5-2023

An Eye-Tracking Investigation of Consumer's Real-Time Behaviors in Professional Minor League Hockey

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AN EYE-TRACKING INVESTIGATION OF CONSUMER'S REAL-TIME BEHAVIORS IN PROFESSIONAL MINOR LEAGUE HOCKEY

A Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

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Sport Administration

May 2023

This Dissertation by: Alicia B. Romano

Entitled: *An Eye-Tracking Investigation Of Consumer's Real-Time Behaviors In Professional Minor League Hockey*

has been approved as meeting the requirement for the Degree of Doctor of Philosophy in the College of Natural and Health Sciences in the School of Sport and Exercise Science, Program of Sport Administration.

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ABSTRACT

Romano, Alicia. *An Eye-Tracking Investigation Of Consumer's Real-Time Behaviors In Professional Minor League Hockey.* Published Doctor of Philosophy dissertation, University of Northern Colorado, 2023.

Minor league hockey provides a unique setting to investigate consumers' marketing-controlled activities in a natural environment. Consumers' visual attention to sponsorship information has been shown to influence their explicit memory of sponsor brands and their purchase intentions. The current research builds on the sponsorship information processing framework of previous scholars by examining consumers' real-time behaviors to sponsorship information in a natural setting. To analyze consumers' behaviors at minor league hockey sporting events, qualitative and quantitative data were collected from 16 participants. The qualitative data related to the patterns and observations of consumers' visual attention behaviors. The quantitative data measured consumers' fixation duration, fixation frequency, explicit memory (i.e., recall and recognition), and sponsorship response. Through the utilization of a Structural Equation Model (SEM) analysis, the current study constructed a comprehensive understanding of consumers' information search processes to sponsorship signage. Results indicated that consumers' fixation frequency influences their ability to recall and recognize sponsorship information, resulting in a positive sponsorship response. The results of this study provide tangible evidence to sport and corporate marketers, indicating expected consumption outcomes based on consumers' visual attention in a natural environment. The current study highlights sponsorship strategies for marketers to increase sponsors' return on investment.

ACKNOWLEDGEMENTS

I would like to thank my committee members, my family, and my colleagues for all of their support. First, I would like to acknowledge the time, knowledge, and guidance my dissertation committee provided me. To my committee chair, Dr. Alan Morse, I will never forget the day I walked into your office. You sparked my passion for research and made me feel right at home in the Sport Management program. You provided me with so many amazing opportunities and experiences to grow in my writing and my research. I would not be defending a dissertation without your encouragement, guidance, and support over the past several years. I am sincerely grateful for your advisement and friendship. To my committee member, Dr. Yoon Tae Sung, you have taught me many valuable lessons over the years that have been and will continue to be instrumental in my academic career. To Dr. David Stotlar, your mentorship had a profound impact on my academic development. To my faculty representative, Dr. Vish Iyer, your passion for teaching and research inspired me to push myself in every aspect of academia. Thank you, Dr. Alan Morse, Dr. Yoon Tae Sung, Dr. David Stotlar, and Dr. Vish Iyer, for everything you have done for me over the past three years.

To my family, you are my rock. I would not have continued pursuing a Ph.D. without all of your love and support throughout the years. You are my biggest fans and I am grateful for your unwavering love. To my parents, thank you for molding me into the strong-willed person I am today. To my siblings, thank you for putting up with me throughout my academic journey. To Joshua, I could not have done this without you. You sat with me for countless hours, reading every sentence, examining every table and figure, and listening to me talk through ideas. Your

time and patience are something I will forever be grateful for; I cannot thank you enough. Thank you all for believing in me.

Finally, to my colleagues, you are the glue that held me together over the past three years. Your reinforcement kept me grounded, your support kept me going, and our BITO kept me humble. I am grateful that I was able to work and grow alongside you. I am truly thankful for your friendship.

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CHAPTER I

INTRODUCTION

The ability of corporate sponsors to influence consumer behavior has become a stronger motivation for partnerships (Marin et al., 2018) and has drastically increased corporate sponsorship spending in the last decade (IEG, 2021a). For example, in the National Football League (NFL) alone, sponsorship spending exceeded $1.47 billion in the 2019-20 season (IEG, 2021b) and continued to rise to $1.8 billion in the 2021-22 season (Sport Media, 2022). The importance of sport sponsorship is significant due to the reduction in efficiency of traditional media advertising and the rise in sports broadcasting through social media (Alonso Dos Santos et al., 2016; Naidenova et al., 2016). Sponsorship has been established as a legitimate marketing tool (Cornwell & Maignan, 1998) and is one of the fastest-growing channels for marketing communication (Wakefield, 2020). Corporate organizations have considered these changes, creating a higher preference for communication through sponsorships (Alonso Dos Santos et al., 2020).

The main challenge for sponsorship management is to maximize the degree of viewer attention (Breuer & Rumpf, 2012). Sponsors enhance their brand by receiving viewers' visual attention in return for their investment (Meenaghan & O'Sullivan, 2013; Olson & Thjømøe, 2009). Sponsorship investments are a marketing communication option chosen based on the corporations' marketing objectives (Breuer & Rumpf, 2012). Investigating the effectiveness of sponsorship is essential to determine the cost-effectiveness of sponsorship communication (Olson & Thjømøe, 2009). Previously, the return on investment of sponsorship was based on a

media-analytical approach that measured sponsorship exposure times (Jensen, 2012; Jensen & Cobbs, 2014); however, this does not account for consumers' cognitive processing of sponsorship information (Crompton, 2004). As sponsorship communication grows, researchers must adapt their studies to determine if the current communication strategies benefit sponsors' investment returns. An emphasis has been placed on measurable evidence of sponsorship effectiveness to rationalize sponsors' investment and maximize sponsor benefits (Kim et al., 2015). Therefore, the consumers' marketing-controlled search activity determines sponsors' return on investment.

Researchers have increasingly investigated the impact of sponsorship effectiveness to help sponsorships better communicate with consumers (e.g., Cornwell et al., 2005; Gwinner & Swanson, 2003; Madrigal, 2001; Meenaghan, 2001; Simmons & Becker-Olsen, 2006; Speed & Thompson, 2000; Wakefield & Bennett, 2010). However, these studies focused on consumers' explicit memory–a conscious memory of previous information presented (Shapiro & Krishnan, 2001). Consumers also have implicit memory that is retrieved automatically without deliberate cognitive effort (Lim et al., 2018). Sport marketing scholars have implemented visual attention and explicit memory forms of measurement to evaluate the return on investment of sport sponsorships (e.g., Alonso Dos Santos, Calabuig Moreno, & Crespo-Hervás, 2019; Alonso Dos Santos et al., 2020; Boerman et al., 2015; Breuer & Rumpf, 2012, 2015). These studies utilized eye-tracking glasses to examine consumers' visual attention. Eye-tracking is helpful because it allows researchers to unobtrusively and directly measure viewers' visual attention (Boerman et al., 2015) to a sporting event and specific visual elements such as sponsorships and advertisements. Using eye trackers is essential when assessing consumers' visual attention to sponsorship information because eye movements indicate how much attention is devoted to

sponsorship signage (Lim et al., 2018). Visual attention leads to explicit memory (e.g., Alonso Dos Santos, Calabuig Moreno, & Crespo-Hervás, 2019; Breuer & Rumpf, 2012), which can impact viewers' purchase intentions of their products and/or services.

Even though the literature has examined consumers' visual attention to sponsorship signage more thoroughly (Alonso Dos Santos, Calabuig Moreno, & Crespo-Hervás, 2019; Alonso Dos Santos et al., 2020; Boerman et al., 2015; Breuer & Rumpf, 2012, 2015), research still lacks ecological validity (e.g., more realistic or diverse stimuli and measures; Boegershausen et al., 2022) of consumers' behaviors, especially concerning sponsorship effectiveness at live sporting events. Ecological validity assesses whether the measurements and behavior in the research setting are representative of the real world (Chang et al., 2022). Consequently, previous scholars' efforts to measure the effectiveness of sponsorship strategies have provided limited implications and insights. To date, the measurement of consumers' visual attention on sponsorship signage has only been assessed in a laboratory setting. Sponsorship spectators have two types of memory: event-based (emotional or personal) memory and semantic (factual) memory (Cornwell & Maignan, 1998). Therefore, laboratory-based settings are unable to account for a live (event-based) environment that can create an emotional and personal connection. Individuals who attend the sponsored event may establish a stronger sensitivity to brands than individuals watching via media (Heuer & Reisberg, 1990). Viewers' visual attention and explicit memory of brands at a sponsored event create brand awareness and interest, influencing purchase decisions (Alonso Dos Santos et al., 2018). Brand awareness/associations can cause perceived differences between the sponsor brand and its competitors (Pitts & Slattery, 2004). This theoretical view illustrates the importance of conducting research at live sporting events to enhance the ecological validity of sponsorship information processing. Researchers can

create rigorously realistic evidence of sponsorship effectiveness by examining consumers' behaviors in a natural environment.

Statement of Purpose

The lack of ecological validity in sponsorship information processing research creates an issue for sport organizations and the practical implications that can be applied in the field. Therefore, the current research aimed to examine consumers' event-based experiences in a natural environment and determine how their visual attention leads to explicit memory of sponsor brands. The results of this study provided tangible evidence demonstrating expected consumption outcomes based on consumers' visual attention at a live sporting event.

The current study was based on several theories examined in a laboratory setting. First, the sequential attention model refers to an individual's eye movement process (e.g., Henderson, 1992; Pollatsek et al., 1986; Rayner & Balota, 1989). Part of our eye movement programming results from the capacity theory of attention and spotlight theory (Kahneman, 1973; LaBerge, 1983). These theories refer to an individual's ability to only select one foveal stimulus at a time. The foveal stimulus is the center of an individual's field of vision. The foveal stimulus becomes a spotlight while all other objects surrounding the stimulus cannot be cognitively processed simultaneously. Our eye movements result in visual attention, referred to as high or low attention theory. High attention theory relates to the conscious processing of information (Eysenck & Keane, 2000), while low attention theory is the semiconscious processing of information (Krugman, 1965). Researchers examining consumers' real-time behaviors at a live sporting event can track both conscious and semiconscious processing, resulting in a consumer's ability to cognitively process sponsorship information. For the current study, the application of a live

sporting event as the setting helped provide a more complete picture of how consumers interact with sponsorship signage.

Rationale

Previous sport scholars have used eye trackers to examine sponsorship effectiveness. The majority of research has been focused on the influence consumers' visual attention has on explicit memory (e.g., Alonso Dos Santos, Calabuig Moreno, & Crespo-Hervás, 2019; Alonso Dos Santos et al., 2020; Boerman et al., 2015; Breuer & Rumpf, 2012, 2015). As previously stated, all previous research on sponsorship effectiveness using eye trackers has been based in a laboratory setting. In this case, previous scholars treated consumers as stationary objects in an unrealistic environment. Orquin and Holmqvist (2018) stated that laboratory experiments suffer from observing unrealistic stimuli, even if the experiment uses a broad range of stimuli. They go on to state that generalizing eye movement from a laboratory setting to the real world would be problematic. The impact of the eye-tracking research mentioned above has been studied in terms of sponsorship effectiveness. However, these laboratory impacts do not correlate to the sport industry and the live environments consumers experience while at sporting events. Therefore, the laboratory results cannot justify sponsorship's effectiveness in a live environment.

Lim et al. (2018) suggested that the current gap in research is the need to observe spectators' behavior in a more natural setting to increase sponsorship effectiveness. Further, Boronczyk et al. (2018) indicated that research designs need to (a) allow for a normal allocation of attention and (b) measure the shared attention fixated on sponsorship information. To date, there has been no research on consumers' real-time behaviors in a live environment. Previous research methods for evaluating the effectiveness of sponsorships neglect to observe the sport viewers' complex information processing during normal allocations of attention. Therefore, the

objective of the current study explored consumers' real-time behaviors at minor league hockey sporting events.

Research Questions and Hypotheses

To analyze consumers' real-time behaviors at minor league hockey sporting events, qualitative and quantitative data were collected and used to determine sponsorship effectiveness. The qualitative data related to consumers' visual attention patterns and behaviors. The quantitative data was based on several measures (i.e., explicit memory, sponsorship response, and visual attention). The statistical method used for the current research analysis was a structural equation model (SEM), which uncovered relationships between consumer behavior and sponsorship response. The questions that guided the current research are presented in:

Recall Model

Q1 Is there a relationship between consumers' perceived sponsor congruence and visual attention?

H1 Sponsor congruence will positively impact consumers' fixation duration.

H2 Sponsor congruence will positively impact consumers' fixation frequency.

Q2 Is there a relationship between a consumer's visual attention and explicit memory of event sponsors?

H3 Duration will positively impact consumers' recall of a sponsor brand.

H4 Frequency will positively impact consumers' recall of a sponsor brand.

Q3 Is there a relationship between a consumer's explicit memory and sponsorship response?

H5 Recall will positively impact consumers' favorability of a sponsor brand.

H6 Recall will positively impact consumers' interest of a sponsor brand.

H7 Recall will positively impact consumers' use of a sponsor brand.

Q4 Is there a relationship between a consumer's visual attention and sponsorship response?

H8 Duration will positively impact consumers' favorability of a sponsor brand.

H9 Duration will positively impact consumers' interest in a sponsor brand.

H10 Duration will positively impact consumers' use of a sponsor brand.

H11 Frequency will positively impact consumers' favorability of a sponsor brand.

H12 Frequency will positively impact consumers' interest in a sponsor brand.

H13 Frequency will positively impact consumers' use of a sponsor brand.

Q5 Does explicit memory influence the relationship between a consumer's visual attention and their sponsorship response?

H14 Recall will positively impact the relationship between fixation duration and consumers' favorability of a sponsor brand.

H15 Recall will positively impact the relationship between fixation duration and consumers' interest of a sponsor brand.

H16 Recall will positively impact the relationship between fixation duration and consumers' use of a sponsor brand.

H17 Recall will positively impact the relationship between fixation frequency and consumers' favorability of a sponsor brand.

H18 Recall will positively impact the relationship between fixation frequency and consumers' interest of a sponsor brand.

H19 Recall will positively impact the relationship between fixation frequency and consumers' use of a sponsor brand.

Recognition Model

Q1 Is there a relationship between consumers' perceived sponsor congruence and visual attention?

H1 Sponsor congruence will positively impact consumers' fixation duration.

H2 Sponsor congruence will positively impact consumers' fixation frequency.

Q2 Is there a relationship between a consumer's visual attention and explicit memory of event sponsors?

H20 Duration will positively impact consumers' recognition of a sponsor brand.

H21 Frequency will positively impact consumers' recognition of a sponsor brand.

Q3 Is there a relationship between a consumer's explicit memory and sponsorship response?

H22 Recognition will positively impact consumers' favorability of a sponsor brand.

H23 Recognition will positively impact consumers' interest of a sponsor brand.

H24 Recognition will positively impact consumers' use of a sponsor brand.

Q4 Is there a relationship between a consumer's visual attention and sponsorship response?

H25 Duration will positively impact consumers' favorability of a sponsor brand.

H26 Duration will positively impact consumers' interest in a sponsor brand.

H27 Duration will positively impact consumers' use of a sponsor brand.

H28 Frequency will positively impact consumers' favorability of a sponsor brand.

H29 Frequency will positively impact consumers' interest in a sponsor brand.

H30 Frequency will positively impact consumers' use of a sponsor brand.

Q5 Does explicit memory influence the relationship between a consumer's visual attention and their sponsorship response?

H31 Recognition will positively impact the relationship between fixation duration and consumers' favorability of a sponsor brand.

H32 Recognition will positively impact the relationship between fixation duration and consumers' interest of a sponsor brand.

H33 Recognition will positively impact the relationship between fixation duration and consumers' use of a sponsor brand

H34 Recognition will positively impact the relationship between fixation frequency and consumers' favorability of a sponsor brand

H35 Recognition will positively impact the relationship between fixation frequency and consumers' interest of a sponsor brand

H36 Recognition will positively impact the relationship between fixation frequency and consumers' use of a sponsor brand

The foundation of Q1 was to investigate the connection between consumers' perceived congruence of sponsors and their visual attention (factors affecting visual attention in both the recall and recognition models). At the same time, Q2 examined the direct effect of consumers' visual attention on their ability to recall and recognize sponsor brands. Further, Q3 explored how consumers' recall and recognition of sponsor brands influenced their favorability, interest, and use of sponsor brands. Q4 investigated the same outcome with consumers' fixation duration and fixation frequency. Finally, Q5 examined the indirect effects of explicit memory on the relationship between consumers' visual attention and purchase intention.

Structural Overview

The remainder of this dissertation is separated into four chapters. Chapter II is the literature review, expanding upon the relevant theories and theoretical framework to provide a deeper understanding, rationale, and explanation for the current study. Topics covered are the theories related to visual attention, consumer perceptions of sponsorship information, consumer information search processes, and sponsorship effectiveness. Chapter III consists of the methodology for the current study. The methodology included the research design, in-depth variable description, data collection, and statistical analysis. The research design described the importance of the study's setting. Variable decriptions and data analysis were based on model

constructs and control variables. The statistical analysis explained the process of SEM and how to analyze mediating and moderating effects. Chapter IV reported the qualitative patterns and the statistical analysis results. Chapter V covered the discussion, limitations, and future directions. The discussion reviewed the results based on the previously established theories and theoretical framework. The discussion also consisted of theoretical and practical implications. Chapter V concluded with the limitations of the current research and the future research that can be performed.

CHAPTER II

REVIEW OF LITERATURE

The review of literature is divided into six sections highlighting and applying relevant theories and theoretical frameworks to the current study. The first section gives a brief background on the optics and sensors of the eye. The second section explains the history of eye-tracking. The third section introduces visual attention theories related to individuals' eye movements. Included in the review of visual attention are subsections addressing consumers' active and passive attention. The fourth section explains consumer perceptions of sponsorship information. The fifth section transitions to consumers' information search processes. The final section examines previous studies on sponsorship effectiveness and their application to the current research. The hypotheses for the current study (see Chapter I) reflect the information present in this literature review.

Optics and Sensors of the Eye

This section provides an overview of the human visual system (HVS). The HVS begins with light rays passing through the cornea and pupil to the lens (Kolb, 1995). The pupil, much like an aperture in a camera, controls the amount of light that passes through to the lens (Kolb, 1995; Oyster, 1999). From there, the light will travel into the vitreous humour and be projected on the retinal surface (Kolb, 1995). The human retinal surface contains photoreceptor cells (i.e., rods and cones), which help create what we see in the world. The retina has a slight depression called the fovea, which is the center of our field of vision (i.e., driving, reading) (Oyster, 1999). Eye movement allows humans to project an area of interest into the fovea. However, our gaze needs

to rest on an area of interest to get a successful resolution of a projection; this is called a fixation. The optics of an eye are essential for tracking consumers' visual attention. In eye-tracking research, the pupil is what defines the direction of a consumer's gaze. Eye trackers use high-resolution imaging of the eye to locate the center of the pupil. Once the pupil's location is determined, the eye-tracking software can determine a consumer's gaze points by pairing the pupil images with real-time world imaging.

History of Eye-Tracking

Eye-tracking began with naked-eye observations in 1879 by Louis Emile Javal, who examined individuals' eye movements while reading literature (Wade & Tatler, 2009). Javal coined the terms saccade (i.e., jerky eye movements) and fixation (i.e., eye pauses), which are used to explain eye movements in research studies. Edmund Huey (1898) further examined readers by transferring a small lever from a contact lens to a soot-covered rotating drum; however, this was an invasive process for participants. To decrease the invasiveness of Huey's research, Dodge and Cline (1901) used light reflections from the cornea to determine horizontal eye movements. To further examine eye movements, Judd et al. (1905) used motion picture photography to record two-dimensional eye movements by inserting a speck of material into a participant's eye.

By the 1930s, a combination of corneal reflection and motion picture methods was used in eye-tracking research. Tinker applied the photographic technique to determine readers' speed and eye movement patterns (see Tinker, 1963). Buswell (1935) further developed the photographic technique to examine readers' two-dimensional eye movements. This technique advanced into electrooculography (EOG), enhancing real-time horizontal and vertical eye measurements (Jung, 1939). At this point, eye-tracking technology still lacked the ability to

decipher between head and eye movements; thus, an individual's head had to be clamped down during any research studies.

As technology progressed, Hartridge and Thompson (1948) invented the first head-mounted eye trackers. Although participants were not strapped into a device, the head-mounted version was still vastly intrusive. Throughout the next few decades, researchers manufactured less invasive head-mounted systems (Mackworth & Thomas, 1962; Shackel, 1960). The head-mounted systems allowed for more head movement during data collection; however, researchers were still trying to find the best technique to view an individual's eye movements. Rashbass (1960) created a new method for eye tracking using a cathode-ray tube and a lens to determine individuals' eye movements. Whereas, Yarbus reverted to contact lenses, attaching a tiny mirror to the surface of the lens, which was mounted on stalks (Tatler et al., 2010). The mirrors and stalks produced a corneal reflection recorded as eye movement.

During the 1970s and 1980s, eye trackers continued to become less intrusive and have better accuracy (e.g., Clark, 1975; Cornsweet & Crane, 1973; Crane & Steele, 1985; Merchant et al., 1974). These studies used the double-Purkinje-image (DPI) eye-tracking technology that captured reflected infrared light projected on the eye. The DPI eye-tracking technology allowed for a more accurate estimation of individuals' fixations (Crane & Steele, 1985). In the late 1980s and early 1990s, marketing agencies began to utilize eye-tracking technology to determine magazine advertisement effectiveness (e.g., Fischer et al., 1989; Krupka et al., 1990). Eye trackers could observe the parts of a magazine that were read and how much time was spent on different areas of the magazine. As computer technology improved in the 1990s, researchers could start conducting real-time eye-tracking using video-based eye trackers for human-computer interaction (e.g., Mulligan, 1997; Tanenhaus & Spivey-Knowlton, 1996).

From the 2000s to the present, eye-tracking continues to advance in technology and analysis software (e.g., Tobii Technology, Imotions, Pupil Labs). Researchers began to use eye-tracking to examine advertisement effectiveness on television, in-game video recordings, and sport web pages (e.g., Gidlöf et al., 2012; Kallenbach et al., 2007; Lim et al., 2018; Pieters & Wedel, 2004). As effectiveness research continued, scholars found that sponsor messages create similar magnitudes of attention as advertising (e.g., Hansen & Scotwin, 1995). Thus, advertisement effectiveness models and theories were applied to sponsorship effectiveness (e.g., Aguiló-Lemoine et al., 2020; Alonso Dos Santos et al., 2018; Boronczyk et al., 2018; Breuer & Rumpf, 2012).

Throughout the history of eye-tracking, researchers have continued to perfect eye-tracking technology and develop the field of sport sponsorship. Eye-tracking research began when researchers observed that readers' eye movements did not have a fluid motion. As eye-tracking technology progressed, scholars began examining viewers' eye movements when observing objects and on-screen images. These eye-tracking advancements are now used to evaluate advertisement and sponsorship effectiveness.

Visual Attention

Sequential Attention Model

A functional relationship between visual attention and eye movements begins when "visual attention is allocated to the stimulus at the center of fixation" (Henderson, 1992, p. 263). When the foveal stimulus is identified, attention is reallocated to a new stimulus (Rayner & Balota, 1989; Rayner & Pollatsek, 1987). The reallocation occurs through eye movement programming, consisting of motor movements and a new locus of attention (Henderson, 1992). Eye movement is latent to the motor commands programmed. Thus, the human eye can attend to

an object within its peripheral visual field without fixating on it (Rayner & Balota, 1989). A human eye can also reallocate its fixation location three to five times per second (e.g., Rayner, 1978; Tinker, 1963). During a reallocation to a new stimulus, temporal and spatial decisions are made about a fixation. Temporal decisions communicate the duration of fixation, while spatial decisions correspond to the location of fixation (Fisher & Shebilske, 1985). Humans' visual attention is vastly complex in the cognitive control and motor programming of eye movements (Morrison, 1984). Part of the complex nature of visual attention relates to parafoveal and peripheral counterparts, which are fundamental mechanisms of visual attention and guide each fixation (Fisher & Shebilske, 1985).

Eye movement behavior can be observed through parallel programming when several eye movement programs are simultaneously active (Morrison, 1984). If a second program signal occurs before the first program is cognitively retained, then the first program may be canceled (Hogaboam, 1983; Pollatsek et al., 1986) but would still be parafoveally processed (Fisher & Shebilske, 1985). However, suppose the second program signal occurs after a certain threshold has been met. In that case, the first program will be cognitively processed by a brief fixation as the eye movement programming has already determined a secondary focus (Pollatsek et al., 1986).

The studies previously mentioned were based on the sequential attention model during reading. Henderson et al. (1989) reinforced the sequential attention model regarding picture objects, suggesting that attention is dynamically reallocated to the next fixation location. Additionally, Shepherd et al. (1986) determined that attention to a new stimulus must be allocated before fixation occurs. Thus, motor movements shift to the location that is about to be

fixated on, and the preview information at the new location is used to identify the foveal stimulus.

The difficulty of the foveal stimulus determines the threshold needed to cognitively process the information at each location. Henderson (1992) proposed a modification to the sequential attention model, stating that the preview benefit derived from an extrafoveal stimulus is a function of the programming latency. The programming latency refers to "the amount of time that attention is focused on the extrafoveal stimulus before the eyes fixate on that stimulus" (Henderson, 1992, p. 280). Therefore, the difficulty of foveal processing will determine the programming latency and the extent of the preview benefit.

Attention Theories

Attention control is a psychological measure of mental activity involving the cognitive processing of various stimuli (Pribram & McGuinness, 1975). Attention occurs when individuals perceive and cognitively process information from the environment (Eysenck, 2012). Within marketing, there are four levels of attention: pre-attention, passive attention, active attention, and elaboration (Greenwald & Leavitt, 1984). The levels of attention are described as the capacity for conscious thinking (Heath, 2009).

The capacity theory of attention assumes that viewers' level of attention is limited due to the visual systems' protection against information overload (Kahneman, 1973). Since attention is a limited resource, viewers use intentional effort or motivation to cognitively process a foveal stimulus (Petty & Cacioppo, 1982). Motivational attention is determined by the consumer's perceived relevancy of information (Lavidge & Steiner, 1961). According to the sequential attention theory, cognitive overload can occur when two objects demand capacity, resulting in the completion of only one stimulus signal.

Similarly, the spotlight theory assumes that attention is a spotlight, focusing on one object in the viewer's field at a time (LaBerge, 1983). Once the object information has been processed, a new object in the viewer's field of vision is selected, and the spotlight changes (Palmer, 2002). Researchers found that sport action captures the majority of viewers' attention, resulting in a minimal amount of sponsorship information being viewed and retained (Boronczyk et al., 2018; Breuer & Rumpf, 2012). Since sport viewers' attention to sponsor signage is limited, the sponsorship information should be presented more often and placed where the individual's field of view is most likely to be fixated on.

Active Attention

Cognitive processing requires top-down attention processing, also known as high attention. Top-down attention processing refers to a viewer's ability to deliberately process information cognitively (Eysenck & Keane, 2000). High attention is motivational and produces explicit memory outputs. Explicit memory refers to information that is intentionally and consciously remembered based on a past event (Shapiro & Krishnan, 2001). In sponsorship effectiveness, viewers' explicit memory is based on their ability to remember previously exposed sponsorship information. This theory is also known as active attention, which refers to the internal processing of stimuli (Graham, 1997).

Researchers have found that audio-visual sensory cues can stimulate the internal processing of a sponsor brand, which results in brand information being stored as memory (Simmonds et al., 2020). These audio-visual sensory cues are due to the neural responses related to passive shifts in attention to stimulus signals (Kida et al., 2006). In other words, for active attention or top-down processing to take place, passive attention must occur (Geske & Bellur,

2008; Lardinoit & Derbaix, 2001; Smit et al., 2015). Thus, passive attention is essential for the cognitive processing of sponsorship information.

Passive Attention

Low attention theory refers to the semiconscious processing of information (Krugman, 1965). Eysenck and Keane (2000) referred to the low attention theory as bottom-up processing or passive attention—semiconscious learning. This theory relates to the viewer's inadvertent attention controlled by external stimuli (Eysenck & Keane, 2000). Passive attention occurs pre-cognitively at approximately 50 milliseconds per item (Itti & Koch, 2000). Researchers have found that passive attention can impact implicit memory (i.e., subconscious learning), even if the individual does not claim to remember seeing the information (Shapiro et al., 1997). Implicit memory refers to the viewer's ability to non-intentionally retrieve previous information without any deliberate cognitive effort (Duke & Carlson, 1994; Yoo, 2008). Implicit memory is suggested to help measure sponsorship effectiveness by observing semiconscious information processing (Herrmann et al., 2011; Shapiro & Krishnan, 2001).

Krugman (1977) argued that the importance of passive attention is due to repeated exposure to a stimulus over time. Repeated exposures are an effective component of implicit memory that bypasses explicit cognitive processing (Damasio, 2000; Zajonc, 1980) and can influence positive decision-making and boost familiarity (Heath & Nairn, 2005; Olson & Thjømøe, 2003). In more recent research, Lim et al. (2018) found that viewers' implicit memory was higher than explicit memory. They noted this significance as a positive for sponsors associated with live sporting events, suggesting that the unconscious stimulus of signage also influences viewers' purchase intentions. Theoretically, the findings support the idea that

consumers implicitly memorize exposed brands, thereby increasing brand familiarity. Hence, sponsorship effectiveness includes both explicit and implicit memory measures.

Consumer Perceptions of Sponsorship Information

Sponsor Congruence Theory

Congruence is a phenomenon that examines the similarity between two stimuli (Martin & Stewart, 2001). Congruence theory refers to a viewer's explicit memory being influenced by their perception of compatibility (Cornwell & Maignan, 1998). Sponsor congruence is characterized by two types of congruence: self-congruence and external congruence. Self-congruence indicates the level of congruence between an individual's self-concept and the sport property (Prendergast et al., 2010). External congruence denotes an individual's perceived similarity between the sponsor and sport property (Fortunato, 2013; Martin & Stewart, 2001; Simmons & Becker-Olsen, 2006). External congruence consists of image congruence, functional congruence, geographic congruence, multi-sponsor congruence, and purchase congruence (Fortunato, 2013; Olson & Thjømøe, 2011). The current research study focuses on consumers' perceived external congruence, specifically image congruence. Image congruence signifies the similarity (i.e., fit) between an event and an event sponsor (Gwinner & Eaton, 1999). This study also focused on purchase congruence. Purchase congruence is consumers' ability to purchase sponsors' products at the event location (Fortunato, 2013).

Congruence is fundamental in the association between an event and the sponsoring brand (Speed & Thompson, 2000). Sponsoring brands use sporting events as a vehicle to create a legitimate image and competitively distinguish themselves (Kaynak et al., 2008). The legitimate image is based on consumers' perceptions of a partnership (Gwinner & Eaton, 1999; Johar & Pham, 1999; Speed & Thompson, 2000). Consumers' perception of a sponsor's image

congruence is an essential factor in measuring the effectiveness of a sponsorship (Bruhn & Holzer, 2015; Fortunato, 2013; Menon & Kahn, 2003; Rifon et al., 2004).

Perceived congruence requires a lower fixation threshold on a stimulus to cognitively process and retain the information (Johar & Pham, 1999). Congruence has been a proposed driving factor of sport sponsorship effectiveness (Macdougall et al., 2014); however, incongruence has also been established as an advantage that can positively impact viewers' explicit memory (Hastie, 1984; Tribou, 2011). If the perception of compatibility has a low level of incongruence and the stimulus threshold is met, there will be a higher probability of recall (Hastie, 1984). If perceived incongruence is significant, the sponsorship information will be rejected during the cognitive processing stage, and image transfer will not be activated (Tribou, 2011). Thus, sponsor congruence may be a more reliable attribute to sponsorship effectiveness than incongruence.

Sponsor congruence is connected to a sponsor's direct or indirect fit to an event (McDonald, 1991). Fit is determined by the viewers' perceived compatibility between the event and the sponsor (Speed & Thompson, 2000). The fit can be affected by the type of event sponsored, the sponsor products offered, and the audience (Cornwell & Maignan, 1998). Direct congruence is when a sponsor's product is exposed during an event, while indirect congruence is based on consumers' core values aligning with the values represented by the sponsored event. Direct congruence is associated with the idea that sponsor congruence can increase brand awareness among consumers (Pham & Johar, 2001) and improve image transfer (Gwinner & Eaton, 1999). In event-based sponsorship, the direct congruence is based on sponsoring the brand image and event image (Fleck & Quester, 2007), thus, increasing sponsor recall (Cornwell et al., 2005; Johar & Pham, 1999) and consumers' attitudes toward the sponsor (McDaniel, 1999; Rifon

et al., 2004). The resulting advantages of congruence can create product differentiation (Amis et al., 1999).

Sponsor congruence is one of the most used variables in academic sponsorship research (Alonso Dos Santos & Calabuig Moreno, 2018; Cornwell et al., 2005). Research on sponsor congruence suggests that the more logically sanctioned the pairing between event and sponsor is to consumers, the more enhanced their memory and image transfer will be (e.g., Gwinner & Eaton, 1999; Johar & Pham, 1999; McDaniel, 1999; Speed & Thompson, 2000). However, others have suggested that incongruent information is retained at a higher rate (e.g., Alonso Dos Santos & Calabuig Moreno, 2018; Cornwell et al., 2006; Jagre et al., 2001; Stangor & McMillan, 1992). This controversial topic is important to corporate managers who seek to create partnerships with sport events/organizations that may or may not be perceived as compatible with their field of business.

Associative Network Memory Model

The Associative Network Memory Model refers to humans' associative memory as a network of informational nodes that are interconnected (Anderson, 1983). In relation to sponsorship effectiveness, the model signifies the strength of related connectedness between two concepts (Teichert & Schöntag, 2010). In this respect, viewers' awareness of a brand means they have already created a "brand" node in their memory. This node can then be activated when a viewer glances at the brand name or logo, which creates a feeling of familiarity (Rosbergen et al., 1997). The node activation initiates the associative memory process (i.e., brand association), recalling all the linked information stored in the memory about the brand (Keller, 1993). Since familiar brands are previously stored nodes in a viewer's mind, the cognitive processing of familiar signage is faster than unfamiliar signage. Since the amount of attention and information

processing that sponsor signage receives depends on the viewer's familiarity (Alba & Hutchinson, 1987), brand familiarity may be more significant to sponsorship effectiveness than just recalling or recognizing a relationship between the event and sponsor (Holden & Vanhuele, 1999).

Sponsor Event Involvement

Since event sponsors target consumers based on their lifestyles, their involvement with sponsored sporting events will affect their attention to visible sponsor signage (Daneshvary & Schwer, 2000; Quester & Farrelly, 1998). Consumer involvement—the viewer's motivation to cognitively process information—is determined by a consumer's perception of relevant information (Celsi & Olson, 1988; Pham, 1992). During a sporting event, consumers who find less relevance in the sporting event will put minimal effort into pursuing the sports action (Pham, 1992). These individuals will pay more attention to the surrounding stimuli, such as sponsor information. The selective hypothesis (Meyers-Levy, 1988) and cognitive capacity (Kahneman, 1973) infer that the higher involvement a viewer has with specific stimuli, the lower the processing capacity is for less relevant stimuli. A viewer with high sport action involvement will intentionally direct their attention toward the event, creating less attentiveness to sponsorship information (Pham, 1992). In this case, viewers' attention to sponsorship information is directed by the capacity to draw viewers' saliency-based attention (Breuer & Rumpf, 2015). Saliency-based attention is the perceptional saliency of visual features surrounding the currently selected stimuli that direct a viewer's attention momentarily (Pieters & Wedel, 2004).

Information Search Process

Marketers are interested in consumers' information processes to better understand their purchasing behaviors. The information search process is a crucial stage for marketers to

influence the decision-making process of corporate sponsorships. Consumers' information search behavior is based on internal and external information search processes (Engel et al., 1985). The internal information process refers to the consumer's ability to recall and recognize previously acquired information from their stored memory (Beales et al., 1981). External information search effort is defined as "the degree of attention, perception, and effort directed toward obtaining environmental data or information related to the specific purchase under consideration" (Beatty & Smith, 1987, p. 85). With reference to the current study, the information search process is the consumer's visual attention and explicit memory to sponsorship information, which is obtained in a natural environment and is being examined for purchase consideration.

The measurement of consumers' external information search is of high priority because there is a high level of difficulty in measuring consumers' real-time behaviors. For this reason, marketers rely on the placement of their products or services to impact consumers' external search process by embedding the sponsorship information into their subconscious. The external information search model is a comprehensive model that includes consumers' prepurchase information search (Crotts, 1999; Maute & Forrester, 1991) and ongoing search (Bloch et al., 1986). Although conceptually distinct, prepurchase search and ongoing search are unable to be separated practically when observing consumer activities (Bloch et al., 1986). Furthermore, there are several types of external search sources, such as marketer-controlled, reseller information, third-party independent organizations, interpersonal sources, and direct inspections (Olshavsky & Wymer, 1995). This study focused on marketer-controlled sources, specifically sponsorships. The search activity is based on a consumer's choice process that requires a single piece of information from a sponsor (Schmidt & Spreng, 1996). The current research study used eye trackers to examine consumers' marketing-controlled search activity.

Scholars have found that consumers' involvement and ongoing information search behaviors are vital to consumer-brand engagement (Cheung et al., 2020). Further, their prior knowledge or familiarity with information can influence their search behavior (Kerstetter & Cho, 2004). During a sports setting, the external search process can result in the subconscious loading of sponsor information in an exciting and encouraging manner, regardless of the direct relation to sport-related products or services (Ercan, 2021). Therefore, a sports setting allows for the ability to stimulate consumers' feelings through a subliminal influence, which may positively impact their purchasing behavior. Thus, this study examined if consumers' passive attention to sponsor information in a natural setting influences their sponsorship response behavior.

Conclusion

In summary, foveal stimuli and eye movement processes determine consumers' marketing-controlled search activity. Eye movements that fixate on a foveal stimulus construct viewers' attention. Brand associations, sponsor congruence, and sponsor event involvement can persuade viewers' attention. The theories and models mentioned above allow for a knowledgeable understanding of consumers' behavior and marketers' sponsorship decisions. These theories and models can also provide the framework for improving sponsorship effectiveness based on the desired outcomes of the corporate sponsor.

Regarding fixation thresholds, sponsors need to hold viewers' attention long enough for the viewer to cognitively process the sponsorship information as stored memory. The associative network memory model and sponsor congruence theory can decrease the fixation threshold needed to cognitively retain sponsor signage. Therefore, perceived sponsor congruence and brand familiarity can facilitate consumers' marketing-controlled search activity and maximize sponsors' return on objective. Corporations can gain a competitive advantage by creating

partnerships with specific sporting events or sport organizations that enable congruence or familiarity. Additionally, corporate marketers cater their partnership decisions based on the target audience present at a sponsored event. Finally, viewers' attention can aid corporate and sport organization marketers in their decision-making processes. Viewers' active and passive attention to sponsor signage can provide sponsors with evidence of their return on objective and return on investment. Viewers' passive attention can also assist sport organizations with the necessary information to determine sponsor package prices based on placement, duplication, and exposure times.

The corporate and sport organization objectives for sponsorship effectiveness create several opportunities for future research. When investigating viewers' passive attention, research can capture the entirety of a consumer's behavior while watching a sporting event. Viewers' passive attention can then be linked to a facet of different factors that can be explained by their fixation thresholds and frequency of fixations to sponsor signage in a live setting. More specifically, researchers can determine a viewer's deliberate visual sensory cues that stimulate active attention, which results in the cognitive processing of sponsorship information. Finally, researchers can investigate the potential impact viewers' passive attention and explicit memory have on consumer demand following a live sporting event.

Sponsorship Effectiveness

Sponsorship Information Processing

The consumer-focused model of sponsorship information processing (Cornwell et al., 2005) connected the sponsorship outcomes affected by the individual, market, and management levels. This theory-based research on sponsorship effectiveness indicated the need for research on mediating factors (i.e., sport viewers' attention) in the flow of sponsorship information.

Visual attention is a critical indicator for sponsorship information processing (e.g., Breuer, Boronczyk, et al., 2021; Breuer, Rumpf, et al. 2021; Otto & Rumpf, 2018; Rumpf & Breuer, 2018). In real-time situations, a viewer's attention is predominantly devoted to the live-action, and little attention is directed to sponsorship information (Boronczyk et al., 2022). The consumer-focused model analyzed a simple input-output model: The stimulus (sponsorship information) and the consumers' reaction to the stimulus (cognitive, affective, or behavioral in nature).

Breuer and Rumpf (2012) expanded the understanding of sponsoring effectiveness by creating the *pyramid of sponsorship information* (p. 523)*,* which illustrates the mediating factors in the flow of sponsorship information. The *pyramid of sponsorship information* focuses on the sensory and cognitive processes that occur between the exposure and recall stages. There are three stages in the *pyramid of sponsorship information*: input, throughput, and output. The input stage, also known as the exposure stage, is when sponsorship information becomes visible to viewers. The input stage is measured by exposure durations and the number of repeated exposures. The throughput/attention stage occurs when a viewer is receptive to the sponsorship information, which is determined based on a viewer's passive attention. Viewers' passive attention can be measured using eye-tracking glasses to assess viewers' fixation frequencies and durations of sponsorship signage. If viewers cognitively process the sponsorship information as memory, the output stage—the ability to recall the stored information—can be enabled. Overall, this study contextualized sponsoring effectiveness as a sequential flow of information.

Explicit Memory

Sponsorship effectiveness has been examined based on viewers' ability to recall and recognize sponsorship information. Some researchers examined the impacts of sponsorship

exposure time on viewers' explicit memory. These studies established that longer exposure times significantly influence higher recall of sponsor brands (Hansen & Scotwin, 1995; Leng, 2017; Robinson & Bauman, 2008; Wakefield et al., 2007). The exposure of sponsor brands can facilitate a positive image/relevancy (Robinson & Bauman, 2008) and results in a higher probability of sponsor recall (Hansen & Scotwin, 1995). In connection to exposure times, logos on athletes' attire is more memorable if visible from the spectators' seat (Biscaia et al., 2014). This could be due to consumers' high involvement with the athletes and sports action.

Regarding fan experiences, higher attendance will lead to more recognition of sponsors (Maxwell & Lough, 2009). For example, season ticket holders recall and recognize sponsors at a higher rate than casual spectators (Biscaia et al., 2014). Supplementary to attendance, higher sponsor event involvement can positively affect sponsor recall and recognition (Amato et al., 2005; McDaniel, 1999); however, higher involvement in the sport action can lead to adverse sponsor outcomes (Pham, 1992). In addition to attendance and involvement, viewers who are current consumers of a sponsoring brand will have a higher probability of brand recall and recognition (Cuneen & Hannan, 1993). Sponsors who maximize these leveraging opportunities can increase the levels of sponsor recall and recognition by consumers (Smith et al., 2016).

Research on viewers' explicit memory aided marketers and sponsors in better understanding viewers' retention during sporting events. However, explicit memory research studies lacked the ability to understand viewers' visual attention to sponsorship information. Explicit memory methods are now paired with eye-tracking techniques to enhance our understanding of how viewers' visual attention impacts their ability to recall and recognize sponsors. The following section, "Eye-Tracking and Explicit Memory," reflects only the studies conducted using eye-tracking techniques.

Eye-Tracking and Explicit Memory

After conceptualizing the flow of sponsorship information (Breuer & Rumpf, 2012), research studies began determining what factors influence the cognitive processing of sponsor brands. Sponsorship exposure times significantly influenced viewers' attention and explicit memory (Alonso Dos Santos, Calabuig Moreno, & Sánchez Franco, 2019; Breuer & Rumpf, 2012). The longer sponsorships are exposed, the higher the probability of viewer fixation (Breuer & Rumpf, 2012), which is determined by the viewers' glance duration.

Viewers' attention also relies on brand placement and size. Suppose the sponsorship information is placed near the area of action. In that case, viewers are more likely to fixate on the information and have a higher probability of recalling the sponsor brand (Alonso Dos Santos, Calabuig Moreno, & Sánchez Franco, 2019). However, marketers must be careful not to create clutter around the sponsorship information. For example, Alonso Dos Santos, Calabuig Moreno, and Crespo-Hervás (2019) determined that the number of sponsors present on a poster can result in cognitive overload and a decrease in the probability of sponsor recall. In addition to placement, the size of the brand name also influences viewers' attention (Breuer & Rumpf, 2012). As expected, the larger the sponsor signage, the higher likelihood of fixation and retention. Thus, the placement of sponsor signage should optimize the size and the reduction of clutter.

Familiarity, congruence, and involvement are other factors contributing to viewers' retention (i.e., explicit memory). Researchers found that more familiar brands are recalled at a higher rate than unfamiliar brands (Boronczyk et al., 2018; Breuer & Rumpf, 2012). More specifically, Boronczyk et al. (2018) established that sponsor signage would receive more attention if the viewer is familiar with the brand. One aspect of familiarity is the prior

consumption of a brand. Viewers who are consumers of a sponsor will have a higher probability of sponsor recall (Breuer & Rumpf, 2012). Another aspect of familiarity is the perceived congruence of a sponsor to an event. As previously stated, the influence of perceived congruence on sponsorship effectiveness is currently a controversial topic. Some studies have found that congruence does not influence the throughput stage—viewers' attention (Alonso Dos Santos, Calabuig Moreno, & Crespo-Hervás, 2019; Alonso Dos Santos, Calabuig Moreno, & Sánchez Franco, 2019). In reflection of the congruence theory, however, Aguiló-Lemoine et al. (2020) suggested that congruent information is retained at a higher rate than incongruent. More specifically, they found that sponsor congruence increased the viewers' number of fixations, along with recall and purchase intentions. Thus, sponsorship effectiveness would be preferable to have congruence unless it is a new market brand aiming to increase familiarity and recall (Aguiló-Lemoine et al., 2020).

Regarding the sponsor event involvement theory, the spectator's sport involvement and its impact on sponsorship effectiveness were examined using sport event recordings (Boronczyk et al., 2018; Breuer & Rumpf, 2012). These studies found that brand recall can significantly decrease if the spectator is more attentive to the sports action. Viewers who absorb the sports action can be less attentive to sponsorship information, reducing the effectiveness of sponsors. Therefore, sponsor event involvement is circumstantial to the consumer's level of involvement with the sports action.

Sponsorship Response

Sponsor-related and consumer-related factors are essential to ensure effective sponsorship outcomes (Breuer & Rumpf, 2012). This study focused on the effective sponsorship outcome "sponsorship response" and its influential factors directly related to a sponsor's return

on objective and return on investment. In sport marketing research, a brand's awareness and image transfer can influence consumers' sponsorship response (i.e., purchase intentions; Chi et al., 2009). As previously stated, brand awareness and image transfer cannot occur without a viewer's visual attention to an exposed brand. Brand exposure and visual attention are sponsor-related factors influencing consumers' purchase intentions. Repeated brand exposure can increase the probability of a consumer's positive decisions toward sponsors' products or services (Dardis, 2009). As previously stated, repeated exposure can also impact viewers' visual attention (Krugman, 1977). Thus, visual attention may be a mediator between exposure and sponsorship response.

Consumer-related factors such as familiarity, sponsor event involvement, and congruence have also been examined regarding their impact on sponsorship response. Previous research indicates that higher levels of brand familiarity can result in positive consumer reactions—more specifically, purchase intentions (Laroche et al., 1996; Söderlund, 2002). Further, consumers' involvement with a sponsored event is positively linked to their intent to purchase (Alexandris et al., 2007; Dees et al., 2008). It is assumed that higher attendance to sponsored events correlates to higher levels of familiarity; however, casual involvement can still create familiarity. Finally, congruence can enhance consumers' intentions to purchase a brand's product (Aguiló-Lemoine et al., 2020; Alonso Dos Santos, Calabuig Moreno, & Crespo-Hervás, 2019; Papadimitriou et al., 2016). Therefore, the higher level of congruence, the more likely a consumer will have an enriched sponsorship response (i.e., favorability, interest, and use) towards the sponsors' products and services.

Age and Gender

Although several demographic variables can be examined in relation to memory, the most-used demographic variables in academic research are age and gender. Some studies have suggested that age and gender do not impact explicit memory (Alonso Dos Santos et al., 2018; Maxwell & Lough, 2009; Stotlar, 1993); however, other scholars have determined that these demographic factors are influential to consumers' attention and intentions (e.g., Breuer & Rumpf, 2012; Kinney et al., 2008; McDaniel & Kinney, 1999). Scholars determined that younger viewers had significantly higher probabilities of sponsor recall than older respondents (Kinney et al., 2008; McDaniel & Kinney, 1999). Respondents' declining cognitive abilities may cause a lower probability of recall as they age (Glisky, 2007).

Regarding gender, some scholars have found that males have a greater recall capacity for sponsors than females (Breuer & Rumpf, 2012; Kinney et al., 2008; McDaniel & Kinney, 1999). These differences may be due to the selectivity hypothesis (Meyers-Levy, 1988), which refers to a difference in cognitive processing between genders. The selectivity hypothesis suggests that males process information based on certain factors, while females process all available information (Meyers-Levy, 1988). Another reason for gender differences may be caused by the differences in their involvement with the sponsored event and the sport action (e.g., Boronczyk et al., 2018; Cornwell et al., 2006). Since males have a higher identification (e.g., Kwon & Armstrong, 2002; Menefee & Casper, 2011) and involvement (e.g., Tobar, 2006; Wann & Waddill, 2003) with sports, it can be assumed that males may have greater involvement in the sport action than females.

Conclusion

In summary, these studies made valid contributions to sport sponsorship effectiveness; however, there needs to be more research conducted on event-based memory. These studies were conducted in a laboratory setting and did not account for viewers' real-time behaviors. For example, consumers may be distracted by other spectators or their cell phones during a live sporting event. Consumers can also indulge in concessions, shopping, and fan activities that may take time away from potential brand exposures. Thus, future eye-tracking research should determine viewers' real-time behaviors while at a live sporting event.

Although there are several avenues for future eye-tracking research in a live setting, only a few will be identified here. First, brand exposure and placement can vary depending on where the viewer sits in the facility. By examining viewers' visual attention, marketers can determine the best possible outcomes for sponsors based on the placement of their signage. Another area of research could compare the different effects of static versus digital signage. Static signage may have longer exposure times, potentially resulting in a higher probability of sponsor recall and recognition. Digital signage, however, may create higher perceptional saliency of visual features. If both types are presented during an event, explicit memory results could be compared to determine the most efficient type of signage for sponsors. Finally, researchers can evaluate whether fixation frequency and/or fixation duration impacts a viewer's explicit memory of a sponsor at a live-action sporting event. The results could give further insight into sufficient marketing decisions to increase sponsorship effectiveness. Overall, a laboratory and a live setting cannot be similarly compared due to various real-time factors affecting a viewer's visual attention.

CHAPTER III

METHODOLOGY

The current study focused on consumers' real-time behaviors at a live sporting event. As stated in Chapter I, the research questions focused on consumers' direct and indirect behavioral responses to sponsorships and how consumers' demographics moderate that behavior. Consumers' real-time behavior relates to their visual attention and explicit memory of sponsors. Consumers' sponsorship response refers to their favorability, interest, and use of an event sponsor.

Before examining these relationships, the remainder of this chapter is devoted to the (a) research model, (b) participants and procedures, (c) measures, (d) delimitations, and (f) statistical analyses. The research model section helps to better describe the research study by creating a visual representation of the research model. The following section outlines the data collection process and describes participants' demographic characteristics. The measures section explains the data and variables that were collected in more detail (i.e., explicit memory: recall and recognition). The delimitations section clarifies the boundaries that were set for the current study. The final section presents and explains the statistical analysis method chosen for the current research study.

Research Model

The research model consists of (a) sponsor congruence, (b) visual attention, (c) explicit memory, and (d) sponsorship response. For visual attention, the two categories are consumers' fixation duration and fixation frequency. Explicit memory was separated into consumers' ability

to recall and recognize sponsor signage. Finally, sponsorship response consisted of favorability, interest, and use of an event sponsor's products and services.

The model also contains five control variables: (a) consumption, (b) familiarity, (c) emotional state, (d) sponsor message, and (e) residential distance. Consumption is based on consumers' daily consumption or need of the sponsors' products and services. Therefore, this study controlled for consumers' daily consumption when examining their purchase intentions. Favorability was used as a control variable because consumers can have pre-conceived awareness and association of a sponsoring brand with an event. Arousal and pleasure are commonly used emotional measures in sport research (e.g., Caro & García, 2017; Kwak et al., 2011; Lim et al., 2018). However, these emotional states were measured as post-reactions. The current study controlled for a consumer's emotional state before and after viewing a live sporting event. Jones et al. (2005) created the Sport Emotion Questionnaire (SEQ) of emotional markers in athletes. The SEQ consisted of a 5-factor model (i.e., anger, anxiety, dejection, excitement, happiness) encompassing the emotional states an athlete could experience during a sporting event. In the current research study, the SEQ emotional markers were chosen to represent the sport fandom emotional markers based on similar emotional experiences a sport consumer may have before or after a sporting event. The SEQ emotional measures were chosen to help mitigate consumers' emotional states that could be considered limitations in a live environment. Further, sponsor message was used to control for the verbal sponsorship information given during the sporting event that could influence a consumer's explicit memory. Finally, residential distance controlled for consumers' perception of sponsor congruence based on their familiarity with the local sponsors.

Based on the variables outlined above, Figures 3.1 and 3.2 display the research models. Please note that all visual attention, explicit memory, and sponsorship response variables are separate. Although each is included within their domain, this does not mean they are a single variable. The domains are included to show a representation of each concept for this study's consumer-based research. Since this model is so complex, the domains help simplify the model by reducing the number of arrows drawn from each explanatory variable to every outcome variable. The models show the mediation effect of explicit memory measures on the relationship between consumers' visual attention and their sponsorship response. The model also indicates the moderating effects of age and gender on visual attention and explicit memory.

Figure 3.1

Recall Research Model

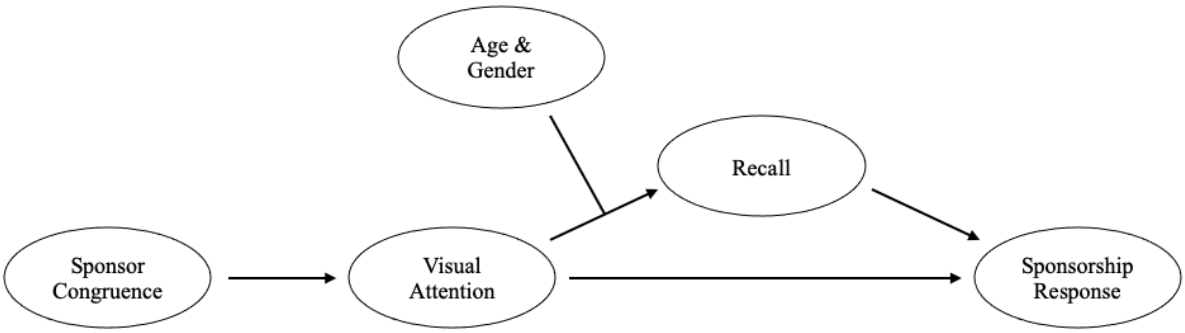
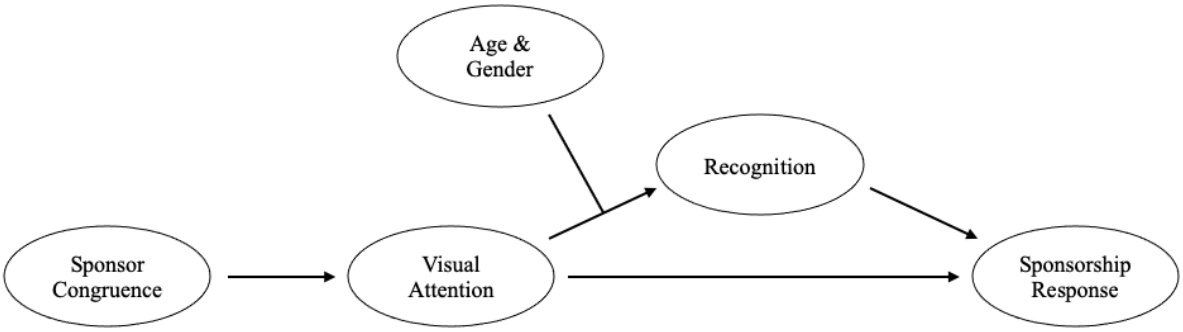


Figure 3.2

Recognition Research Model



Data and Variables

Participants and Procedures

To investigate the research model relationships illustrated in Figures 3.1 and 3.2, data were collected at a minor league hockey arena in 2022. Prior to recruitment, Institutional Review Board approval was granted, and informed consent by the participants was established before data collection began. To recruit participants, a purposive sampling technique was utilized (a) to ensure homogenous sampling and (b) based on the event's location. Once the initial set of participants was recruited, a snowball sampling technique was also employed to recruit additional participants. The participants were recruited via email, social networks, and word-of-mouth. Each individual participated in (a) a pre-survey, (b) an eye-tracking session, and (c) a post-survey after the eye-tracking session was concluded. *Pupil Invisible* eye-tracking glasses were used to collect participants' eye movements. The surveys were collected using *Qualtrics* software.

Similar research collected eye-tracking data in a laboratory setting with 11 participants (Boronczyk et al., 2022). This study had a total of 16 participants (eight male and eight female).

The participants' ages ranged from 23 to 56 years old. To control for the participant's event attendance and familiarity with event sponsors, this study focused on first-time general admissions attendees. Therefore, none of the participants were season ticket holders. Of the 16 participants, all except one considered themselves hockey fans; however, only 12 considered themselves fans of the sport team.

Before the eye-tracking session began, participants completed the pre-survey (outside the event center) before viewing the live sporting event. Participants were only aware that their consumer behavior was being examined (they were unaware of the study measurements). The pre-survey consisted of 22 questions about consumers' emotional state and four general questions about their perceived fan identity. Participants were asked to answer as truthfully as possible to accurately measure their emotional state. The survey took approximately one minute to complete.

The eye-tracking session began with a calibration step to ensure each participant's *pupil data* was correctly correlated with the *world coordinate system*. The participant's gaze point was calibrated using references (targets) at various distances from the individual. The participant was asked to fixate on each reference while the Pupil Invisible OnePlus 8 companion device collected the reference locations and *pupil data* in reference to time. The reference location created a mapping function that estimates the participant's gaze point on the companion device, while the *pupil data* used the *eye coordinate system* in reference to the *world coordinate system* (Pupil Labs, 2023a). The *coordinate systems* consisted of an origin, unit, lens distortion, bounds, and image space. Once the participant's gaze point was calibrated (approximately 30-60 seconds), the participant head into the sporting facility and experienced the sporting event uninterrupted for approximately 60 minutes. More specifically, participants were told to experience the event

as normal and were not physically interrupted by the researcher during their eye-tracking session. An eye-tracking session of 60 minutes is selected to gather a supplementary amount of data in a live setting and decrease the error margin for data collection. The current study's eye-tracking session significantly exceeds the majority of previous explicit memory research laboratory settings–one second to eight minutes of eye-tracking data (e.g., Alonso Dos Santos, Calabuig Moreno, & Crespo-Hervás, 2019; Breuer & Rumpf, 2012; Lim et al., 2018). Additionally, the current study's eye-tracking session time is similar to that of a recent laboratory setting–approximately 90 minutes (Boronczyk et al., 2022). Due to previous studies, the eye-tracking session time, the number of eye-tracking glasses, and the potential number of data points (n = 4938), the sample size is deemed appropriate.

The different sponsorship signage types and locations were noted and considered when analyzing the qualitative and quantitative data. Due to the live environment, including distractor stimuli (i.e., the sporting event, light fixtures, other spectators, video display activity, banner changes), the current study was able to account for consumers' real-time behaviors to sponsorship stimuli. Once the eye-tracking session was concluded, the participants were asked to complete a 25-minute post-survey related to their emotional state, explicit memory of sponsors, sponsor message, familiarity, consumption, perceived sponsor congruence, and sponsorship response. In addition to the research topic, participants were asked questions related to their demographic backgrounds, including their residential distance.

Measures

Eye-Tracking

Eye-tracking is a well-known instrument used to enhance researchers' understanding of human behavior (Meißner & Oll, 2019) and cognitive processing (Rahal & Fiedler, 2019). An

eye-tracking device collects qualitative (e.g., what is viewed) and quantitative (e.g., areas of fixation) data. Scholars have adopted eye-tracking techniques in marketing studies (e.g., Alonso Dos Santos, Calabuig Moreno, & Crespo-Hervás, 2019; Alonso Dos Santos, Calabuig Moreno, & Sánchez Franco, 2019; Alonso Dos Santos et al., 2020; Boerman et al., 2015; Breuer & Rumpf, 2015) to determine novel human-computer-interaction patterns through gaze points (Majaranta & Bulling, 2014). This study used *Pupil Invisible* eye trackers to investigate viewers' visual attention at minor league hockey sporting events. *Pupil Invisible* eye trackers reduce social distortion by closely resembling regular eyeglasses. These glasses create gaze-points based on an individual's eye movements, which are recorded on the OnePlus Companion device (i.e., cell phone).

Once the eye-tracking session was completed, the participants' videos were uploaded to the *Pupil Player* Software (Version 3.0). This software used a dispersion threshold to determine a participant's fixations. This threshold was based on degrees of visual angle within a fixed duration (Pupil Labs, 2023b). The dispersion threshold and the gaze position's radius, stroke width, fill, and color was determined before coding for AOIs. Based on the low-attention theory, an individual begins to process information within 50 milliseconds. Therefore, a minimum dispersion threshold (the degree of visual angle within a given duration period) of 50-60 milliseconds was used to detect fixations. The fixations are connected by a visualization polyline, also known as a gaze-estimation pipeline, through a series of time to help analyze post-hoc fixations on a larger scale.

The viewer's passive attention to an AOI was measured using fixation frequencies and durations. Fixation frequency was the number of times an individual fixates on a foveal stimulus, while fixation duration was the length of fixation time. Fixation-derived metrics have been

validated as an indicator of visual attention to sponsorship signage (e.g., Aguiló-Lemoine et al., 2020; Alonso Dos Santos et al., 2020; Boronczyk et al., 2018; Breuer & Rumpf, 2012; Green et al., 2011; Lim et al., 2018). Since the current research study used real-time behaviors, fixation-derived metrics were coded by hand, ensuring that all AOIs were accounted for. Once all of the necessary AOIs related to the research questions were tagged, an output of all the raw data was exported as an excel file. The raw data was then cleaned up by combining alike AOIs across participants, creating a finalized dataset of AOIs, fixations, and fixation durations.

Survey Data

A *Qualtrics* survey was utilized to examine viewers' (a) explicit memory of sponsor brands, (b) perceived sponsor congruence, and (c) sponsorship response after attending the sporting event. Table 3.1 displays the Likert scale survey questions.

Explicit memory. Explicit memory was used to determine if a consumer cognitively processed the sponsorship information (Boerman et al., 2015). To determine the consumer's cognitive outcomes, participants were asked to recall and recognize sponsor brands exposed to them during the basketball event. Recall and recognition were measured using fill-in-the-blank and selection responses. Recall was coded based on a scale of 1 "recalled" to 0 "did not recall" sponsorship brands. Recognition was coded based on a scale of 1 "recognized" to 0 "did not recognize" sponsorship brands.

Sponsor Congruence. Sponsor congruence is a customer's perception that an event and an event-sponsoring brand have a similar identity (Lacey & Close, 2013). The sponsor congruence scale (Speed & Thompson, 2000) was implemented to examine consumers' perceptions about the similarity between the Division I Basketball event and each sponsored

brand recognized. Sponsor congruence was measured using a five-item, five-point Likert scale from “1” strongly disagree to “5” strongly agree.

Sponsorship Response. Sponsorship response refers to a consumer’s attitude towards three different sponsorship attributes that shape the consumer’s response to that sponsorship (Speed & Thompson, 2000). The sponsorship response scales (Speed & Thompson, 2000) were employed to examine consumers’ favorability toward the sponsor, their belief that a sponsor of a particular event will affect their attention to the sponsorship information, and their willingness to consider the sponsor’s product. Therefore, sponsorship response relates to consumers’ willingness to purchase a product within certain environmental conditions (Tomalieh, 2016). Each sponsorship response was measured using a three-item, five-point Likert scale from “1” strongly disagree to “5” strongly agree.

Table 3.1

Likert Scale Survey Questions

Code	Question
Sponsor Congruence	
SEF1	There is a logical connection between the event and [the sponsor].
SEF2	The image of the event and the image of [the sponsor] are similar.
SEF3	[The sponsor] and the event fit together well.
SEF4	[The sponsor] and the event stand for similar things.
SEF5	It makes sense to me that [sponsor] sponsors this event.
Sponsorship Response	
Favorability	
F1	This partnership makes me feel more favorable toward the sponsor.
F2	This partnership would improve my perception of the sponsor.
F3	This partnership would make me like the sponsor more.
Interest	
I1	This partnership would make me more likely to notice the sponsor's name on other occasions.
I2	This partnership would make me more likely to pay attention to the sponsor's advertising.
I3	This partnership would make me more likely to remember the sponsor's promotion.
Use	
U1	This partnership would make me more likely to use the sponsor's product.
U2	This partnership would make me more likely to consider this company's products the next time I buy.
U3	I would be more likely to buy from the sponsor as a result of this partnership.

Controls

Survey Data

The *Qualtrics* survey was also utilized to examine viewers' (a) consumption, (b) emotional state, (c) familiarity, (d) sponsor message, and (e) residential distance from the event center. These variables were used as control variables in the statistical analysis. Table 3.2 displays the Likert scale control survey questions.

Consumption. Consumption is a common material practice that involves the utilization of objects (Dietler, 2010). Consumption was used to determine consumers' need for the sponsor's products and services. To determine the consumer's consumption needs, participants were asked to rate their consumption of each sponsor's product or service using a five-point Likert scale from "1" never used to "5" used daily.

Emotional State. The 5-factor model (Jones et al., 2005) determined consumers' emotional state before and after a live sporting event. The 5-factor model includes anxiety, dejection, anger, happiness, and excitement. Consumers' emotional state was measured using a 22-item, five-point Likert scale from "1" not at all to "5" extremely. An average of each factor was used to determine their overall emotional state (Jones et al., 2005).

Familiarity. Brand familiarity refers to a consumer's level of direct or indirect experiences with a product (Alba & Hutchinson, 1987). Familiarity was used to determine prior consumption of the sponsor brands. Familiarity was measured using a one-item, five-point Likert scale from "1" strongly disagree to "5" strongly agree.

Sponsor Message. A sponsor message refers to a consumer's ability to recall any announced sponsorship message. To determine the consumer's cognitive outcome of audible sponsorship messages, participants were asked to recall any sponsor messages they remembered

hearing during the sporting event. Sponsor message was measured using fill-in-the-blank responses. The response was coded based on a scale of 1 “recalled” to 0 “did not recall” sponsor message.

Residential Distance. Residential distance refers to the distance a consumer’s home residence is relative to the event center. The residential distance was used as a control for sponsorship congruence because consumers who live closer to the event center may perceive a higher sponsorship congruence between the local sponsors than those who live further away from the event center. The residential distance was measured by asking participants approximately how many miles they lived from the event center. If participants were unsure, they were asked to use a mapping service to determine how many miles their current residence was from the event center.

Table 3.2

Likert Scale Control Survey Questions

Code	Question
Consumption	
CON	How would you rate your consumption of each sponsor's products and services.
Emotional State	
Participants were asked to rate their current emotional state based on the identifiers lised below:	
Anxiety	
ANX1	Uneasy
ANX2	Tense
ANX3	Nervous
ANX4	Apprehensive
ANX5	Anxious
Dejection	
DEJ1	Upset
DEJ2	Sad
DEJ3	Unhappy
DEJ4	Disappointed
DEJ5	Dejected
Anger	
ANG1	Irritated
ANG2	Furious
ANG3	Annoyed
ANG4	Angry
Happiness	
HAP1	Pleased
HAP2	Joyful
HAP3	Happy
HAP4	Cheerful
Excitement	
EXC1	Enthusiastic
EXC2	Excited
EXC3	Energetic
EXC4	Exhilirated
Familiarity	
FAM	How would you clarify your level of familiarity with the sponsor?

Delimitations

Due to the complexity in nature of a live environment study, there are several delimitations. The first delimitation was the sampling technique chosen. Due to the event's location, voluntary participation, participants' weariness of being recorded, and homogenous testing, purposive sampling was used. These delimitations were used to ensure presence at the event, comfortability, and ability to test the moderation effects of gender on visual attention.

A second delimitation was the choice of the facility as the setting for the research. The choice to collect data at the minor league hockey arena was made based on the sport organization's willingness to collaborate and the accessibility of the facility. Although the findings are based on the specific sport and sport facility, the distractors and some live environments are relatively similar. For similar game-day experiences, the results can be generalized based on consumers' visual attention.

Finally, the eye-tracking session time for the current study was exploratory. There is no previous research to use as a guide for session time in a live setting. Based on laboratory settings, 90 minutes was the maximum eye-tracking session time while watching a recorded sporting event video (Boronczyk et al., 2022). The current research study used approximately 60-minute sessions to ensure an adequately enriched amount of data in a live environment. Therefore, this exploratory session time can be incorporated into future research methods and models.

Statistical Analysis

The current study applied structural equation modeling (SEM) to answer the research questions and test the proposed hypotheses. Structure equation modeling was used to examine multiple relationships between observed and latent variables, which accounted for the complex phenomena of consumer behavior. Structure equation modeling is a combination of factor

analysis and linear regression (Ullman, 2006). While regressions are additive, SEM is relational in nature (Kumar & Upadhaya, 2017). The SEM method supports or rejects hypotheses by analyzing the direct and indirect effects of the relationships between independent and dependent variables. Each SEM is notable for (a) the estimation of multiple, interrelated dependence relationships, (b) the ability to represent unobserved concepts in the relationships and correct measurement errors in the estimation process, and (c) defining the model to explain the model relationships (Hair, 2011).

Structure equation modeling consists of two parts: the measurement model and the structural model (Jöreskog, 1973). The measurement model links the observed variables to the latent variables. The measurement characterizes the endogenous and exogenous latent factors of the observable variables. Endogenous variables (i.e., dependent) are influenced by exogenous variables in the model, either directly or indirectly. Exogenous variables are independent of other variables within the model. The structural model associates the constructs with one another. Therefore, the measurement model shows empirical evidence, while the structural model provides a framework to support the hypotheses (Kumar & Upadhaya, 2017).

Overall, SEM is a well-established statistical tool to investigate multiple observed variables (Holmbeck, 1997). The SEM approach allows for the analysis of more complicated models while controlling for and avoiding complications from measurement errors and the underestimation of mediation effects when examining relationships among variables (Baron & Kenny, 1986; Hoyle & Smith, 1994). An SEM includes all relevant paths that can be tested without ignoring any relationships between variables (Baron & Kenny, 1986; Kenny, 1986).

Structural Equation Modeling
Assumptions

The SEM assumptions relate to normality, missing data, measurement and sampling errors, and model fit indices. The normality assumption implies that the observations are normally distributed. If the data is normally distributed, a maximum likelihood (ML) technique is used to examine the estimates of parameters (Finney & DiStefano, 2008). However, the measurement errors result from the techniques used for the data collection and the respondents' error, which affects the model fit. The standard error is also affected by the variance of a given dataset. Specifically, as the variance increases, the standard error decreases, violating the assumptions of normality in data (Nevitt & Hancock, 2000). If the normality assumption is not met, a robust maximum likelihood estimator can be used to estimate the parameters (Lai, 2018). When examining indirect effects, a bootstrapping technique can be used (Hayes, 2009; Zhao et al., 2010), which also adjusts for nonnormal data (Hutchinson & Olmos, 1998; Lei & Lomax, 2005).

Further, there should not be any missing data for any given variable. If there is missing data, a treatment using the missing at random (MAR) approach can be taken (Muthén et al., 1987); however, this only applies to missing data in small numbers. All individuals in the current study completed the survey in its entirety. Therefore, the assumption of a complete dataset was met.

Finally, the model fit indices are the usability of a given model drawn from the sample on the population (Kumar & Upadhaya, 2017). The Chi-Squared test ($\chi 2$), where $\chi 2$/degrees of freedom should be ≤ 3 (Schumacker & Lomax, 2010), is used for the fit indices. The measurement model and SEM model fit are assessed using the goodness-of-fit indices: the Comparative Fit Index (CFI; Bentler, 1990), the Tucker–Lewis Index (TLI; Bentler & Bonett,

1980), the Root Mean Squared Error of Approximation (RMSEA; Steiger, 1990), and the Standardized Root Mean Square Residual (SRMR; Bentler, 1995). The incremental fit indexes of TLI and CFI range between 0 and 1.0, with >.90 suggesting an adequate model fit (Hu & Bentler, 1999). The RMSEA and SRMR range between 0 and infinity, measuring the adverse of fit. A value closer to 0 is a desirable value. Previous literature has implied that an RMSEA and SRMR value of .05 suggests a close fit (Browne & Cudeck, 1993), .06 corresponds to a satisfactory fit (Hu & Bentler, 1999), .07 denotes a 'stringent criterion (Steiger, 2007), and .08 indicates a reasonable fit (Browne & Cudeck, 1993).

Validity and Reliability

In SEM, the validity is measured as convergent and discriminant validity. Convergent validity (CV) refers to the variable factor loadings, which should be ≥.05 for each observable variable (Cheung & Wang, 2017; Fornell & Larcker, 1981). The discriminant validity (DV) distinguishes the covariance between the latent variables. The constructs are considered similar if the covariance is ≥.70 (Cheung & Wang, 2017). If similarities exist, second-order modeling (i.e., combining constructs) can be completed but will affect the degrees of freedom (Fornell & Larcker, 1981). The reliability is measured as composite/construct reliability (CR). Composite reliability, similar to Cronbach's Alpha, measures the internal consistency in scale items and should be ≥.70 (Cheung & Wang, 2017).

This study also addresses ecological validity, which refers to researchers' ability to generalize from observed behavior in a laboratory to natural behavior in the world (Schmuckler, 2001). In the context of sporting events, previous research has suggested that visual attention impacts explicit memory and sponsorship response. The current study examines these aspects at

a live sporting event to determine if there is ecological validity of consumers' sponsorship information processing between a laboratory setting and a natural environment.

Significance Level

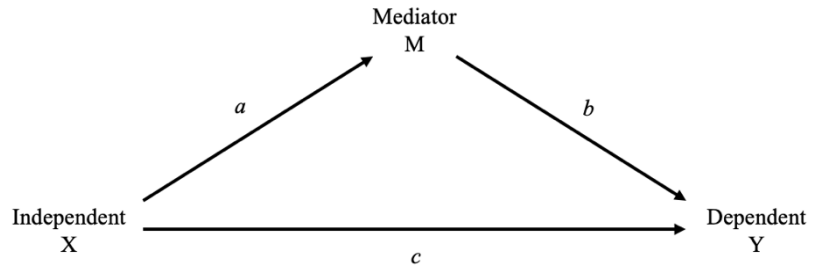
The significance level, also known as alpha or α, denotes the probability of rejecting the null hypothesis when it is true. Typically, research studies use a significance level of 0.05, indicating a 5% risk of concluding a Type I error. Type I error is a false positive, rejecting the null hypothesis when there is no difference in means. Based on the number of hypotheses and regression models in the current study, the alpha value was adjusted to reduce the Type I error. The adjusted alpha value in the current study was calculated by dividing .05 by the number of total hypotheses. Therefore, the adjusted alpha value was .001.

Mediation and Moderation

The mediation effect (shown in Figure 3.3), also known as an indirect effect, refers to the effect a mediating variable *M* has on the relationship between a dependent variable *Y* and the independent variable *X* (Baron & Kenny, 1986). There are two types of mediation effects. Full mediation effect indicates an indirect effect but no direct effect, while partial mediation refers to both indirect and direct effects (Preacher & Hayes, 2004). The current research study reflected partial mediation due to the indirect and direct effects of consumers' visual attention on sponsorship response. Three tests are used to conclude mediation effects: (*a*) testing the dependent variable on the independent variable, (*b*) testing the mediator on the independent variable, and (*c*) testing the dependent variable on both the independent variable and on the mediator (tests correspond with Figure 3.3; Baron & Kenny, 1986). In the current research study, recall and recognition function as mediator variables.

Figure 3.3

Mediation Causal Model



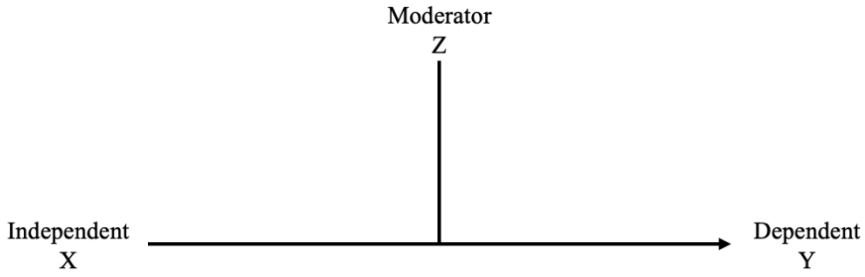
Mediation was conducted using a bootstrapping technique. The bootstrapping method resamples the data to produce a realistic estimation of the total sampling distribution (Efron & Tibshirani, 1993). This is especially useful when the distribution assumptions have been violated. The bootstrapping method uses confidence intervals (CI)–lower and upper bounds of a parameter estimate at a preidentified confidence level–to determine significance (e.g., 95% CI; Johns, 1988). In the current research study, the hypothesized structural equation models used the percentile method to construct confidence intervals from the estimated parameters. The percentile-method is recommended based on the parameter estimate properties: precision and statistical significance of non-normal estimates (Efron & Tibshirani, 1993).

Moderating effects, also known as interaction effects, refer to the third variable *Z* that influences the strength or the direction of a relationship between a predictor variable *X* and an outcome variable *Y* (see Figure 3.4; Baron & Kenny, 1986). If moderation is present, the outcome variable is interpreted by the simultaneous effect of the predictor variable and the moderator (Fairchild & McQuillin, 2010). There are two types of moderator effects: ordinal or disordinal interactions (Cohen et al., 2014). Ordinal interactions can have a synergistic or a buffering interaction effect. Synergistic enhances the bivariate relation between X and Y, while buffering reduces the magnitude of the relation (Cohen et al., 2014). Moderation was conducted

in two ways. First, the dataset was split into two groups, (a) male and (b) female, to assess the moderating effect of gender on explicit memory. Second, interaction effects were included in the SEM models to examine the moderating effect of age on explicit memory.

Figure 3.4

Moderation Causal Model



CHAPTER IV

RESULTS

The purpose of the current research was to examine consumers' perceived congruence, visual attention (i.e., fixation duration, fixation frequency), explicit memory (i.e., recall, recognition), and sponsorship response (i.e., favorability, interest, use) to sponsor brands at minor league hockey events. As stated in Chapter III, an SEM was used to analyze the relationships between sponsor congruence, visual attention, explicit memory, and sponsorship response. The purpose of the current study was to create a better understanding of consumers' information search processes and their behavioral responses to sponsorship information.

Chapter IV presents the results of the statistical analyses in two sections: (1) descriptive statistics and (2) hypothesis testing. The descriptive statistics provided a detailed summary of the research setting and the observational patterns of each control variable. The hypothesis testing section shows the results of the SEM outputs. The SEM outputs accounted for the complexity of each research model (i.e., recall and recognition), including the direct effects, mediating effects, and moderating effects, while controlling for several covariates.

Descriptive Statistics

Areas of Interest

Participants viewed a total of 48 minor league hockey partnerships, which included apparel products, automotive services, delivery services, educational services, entertainment/recreation services, financial services, food and beverage, health products, home services, medical services, media outlets, technology products, and trade contractors. Of the 48

sponsors, there were 17 national companies (a branch of each national company was local with regard to the arena) and 31 regional companies. These partnerships were located on the video displays, above the main video display, LED banners, the boards surrounding the ice, on-the-ice, on the floating blimps, and in the concourse area. Some sponsors had multiple signage opportunities (i.e., the video display and on-the-ice). Twenty-seven sponsors had sponsor signage in one location, 17 sponsors in two locations, two sponsors in three locations, and one sponsor in four locations. It should be noted that the naming-rights sponsor was one of the sponsors located in only two areas (the concourse and above the main video display). Additionally, 46 of the 48 sponsors were visible from the participants' seats; the other two were only located in the concourse area. Finally, 18 sponsors were shown on the video display with audio cues. The video/audio sponsors were presented during penalty plays, during timeouts, and between periods.

Field Notes

The hockey event atmosphere was noted as part of the field observations. Each game had a similar amount of penalty plays (Min: 1, Max: 5) and total shots on goal (Min: 23, Max: 34) per team. During each period, multiple incidences of aggressive matchups had either a momentary game stoppage to break up a squabble or a more extended game stoppage period that resulted in double penalties (i.e., fighting). Further, the home team was victorious at each hockey event except one. The final scores and win spread varied between one to four goals.

Consumption

The participants' consumption rates showed similarities and differences. Some similarities across participants' consumption included food and beverage, media outlets, and delivery services. All other services varied across age and gender, see Table 4.1. Furthermore, if

a sponsor's product or service was categorized at a higher consumption rate, the consumer showed higher explicit memory averages than those of lower consumption. However, this differs dramatically based on each participant's consumption of an individual sponsor.

Table 4.1

Consumption Averages for Sponsorship Types

Apparel Products	Automotive Services	Delivery Services	Educational Services	Entertainment/Recreation Services	Financial Services	Food and Beverage	Health Products	Home Services	Media Outlet	Medical Services	Technology Products	Trade Contractors
1.992	3.124	3.765	3.311	2.458	1.003	4.408	1.564	1.115	4.302	2.867	1.727	1.549

Emotional State

Participants' emotional state was relatively similar before and after the event. Most participants only noted positive emotions. One participant was somewhat apprehensive before the event; however, they became only slightly apprehensive after the event was over. As you can see from Table 4.2, participants' overall emotions of happiness increased after viewing the sporting event. Joy and excitement were the only two positive emotions that marginally decreased.

Table 4.2

Participants' Emotional State

Time	Positive Emotional State							
	Pleased	Joyful	Happy	Cheerful	Enthusiastic	Excited	Energetic	Exhilarated
Before	3.051	3.691	3.867	3.625	3.629	3.880	3.310	2.848
After	3.665	3.589	4.095	3.700	3.713	3.463	3.684	2.934

Familiarity

With regard to familiarity, familiar signage caught the consumers' eye more often than unfamiliar signage. The average familiarity of each sponsorship type is displayed in Table 4.3. Participants' average familiarity with national companies was similar (M = 4.132-4.801). Conversely, regional companies had varying responses. Individuals who resided closer to the arena showed higher familiarity with the surrounding companies near the arena (M = 4.027-4.690). For each participant, sponsors with higher familiarity exhibited lower duration times and higher frequency rates. Furthermore, sponsors with higher average familiarity also demonstrated higher recall and recognition rates.

Table 4.3

Familiarity Averages for Sponsorship Types

Apparel Products	Automotive Services	Delivery Services	Educational Services	Entertainment/Recreation Services	Financial Services	Food and Beverage	Health Products	Home Services	Media Outlet	Medical Services	Technology Products	Trade Contractors
2.094	3.309	4.186	3.619	3.083	2.092	4.773	1.547	2.563	4.530	2.948	2.161	1.547

Sponsor Message

Penalty and power plays were the most commonly recalled sponsor messages. It should be noted that these sponsor messages were food and beverage sponsors ($M = 3.503$). There was a total of 23 sponsorship audio cues. Of these sponsors, six had duplicate signage on other video displays, four on-the-ice, four on the boards surrounding the ice, two on floating blimps, two on the Zambonis, and one on the penalty box. The recalled sponsor messages had higher duration rates than those that did not have audio cues. As expected, if an individual could recall a sponsored message, they also had explicit memory of that sponsor. However, there was no relational indication between audio messages and consumers' sponsorship response.

Residential Distance

Residential distance did vary across participants (Min: ~10 miles, Max: ~35 miles). Participants who resided closer to the sporting facility showed higher familiarity and sponsor congruence scores to regional companies than those who lived further away. Familiarity and sponsor congruence averages across national companies were similar, regardless of residential distance. It should be noted that both regional and national companies were local sponsors.

Other Observations and Patterns

There were several other observations and patterns to note when examining consumers' behavior at the sporting event. The highest-viewed static signage was the naming-rights sponsor above the video display. Static signage on the boards and ice near/around the face-off dots were the second most frequently viewed sponsors. The highest-viewed semi-static video display signage was a home community. Furthermore, the highest-viewed dynamic video signage (i.e., commercial) was a restaurant service's vibrantly colorful logo and artwork.

In other behavioral aspects, participants' visual attention to the ice crew was the most viewed moving object other than the sport action. Due to the high-action (i.e., fighting, shots on goal, scored goals, and continuous play), participants were highly involved in the sport action. Furthermore, participants also had high sponsorship involvement due to the precisely placed sponsors on the penalty box, the ice, and the boards surrounding the ice.

Hypothesis Testing

The preliminary analyses and examination of goodness-of-fit indexes were examined for each latent construct. From the initial analysis, it was deemed appropriate—due to each CFAs high reliability but lack of model fit—to use the average of each latent construct in the data analysis. The constructs that were averaged included sponsor congruence (.98), favorability (.98), interest (.99), and use (.99). Additionally, there was no presence of multicollinearity between dependent variables within each regression, see Table 4.4.

Table 4.4

Multicollinearity Values

Variables	Duration	Frequency	Recall	Recognition
Recall	1.000	1.000	-	-
Recognition	1.000	1.000	-	-
Sponsorship Response (recall)	1.000	1.002	1.002	-
Sponsorship Response (recogntion)	1.000	1.002	-	1.002

Recall Model

The recall model ($\chi 2 = 61.043$, df = 21, $p < .001$, CFI = .998, TLI = .968, RMSEA = .049, SRMR = .017) demonstrated adequate fit, see Figure 4.1. The direct effect of sponsor congruence on fixation duration was nonsignificant (b = -.002, SE = .010, t =-0.191, p = .848),

rejecting H1. Contrastingly, sponsor congruence positively influenced fixation frequency (b = 1.560, SE = 0.136, t = 11.502, $p < .001$), supporting H2. This suggests that as perceived sponsor congruence increases, the higher probability of consumers' fixation frequency of sponsorship information.

Unfolding visual attention, the effect of duration on recall was nonsignificant (b = .065, SE = .104, t = 1.785, p = .093), rejecting H3. This suggests that duration does not impact the probability of sponsorship recall. However, fixation frequency showed a positively significant impact on recall (b = .016, SE = .018, t = 2.242, $p < .001$), supporting H4. This suggests that the more times a consumer fixates on a sponsor, the higher probability that a consumer will be able to recall that sponsor from memory.

When accounting for the moderating effects of age and gender, males indicated a nonsignificant effect of duration on recall (b = .001, SE = .001, t = .528, p = .597). This suggests that the amount of time a male fixates on sponsorship information will not influence the probability of sponsorship recall. Although there was an effect of frequency on recall (b = -.127, SE = .001, t = 3.500, $p < .001$), this effect was significantly negative. Thus, the current study suggests that the number of times a male fixates on sponsorship information will adversely impact their ability to recall a sponsor.

For females, the effect of duration on recall was nonsignificant (b = -.002, SE = .024, t = -.065, p = .948). This suggests that the amount of time a female fixates on sponsorship information will not influence the probability of sponsorship recall. Further, the effect of frequency on recall was significantly positive (b = 1.452, SE = .014, t = 8.392, $p < .001$). This suggests that the number of times a female fixates on sponsorship information will result in a higher probability of sponsorship recall. It should be noted that both the male and female effects

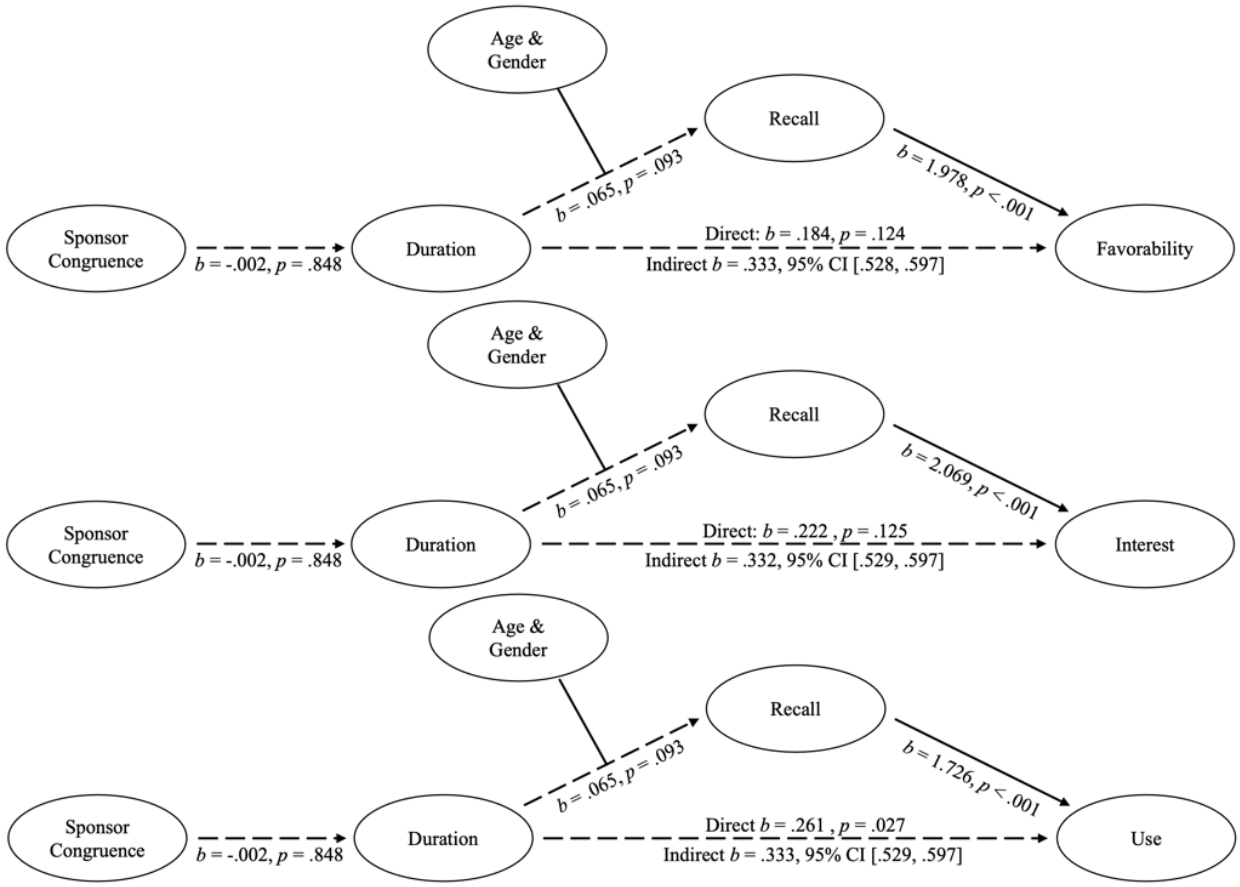
accounted for age as an interaction effect within each model. Therefore, with an increase in age, each of the affected outcomes between visual attention (i.e., duration and frequency) and recall are more prominent.

Recall positively significantly influenced favorability (b =1.978, SE = .087, t = 22.642, p < .001), interest (b = 2.069, SE = .091, t = 22.771, p < .001), and use (b = 1.726, SE = .081, t = 21.370, p < .001). Therefore, H5, H6, and H7 are supported. This suggests that if a consumer is able to recall a sponsor, they will have a higher probability of a positive sponsorship response. Additionally, the direct effect of duration on favorability (b = .184, SE = .120, t = 1.540, p = .124), interest (b = .222, SE = .144, t = 1.536, p = .125), and use (b = .261, SE = .118, t = 2.208, p = .027) was nonsignificant. Consequently, H8, H9, and H10 are rejected. However, recall was found to indirectly effect the relationship between duration and favorability (b = .333, 95% CI [.528, .597]), interest (b = .332, 95% CI [.529, .597]), and use (b = .333, 95% CI [0.529, 0.597]). Thus, H14, H15, and H16 are supported. This suggests that recall can increase the relationship between duration and a positive sponsorship response.

Furthermore, frequency positively influences favorability (b = 2.137, SE = .002, t = 15.278, p < .001), interest (b = 2.038, SE = .003, t = 15.086, p < .001), and use (b = 2.234, SE = .002, t = 15.115., p < .001). Thus, H11, H12, and H13 are supported. This suggests that the more times a consumer fixates on a sponsor, the higher the probability of a positive sponsorship response. Recall did significantly indirectly effect the relationship between frequency and favorability (b = .003, 95% CI [1.759, .079]), interest (b = .003, 95% CI [1.759, .079]), and use (b = .003, 95% CI [1.764, .078]). Accordingly, H17, H18, and H19 are supported. This suggests that recall can increase the relationship between frequency and a positive sponsorship response.

Figure 4.1

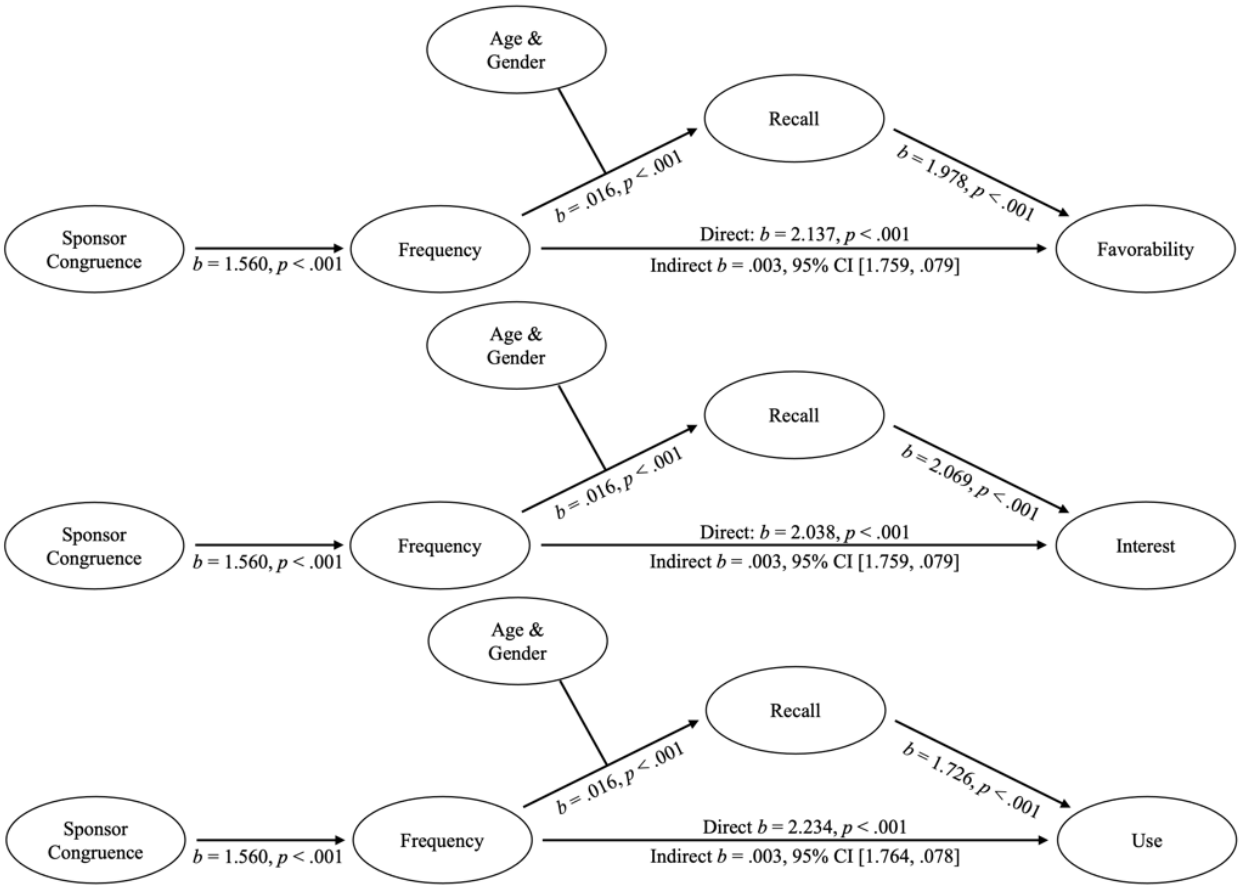
Resulting Recall Model



Note. The dashed line represents a nonsignificant path. The solid line represents a significantly positive path. The moderating effects are not shown in the model; they can be found in the description of the results.

Figure 4.1

Continued



Note. The dashed line represents a nonsignificant path. The solid line represents a significantly positive path. The moderating effects are not shown in the model; they can be found in the description of the results.

Recognition Model

The recognition model ($\chi 2 = 58.971$, df =21, $p < .001$, CFI = .999, TLI = .998, RMSEA = .028, SRMR = .010) demonstrated adequate fit, see Figure 4.2. Supplemental to the recall models, sponsor congruence did not significantly influence fixation duration ($b = .007$, $SE = .006$, $t = 1.155$, $p = .248$), while fixation frequency was positively influenced by sponsor

congruence (b = 1.850, SE = .194, t = 9.557, p < .001), also rejecting H1 and supporting H2. This further suggests that an increase in perceived sponsor congruence will result in a higher probability of consumers' fixating more times on the sponsor's information.

As for visual attention, the effect of duration on recognition was nonsignificant (b = .122, SE = .093, t = 1.930, p = .728), rejecting H20. This suggests that duration does not impact the probability of sponsorship recognition. Conversely, fixation frequency positively impacted recognition (b = .003, SE = .008, t = 2.993, p < .001), supporting H21. This suggests that the more times a consumer fixates on a sponsor, the higher probability that a consumer will be able to recognize the sponsor from a list of sponsoring brands.

When accounting for the moderation effects of age and gender, the results indicated that the direct effect of duration (b = .006 SE = .002, t = 2.828, p < .001) and frequency (b = .000, SE = .000, t = 6.055, p < .001) on recognition for males was significant. This suggests that the amount of time a male fixates on sponsorship information will significantly influence the probability of sponsorship recognition. Though frequency showed significance, it did not change the probability positively or negatively of sponsor recognition.

For females, the effect of duration on recognition was nonsignificant (b = .000, SE = .002, t = . 024, p = .981). This suggests that the amount of time a female fixates on sponsorship information will not influence the probability of sponsorship recognition. Contrastingly, the effect of frequency on recognition was significant (b = .045, SE = .000, t = 2.098, p < .001). This suggests that the number of times a female fixates on sponsorship information will result in a higher probability of sponsorship recognition. Again, it should be noted that both the male and female effects accounted for age as an interaction effect within each model. Therefore, as an

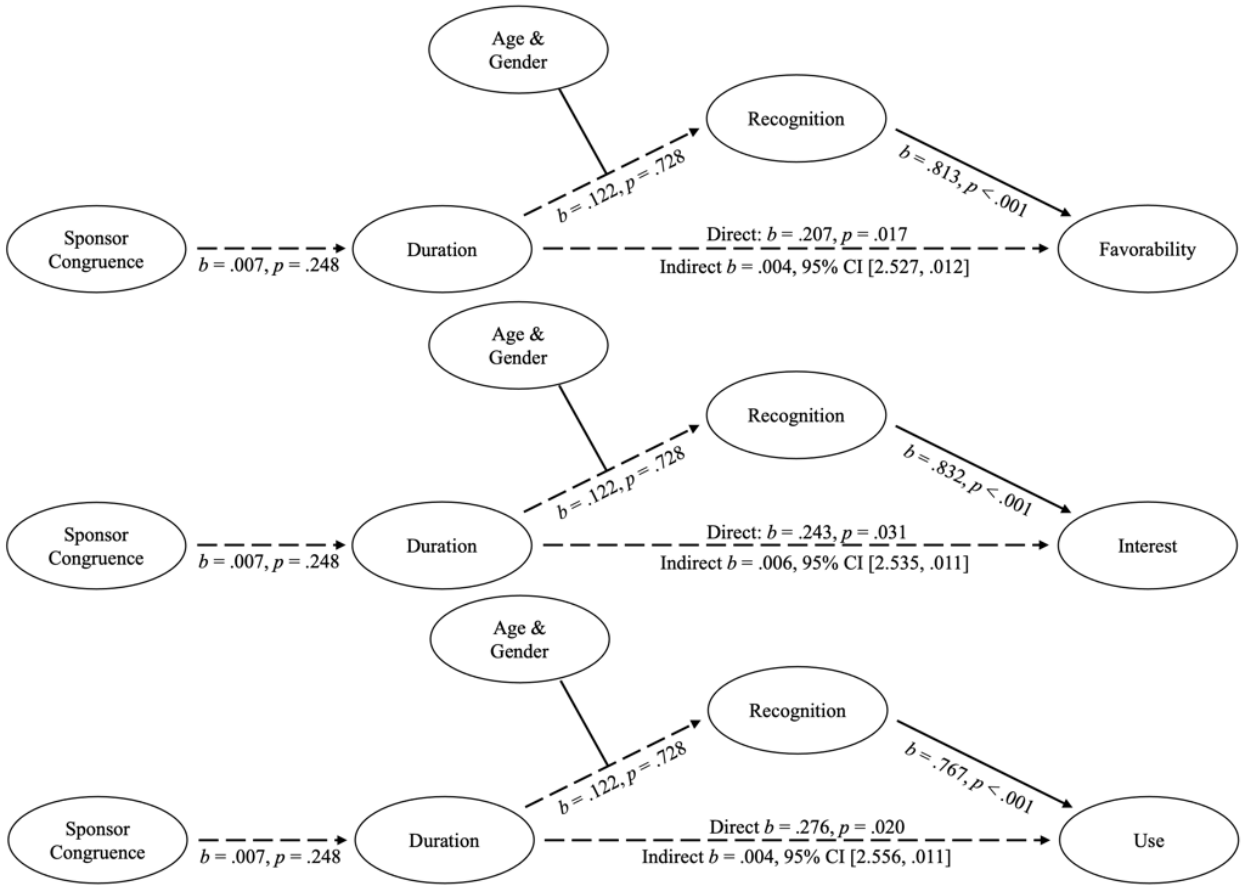
individual increases in age, so will the resulting effects between visual attention (i.e., duration and frequency) and recognition.

Recognition positively significantly influenced favorability (b = .813, SE = .090, t = 9.029, p < .001), interest (b = .832, SE = .089, t = 9.34, p < .001), and use (b = .767, SE = .082, t = 9.322, p < .001). Therefore, supporting H22, H23, and H24. This suggests that if a consumer is able to recognize a sponsor, they will have a higher probability of a positive sponsorship response. Additionally, the direct effect of duration on favorability (b = .207, SE = .086, t = 2.397, p = .017), interest (b = .243, SE = .113, t = 2.156 p = .031), and use (b = .276, SE = .118, t = 2.331, p = .020) was nonsignificant. Accordingly, H25, H26, and H27 are rejected. However, recognition did significantly indirectly effect the relationship between duration and favorability (b = .004, 95% CI [2.527, .012]), interest (b = .006, 95% CI [2.535, .011]), and use (b = .004, 95% CI [2.556, .011]). Thus, H31, H32, and H33 are supported. This suggests that recognition can increase the relationship between duration and a positive sponsorship response.

Ancillary to the recall models, frequency did significantly influence favorability (b = 1.346, SE = .001, t = 2.568, p < .001), interest (b = 1.947, SE = .002, t = 2.368, p < .001) and use (b = 1.899, SE = .002, t = 3.561, p < .001). Thus, H28, H29, and H30 are supported. This further supports that an increase in sponsor fixation will result in a higher probability of a positive sponsorship response. Furthermore, recognition did not significantly indirectly effect the relationship between frequency and favorability (b = .001, 95% CI [-2.043, .041]), interest (b = .001, 95% CI [-2.066, .039]), and use (b = .001, 95% CI [-2.061, .039]). Therefore, H34, H35, and H36 are rejected.

Figure 4.2

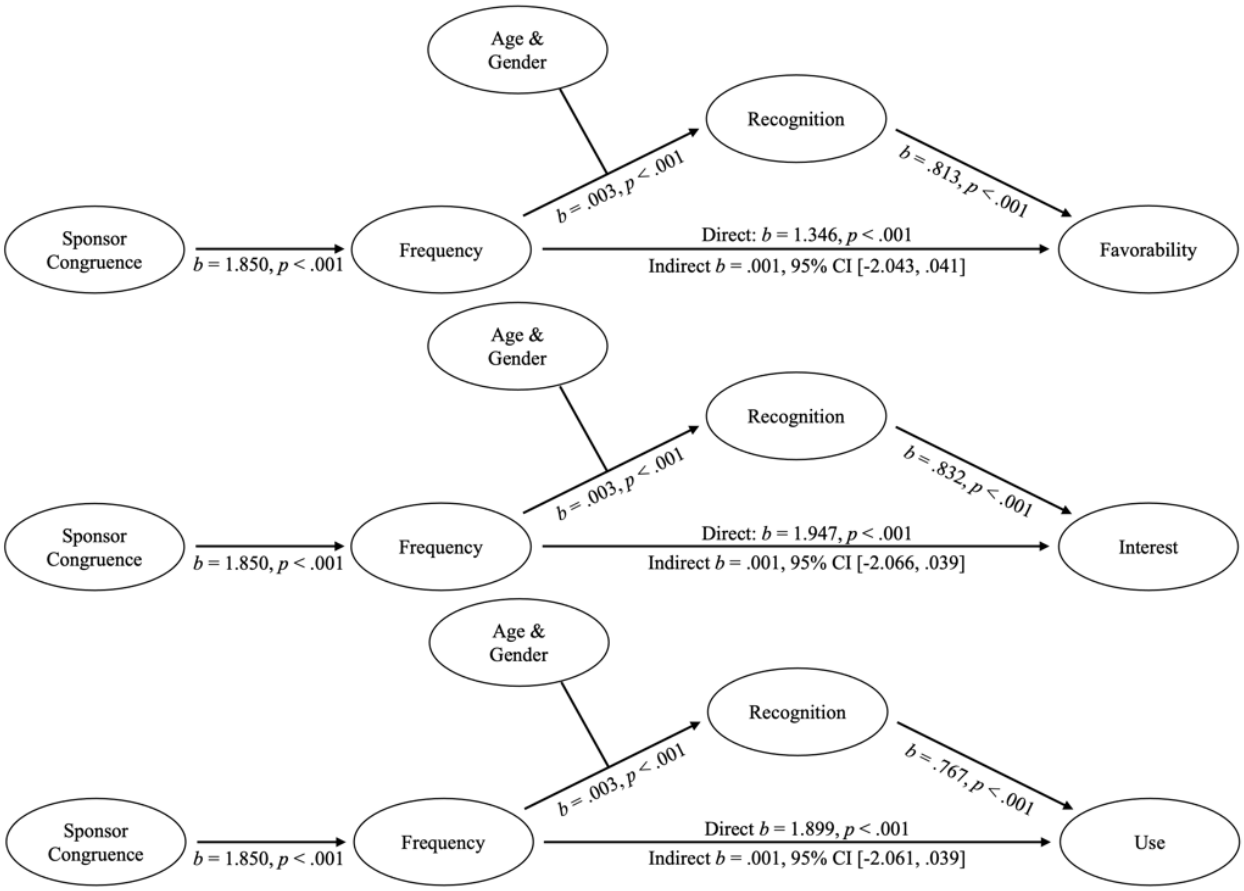
Resulting Recognition Model



Note. The dashed line represents a nonsignificant path. The solid line represents a significantly positive path. The moderating effects are not shown in the model; they can be found in the description of the results.

Figure 4.2

Continued



Note. The dashed line represents a nonsignificant path. The solid line represents a significantly positive path. The moderating effects are not shown in the model; they can be found in the description of the results.

CHAPTER V

DISCUSSION AND CONCLUSION

Since fixation-derived metrics (i.e., duration and frequency) are indicators of visual attention to sponsorship signage (e.g., Aguiló-Lemoine et al., 2020; Alonso Dos Santos et al., 2020; Boronczyk et al., 2018; Breuer & Rumpf, 2012; Green et al., 2011; Lim et al., 2018), this study utilized eye-trackers to identify consumers' visual attention to sponsorship information at minor league hockey events. Minor league hockey provides a unique setting for investigating consumers' marketing-controlled activity, specifically, the relationships between consumers' visual attention, explicit memory, and sponsorship response (i.e., favorability, interest, and use of the sponsoring brand). Investigation into these relationships can assist in determining if there is ecological validity between consumers' visual attention in a laboratory setting and in a natural environment. Further, our enhanced understanding of consumer behaviors in a natural setting can aid in creating better marketing strategies. The theoretical framework established in Chapter II and the current research results of Chapter IV indicate generalizable implications for sport and corporate marketers when creating partnerships.

The purpose of Chapter V is to apply the contextual meaning of previous scholars to the current results of this study, expanding our knowledge of the relationships between consumers' visual attention to sponsorship information and their response to the sponsoring brands. This chapter opens with an in-depth analysis of consumers' sponsorship information processes and implications, followed by the overall conclusions. Finally, this chapter concludes with limitations and future research.

Sponsorship Information Processes

Sponsorship Congruence and Visual Attention

Sponsorship congruence was examined in relation to visual attention, including fixation duration and fixation frequency. It is widely assumed that linking a brand with a sport organization enhances sponsorship effectiveness (Macdougall et al., 2014), but a more profound understanding is needed concerning how sponsor congruence enhances visual attention in a natural setting. As indicated by the SEM (Figures 4.1 and 4.2), sponsorship congruence does not influence consumers' visual duration of sponsorship information. Previous scholars noted that a higher perception of sponsor congruence results in a lower fixation threshold (i.e., faster cognitive processing time; Johar & Pham, 1999). Therefore, this study suggests that sponsor congruence may not have significantly impacted the consumers' visual duration of sponsorship information due to the lower threshold time on a stimulus.

Furthermore, the current study found that sponsor congruence influences consumers' visual frequency of sponsorship information. This conclusion is corroborated by previous scholars and their findings, as Aguiló-Lemoine et al. (2020) reported that sponsor congruence influences viewers' number of fixations. Since visual attention is based on the perceived relevancy of information (Lavidge & Steiner, 1961), it is not surprising that consumers' visual frequency increased based on consumers' perceived congruence of the sponsoring brand. Therefore, the current study supports the perception of sponsor congruence having higher relevancy and impact on consumers' visual attention than incongruent sponsors.

From a marketing perspective, a partnership between a local organization and a sport property is advantageous. Previous scholars noted that the advantages of congruence could create product differentiation (Amis et al., 1999). Therefore, corporate sponsors should identify local

organizations to partner with to increase their competitive advantage of similar products and services. Additionally, corporate marketers should strategically identify sport organizations that would result in higher consumer perceptions of sponsor compatibility. This strategic planning will increase consumers' visual frequency of their sponsorship information during sporting events, resulting in a positive sponsorship response (i.e., purchase intention).

Visual Attention and Explicit Memory

The theoretically based research has indicated that visual attention impacts explicit memory of sponsorship information (Breuer, Boronczyk, et al., 2021; Breuer, Rumpf, et al. 2021). However, these scholars utilized laboratory settings to investigate consumers' sponsorship information processes. The current research further develops our theoretical understanding of consumers' sponsorship information processing by examining their behaviors in a natural environment. The current study identified visual attention through consumers' fixation duration and fixation frequency to sponsorship information.

Duration

In the current study, fixation duration did not significantly influence consumers' explicit memory (i.e., recall and recognition) of sponsor brands. Based on the selective hypothesis (Meyers-Levy, 1988), consumers with higher sport action involvement will be less attentive to sponsorship information. The participants' video footage from the current study exhibited extended duration periods of attention to the sport action. Since hockey is an ongoing, high-action event, it would be assumed that consumers would have higher sport action involvement. Therefore, the duration at which consumers view sponsorship information would be limited.

However, when examining the moderating effects of age and gender, males indicated a higher probability of recognition when viewing sponsorship information for a more extended

period of time. At the same time, females showed no indication of significance. The differing results between males and females could be a product of temporal decision-making processes. Previous scholars provide evidence of time inconsistency among males–being patient in their decision-making process (Prince & Shawhan, 2009). Therefore, this study helps build a deeper understanding of consumers' temporal decisions specific to sponsorship information.

The current findings suggest that males must examine sponsors for an extended period of time to create a meaningful impact on their recognition of one sponsor over its competitors. Therefore, corporate partners should account for gender-specific differences in time consistency. An argument could be made that corporate partners who target women may benefit more often due to their time consistency in decision-making processes. Additionally, sponsors who communicate through sponsorship advertising (i.e., higher temporal decision type sponsors) should target the male audience.

Frequency

Ancillary to previous findings, the current study found that fixation frequency positively influenced a consumer's ability to recall and recognize sponsor brands in a natural setting. Furthermore, it was observed that consumers' frequency of visual attention to sponsorship information was drastically higher in places near or around the sport action, resulting in a higher probability of sponsor recall and recognition. This is supported by previous scholars that indicated higher fixation and probability recall rates of sponsors near the area of action (Alonso Dos Santos, Calabuig Moreno, & Sánchez Franco, 2019).

When examining the moderating effects of age and gender, females denoted a higher probability of explicit memory as the number of views on sponsorship information increased. Conversely, males' fixation frequency indicated a negative effect on recall and had no indication

of significance on recognition. The current study contradicts previous scholars that noted a greater recall capacity of sponsors in males (Breuer & Rumpf, 2012; Kinney et al., 2008; McDaniel & Kinney, 1999). However, (a) these studies were examined in laboratory settings, and (b) the current study had an excessive amount of sponsors. Due to the excessive amount of sponsorship information present at the sporting event, males' sequential attention was negatively impacted by each stimuli's demand capacity, resulting in cognitive overload. This is supported by previous scholars that suggest cognitive overload can decrease the probability of sponsor recall (Alonso Dos Santos, Calabuig Moreno, & Crespo-Hervás, 2019). Therefore, in a natural setting, males are unable to process a high frequency of sponsorship information. However, females were able to process sponsorship information at a higher frequency. Females' mental capacity to process an excessive amount of sponsorship information resulted in a higher probability of sponsor recall and recognition. There can be two assumptions that arise from these findings. First, the level of foveal stimulus (i.e., sponsorship information) difficulty was much lower for females. Second, due to the lower difficulty levels, females have a lower fixation threshold for cognitively processing and retaining sponsorship information than males.

From a marketing standpoint, corporate sponsors should be cognizant of how many sponsors are exposed at once. Corporate marketers targeting a male audience should focus their sponsorship placement in more remote and exclusive areas (i.e., video display sponsor advertisements). Regardless of the number of sponsors presented, corporate marketers targeting a female audience will want to concentrate the placement of their sponsors near or around the sport action (i.e., on-the-ice, on the boards surrounding the ice). Ideally, corporate marketers who can financially target both genders by having multiple placement types will have a more substantial return on their sponsorship investment.

From a theoretical perspective, the lack of ecological validity (between a laboratory setting and the natural environment; Schmuckler, 2001) of consumers' duration to sponsor information should be considered as laboratory settings are performed. The distractors present, including the sport action, may play a vital role in this discrepancy. Inversely, there appeared to be ecological validity of consumers' frequency of sponsorship information processing. The sport action may not adversely change the impact frequency has on sponsorship information processing in a nautral setting. Overall, laboratory settings should focus on creating more realistic environments and stimuli when examining consumers' visual attention to sponsorship information.

Visual Attention and Sponsorship Response

Lim et al. (2018) suggested that unconscious stimulus (i.e., visual attention) of signage can influence viewers' purchase intentions for sponsors' products and services. The current study further investigated the theoretical background of visual attention and purchase intention by examining these aspects in a natural setting. The current research found that consumers' sponsorship response (i.e., favorability, interest, and use) – purchase intention – of sponsoring brands were impacted by fixation frequency but not fixation duration. Further, the moderating effect of recall significantly boosted the relationship between fixation frequency and consumers' favorability, interest, and use of a sponsor brand. Previous scholars support the impact of frequency on sponsorship response, as Chi et al. (2009) found that sponsor awareness and image transfer influence consumers' purchase decisions. For consumers to fixate an excessive number of times on sponsorship information, there must be repeated brand exposure. Dardis (2009) found that the probability of consumers' decision-making process on sponsors' products or services was influenced by repeated brand exposure; however, without visual attention, repeated

brand exposures are irrelevant. Therefore, the current study suggests that repeated brand exposures affect the frequency at which consumers view and recall a sponsoring brand, in turn amplifying consumers' favorability, interest, and use of the sponsor. In terms of marketing strategies, sport marketers can allocate for corporate organizations to purchase sponsorship packages that include duplicate or repeated sponsorship exposures to consumers. Consumers' ability to focus more frequently on sponsorship information will improve sponsors' effectiveness through increased sponsorship response rates.

When considering the insignificance of duration in the current study, consumers' predominantly devoted attention to the live-action can create less directed attention to sponsorship information (Boronczyk et al., 2018, 2022; Breuer & Rumpf, 2012). Hence, the current study indicated that consumers' have saliency-based attention to sponsorship information—momentary attention. Accordingly, this study suggests that due to the high sponsorship involvement of male participants, the duration time is not significant enough to influence their decision-making process but is influential enough to impact their recognition of sponsors. Through the mediation of recall and recognition, there can be a significantly positive impact on sponsorship response (i.e., purchase intention). Therefore, duration is an essential aspect of sponsorship information processing when targeting male consumers. Corporate organizations targeting male consumers should focus their brand placement in areas that can be viewed for extended periods of time. Sponsors who maximize these strategic opportunities can increase their return on investment.

Explicit Memory and Sponsorship Response

The current study examined consumers' explicit memory to aid sport and corporate marketers in expanding their knowledge of consumers' visual retention during sporting events.

Previous scholars found that the ability to recall and recognize sponsorship information can influence consumers' purchase intentions (Chi et al., 2009). The current study strengthened previous scholars' findings, as explicit memory was found to influence consumers' sponsorship response in a natural environment. Thus, the current research suggests that consumers' visual retention of sponsorship information in a live setting will positively influence their favorability, interest, and use of the sponsor brand.

Since passive attention (i.e., visual attention) is required for consumers' to cognitively process sponsorship information (i.e., explicit memory), the model must also be examined as a whole. With regard to the consumers' external information process efforts (Beatty & Smith, 1987), their degree, perception, and effort of attention to sponsorship information were related to their sponsorship response (i.e., purchase intention). Consumers' efforts could be related to purchase congruence (Fortunato, 2013). There were several opportunities for consumers to purchase certain sponsors' products at the event location. The ability to purchase in-venue may have increased the consumers' perception of image congruence and image transfer. Therefore, as consumers take their seats in the arena, their visual attention to the in-venue products and services will have higher frequency and explicit memory rates, resulting in a positive sponsorship response. This positive sponsorship response is an indication of consumers' purchase intention of sponsors' products and services. By selling in-venue products and services, corporate marketers can generate immediate purchase intention responses and long-lasting returns on their partnership investment. Therefore, corporate marketers should strongly consider selling their products or services at the event location.

Controls

Consumers' consumption of sponsors, emotional states before and after the sporting event, and familiarity with sponsors were controlled for in the current study. However, based on previous research, these aspects can be examined in the current study as exploratory factors. Starting with consumption, if a participant's consumption rate for a sponsor was high, the corresponding recall and recognition rates were also elevated. Previous scholars support this conclusion, as Breuer and Rumpf (2012) reported that consumers of a sponsor would have a higher probability of sponsor recall. Therefore, corporate marketers have two options. First, marketers can advantageously plan their sponsorship deals, focusing on current consumers, with the expectation of shifting light users into medium or heavy users. Second, marketers could focus their partnership deals on nonconsumers, aiming for future consumption.

Additionally, the consumers were found to have positive emotional states before and after the sporting event. Therefore, it can be assumed that the participants' emotions were comparatively consistent throughout the entirety of the sporting event. According to Ercan (2021), a sports setting can impact consumers' subconsciously positive behaviors toward sponsors that are cognitively processed. Therefore, the participants' sponsorship response rates could have been encouraged by their positive emotions. For many reasons, sports organizations strategize on creating an exciting and upbeat atmosphere that increases consumers' positive emotions toward their sporting events. However, this strategic plan can also be used to support sport marketers' incentives in their partnership deals. For example, sport marketers can focus a portion of their sponsorship initiatives on ways in which the organization increases consumers' positive emotions, which may increase sponsors' return on investment.

Finally, consumers' who noted higher rates of familiarity with a sponsor resulted in lower duration times and higher frequency rates. In reference to consumers' associative memory network—the strength of related connectedness (Teichert & Schöntag, 2010) and search behavior (Kerstetter & Cho, 2004), this study suggests that consumers' search behavior was positively influenced by their familiarity with a sponsoring brand, increasing consumers' fixation frequency of familiar signage. However, the consumers' previously-stored nodes (i.e., familiarity) created faster cognitive processing times, which resulted in lower duration times. Furthermore, the current study revealed higher recall and recognition rates when higher rates of familiarity with a sponsor were present. Previous scholars support this observation, concluding that more familiar brands are recalled at higher rates (Boronczyk et al., 2018; Breuer & Rumpf, 2012).

Generalizability

The generalizability of these findings can aid other minor league hockey organizations in their sponsorship effectiveness strategies. Sponsorship signage presented in hockey arenas is generally located in similar areas (i.e., ice, boards, video display). The suggested strategies from the current study can be implemented to maximize sponsorship effectiveness for hockey organizations. More specifically, these desired strategies would present corporate sponsors with tangible evidence of their return on investment.

The generalizability of these findings to other non-hockey sport organizations is limited. While the theoretical concept of sponsorship information processing applies to other sport contexts, the design of other sport facilities is drastically different. Corporate partnerships are present in all sport organizations; however, determining tangible evidence of sponsorship effectiveness would require research specific to their facilities, as sponsorship signage placement

plays a critical role in consumers' visual attention (Breuer & Rumpf, 2012). With the change in sport environment, consumers may show similar or different trends related to sponsorship information processing.

Furthermore, the findings of this research are generalizable to the theoretical frameworks of visual attention, consumer perceptions of sponsorship information, and the information search process. The uniqueness of the current study (i.e., natural setting) constructs an advanced understanding of consumers' cognitive processing of sponsorship information. The current research validates the ecological validity of fixation frequency of sponsorship information processing while also enhancing and challenging the theoretical framework and ecological validity of fixation duration. Overall, the current study generated significant insights into consumers' visual attention to sponsorship information, therefore increasing the generalizability.

Limitations

Although the current research thoroughly investigated consumers' real-time behaviors at live sporting events, it was not without limitations. First, the number of participants was due to the availability of game event access and the number of current eye-tracking glasses. Ideally, the number of participants could be doubled or even tripled with the use of a few more eye-tracking glasses. A larger sample size could further strengthen strategies presented to marketing committees for boosting sponsorship consumption. These varying strategies could further increase sponsorship effectiveness, resulting in a higher rate of sponsors' return on investment.

The second limitation was the time constraint on each participant's eye-tracking session. The current study found that participants' visual attention influences the recall and recognition of sponsorship information. However, the impact (coefficient) of visual attention was lower than anticipated. If participants' visual attention was examined for the entirety of the event, there may

be an increase in the impact factor. In addition to the impact factor, it would deem further control over the environmental setting.

Third, examining consumers' prior needs, decision-making processes, and brand perceptions toward sponsors may have influenced their visual attention. However, surveying consumers on their prior needs, decision-making processes, and brand perceptions of sponsors' products and services would have led to participants' knowledge of the research study. Therefore, this was unable to be examined in the current research study.

Finally, in the collection of control variables, the choice was made to collect data related to a) consumption, (b) familiarity, (c) emotional state, (d) sponsor message, and (e) residential distance. The choice was focused on marketer-controlled variables and the ease of participation. When trying to control for all of the components a participant can experience in a live setting, an endless number of questions could be asked. However, an excessive number of questions on a survey can lead to dissatisfaction and negative impacts on the research (i.e., careless responding; Meade & Craig, 2012) and their sporting event experience. The negative emotional state could influence participants' responses to post-survey questions related to sponsorship response (i.e., purchase intentions).

Future Research

This study examined consumers' visual attention to sponsorship information and the resulting sponsorship response. While research on consumers' visual attention, explicit memory, and sponsorship response have been examined, this research directly assessed consumers' real-time behaviors in a natural environment. This section will summarize four possibilities for research to build upon in the future.

First, the current study examined consumers' real-time behaviors at a minor hockey league's sporting events. The participants were seated in the same section, row, and seat to help reinforce the study's control. However, video samples could be taken from each section of the area to increase marketers' understanding of sponsorship effectiveness. This would require a larger number of participants and similar homogenous sampling for each section. Participant placement would be in the same row and seat in each section to help maintain control of the study.

Second, the research model could also include the element of consumer-based flow. During a flow state, individuals' emotions, intentions, and actions are integrated toward a similar goal. Since a consumer's attitude is an influencing factor of behavioral intention (Ki & Hon, 2007), it could be suggested that flow may increase a consumer's behavioral intentions. Understanding the nature of consumers' flow state relative to their visual attention could be an essential aspect of sponsorship effectiveness. Furthermore, consumers' flow state could feasibly be linked to their sponsorship response, in turn increasing sponsors' return on investment.

Third, a modification in the methodological approach to examine consumers' real-time behaviors toward momentary sponsorship advertisements could provide interesting feedback for sponsors' return on investments. Consumers' emotional states are heightened positively or negatively when at sporting events. A consumer's emotional state can vary depending on the event's atmosphere, action, and overall score. The timing of a momentary sponsorship advertisement can be critical to a consumer's emotional state towards the sponsor and their sponsorship response. Applying this methodology to the current research, questions could be asked such as: how does a consumer's emotional state towards a sporting event impact their sponsorship response to momentary sponsorship advertisements?

Lastly, due to the uniqueness of the current research, the replication of this research at additional sporting events can strengthen or change our current theoretical framework regarding consumers' information processes. The current methodology can be replicated at multiple minor hockey league arenas to strengthen the implications and generalizations of sponsorship effectiveness in hockey arenas. The method could also be replicated for major sporting events to determine sponsors' effectiveness at a singular event; however, this would require an excessive amount of eye-tracking glasses.

Conclusion

The organizational decisions made through corporate partnerships play an essential role in determining sponsorship effectiveness strategies (e.g., return on investment and return on objective). The importance of these sponsorship effectiveness strategies has created a unique line of research centered on consumers' natural behaviors at sporting events. To date, the majority of sport marketing research has analyzed consumers' visual attention to sponsorship information in a laboratory setting, as controlling for the consumption of sponsor brands can be difficult in a natural environment. The current study is one of the first attempts at examining consumers' visual attention to sponsorship information in a more realistic environment.

The SEM analysis yielded results that implied consumers' perceived sponsor fit increases the frequency of visual attention to sponsors. Furthermore, the results inferred that the number of times a consumer views sponsorship information, the higher probability that the individual will have explicit memory of the sponsor and positively impact their favorability, interest, and use towards a sponsor. Finally, a consumer's ability to recall and recognize sponsorship information will also positively influence their favorability, interest, and use of the sponsor brand.

The current study contributes to the sponsorship literature by examining how sponsorship-linked communication strategies are fundamental for sponsorship effectiveness measures. The current study makes several theoretical contributions. First, the current study provides a further understanding of sponsorship information processing by examining how various sponsorship outcomes in a natural setting are interrelated. Specific to a natural setting, this study shows that fixation frequency is critical in the hierarchical development of consumers' cognitive processing of sponsorship information. Sponsors that focus their partnership efforts on increasing consumers' visual frequency of their sponsor information can expect an increase in their explicit memory of sponsorship information, resulting in positive responses to the sponsoring brand.

Second, the current research study contributes to the sponsorship literature by investigating how moderating effects can impact consumers' cognitive processes. Sponsors who target a male audience can expect an increase in explicit memory and sponsorship response through fixation duration strategies. On the other hand, sponsors who target a female audience will want to focus heavily on fixation frequency strategies. From a practical standpoint, the results shed new empirical insights on building sponsorship strategies around specific target markets.

Finally, the current study empirically demonstrated that explicit memory partially mediates the impact of visual attention on sponsorship response. Consumers' ability to recall and recognize sponsorship information after a live sporting event can strengthen the signal of visual attention to sponsor brands as a positive response. Examining consumers' natural behavior towards sponsorship information at a sporting event provides tangible evidence of sponsors' return on investment. An advanced understanding of the nature of consumer behaviors in a

natural setting can be valuable to current and future sport and corporate marketers. Furthermore, consumers' ever-changing behaviors and the complexity of a natural environment offer many avenues for future research in the area.

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APPENDIX

INSTITUTIONAL REVIEW BOARD APPROVAL AND HUMAN CONSENT FORM

UNIVERSITY OF
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Institutional Review Board

Date:	09/13/2022
Principal Investigator:	Alicia Romano
Committee Action:	**IRB EXEMPT DETERMINATION – New Protocol**
Action Date:	09/13/2022
Protocol Number:	2202035909
Protocol Title:	Utilizing Eye-Tracking to Identifying Consumer Behaviors During Colorado Eagle Sporting Events.
Expiration Date:	

The University of Northern Colorado Institutional Review Board has reviewed your protocol and determined your project to be exempt under 45 CFR 46.104(d)(702) (703) for research involving

Category 2 (2018): EDUCATIONAL TESTS, SURVEYS, INTERVIEWS, OR OBSERVATIONS OF PUBLIC BEHAVIOR. Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: (i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects; (ii) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or (iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by 45 CFR 46.111(a)(7).

Category 3 (2018): BENIGN BEHAVIORAL INTERVENTIONS IN CONJUNCTION WITH THE COLLECTION OF INFORMATION FROM ADULT SUBJECTS through verbal or written responses (including data entry) or audiovisual recording if the subject prospectively agrees to the intervention and information collection and at least one of the following criteria is met: (A) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects; (B) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement,

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Institutional Review Board

or reputation; or (C) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by 45 CFR 46.111(a)(7). For the purpose of this provision, benign behavioral interventions are brief in duration, harmless, painless, not physically invasive, not likely to have a significant adverse lasting impact on the subjects, and the investigator has no reason to think the subjects will find the interventions offensive or embarrassing. Provided all such criteria are met, examples of such benign behavioral interventions would include having the subjects play an online game, having them solve puzzles under various noise conditions, or having them decide how to allocate a nominal amount of received cash between themselves and someone else. If the research involves deceiving the subjects regarding the nature or purposes of the research, this exemption is not applicable unless the subject authorizes the deception through a prospective agreement to participate in such research.

You may begin conducting your research as outlined in your protocol. Your study does not require further review from the IRB, unless changes need to be made to your approved protocol.

As the Principal Investigator (PI), you are still responsible for contacting the UNC IRB office if and when:

- You wish to deviate from the described protocol and would like to formally submit a modification request. Prior IRB approval must be obtained before any changes can be implemented (except to eliminate an immediate hazard to research participants).
- You make changes to the research personnel working on this study (add or drop research staff on this protocol).
- At the end of the study or before you leave The University of Northern Colorado and are no longer a student or employee, to request your protocol be closed. *You cannot continue to reference UNC on any documents (including the informed consent form) or conduct the study under the auspices of UNC if you are no longer a student/employee of this university.
- You have received or have been made aware of any complaints, problems, or adverse events that are related or possibly related to participation in the research.

If you have any questions, please contact the Research Compliance Manager, Nicole Morse, at 970-351-1910 or via e-mail at nicole.morse@unco.edu. Additional information concerning the requirements for the protection of human subjects may be found at the Office of Human Research Protection website - http://hhs.gov/ohrp/ and https://www.unco.edu/research/research-integrity-and-compliance/institutional-review-board/.

Sincerely,

Nicole Morse
Research Compliance Manager

University of Northern Colorado: FWA00000784

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Informed Consent

Project Title: Utilizing Eye-Tracking to Identifying Consumer Behaviors During Colorado Eagles Sporting Events.

Researcher:
Alicia Romano, Ph.D. Student, alicia.romano@unco.edu

Research Advisor:
Alan Morse, Ph.D., alan.morse@unco.edu

Study Purpose: You have been asked to participate in this study because you are attending a Colorado Eagles sporting event. The purpose of this study is to identify consumers' real-time behaviors during a sporting event. Your participation will help to increase marketing strategies for the Colorado Eagles Marketing Committee.

What will you be asked to do? You will be asked to fill out a survey about your emotional state before the sporting event. You will be asked to wear eye-tracking glasses for 30-60 minutes while watching the sporting event. You will also be asked to complete an online questionnaire via Qualtrics after the sporting event has ended. Most individuals will complete the questionnaire in 5-10 minutes. You will be asked questions related to the sporting event, your emotional state, and you will be asked several demographic questions.

Who will see the information that you give? The data will be handled and analyzed only by the research team members, Alicia Romano (researcher) and Dr. Morse (advisor). Electronic data will be stored on password-protected laptops.

Confidentiality: Data will be stored on password-protected computers. All names and information that could be used to identify you will be removed to protect your identity when reporting data analysis results.

Discomforts and Benefits of Participating: Potential discomforts in this project are minimal. The risks inherent in this study are no greater than those normally encountered by an individual viewing a sporting event. You may feel uncomfortable wearing eye-tracking glasses that will video record your eye movement. You may also feel uncomfortable being audiotaped. There is no compensation for your participation in this study.

Questions? If you have questions about the study, you can contact the lead researcher, Alicia Romano, 906-361-3322 or alicia.romano@unco.edu.

Voluntary Participation: Your participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. You must be 18 years of age or older to participate. Having read the above and having had an opportunity to ask any questions, please select the option "yes" below if you would like to participate in this research and are 18 years of age or older. The research will provide a copy of this consent form for you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact Nicole Morse, IRB Administrator, Office of Sponsored Programs, 25 Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.