.45 _a	.33 _{ab}	.20 _b

Note. *** $p < .001$; Means without common subscripts are significantly different using

Tukey's HSD test

Content Recognition

The results presented in Table 21 report the ANOVA for the content recognition scores by platform choice. The ANOVA test indicated a significant main effect for satisfaction $F(2,104) = 16.389, p < .001$. $\eta^2 = .243$ indicates that approximately 24.3% of the variance in dependent variables is associated with the choice of platform. This is considered a small effect (Cohen, 1992; 2003).

Since normality and homogeneity of variance were upheld in the recognition scale, a Tukey HSD post hoc was utilized. The Tukey post hoc used to determine the significant differences between the groups can be seen in Table 21. It was found that the in-person platform ($M = .72$) was significantly higher than the online with moderator session ($M = .56$) and the playback session ($M = .48$). This means that the attendees of the in-person group remembered significantly more aided content than the playback and online with moderator groups.

Table 21

Content Recognition by Platform Choice (ANOVA)

	Sum of Squares	df	Mean Square	F	Sig.	Eta ²
Platform	1.160	2	.580	16.389	.000***	.243
Error	3.611	102	.035			
Total	4.772	104				

Differences Between Groups			
	In-person Meeting	Online w/ Moderator	Playback Meeting
Content Recognition	.72 _a	.56 _b	.48 _b

Note. *** $p < .001$; Means without common subscripts are significantly different using

Tukey's HSD test

Summary

Chapter four described the factor analysis, factor reliability, and examined the differences between the platforms for both the field study and the experimental study. Of the five hypotheses in the field study, all five were supported. For the six hypotheses related to the experimental study, five were supported; therefore, the null hypotheses were rejected and the alternates were accepted. One hypothesis was not supported.

For the field study, H1 states that specific event satisfaction attributes differ as a function of platform choice. This was supported, however no further conclusions could be found. H2 states that time scarcity items differ as a function of platform choice. This was supported and the item “I like to experiment” was found to be significantly different across platforms. In terms of this item, it was found that the online with moderator sessions were significantly higher than the in-person session. H3 states satisfaction and loyalty levels differ as a function of platform choice. This was supported. It was further found that the in-person sessions and online with moderator sessions were significantly higher than the playback session. H4a states that overall content retention differs as a function of platform choice. This was supported. It was further found that the in-person and online with moderator sessions were significantly higher than the playback session.

For the experimental study, H1 states that event satisfaction attributes differ as a function of platform choice. This was found not to be significant, and is therefore not supported. H2 states that time scarcity items differ as a function of platform choice. This was supported and the items “I like to experiment” and “I like a great deal of variety” were found to be significantly different across platforms. For “I like to experiment”, it was found that the online with moderator and playback sessions were significantly higher

than the in-person session. For “I like a great deal of variety” the playback session was significantly higher than the in-person session. H3 states that satisfaction and loyalty levels differ as a function of platform choice. This was supported. It was further found that the playback sessions were significantly higher than the online with moderator session. H4b states that content recall differs as a function of platform choice. This was supported. It was further found that the in-person sessions were significantly higher than the playback session. H4c states that content recognition differs as a function of platform choice. This was supported. It was further found that the in-person sessions were significantly higher than both the online with moderator and playback sessions. Chapter 5 discusses these results and the implications, limitations, and suggestions for future research derived from them.

CHAPTER 5

DISCUSSION, IMPLICATIONS, AND CONCLUSIONS

Introduction

The goal of the present study was to gain a better understanding of how alternate platforms can affect event effectiveness. Variables examined include satisfaction, loyalty, content retention, specific event satisfaction attributes, time scarcity items, and demographics. There were five main objectives to this study. The first objective was to explore if there were significant differences in satisfaction across the three platforms being examined (in-person, online with moderator, and playback). The second objective was to explore if there were significant differences in loyalty across the three platforms being examined. The third objective was to explore if there were significant differences in content retention across the three platforms being examined. The fourth objective was to explore if there were significant differences in specific event attributes across the three platforms being examined. The fifth objective was to explore if there were significant differences in time scarcity items across the three platforms being examined. A summary of the results can be seen in Table 22. The results of this study add new understanding to the current literature about different ways that attendees can attend an event.

Discussion

Satisfaction and Loyalty

In the field study portion of the study, the in-person and online with moderator meeting attendees indicated higher levels of satisfaction than 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 this approach is the online with moderator attendees could still ask questions to the moderators that could be answered from the live speakers, which the playback attendees did not have the opportunity to do. In the experimental study, the results were opposite than the field study. The playback meeting was found to have higher levels of satisfaction than the online with moderator meeting. In both the experiment and the field study, attendees in both the online with moderator and the playback groups were similar in terms of individual event attribute satisfaction.

In the field study portion of the research, the in-person and online with moderator meeting attendees had higher levels of loyalty when compared with the playback meeting. This could be due to the engagement that attendees have with each other and with the staff. Attendees could feel like they are a real part of the event, not just an outside observer. The attendees have the opportunity to interact with other attendees and speakers in addition to asking questions. Similar to satisfaction, in the experimental study the results were different than the field study. Both the in-person and playback meeting was found to have higher levels of loyalty than the online with moderator meeting. The difference in the online platforms is interesting to note since attendees in both the online with moderator and the playback groups were similar in terms of satisfaction.

This difference between the field study and the experiment is interesting to note. When comparing other characteristics of the two groups, both groups answered similarly if they had attended a similar conference online and if they experienced any technical difficulties with this meeting in particular. It is important to note that not every online with moderator attendee was active in the chat portion of the conversation, but it was always available.

Table 22

Hypotheses Summary Table

		Field Study	Experiment
H1	The three platforms result in a significant difference in ratings of satisfaction with event attributes	Supported	Not Supported
H2	The three platforms result in significant differences in ratings of time scarcity	Supported	Supported
H3	Attendee satisfaction and loyalty are not equal across the three platforms when controlling for age, gender, education, and income. The two platforms utilizing richer mediums (in-person and online with moderator) experience higher satisfaction and show more loyalty than the playback session	Platform differences supported; Two richer mediums were significantly more loyal and satisfied than playback	Platform differences supported; Playback was significantly more loyal and satisfied than the two richer mediums
H4a	Attendee content retention (field study) is not equal across the three platforms. The two platforms utilizing richer mediums (in-person and online with moderator) have higher content retention rates than the playback session.	Platform differences supported; Two richer mediums had higher content retention than playback	Not Applicable
H4b	Attendee content recall (experiment) is not equal across the three platforms. The two platforms utilizing richer mediums (in-person and online with moderator) have higher content recall than the playback session.	Not Applicable	Platform differences supported; In-person had higher content recall than playback
H4c	Attendee content recognition (experiment) is not equal across the three platforms. The two platforms utilizing richer mediums (in-person and online with moderator) have higher content recognition than the playback session.	Not Applicable	Platform differences supported; In-person had higher content recognition than online with moderator and playback sessions

There are several potential reasons for the contradictory results from the field study and the experimental study. One reason could be attributed to socio-demographic variables such as age and education levels which varied greatly between the field study and the experiment. The experimental group was much 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 multi-task (Welch, 2007). These characteristics would lend more to the playback meeting on an overall scale whereas individual event satisfaction attributes might remain the same.

These respective results for each platform tie directly into media richness theory and media use (Dennis & Valacich, 1999). Typically, richer media are better suited for non-routine messages and messages that are more 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 that the attendee was listening to and processing; therefore, a simpler medium such as playback could have been more suited. This would definitely explain the contradictory results.

One important reason to consider could be attributed to the inherent motivation for attending the meeting. In the field study group, all of the participants were motivated by a desire to learn about their practice and wanted to engage with other professionals in their area. In the experimental study, participants were recruited and not interested in

networking with other attendees. This might not have affected specific items when questioned directly, but could affect the overall event satisfaction of the attendee.

Content Retention

Content retention was a combined variable in the field study (recall and recognition) whereas these two areas were separated in the experimental portion. It was found in the field study that participants for the in-person and online with moderator meetings remembered more content than those who attended in the playback meeting. This could be due to the engagement that attendees have with each other and with the staff. It is interesting to note that the online with moderator meeting had the highest mean and attendees in this group remembered the most content. This is something that should be looked into further. In a modern civilization where people can be on their phones or laptops browsing the Internet during a face-to-face session, it could be possible that attendees are more engaged and learn more when committed to logging in to learn the information and interacting with someone live online. The attendees could be paying more attention in this medium than even face to face.

During the experimental portion, content recall (unaided) was higher for the in-person meeting than the playback meeting. This is interesting to note as unaided recall oftentimes requires the attendee to draw on different portions of memory than for content recognition. An attendee can tie together various environmental stimuli to aid in answering the question correctly. This could include factors such as overall attention levels that could be affected by temperature of the room, lighting levels, people in the room, noise levels in the room, 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 attendees remembering content.

During the experimental study, content recognition (aided) was significantly higher for the in-person meeting than both the online with moderator and the playback meeting. Attendees in the experimental in-person group received a higher percentage of questions correct on content recognition questions than in any other group in the experimental or field study portions. 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 much younger and was currently attending or more recently graduated college than the other two experimental groups. These attendees could be more used to the test taking mentality of sitting in a classroom style meeting and then taking quizzes on the lecture.

These results can be explained by the information processing theory. Information processing theory states that information is taken in, encoded to give meaning, combined with previously stored information, moved into working memory, and then finally stored for later use. One important difference between the field study and experimental portions is the area of situational modification. This is when an individual uses his previous experiences to handle or alter the situation as presented and takes into account the actual nature of the information in addition to his own mental processes (Lowyck, 2014). This affects the transition of the knowledge from very limited storage in short term memory to working memory. Working memory is believed to be the center of conscious thought and is where information is combined to solve problems (Van Merrienboer & Bruin, 2014). The most important factor influencing learning is the active processing of

information. In the nature of the field study versus experimental study, the field study participants are much older and experienced than the experimental participants. They also have a direct investment and motivation to learn the content. Therefore they would have more experiences to draw on and relate to the information presented which would affect the cognitive process of moving information from limited short term memory to long term memory. However, this is not the only factor to consider, as the way information is presented can have a substantial effect on memory.

The cognitive load theory helps to provide a foundation in presenting information that encourages optimal intellectual performance (Sweller, Van Merriënboer, & Paas, 1998). This theory recognizes the limited memory capacity of short term memory and seeks on how best to combine elements so that they make it into working memory. This theory states that the more a person attempts to learn in a shorter amount of time, the more difficult it is to process into working memory. This would be especially relevant to a conference situation. The theory defines three types of cognitive loads: intrinsic, germane, and extraneous (Sweller, et al., 1998). Intrinsic is the inherent difficult level of the material. In this study, the field study material is significantly more difficult than the experimental study material. Extraneous cognitive load is determined by the way information is presented to the leaders. Both studies presented information in the same way with a combination of lecture and PowerPoint. Germane is the load devoted to grouping information into meaningful parts to increase the chances of remembering the information. This is completed by the individual attendee and assisted by the presenter.

Although direct comparisons between the field study and the experimental study cannot be made, it is important to note that 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. This would affect the attendee's ability to develop a meaningful connection with the material. Another reason could be due to the attendees in the playback group not focusing their attention to the video 100%. These attendees could have been multi-tasking and doing other things such as email, social media, or completing tasks around the house while simply listening to the video. This would increase the types of external cognitive loads and, when combined with limited memory as defined in information processing theory, could affect the process of information moving from short term into working memory. This is one of the main reasons why the attendees had to wait at least 24 hours before taking the survey, to examine how attendees remember the material after this process would occur. These results have important implications for many industries where continuing education and training are vital for certifications.

Event Satisfaction Attributes and Time Scarcity

There were 10 individual event satisfaction attributes that were analyzed by platform. In the field study and the experimental study, there were no differences found between the platforms when looking at specific event satisfaction attributes. These non-significant results are interesting. The event satisfaction attributes analyzed include: session program and topics, exchange of knowledge and ideas, keeping up with changes in my profession, acquiring knowledge about educational trends, quality of speakers, quality of education that I need, professional social networking opportunities, ability to expand my relationship with others, and ability to gain job information. The results would indicate that, even though attendees by platform were substantially different in

overall satisfaction and loyalty, no individual item was significantly different by platform. This raises several implications, further questions, and ideas for future research.

In the field study, there was a difference between platforms in the time scarcity item “I like to experiment.” The online with moderator attendees indicated significantly higher levels than the in-person group. This makes sense that the online with moderator sessions would be more willing to try and adopt a newer concept such as attending a meeting in this platform. This could be due to willingness to try new technologies, or an overall willingness to try new things. With society’s current focus on generational differences in the adoption of technology, this could be an inherent characteristic that is worth examining more closely than other socio-demographic indicators.

In the experimental study, there was a difference between platforms in the time scarcity items “I like to experiment” and “I like a great deal of variety”. Similar to the field study, both online sessions scored higher than the in-person group for “I like to experiment”. It makes sense that the two online sessions would have a higher willingness to adopt and try new methods as opposed to the traditional in-person setting. For “I like a great deal of variety,” the playback meeting was found to be significantly higher than the in-person meeting. It is interesting to note that the online with moderator group was the highest scoring group in terms of experimentation, but that the playback group is the highest scoring group in terms of variety. This could be attributed to an attendee’s desire to do multiple things at once, possibly listening passively to the meeting while not interacting. This would also explain the low content retentions scores.

Theoretical Implications

The findings of this study contribute to several industries academically. First, this study contributes to event literature by identifying some features and characteristics for each platform and how platform choice can affect satisfaction, loyalty, and content retention. Second, this study contributes to existing knowledge in other fields of research such as education, technology, psychology, and business. All of these areas 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 with respect to examining how these platforms affect specific variables in the same study is extremely limited. The current study not only examined various scales in respect to different platforms, this study also conducted an experimental study to help determine cause and effect while also examining an intact field study to help examine generalizability.

Although trade literature sometimes discusses the importance of content in meetings, this is one area that is overlooked in academic research. Academic research 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), site selection criteria (Baloglu & Love, 2001; Fawzy, 2008; Rompf, Breiter, & Severt, 2008), and the influence of technology (Fenich, et al., 2011; Fenich, Scott-Halsell, & Ogbeide, 2012; Lee, 2011; Pearlman & Gates, 2010). 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 the media richness theory, information processing theory, and cognitive load theory.

Previous literature has found that learners are more satisfied with richer mediums when the content is more difficult, however when the content is less difficult the learners achieved no significant benefit in satisfaction (Sun & Cheng, 2007). This research supports these findings while also adding the additional dynamic of face-to-face interactions. This research directly aligns with media richness theory. As the content of the meeting became increasingly difficult, the attendees were more satisfied and loyal when richer mediums were utilized. Both of the platforms that involved interaction scored higher when presented with difficult material. The playback session was more preferred when it came to easier material. Although media richness theory relates to media use, and not media choice, it is often studied empirically in terms of media choice (Dennis & Valacich, 1999). This theory explains why, even in identical situations and platforms with similar attendees and attendee backgrounds, the overall results differed drastically depending on the difficulty of the content provided. Though specific items when analyzed individually did not differ between platforms, the attendees overall experience was affected. This research has implications for how this 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, the information processing theory and cognitive load theories become especially important. This becomes difficult to accomplish successfully since it would require coordination by, and providing education to, the meeting planner, event organizer, speaker, and attendee. The information processing theory is controlled

exclusively by the attendee. 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 by limiting the session attendance to particular attendees. There are several conferences that have begun to do this and established recommended “tracks” which 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. Even with the best title, an educational session might not be clearly defined as to the difficulty or exact focus of the material. The content of one session might be directly targeted to doctors, but the title does not suggest this so nurses and suppliers attend the session. These other attendees who attend the session will not be satisfied and might feel fatigue as they try to process all the of the information that may not be relevant to them since it is targeted to a specific variety. 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 also starting to list the learning objectives of each session in the program materials. All of these can help the attendee make a better decision of which sessions to attend (if there is an option) and can help with information processing.

The cognitive load theory contains three parts: intrinsic, germane, and extraneous. Intrinsic is the inherent difficulty level of the material. This cannot be changed, but can be accounted for in the overall program layout. Extraneous load is determined by the way information is presented. This can be minimized with choosing quality speakers, effective speaker training, review of PowerPoint slides, and strict guidelines on

presenting materials. Germane load discusses grouping information into meaningful parts. The speakers can assist in doing this but clearly linking information together in their presentations, however this essentially rests on the individual attendee.

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 cognitive load and information processing in the meetings area. With multi-day 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 in terms of meetings and developing theories specifically relevant to the event industry.

Practical Implications

This study has practical implications for event planners. Within a global market, event planners are often required to adjust to new technology, competition within the industry, economic variability, and changing attendee expectations. With the increasing complexity of conducting meetings within the context of a global economy, it is vital to understand the options available and the attendees that support them. The implications of the findings of this study are important because of the potential for improving the quality of the 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 most ideal platform. If the main objective of the meeting is networking, then in-person meetings should continue to be utilized. The

platform choice ultimately depends on the objective, however many objectives can be handled in 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 while event planners balance the exposure to not have a negative impact on the 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.

Another event related area that this research has strong implications for is audio visual providers. 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. Since most speakers only give their presentation one time at a conference, it is vital that these companies are able to effectively and efficiently capture this content 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 the event service and whether they are satisfied or not. 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.

Every industry utilizes meetings and therefore this research is relevant and has practical implications for all industries. As human resources is beginning to move away from in-person training meetings to online web portals for management to take at their leisure, the content retention portion 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, should online classes be reconsidered in terms of streaming versus pre-recorded sessions?

Limitations

This study, like all studies, has limitations. The field study had attendees that were mostly highly educated males that earn salaries within the top income brackets. These results may not be generalizable to all conferences or all demographic target markets. The limited sample size and extremely uneven proportion of males versus females in the playback portion may make this section not generalizable to other target markets. Since this was an intact group of conference attendees and not all attendees completed the survey, there is a potential for non-response bias. Due to limited sample size, smaller magnitude effects may not have been detected but could be potentially interesting.

The experimental study also has several limitations. First, since attendees to the experimental study were all recruited and paid for their time, the motivation to attend the meeting was not inherent. Since 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. Another viewpoint is that although the experiment was conducted in a conference space and conducted like an actual conference, since the participants know they are being studied they may act differently than they would normally. This could produce unintended or inaccurate results. This research had threats to internal validity in terms of selection bias in the field study and non-random assignment for the face-to-face event in the experimental study. The sampling design was not ideal in the experimental study since the in-group meeting was convenience sampling and the two online platforms were recruited and randomly assigned by an outside research company. Overall, this could affect within-group comparisons. Due to limited sample size, smaller magnitude effects may not have been detected but could be potentially interesting.

Directions for Future Research

The findings from this study provided increased understanding of the complexities facing event planners and how to facilitate informed decisions concerning platform choices. An understanding of the similarities and incongruities are important to realize when working to create an effective meeting that increases positive attendee experiences – perceptions that are translated into satisfaction, loyalty, and content retention. It is interesting to note that none of the event satisfaction attributes individually had substantial differences between groups; however overall satisfaction was considerably different between groups. This means that other variables are impacting satisfaction and need to be examined further.

Although a major strength of this research is its dual approach of establishing cause and effect through an experimental study while also analyzing generalizability with a field study, conducting an experiment with participants who know they are being

studied may not be ideal. Future research should examine these variables across platforms within the same existing events in a wide variety of fields and with different socio-demographic traits of attendees. This survey structure can become a foundation for future studies. If the same survey is utilized across multiple industries and with different attendee makeups, then a foundational level can be established that can help drive new theoretical contributions in the areas of meetings and events.

Future studies should also examine the main objectives of the meeting from the event planner side with the platform choice and satisfaction levels of attendees. All of these variables should be studied in both domestic and in international contexts. It would be interesting to find if international attendees and domestic attendees of the same meeting rated their experiences the same.

In society's every changing socio-demographic making and technological advancement, it is important to study ways in which technology can be used as a bridge to engage attendees and foster positive interactions and perceptions between staff and attendees and within the attendees base itself. Further research should be conducted to understand the role that various forms of technology, or the failure of technology, play in satisfaction, loyalty, and content retention. Although only three platforms were analyzed in this study, there are other platforms that should be analyzed, such as full 3D immersion technology (i.e. SecondLife) and simple audio conferencing.

Summary

The goal of this research was to gain a better understanding of how alternate platforms can affect event effectiveness. Variables examined include satisfaction, loyalty, content retention, specific event satisfaction attributes, and time scarcity items. Although

each meeting varies in terms of objectives and content, some base line results were found. As summarized in Table 23 and supported with relevant theories, meetings with more difficult content should utilize in-person or online with moderator sessions to increase satisfaction, loyalty, and content retention. For meetings with less difficult content, the online with moderator session would not be an effective use of resources or an attendee's time and cognitive space. 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, this research provides a baseline of information that is relevant to every single individual.

Table 23

Summary Table of Results

	Field Study			Experiment		
	In-person	Moderator	Playback	In-person	Moderator	Playback
Satisfaction and Loyalty	High	High	Low	Mid	Low	High
Content Retention	High	High	Low			
Recall				High	Mid	Low
Recognition				High	Low	Low

References

- Anderson, T. (2003). *An introduction to multivariate statistical analysis*. New York, NY: Wiley.
- Argyle, M., & Dean, J. (1965). Eye contact, distance and affiliation. *Sociometry*, 28(3), 289-304.
- Arnfolk, P., & Kogg, B. (2003). Service transformation—Managing a shift from business travel to virtual meetings. *Journal of Cleaner Production*, 11(8), 859-872.
- Arkesteijn, H., de Rooij, J., van Eekhout, M., van Genuchten, M., & Bemelmans, T. (2004). Virtual meetings with hundreds of managers. *Group Decision and Negotiation*, 13(3), 211-221.
- Baloglu, S., & Brinberg, D. (1997). Affective images of tourism destinations. *Journal of Travel Research*, 35(4), 11-15.
- Baloglu, S., & Love, C. (2001). Association meeting planners' perceptions of five major convention cities: Results of the pre-test. *Journal of Convention & Event Tourism*, 3(1), 21-31.
- Baloglu, S., & Love, C. (2005). Association meeting planners' perceptions and intentions for five major US convention cities: The structured and unstructured images. *Tourism Management*, 26(5), 743-752.
- Baloglu, S., & McCleary, K. (1999). A model of destination image formation. *Annals of Tourism Research*, 26(4), 868-897.
- Bonn, M., Ohlin, J., & Brand, R. (1994). Site selection for professional meetings: A comparison of heavy-half vs. light-half association and corporation meeting planners. *Journal of Travel & Tourism Marketing*, 3(2), 59-84.

- Bransford, J., Brophy, S., & Williams, S. (2000). When computer technologies meet the learning sciences: Issues and opportunities. *Journal of Applied Developmental Psychology, 21*(1), 59-84.
- Breiter, D., & Gregory, S. (2003). Tradeshow managers: A study of technology innovation and time poverty. *Journal of Convention & Exhibition Management, 5*(2), 51-67.
- Brewer, M. (2000). Research design and issues of validity. *Handbook of Research Methods in Social and Personality Psychology*. Cambridge, England: Cambridge University Press.
- Burgoon, J., Buller, B., Hale, J., & deTurck, M. (1984). Relational messages associated with nonverbal behaviors. *Human Communication Research, 10*(3), 351-378.
- Casanova, M., Kim, D., & Morrison, A. (2005). The relationships of meeting planners' profiles with usage and attitudes toward the use of technology. *Journal of Convention & Event Tourism, 7*(3), 19-43.
- Clark, J., & McCleary, K. (1995). Influencing associations' site-selection process. *The Cornell Hotel and Restaurant Administration Quarterly, 36*(2), 5-68.
- Cohen, J. (1992). A power primer. *Psychological bulletin, 112*(1), 155.
- Cohen, J. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Hillsdale, NJ: Taylor & Francis.
- Convention Industry Council (CIC). (2011). *APEX industry glossary*. Retrieved from <http://www.conventionindustry.org/StandardsPractices/APEX/glossary.aspx>

- Cramton, C., & Orvis, K. (2003). Overcoming barriers to information sharing in virtual teams. In C. Gibson & S. Cohen (Eds), *Virtual teams that work: Creating conditions for virtual team effectiveness* (214-230). San Francisco, CA: Jossey-Bass.
- Crouch, G., & Ritchie, B. (1997). Convention site selection research: A review, conceptual model, and propositional framework. *Journal of Convention & Exhibition Management*, 1(1), 49-69.
- Daft, R., & Lengel, R. (1986). Organizational information requirements, media richness and structural design. *Management Science*, 32(5), 554-571.
- Davidson, R., Alford, P., & Seaton, T. (2002). The use of information and communications technology by the European meetings, incentives, conferences, and exhibitions (MICE) sectors. *Journal of Convention & Exhibition Management*, 4(2), 17-36.
- de Tocqueville, A. (2003). *Democracy in America*. Clark, NJ: Lawbook Exchange.
- De Muth, J. (2014). *Basic statistics and pharmaceutical statistical applications*. Boca Raton, FL: Taylor & Francis Group.
- Dennis, A., Fuller, R., & Valacich, J. (2008). Media, tasks and communication processes: A theory of media dynchronicity, *MIS Quarterly*, 32(3), 575-600.
- Dennis, A., & Valacich, J. (1993). Computer brainstorm: More heads are better than one. *Journal of Applied Psychology*, 78(4), 531.

- Denstadli, J., Julsrud, T., & Hjorthol, R. (2012). Videoconferencing as a mode of communication: A comparative study of the use of videoconferencing and face-to-face meetings. *Journal of Business and Technical Communication*, 26(1), 65-91.
- Détienne, F., Cahour, B., Legout, M., Gourvennec, B., Relieu, M., & Coppin, G. (2013). Interactive frames constructed in Second Life meetings: A study in educational and professional settings. *Cognition, Technology & Work*, 15(4), 445-455.
- Edgar, J. (2002). Virtual exhibitions. *Journal of Convention & Exhibition Management*, 4(2), 69-79.
- Fawzy, A. (2008). Site selection criteria for meetings on cruise ships: The view of corporate meeting planners. *Journal of Convention & Event Tourism*, 9(1), 81-94.
- Fenich, G., Scott-Halsell, S., & Hashimoto, K. (2011). An investigation of technological uses by different generations as it relates to meetings and events: A pilot study. *Journal of Convention & Event Tourism*, 12, 53-63.
- Fenich, G., Scott-Halsell, S., & Ogbeide, G. (2012). What the millennial generation prefers in their meetings, conventions, and events. Retrieved from www2.pcma.org/docs/pdf/millennial_generation_findings
- Ford, R. (2008). Chasing MICE and fellow travelers: A history of the convention and visitor bureau industry. *Journal of Management History*, 14(2), 128-143.
- Fortin, P., Ritchie, J., & Arsenault, J. (1976). *A study of the decision process of North American associations concerning the choice of a convention site*. Laval University, Quebec City, Canada.

- Gallarza, M., Saura, I., & García, H. (2002). Destination image: Towards a conceptual framework. *Annals of Tourism Research*, 29(1), 56-78.
- Gerritsen, M. (2009). The impact of culture on media choice: The role of context, media richness and uncertainty avoidance. *Language for Professional Communication: Research, Practice and Training*, 146–160.
- Gunawardena, C. (1995). Social presence theory and implications for interaction collaborative learning in computer conferences. *International Journal of Education Telecommunications*, 1(2), 147-166.
- Hailey, L. (2010). The importance of social media marketing today. Retrieved from <http://ezinearticles.com/?The-Importance-of-Social-Media-Marketing-Today&id=3873989>
- Hair, J., Black, W., Babin, B., & Anderson, R. (2013). *Multivariate data analysis* (7th ed.). New York, NY: Pearson Education Limited.
- Hertel, G., Geister, S., & Konradt, U. (2005). Managing virtual teams: A review of current empirical research. *Human Resource Management Review*, 15(1), 69-95.
- Hodur, N., Leistritz, F., & Wolfe, K. (2008). Developing the nature-based tourism sector in southwestern North Dakota. *Great Plains Research*, 18(1), 81-92.
- Howell, D. (2012). *Statistical methods for psychology*. Belmont, CA: Cengage Learning.
- Keiningham, T., Cooil, B., Aksoy, L., Andreassen, T., & Weiner, J. (2007). The value of different customer satisfaction and loyalty metrics in predicting customer retention, recommendation, and share-of-wallet. *Managing Service Quality: An International Journal*, 17(4), 361-384.

- Kock, N. (2005). Media richness or media naturalness? The evolution of our biological communication apparatus and its influence on our behavior toward e-communication tools. *IEEE Transactions on Professional Communication*, 48(2), 117-130.
- Lee, S. (2011). To tweet or not to tweet: An exploratory study of meeting professionals' attitudes toward applying social media for meeting sessions. *Journal of Convention & Event Tourism*, 12(4), 271–289.
- Lee, J., & Back, K. (2008). Attendee-based brand equity. *Tourism Management*, 29(2), 331-344.
- Lee, J., & Min, C. (2013). Examining the role of multidimensional value in convention attendee behavior. *Journal of Hospitality & Tourism Research*, 37(3), 402-425.
- Lee, W., Xiong, L., & Hu, C. (2012). The effect of Facebook users' arousal and valence on intention to go to the festival: Applying an extension of the technology acceptance model. *International Journal of Hospitality Management*, 31(3), 819-827.
- Lengel, R., & Daft, R. (1988). The selection of communication media as an executive skill. *Academy of Management Executive*, 2(3), 225-232.
- Lim, K., & Benbasat, I. (2000). The effect of multimedia on perceived equivocality and perceived usefulness of information systems. *MIS Quarterly*, 24(3), 449–471.
- Litvin, S. (2003). The cyber-conference: Vision or illusion? *Journal of Convention & Exhibition Management*, 5(1), 1-11.

- Lowyck, J. (2014). Bridging learning theories and technology-enhanced environments: A critical appraisal of its history. *Handbook of Research on Educational Communications and Technology*. New York, NY: Springer.
- Markus, M. (1994). Electronic mail as the medium of managerial choice, *Organization Science*, 5(4), 502-527.
- Marshall, C., & Rossman, G. (2010). *Designing qualitative research*. Thousand Oaks, CA: Sage publications.
- Mayer, R., & Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia learning. *Educational Psychologist*, 38(1), 43–52.
- McDonald, J., & Gibbons, A. (2009). Technology I, II, and III: Criteria for understanding and improving the practice of instructional technology. *Education Technology Research Development*, 57(1), 377-393.
- Miller, G. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological Review*, 63(2), 81–97.
- Miller, G. (2003). The cognitive revolution: A historical perspective. *Trends in Cognitive Science*, 7(1), 141- 145.
- Montgomery, D. (2001). *Introduction to statistical quality control* (4th ed.). New York, NY: John Wiley and Sons.
- Newell, A., & Simon, H. (1972). *Human problem solving*. Englewood Cliffs, NJ: Prentice-Hall.
- Ngwenyama, O., & Lee, A. (1997). Communication richness in electronic mail: Critical social theory and the contextuality of meaning, *MIS Quarterly*, 21(2), 145-167.

- Norton, R. (1986). Communicator style in teaching: Giving good form to content. *Communicating in College Classrooms*. San Francisco, CA: Jossey-Bass.
- Oliver, R. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, 460-469.
- Oppermann, M. (1996). Convention destination images: Analysis of association meeting planner's perceptions. *Tourism Management*, 17(3), 175-182.
- Oppermann, M., & Chon, K. (1997). Convention participation decision-making process. *Annals of Tourism Research*, 24(1), 178-191.
- Otondo, R., Van Scotter, J., Allen, D., & Palvia, P. (2008). The complexity of richness: Media, message and communication outcomes. *Information and Management*, 45(1), 21-30.
- Paas, F., & Van Merriënboer, J. (1994). Instructional control of cognitive load in the training of complex cognitive tasks. *Educational Psychology Review*, 6(4), 51-71.
- Paas, F., Renkl, A., & Sweller, J. (2004). Cognitive load theory: Instructional implications of the interaction between information structures and cognitive architecture. *Instructional Science*, 32(1), 1-8.
- Pallant, J. (2011). *SPSS survival manual: A step by step guide to data analysis using SPSS* (4th ed.). Crows Nest, NSW: Allen & Unwin.
- Palmer, B. (2010, Febryart). Jeft Hurt goes viral. *Convene*, 28-32.
- Parks, C., & Sanna, L. (1999). *Group performance and interaction*. Boulder, CO: Westview Press.
- Pearce, D. (2014). Toward an integrative conceptual framework of destinations. *Journal of Travel Research*, 53(2), 141-153.

- Pearlman, D., & Gates, N. (2010). Hosting business meetings and special events in virtual worlds: A fad or the future? *Journal of Convention & Event Tourism*, 11(4), 247-265.
- Rathmell, J. (1954). The commercial exhibit. *Journal of Marketing*, 18(1), 271-281.
- Rees, D. (2000). *Essential statistics* (4th ed.). London, England: Chapman and Hall/CRC.
- Rheingold, H. (2008). Using participatory media and public voice to encourage civic engagement. In W. Bennett (Ed.), *Civic life online: Learning how digital media can engage youth* (97-118). Cambridge, MA: The MIT Press.
- Rice, R. (1993). Media appropriateness: Using social presence theory to compare traditional and new organizational media. *Human Communication Research*, 19(4), 451-484.
- Richards, S. (2004). Virtual meetings: Developing a new model for conference committees. *College & Undergraduate Libraries*, 11(1), 77-81.
- Rogers, T. (1998). *Conference: A twenty-first century industry*. New York: Addison Wesley Longman Publishing.
- Rompf, P., Breiter, D., & Severt, K. (2008). Destination selection criteria: Key success factors evolve and dominate. *Event Management*, 12(1), 27-38.
- Rutherford, D., & Kreck, L. (1994). Conventions and tourism: Financial add-one or myth? *Journal of Travel & Tourism Marketing*, 3(1), 49-64.
- Schaefer, R., & Erskine, L. (2012). Virtual team meetings: Reflections on a class exercise exploring technology choice. *Journal of Management Education*, 36(6), 777-801.

- Severt, K., Fjelstul, J., & Breiter, D. (2009). A comparison of motivators and inhibitors for association meeting attendance for three generational cohorts. *Journal of Convention & Event Tourism*, 14(2), 124–143.
- Severt, K., Fjelstul, J., & Breiter, D. (2013). Information communication technologies: Usages and preferences of generation students and meeting professionals. *Journal of Convention & Event Tourism*, 10(2), 105–119.
- Severt, D., Wang, Y., Chen, P., & Breiter, D. (2007). Examining the motivation, perceived performance, and behavioural intentions of convention attendees: Evidence from a regional conference. *Tourism Management*, 28, 399-408
- Shallcross, W. (1998, January). The British conference market. *Insights*, B39-B53.
- Short, J. A., Williams, E., & Christie, B. (1976). *The social psychology of telecommunications*. London, England: Wiley.
- Singh, I. (2012). *Differences between webinars, live meetings, and virtual events*. Retrieved from <http://www.virtualeventshub.com/virtual-event-trends/differences-between-webinars-live-meetings-and-virtual-events/>
- Sperstad, J., & Cecil, A. (2011). Changing paradigm of meeting management: What does this mean for academia? *Journal of Convention and Event Tourism*, 12(4), 313-324.
- Steinfeld, C. (1986). Computer mediated communication in an organizational setting: Explaining task-related and socioeconomical uses. In M. McLaughlin (Ed.), *Communication Yearbook 9* (777-804). Newbury Park, CA: Sage.
- Sun, P., & Cheng, H. (2007). The design of instructional multimedia in e-learning: A media richness theory-based approach. *Computers and Education*, 49, 662–676.

- Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12(2), 257-285.
- Sweller, J., & Chandler, P. (1991). Evidence for cognitive load theory. *Cognition and Instruction*, 8(4), 351-362.
- Sweller, J., Van Merriënboer, J., & Paas, F. (1998). Cognitive architecture and instructional design. *Educational Psychology Review*, 10(3), 251–296.
- Tanford, S., Montgomery, R., & Nelson, K. (2012). Factors that influence attendance, satisfaction and loyalty for conventions. *Journal of Convention & Event Tourism*, 13(4), 290–318.
- Toothaker, L. (1991). *Multiple comparisons for researchers*. Newbury Park, CA: Sage Publications.
- Tu, C. (2000). On-Line learning migration: From social learning theory to social presence theory in CMC environment. *Journal of Network and Computer Applications* 23(1), 27-37.
- Tu, C. (2001). How Chinese perceive social presence: An examination of an online learning environment. *Educational Media International*, 38(1), 45-60.
- Turner, J. (1958). *Conventions: An American institution*. Cincinnati, OH: International Association of Convention Bureaus.
- Tussyadiah, I., & Fesenmaier, D. (2009). Mediating tourist experiences: Access to places via shared videos. *Annals of Tourism Research*, 36(1), 24-40.

- Unsworth, N., & Brewer, G. (2009). Examining the relationships among item recognition, source recognition, and recall from an individual differences perspective. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 35(6), 1578–1585.
- Van Merriënboer, J., & Sweller, J. (2005). Cognitive load theory and complex learning: Recent developments and future directions. *Educational Psychology Review*, 17(2), 147–177.
- Van Merriënboer, J., & de Bruin, A. (2014). Research paradigms and perspectives on learning. In M. Spector, M. Merrill, J. Elen, & M. Bishop (Eds.), *Handbook of Research on Educational Communications and Technology* (21-29). New York, NY: Springer.
- Var, T., Cesario, F., & Mauser, G. (1985). Convention tourism modeling. *Tourism Management*, 195–204.
- Venkatesh, V., & Morris, M. (2000). Why don't men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behavior. *MIS Quarterly*, 115-139.
- Walther, J. (1992). Interpersonal effects in computer-mediated interaction: A relational perspective. *Communication Research*, 19(1), 52-90.
- Welch, S. (2007). The new age. *Hospitality & Tourism Complete*, 56(1), 12, 14.
- Yang, K., & Jolly, L. D. (2008). Age cohort analysis in adoption of mobile data services: Gen Xers versus baby boomers. *Journal of Consumer Marketing*, 25(5), 272-280.

- Yoo, J., & Chon, K. (2010). Temporal changes in factors affecting convention participation decision. *International Journal of Contemporary Hospitality Management*, 22(1), 103–120.
- Yoo, J., & Zhao, X. (2010). Revisiting determinants of convention participation decision making. *Journal of Travel & Tourism Marketing*, 27(2), 179-192.
- Yuan, Y. L., Gretzel, U., & Fesenmaier, D. (2006). The role of information technology use in American convention and visitors bureaus. *Tourism Management*, 27(2), 326-341.
- Zeithaml, V., Berry, L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing*, 60(1), 31-46.
- Zhang, H., Leung, V., & Qu, H. (2007). A refined model of factors affecting convention participation decision-making. *Tourism Management*, 28(4), 1123-1127.

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