

AN INVESTIGATION OF INDIVIDUAL FLOW STATE EXPERIENCE AND SATISFACTION: THE CASE OF SCENARIO PAINTBALL

by

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A Thesis submitted in partial fulfillment of the requirements for the degree of Master of
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DEDICATION

This research project is dedicated to my father, Fredrick Henry Goldbecker, and my mother, Barbara Sheralyn Goldbecker, for their incredible support and love over the last 38 years. It is through their upbringing and guidance that this research paper is possible.

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“Paintball is a lot like pizza; even when it’s bad, it’s still pretty darn good”

-James Graham

ABSTRACT

AN INVESTIGATION OF INDIVIDUAL FLOW STATE EXPERIENCE AND SATISFACTION: THE CASE OF SCENARIO PAINTBALL

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This research was undertaken to examine flow as a motivational concept in scenario paintball. Flow theory, as presented by Csikszentmihalyi (1990), is a psychological state of mind and focus found in optimally performing individuals in sports and other activities. Flow comprises nine different dimensions resulting in an optimal experience; these include: challenge-skill balance, action-awareness merging, clear goals, unambiguous feedback, concentration on the task at hand, sense of control, loss of self-consciousness, transformation of time, and autotelic experience. Using the Flow State Scale the dimensions of flow were measured in participating scenario paintball players, as were behavior and demographic characteristics (e.g., players' years of experience, team affiliation, satisfaction, and social interactions). The difference among respondents on the basis of demographic characteristics was found to be minimal in terms of flow with the exception of the dimension of having clear goals. The researcher found that respondents who played on scenario teams scored significantly higher in the clear goals dimension of flow. The researcher was able to identify significant correlations between

flow and satisfaction. The satisfaction of individual play, and with paintball venues, field set-up, level of performance by one's team, and the game's level of challenge were significantly correlated to flow scores. All participants scored high levels of flow and satisfaction with no differences on the basis of experience or team affiliation. Given the high and consistent rates of flow reported by respondents, it is understood that scenario paintball is a gripping and visceral activity that offers flow aspects to all ages and skill sets and ultimately impacts the satisfaction level of players.

CHAPTER 1

Twelve friends playing in the New Hampshire woods created a uniquely American sport in 1983. These friends made a bet to see whose everyday skills would prevail in a woodland-based not so ordinary game of Capture the Flag. The game was spiced up by using cattle marking paint pellet guns to eliminate opponents, instead of tagging them by hand. Thirty years later, this backwoods challenge has more than 9 million participants across the country and a name: *paintball*. Paintball now has global appeal, and is used for corporate teambuilding, birthday parties, church outings, bachelor parties, professional sporting, and general recreation and leisure. The game that started as a created challenge among friends has grown and developed as its own industry including professional leagues. In the face of early criticism for the misuse of equipment, injuries, and a war-like image, the game has become a mainstream activity. Once thought of as an extreme sport or risk recreation, the adrenaline rush of running, hiding, shooting and flag pulling has made paintball a weekend activity for millions of people (Gaines, 2004). The game offers a unique and positive experience to have become so popular with individuals and groups given the cost of play and the pain of being hit. This study seeks to define what makes paintball such a fun and compelling experience. It is posited that the concept of an optimal experience, otherwise known as flow, may play a role in participant enjoyment of the game. Flow can be experienced by anyone and has been found to occur when participants have enough focus to concentrate solely on what they are doing, with disregard for what others may think while they are engaged in the activity. While the

idea of running around the woods being shot is not everyone's idea of fun, the act of intense focus so as to lose track of time or the feeling of freedom is worthy of study. A key to the growth of any activity is the satisfaction and outcomes experienced. With so many recreational activities from which to choose, the researcher has sought to determine what is compelling about scenario paintball. Based on the constructs of optimal experience and satisfaction, the researcher has constructed and implemented a study of scenario paintball.

More than two centuries ago, the Founding Fathers in the Declaration of Independence, eloquently stated, "We hold these truths to be self-evident, that all men are created equal, that they are endowed by their creator with certain unalienable rights, that among these are Life, Liberty, and the pursuit of Happiness." This notion of equality and an entitlement to life, liberty, and the pursuit of happiness are congruent with and perhaps may even be the foundation for recreation and leisure in the modern-day United States of America. This phrase is uniquely American, like the sport of paintball, and aligns itself in meaning with flow.

Theoretical Lens

The theoretical lens of this study is that of flow, a psychological theory that emphasizes the mental focus of participants engaged in an activity. Flow is defined as an occurring state of mind that may or may not be a precursor to optimal performance but is an autotelic experience and is usually experienced as part of or during optimal performance (Jackson & Csikszentmihalyi, 1999). Flow has also been posited to enhance

the quality of life for participants who take part in an optimal experience while engaged in activities (Csikszentmihalyi, 1990).

The theory of flow received its name from the descriptive words that elite athletes used to explain the psychological state that produces an optimal experience and a sense of optimal arousal and at times results in optimal performance. Athletes used descriptions such as “being on auto,” “being in the zone,” “you just flow,” and “things just clicked.” While flow can and has been applied to many different sports in regard to performance, it has also been presented as a path to improving an individual’s quality of life.

Csikszentmihalyi presented the idea that the human mind is predisposed to lapse into disorder and chaos if not properly challenged to think otherwise. The constructs of psychic entropy (a negative influence) and psychic negentropy (a positive influence) align with the dueling mental states of chaos and order that the human psyche constantly struggles to control. These constructs are, in turn, manipulated by an individual’s psychic energy. Psychic energy, as described by Csikszentmihalyi, is the human brain’s capacity to focus on environmental and situational stimuli.

By focusing and using psychic energy, an individual can become immersed in an activity, which will bring focus to one’s thoughts and ward off the chaos of a mind left to its own devices. The ability of an individual to find satisfaction and enjoyment from an activity, however, relies upon more than just the ability to focus on that activity. For instance, if an activity is not challenging enough, a participant will eventually get bored and quit. If an activity is too challenging, a participant will become anxious and will quit due to the overwhelming challenge of the activity.

As mentioned, Csikszentmihalyi suggests that a flow state can be experienced in almost every aspect of life. Through flow, it is posited that complexity – and therefore a better quality of life – can be achieved through, among other things, facing ever-increasing challenges and maintaining a balance of challenge and skill. A factory worker was found to achieve flow state in the workplace by seeking and finding engrossing challenges in his daily routine; an audiophile achieved flow state through listening to high fidelity recordings and equipment; foodies through gourmet and exotic cuisine; lovers through relationship building; scholars through complex counting games; family members through sharing activities and responsibilities; and victims of tragedy through redefining their purpose in the face of a terrible loss.

Flow state has been hypothesized to happen when athletes achieve optimal performance, but it is not necessarily synonymous with optimal performance. Flow is thought to define the quality of experience or the achievement of optimal experience in contrast to that of optimal performance. In order for an individual to experience the elusive state of flow, which is so highly coveted by professionals and amateurs alike, nine dimensions of flow state need to be fulfilled. These nine dimensions include challenge-skill balance, action-awareness merging, clear goals, unambiguous feedback, concentration on the task at hand, sense of control, loss of self-consciousness, transformation of time, and autotelic experience.

Many studies have focused on flow in relation to sports. Flow has been identified to have nine dimensions that ultimately play a role in an individual's ability to achieve an

optimal experience. These nine dimensions in turn can be measured in order to assess an individual's perceived level of flow state through the use of the Flow State Scale (FSS).

The *challenge-skill balance* describes a challenge that is greater than an individual's skills, and results in an uncomfortable experience that will lead a participant to a state of anxiety and a desire to end the activity. On the opposite side of the balancing equation is the concept of an activity being well beneath a participant's skill level and hence not challenging at all. This lack of challenge will lead to a feeling of apathy and perhaps boredom and will also lead to the participant looking for something else to do. This balance is illustrated in the flow state model (Figure 1.1).

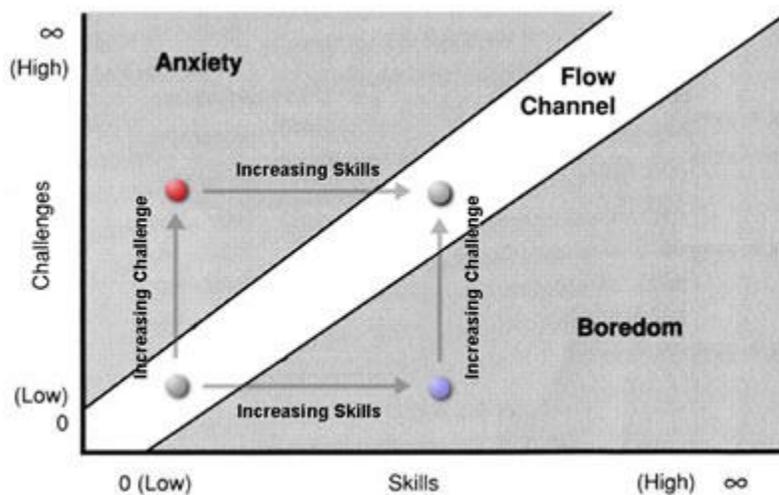


Figure 1.1 Model of Flow State (Jackson & Csikszentmihalyi 1999).

Skill has been linked to an individual's confidence and perceived level of skill more than it is related to a tangible measurement of ability. Jackson and Csikszentmihalyi (1999) presented an approach of focusing on small attainable goals when overwhelmed by a challenge and refining precise skill sets when faced with an overall lack of challenge. By focusing on specific aspects of an activity, participants may still find balance and enjoy an activity that may not match up with their skill sets.

When a challenge is adequate in relation to an individual's skills, that individual may experience the second dimension of flow: *action-awareness merging*. This dimension closely resembles the idea of motions being effortless and automatic or feeling "in the zone." This is the dimension that encompasses the sense that equipment feels like an extension of the body or that the mind and body are beginning to ignore pain and replace it with a feeling of glory or ecstasy. It is a merging of the physical and mental selves. This dimension can be misinterpreted in that while actions may become automatic and feel effortless when lost in the moment, they are indeed dependent on effort.

Clear goals are an important part of achieving flow, and help to define what it is that one is trying to accomplish. Without knowing what it is that one is trying to do, it would be difficult, if not impossible, to successfully balance skills with challenge or to merge both physical and mental abilities in an effort to accomplish a certain outcome or task. In the context of a race or sporting event, athletes may prepare themselves for certain turns of events by preparing for exactly what to do when these situations arise. Clear goals may be broad, such as outperforming an opponent or scoring a certain number of points; or more specific, such as preventing an opponent from performing a

specific task. When clear goals are set and known, it is much easier for participants to realize how they are performing.

Unambiguous feedback is the information participants receive from their senses in relationship to their level of performance, and may be the familiar feeling from muscle memory. Feedback can also be external in nature, such as feedback from teammates and coaches. When clear and understandable feedback occurs, it allows participants to understand their level of performance and adjust accordingly if an optimal state is not being achieved.

Without *concentration on the task at hand*, an individual cannot experience many of the above-mentioned dimensions of flow. Without concentration, one cannot recognize the kinetic feedback from the body or understand other cues related to performance. By concentrating on what it is that one is doing, an individual may achieve action-awareness merging and be better suited to identify progress toward his or her recognized goals. A lack of concentration may also result in a partial understanding of feedback from an activity and a skewed perception of the challenge at hand, which could result in a deteriorated balance of challenge and skill, thereby creating boredom or anxiety. Without total concentration, external and internal distractions may prevail and reduce an individual's performance and experience.

When individuals have a *sense of control*, they know what it is they are doing and are doing what it is they want to do. This state of commanding their thoughts and actions can lead to a feeling of being unstoppable, especially in a competitive environment. A sense of control is bolstered by the individuals' perception that their skills are great

enough to perform the required tasks and meet the challenges at hand. Unambiguous feedback also guides and informs participants in regard to whether or not they are indeed in control of the situation at hand and making progress toward a goal.

Loss of self-consciousness is perhaps the most commonly misunderstood dimension of flow. This dimension refers to individuals being so engrossed and in tune with what they are doing that they do not (or forget to) care what others may be thinking of them. Along with a deficiency of caring for what others think is a lack of internal self-concern or doubt. Loss of self-consciousness is about the loss in awareness and relevance of scrutiny, whether internal or external—not about a person’s loss of control of self.

Transformation of time has been shown to apply differently to different sports. The concept is closely related to the thought of “time flies when you’re having fun.” Due to the extreme amount of concentration required to achieve flow and the loss of external pressures and demands, it has been posited that an individual may feel a distortion of time. Time is thought to feel slower or faster to an individual experiencing a deep state of flow. This sense of altered time, however, faces hurdles from some activities such as swimming and racing, when participants are focused on the time of their event in an effort to save and use energy at the most opportune time. Due to the nature of some activities, a participant may be unable to lose track of time; however, it is theorized that while in flow participants perceive time to speed up in longer events and slow down in shorter events.

The last dimension of flow is the concept of an *autotelic experience*, one worth doing just to do it. This is also known as an intrinsically rewarding experience. While

experiencing flow, an individual experiences a state of optimal experience, which is in and of itself extremely rewarding and is thought to be worth the effort to experience over again. This dimension is referred to as the end result of all of the other dimensions of flow. When the aforementioned dimensions are all actively engaged and experienced during an activity, the individual will experience flow, which in its own right is a highly enjoyable psychological state that is thought to be worth achieving for the sake of experience.

The nine dimensions of flow are not linear in the sense that they must be attained in a preconceived order, but they do build upon each other. The state of flow is reported by athletes to be worth the effort to experience it; however, the complexity of the experience makes it an elusive state to achieve. Evidence gathered from international surveys indicate that optimal experiences were described in the same terms, regardless of gender, age, economics, or culture (Csikszentmihalyi, 1990). The study of flow that began at the University of Chicago has spread worldwide with researchers in Canada, Germany, Italy, Japan, and Australia. The most extensive research performed outside of the United States has been at the Institute of Psychology of the Medical School, The University of Milan, Italy. Around the world, the theory of flow has been used to help study happiness, life satisfaction, intrinsic motivation, cultural rituals, religion, and even the evolution of mankind. Flow relates to a quality of experience and is used to design and implement strategies for improving quality of life. Such applications include generating ideas and practices in clinical psychotherapy, rehabilitating adjudicated youth,

organizing activities for senior citizens, and developing occupational therapy techniques for those with disabilities.

While some aspects of flow seem not to be a requisite for a state of optimal experience in some sports, the general constructs point to a state of being that is influenced by an individual's concentration and positive attitude.

Problem Statement

Scenario Paintball is a demanding game played over an extended period of time. Environmental factors such as extreme heat, rain, snow, and harsh terrain are commonly experienced during play. In addition to these environmental factors, there are also monetary and time constraints. Scenario games are commonly held in out of the way places due to the need for large playing fields, which results in travel requirements. The games can last up to two days requiring prolonged trips. Financially games can cost up to \$70 for registration and \$100 for a case of paint, which equates to 2000 shots (<http://www.skirmish.com/blogs/invasion-of-normandy-2013/>). With the combined influences of both the environmental and financial challenges of the game, players can be left both physically and financially exhausted. The researcher seeks to better understand why participants would leave the comfort of their daily lives to willingly undertake such an expensive and physically grueling endeavor — with little to no extrinsic incentive.

Study Purpose

The intent of this study is to investigate the influence of flow state on scenario paintball players' experiences, motivations, and satisfaction. Scenario games comprise many teams, and individuals all experience unique game situations. The complexity of scenario paintball allows for teams and individuals who play on a winning side to have a terrible game statistically, or for those who play well to walk away in defeat. By comparing the levels of flow experienced with the amount of satisfaction gained from the overall experience and individual or team social behaviors, the results will help to clarify a better understanding of the game, players, and implications for playing scenario paintball.

This study will be guided by the following research questions (RQ):

RQ1: To what extent do scenario paintball players experience flow?

RQ2: How is flow related to satisfaction within the larger scenario experience?

RQ3: How do an individual's social interactions relate to flow state?

Hypotheses

Based on a thorough review of literature it was hypothesized that:

H1: There is a significant difference between individual and team players with regard to flow (overall and individual dimensions); specifically

H1a: There is a significant difference between individual and team players in regards to the overall dimension of flow;

H1b: There is a significant difference between individual and team players in regards to challenge/skill balance;

H1c: There is a significant difference between individual and team players in regards to action-awareness merging;

H1d: There is a significant difference between individual and team players in regards to clear goals;

H1e: There is a significant difference between individual and team players in regards to unambiguous feedback;

H1f: There is a significant difference between individual and team players in regards to concentration on the task at hand;

H1g: There is a significant difference between individual and team players in regards to sense of control;

H1h: There is a significant difference between individual and team players in regards to loss of self-consciousness;

H1i: There is a significant difference between individual and team players in regards to transformation of time; and

H1j: There is a significant difference between individual and team players in regards to autotelic experience.

H2: Overall flow state is significantly and positively related to the level of individual satisfaction with the game experience; specifically

H2a: Overall flow state is significantly and positively related to the level of individual satisfaction with one's team;

H2b: Overall flow state is significantly and positively related to the level of individual satisfaction with one's side;

H2c: Overall flow state is significantly and positively related to the level of individual satisfaction with the paintball park;

H2d: Overall flow state is significantly and positively related to the level of individual satisfaction with the field set-up;

H2e: Overall flow state is significantly and positively related to the level of individual satisfaction with individual play; and

H2f: Overall flow state is significantly and positively related to the level of individual satisfaction with the game's level of challenge.

H3: Overall flow state is significantly and positively related to the level of social interaction players have with their team; specifically

H3a: Overall flow state is significantly and positively related to players eating with their team;

H3b: Overall flow state is significantly and positively related to players camping at the field with their team;

H3c: Overall flow state is significantly and positively related to players who travel with their team; and

H3d: Overall flow state is significantly and positively related to players who accept special scenario roles.

Extent of the Study

Delimitations

This study was delimited to individuals 18 years or older playing during Summer, and Fall 2012. The study included participants in both one-day and two-day scenario games at E.M.R. Paintball Park, G.R.C. Paintball Park, and O.X.C.C. Paintball Park. Surveys were distributed to achieve, as much as possible, a proportional number from both types of scenario games. Only active players were included in this survey. The use of online forums and online surveys were not employed in this survey due to the inability to verify information online and the possible lack of credibility of online respondents. The study was delimited to specific measures chosen by the researcher (e.g., flow, satisfaction, social constructs).

Limitations

One limitation of this research may be the number and representation of participants surveyed. There are estimated to be 10 million paintball participants (Gaines, 2004). Approximately 1,000 players were involved over the four events studied and 98 surveys were completed. As a result, there may be limited generalizability. In addition to the sample size, only games within the Mid-Atlantic region was surveyed,

which may or may not be indicative of other regional perspectives of scenario paintball. This study only focused on participants in scenario paintball games and, therefore, results may not be generalizable to those playing at other paintball venues, including recreational or walk-on play and tournament-level play. The researcher was a participant researcher and was already familiar with many of the aspects of the game and industry. The researcher took steps to create a valid and reliable survey instrument and to formulate unbiased conclusions; however, the intimate knowledge of the game and acquaintance with some of the survey participants may have influenced the researcher's ability to form fully unbiased opinions based solely on this study. The study was limited by the honesty of respondents and completeness of surveys returned to the researcher. The researcher is an active member of the scenario paintball community which may have impacted participation and responses.

Definitions

Paintball Park: A facility that is owned or leased by a licensed operator for the implementation and facilitation of supervised paintball games. A paintball park must have boundaries that mark property lines and will employ a manager and referees to facilitate equipment rentals and paintball games.

Scenario Paintball: A type of paintball game that utilizes special roles, extended playing times, detailed plots and missions, and special equipment. Scenario paintball games generally take place at large paintball parks and can field hundreds or thousands of

players participating in the same game. Scenario paintball games are not cancelled due to inclement weather.

Team: A limited membership group of individual players playing together under an original name or brand that applies specifically to that group of players. Teams are commonly lead by a team captain.

Side: A large group of individuals or teams playing together against another large group of players. Sides are led by players taking on the special roles of: general, executive officer, field commanders, and other game specific roles.

One-day game: A game that takes place during the course of one day. One-day games usually are played from 10 a.m. until 5 p.m.

Two-day game (24 hour game): A game that takes place over the course of two days. Two-day games usually run from 12 p.m. until 6 p.m. with a mandatory stand down for dinner from 6 p.m. until 7 p.m. A night game component usually runs from 7 p.m. until 11 p.m. (or later) followed by a mandatory stand down for rest and sleep. The second day of game play usually starts at 8am and lasts until the game is over at 2 p.m.

Sponsorship: An agreement between a service provider or merchant that results in discounted fees for equipment, registration, or paint, in return for teams or players actively marketing the products or services they receive.

Summary

The researcher has chosen to study the concepts of flow and satisfaction within the context of scenario paintball games. The constructs and history relating to the game

of paintball, and some of the potential motivating factors including flow were researched and are presented in the literature review. The methodology, results, and a final discussion are further detailed.

CHAPTER 2

The purpose of this chapter is to review pertinent literature in order to offer a better understanding of the existing themes regarding paintball and flow. Given the scope of information, it appears that the subject of scenario paintball has not been thoroughly reviewed or evaluated. Existing research (or lack thereof) has shaped the direction of this study. This literature review therefore covers the history of paintball; the social and leadership aspects of scenario paintball; the paintball industry; inherent dangers of paintball equipment; and key constructs applicable to the paintball experience.

A Brief History of Paintball

The earliest report of a paintball game dates to June 1981, and involved a bet between a Wall Street investor and one of his rurally-based friends (Gaines, 2004; Skow, 1982). The investor argued that the survival skills that he acquired in the concrete jungle of the Upper East Side of Manhattan and his daily cut-throat lifestyle as a stock trader were in every way as formidable as, if not superior to, anyone else's survival skills and that this could be challenged in any setting or environment. This boast led to the first known paintball game, involving 12 players and held among 100 acres of New Hampshire woodland. This game was played using paint pistols (which were used by ranchers and individuals working for the forestry industries to mark cattle and trees, respectively), paintballs, CO₂ canisters, shop goggles, maps, compasses, five flag stations, and a home base. The format of the game called for each player to enter the 100-acre plot of land at a separate entry point; pull a designated flag from each of the five flag

stations, which was color-coded to each player, and then brought to the home base without being shot by another player. The game ended with the winning player navigating his way to all five flag stations and presenting his flags at the home base without ever being seen by another player or taking a single shot. A participant at this game was quoted as saying, “Each man played the game as he lived; the bold seeking firefights, the cautious sneaking through the woods avoiding them, the duplicitous perching in trees” (Gaines, 2004, p. 3). This comment well illustrated that paintball has unlimited value in terms of leisure replacement and the building of identity through leisure.

Since this first appearance of paintball, the game has seen many new formats and has experienced a great surge in participant numbers. Members of the above-mentioned inaugural paintball game went on to market the game as “The National Survival Game,” selling mail-order paintball kits to interested customers. This paintball entrepreneurship eventually led to the formation of National Paintball Supply, whose CEO, Gino Postorivo, was in attendance at the inaugural game and was at the time working as a pizza delivery boy. Gino’s company, National Paintball Supply, went on to become the definitive business model for the sport, reporting revenues of over \$100 million in 2004, owning nine paintball magazines, and sponsoring more than half of all pro teams in the United States (Gaines, 2004).

Paintball continued to grow as a recreational activity, and the format of capture the flag became the staple identity of the game. As the sport became more popular,

players formed teams; and eventually the professional aspect of the game emerged through industry sponsorships and cash prizes through tournaments and leagues.

Scenario paintball, in essence, has been around since the first days of the National Survival Game. Scenario paintball is perhaps the most difficult type of paintball to explain due to its own diversity and scope. In essence, a scenario game is just that: a game that revolves around a preconceived scenario that may include two or more sides and can last an entire weekend. Scenario games take on themes of historic battles, movies, and books. In 2006 the largest scenario game ever held involved just over 4,000 players. The game was known as “Invasion of Normandy” and was based on the June 6, 1944 D-Day invasion of Normandy. It is now held annually at Skirmish USA in Jim Thorpe, Pennsylvania. Scenario games are unique in that traveling producers offer scenario games to various communities. Seeing the success of traveling producers and the ability to draw between 100 and 4,000 players, paintball fields have recently begun to specialize in scenario productions. Scenario games emphasize endurance more than any other aspect of the game and are usually offered in 6-, 8-, and 24-hour formats. Game play differs from recreational and tournament formats in that special rules and equipment are allowed.

Scenario Paintball: Social and Leadership Functions

Scenario paintball emphasizes leadership, tactics, competition, strategy, practice, target sports, and conditioning (similar to any other paintball game); however, the unique skill sets required by scenario paintball also include orienteering, hiking, adventure racing, camping, endurance, resiliency, and perseverance. The necessity to travel has

implications for tourism, and the bonds between teammates and community members lead to social clubs and networking. Scenario paintball also offers elements of adventure, fantasy, alternate identity, and escapism. Participants represent all walks of life, race/ethnicities, and gender. William Shatner held an annual celebrity game during the early 2000s called “Shatner Ball,” based on *Star Trek*, and included celebrity guest players and offered players a chance to “shoot Captain Kirk” (Elder, 2004). Minorities and women seem to have a greater presence at scenario games perhaps because the perception of the sport has changed for the positive through more family-oriented facilities and the spectator appeal of tournament play; additionally more participants benefit from more affordable equipment.

Role-playing is a large part of what makes scenario paintball so different from other game formats. Players may choose roles such as Tanker, Pilot, Spy, Sniper, Engineer, Demolitions, Trader, or Villager. Each role involves specialized rules and equipment (even tanks!) that make that player unique. In a game of hundreds of individuals, leadership also becomes important. Scenario leadership includes a General, an Executive Officer, and Field Commanders. These roles are taken very seriously by the scenario community and are often announced months before the game. Scenario leadership is crucial to recruiting teams to play, creating and implementing a plan, communicating (through a radio network), and improvising if and when the plan fails. Games come in many forms and themes (e.g., historic battles, Lord of the Rings, sci-fi, penguins vs. polar bears). With that in mind, some of the larger games held annually are “Invasion of Normandy” (Pennsylvania), “Oklahoma D-Day” (Oklahoma), “Living

Legends” (Chicago), and “The Grand Finale” (Florida). Recently, the military opened its urban training facilities to accommodate scenario games, and West Point Military Academy holds biannual scenario games (Scenario and Big Game Discussion, 2012). In addition to holding scenario games, the military actively recruits at these games (Romano, 2007).

An individual will play the game as he or she lives, but may also create a new identity, similar to popular video games involving immersive virtual worlds such as *Call of Duty* and *World of Warcraft*. Paintball requires physical activity. The potential complexity and completeness of scenario immersion is deep and allows player involvement at many levels with aspects such as call signs, websites, forums, sponsorships, invitational events, regional teams, all-star games, international games, charity events, and the pursuit of either infamy or fame within the community.

The appeal of paintball has grown tremendously. New tournament and scenario teams are created every year, with participation in North America, Europe, and Asia. While some critics may still point to the negative aspects of the game, such as injuries, perceived violence, and the misuse of equipment (Hawkins, 2000; Parrish, 2007), there are many positive benefits of game play. Paintball, in fact, has been identified as providing leisure structure for youth (Schlatter, Moorman, & Bychkovskikh, 2006) and a vehicle for economic growth (Vujko & Plavska, 2011). In a fast-paced world when leisure time is at a premium, scenario paintball offers an extraordinary set of benefits and rewards. Scenario paintball is a sport that has a multitude of options for near endless challenges. One scenario is never played the same way twice.

With such a wide range of participants, including males and females, preteen and adults, and with games routinely boasting monthly registration numbers in the thousands, there must be a key factor motivating participants. The researcher's goal is to determine what factors may impact the experiences of scenario players, in order to identify if flow is an outcome of scenario paintball and how satisfaction relates to an overall sense of optimal experience.

Industry

In the United States, professional (American) football, basketball, baseball, and hockey monopolize spectator, participant, sponsor, and broadcast loyalties (Markovits & Rensmann, 2010). These Big Four sports—along with several other traditional sports being offered through youth leagues, high school sports leagues, collegiate athletic programs, and professional clubs—marginalize not just paintball but other extreme sports in terms of social knowledge, interest, and acceptance. Paintball, however, is on the rise and is cited as the third most popular extreme sport behind skateboarding and inline skating (Riedman, 2006). Paintball has also experienced 13% annual growth, boasts over 10 million players, and accounts for annual revenues of \$800 million (Gaines, 2004). In 2004, paintball reported 9.6 million participants, compared to baseball's 9.7 million participants (Riedman, 2006).

Paintball parks such as Pev's Paintball Park in Aldie, Virginia; Splatbrothers Paintball Park in Hopewell, Virginia; and Outdoor Xtreme Chesapeake City (OXCC) Paintball Park in Chesapeake City, Maryland, hold paintball training camps and sponsor youth teams. In 2004, 57 universities were fielding paintball sports teams and had

developed game and practice areas on or near campus sites (Caplan, 2004). As of 2013, the National Collegiate Paintball Association lists 227 clubs in 44 states with 5933 members and 2217 tournament players (Collegiate Club List, 2013).

Paintball is classified as an extreme sport, adventure sport, or risk-recreation. First identified as a high-risk sport, this category of sport encompasses activities such as surfing, skateboarding, snowboarding, rock climbing, skydiving, and other activities that involve a heightened level of risk that is perceived to be dangerous or extreme. These adventure sports exemplify the theories of flow and optimal arousal, since athletes who seek greater challenges often choose them and risks than the traditional field and arena sports. Athletes who excel at extreme sports often intertwine their leisure identities with the concept of danger and risk. The public perception of extreme sports has come far in terms of acceptability. The example is the mainstream acceptance of skateboarding and snowboarding in the United States. However, sports such as paintball continually overcome negative perceptions including that they are “war games” whose participants are “war-mongers” and the inappropriate actions of a few individuals and the occasional injury.

In terms of leisure replacement, many extreme sports can serve as a successful sporting platform, allowing participants to continue being active and competitive when youth, high school, college, or professional sports leagues are no longer an option or no longer meet the leisure needs of an individual. Extreme sports offer participants a unique leisure identity that is respected purely for the associated risk and intensity of the sport. The realm of extreme sports is also populated by fiercely loyal and dedicated user groups

and clubs, which in turn allow a participant to enjoy a user-niche. These clubs and organizations support each other in the form of teams, owner's groups, owner's forums, and other community aspects that cement the knowledge and language of each sport.

There are three categories of paintball formats. Recreational or walk-on paintball is the most frequently played format and consists of individual players or groups of players paying an entry fee and having access to rental equipment. Paintball fields most often offer this format on weekends and holidays. A typical day of recreational paintball includes an average of twelve 15-minute games of capture the flag; score is not emphasized; however, players have been known to keep a tally of games won and lost for the day. This format is often family-friendly and has rules in place such as "no head shots" and the "20-foot rule," which prohibits a player from shooting anyone within 20 feet. The 20-foot rule is a favorite rule among family-oriented venues, since the velocity of a paintball drops dramatically after the first 20 feet.

Tournament paintball is an intensely competitive and fast-paced category. Tournament paintball began in the woods with two teams trying to capture the opposition's flag and return it to their own station. In a bid to shake the negative image of war-play, as well as make the game more visible, tournament organizers in the mid-1990s presented new formats known as hyperball and speedball (Understanding the Game, 2006). The new faster games came in various formats, but in general, teams traded their camouflage clothing for brightly colored team uniforms. While "speedball" was originally coined at the SC Village Paintball Park in Southern California, the term was adopted by players and is now generally used to describe paintball play that does not take

place in the woods. The speedball format allows for better spectator potential and presents paintball as a bright, fast-paced game. With the advent of speedball and the new flash of colorful jerseys, immaculate turf playing fields, and spectator stands, paintball surged in the new millennium, professional paintball was marketed to youth and families as a legitimate sport (Understanding the Game, 2006). With the success of speedball came many industry innovations that led to lighter paintball markers, safer gear, and shooting rates of over 15 balls a second. Professional leagues of note are the National Professional Paintball league (NPPL), which is America's premier league (www.nppl.com); and The Millennium Series (www.millennium-series.com), which is Europe's premier league.

Scenario paintball's leisure benefits include leadership values, development of communication skills, team building, and stress relief. Team building may be the greatest of these. Brian Cashman, the General Manager of the New York Yankees, was reported to have held a paintball team-building exercise with 18 coaches, staffers, front office personnel, and Yankee beat writers in Spring 2010 (Borzi, 2010). Recently, the military adopted paintball as a valid training mechanism for preparing military personnel in convoy security in advance of deployments in Iraq (Gordon, 2005). Paintball has also been reported to have therapeutic uses and was cited as being crucial for a patient recovering from a spinal cord injury (Hutchinson, Loy, Kleiber, & Dattilo, 2003). The patient mentioned that paintball was something he could look forward to and that it helped normalize his life by allowing him to get out and not be confined to his room. Along with paintball's flexible format, which can be geared to accommodate special

needs, paintball is also a way for friends to recreate together and offers extensive bonding and networking opportunities. As has been mentioned earlier, people will play paintball the way they lead their lives; however, the reverse is also true in that players may take on different identities through paintball and may find acceptance, leadership opportunities, and success through paintball that they otherwise would not find in their day-to-day lives.

Inherent Danger

Paintball is, however, seen as a dangerous sport (Monroe, 2001; Vidino, 2009). The industry has made great strides to mainstream the sport through the glamour of professional paintball and the new spectator- and family-friendly speedball games: NPPL championships are held at Disney World each spring, and The Millennium Series final is held at Disney Paris. Injuries and the misuse of paintball-related equipment continue to reinforce the potentially negative aspects of the game and the equipment. Two fatalities caused by the misuse of paintball equipment have been documented (Listman, 2004). Both fatalities were similar and resulted from the detachment of charged CO₂ tanks, which shot through the air like rockets and fatally struck a woman and a 15-year-old boy on separate occasions. Horrific ocular injuries are also a reality when proper safety procedures are ignored. Emergency room reports show that approximately 50% of eye injuries occur at sanctioned fields when players remove their masks during play and approximately 50% occur in backyard games when safety equipment like masks is not used. Overall, contusions, sprains, and abrasions are the most widely reported emergency room injuries. Ocular injuries, contusions, and abrasions are seen most frequently in

participants under age 25, while overexertion injuries are witnessed most often in participants over 25 (Conn, Annest, Gilchrist, & Ryan, 2004).

Injuries can be minimized when participants use safety equipment properly and play within their abilities. The misuse of equipment remains the most visible and widely scorned paintball-related transgression. Drive-by paintball shootings performed by teens have resulted in terrible ocular injuries and vandalism (“Caution: Wet Paint,” 2004). In Serbia, the president has been accused of commanding security forces to perform drive-by paintball shootings on Muslim women that do not dress modestly. The president has stated in his defense that “A woman should know her place. [In Chechnya] man is the master. Here if a woman does not behave properly, her husband, father, and brothers are responsible. According to our tradition, if a woman fools around, her family members are obliged to kill her.... As president, I cannot allow them to kill. Therefore, let women not dress indecently” (Weir, 2011, p. 2). Lastly, a small group of men was arrested in Northern Virginia and accused of receiving terrorism training in Pakistan using paintball as a form of training in the United States. This group was known by the media-coined title “Paintball Jihad” (Vidino, 2009). These negative connotations of paintball will likely continue to revolve around safety and militaristic concerns. In reality, paintball participation results in the lowest number of reported injuries among extreme sports (Conn et al., 2004).

Motivation

The leisure time activities chosen are important aspects of life that help define individuals and can be directly related to both actual and perceived quality of life. Indeed,

leisure pursuits help to fulfill the American credo of life, liberty, and the pursuit of happiness.

Sport and recreational opportunities in the United States are extremely vast. U.S. residents are introduced to a myriad of sport and leisure activities at an early age. These activities range in intensity from watching television or listening to music to higher-intensity team-based sports and participation in a new realm of activities known as risk-recreation or extreme sports (Mannell & Kleiber, 1997). Research has shown a trend toward participation in traditional, low-intensity activities such as drawing and board games during early childhood, leading up to traditional and institutionalized team sports in adolescence. This is followed by a period of leisure exploration that results in the cessation of many childhood and adolescent activities. During the phases of early adulthood and adulthood, individuals begin to behave slightly differently in the context of their leisure activities, leading to the development of the theory of leisure replacement.

Leisure replacement has been presented as the process by which individuals trade activities throughout the course of their life span to account for desired recreational needs. These recreational needs tend to come full circle in terms of intensity and familiarity during the life cycle. Participants have also been studied and found to choose activities with which they are familiar or have some knowledge of. It has also been found that participants will expect an activity to keep them satisfied mentally and physically (Barnett, 2005). Due to physical and financial constraints, children and seniors have been found to engage in lower-intensity activities, with seniors tending to regress back to familiar and traditional activities, such as board games, television, social groups, and

gardening that they may have participated in during their youth and adolescence. It is important to note that some activities may never be dropped and that an individual will add, drop, and continue activities throughout the life cycle (Iso-Ahola & Jackson, 1994).

During the early adulthood and adulthood phases of the life cycle, individuals start to change their leisure activities for several reasons, including more autonomy, greater amounts of free time, greater resources, and the advent of new social groups. The leisure identity that individuals may have freely chosen for themselves or that may have been passed on to them by social units such as family, church, and school comes under closer scrutiny with the advent of adulthood and its associated changing leisure needs. In addition to the changing leisure tastes of adults, immigration to a new culture can affect the leisure opportunities and preferences of individuals (Stodolska, 2000). Among the very important leisure needs are those of flow and optimal arousal (Mannell & Kleiber, 1997).

The theories of flow and optimal arousal are closely linked to an individual's satisfaction with his or her leisure experiences. Flow theory, as presented by Csikszentmihalyi in 1990 (Mannell & Kleiber, 1997), states that an individual will seek a specific amount of challenge in his or her choice of activities. If the challenge is not sufficient, the participant will become bored and eventually look to do something else. If the challenge proves too great, a participant will become frustrated and will eventually quit. By achieving a perfect balance of challenge, an individual will achieve flow and will keep coming back to the activity time after time for its characteristics of fun and timelessness.

Henderson and Seifert (2009), in a study of skateboarders and flow, found that the unique challenges inherent in learning new tricks resulted in participants tirelessly practicing new tricks in order to master them and move on to more challenging moves, regardless of pain or the amount of time required to do so. This aspect of altered time is one of nine components of the Flow State Scale (Jackson & Marsh, 1996), which will be utilized in this study to measure achieved amounts of flow in scenario paintball players.

In a study of theater actors, flow was found to be strongly correlated to intrinsic motivation and unrelated to amotivation (Martin & Cutler 2002). Actors stated that flow state required concentration and was enjoyable when achieved. Furthermore, the authors strongly associated the flow dimension of clear goals with a sense of control, focus, enjoyment, merging of movement and awareness, and feeling like “operating on automatic pilot.” Transformation of time was not associated with clear goals. Martin and Cutler suggest that feedback, clear goals, and self-consciousness are not linked to an altered sense of time. Actors noted that matching an individual’s skills to the appropriate role along with establishing clear goals would facilitate optimal performance.

Fave, Bassi, and Massimini (2003, p. 93) posited that flow required “opportunities for action” and “individual capabilities”. In their study of high-altitude mountaineering using the experience sampling method (ESM) and experience fluctuation model (EFM); participant journals were filled out at random times throughout the experiment. The randomness of time was facilitated through the use of pagers that would be set by the researchers to sound at random intervals. The study sought to measure the amounts of anxiety, apathy, relaxation, and optimal experiences the climbers endured. The authors

found that the climbers were not motivated by the risk but rather by the challenge of climbing. The climbing trip was also found to be intrinsically rewarding and an autotelic experience. The researchers concluded that climbing is indeed a potential source of optimal experience. The study led the researchers to wonder if being in flow helped an individual learn skills better and faster.

Jackson (1996) studied flow in national champion figure skaters in 1992 and followed up in 1996 with a study of 14 elite athletes from the World Games, Olympics, and Commonwealth Games. Fourteen men and fourteen women from Australia and New Zealand were surveyed. These athletes competed in track and field, rowing, swimming, cycling, triathlon, rugby, and field hockey. The study defined flow as a state of consciousness involving total absorption in an activity. The athletes reported that the dimension of autotelic experience was the most important dimension of flow in regard to their experiences. Autotelic experience, awareness, control, and concentration were reported as being significant to the overall experience in 80% of the surveys. Time transformation and loss of self-consciousness were not reported as being part of their experiences. Another dimension that was not scored highly by the athletes was the action-awareness dimension. Athletes did not agree that their movements felt effortless. In fact, some athletes specifically stated that they were very aware of their efforts. This study highlighted the misconception of questions pertaining to self-perception versus self-awareness.

Martin et al. (2010) investigated the effects of completing school on physical activity, behavior, motivation, self-concept, and flow. Over half (59%) of 18- to 25-year-

olds felt that their physical fitness was excellent to very good compared to 76% of 15- to 17-year-olds. There was a consistent decline in perceived fitness levels between the ages of 12 and 21, with a dramatic decrease in males between the ages of 15 and 18. Flow was found to be an important factor in the commencement, continuation, and maintenance of physical activity. This link to physical activity and flow led researchers to state that flow contributes to the quality of life. Furthermore, there is a need for physical education that emphasizes personalized and optimally challenging physical activity programs.

In 2001, Jackson, Thomas, Marsh, and Smethurst researched the relationships among flow, self-concept, psychological skills, and performance. This study defined flow as an optimal psychological state where there is a perceived balance between challenge and skills; a state of awareness resulting in absolute absorption. Peak performance was stated to be a standard of performance, whereas flow or optimal experience was a psychological state. Three sports were part of the study: orienteering, surf-lifesaving, and road cycling. The perception of self, mental competence, overall performance, and skills was found to be highly related to flow, and strong sense of perceived abilities and self-concept was found to be very important to achieving flow. The authors determined that it is important for athletes to develop positive athletic self-concepts and master psychological skills and strategies for competition in order to facilitate flow and optimal performance. Four significant predictors of flow emerged (i.e., challenge-skill balance, autotelic experience, clear goals, and action-awareness merging). Challenge-skill balance and clear goals were the strongest factors with self-concept and psychological skills,

while autotelic experience and action-awareness merging were the strongest factors with enjoyment and absorption.

Flow is found in work, school, leisure, and sports (Marsh & Jackson, 1999).

These authors researched flow experience in sports at the Masters Games. The sports of swimming, cycling, and track and field participants were surveyed by seven investigators. A total of 385 surveys based on the Experience Sampling Method, Flow State Scale, and Flow Trait Scale were completed. The researchers found that the flow state scales and the flow trait scales were positively correlated with each other and both were valid instruments to measure flow. The most significant finding however was that the Flow Trait Scale was explained to be dispositional in relation to a general experience instead of an assessment in relation to an event just completed.

Slightly different than the theory of optimal experience, or flow, is the theory of optimal arousal. Iso-Ahola and Jackson (1994) discussed optimal arousal as an individual's need to balance stress in his or her professional and personal lives. This balancing act is theorized as the process of determining activity choice (low or high intensity) based on the physical and psychological requirements of the activity. For instance, if an individual is subject to stress and anxiety in his professional work environment, then they will be more inclined to seek out relaxing leisure pursuits. In contrast, if an individual is not challenged at work, (she) may very well seek to challenge (herself) through sport, recreation, and leisure pursuits. This balancing equation is relevant to a wide array of psychological and physiological aspects of an individual's daily routine; an individual's work environment can and does act as a precursor to leisure

time activities. In terms of optimal arousal, environmental factors such as stress and boredom can be and are represented by aspects of life outside of the workplace, such as disabilities and family pressures. When individuals fail to achieve arousal in an activity, leisure turns to boredom, and they will seek new and more exciting activities or resign themselves to the fact that recreation is boring (Iso-Ahola & Weissinger, 1987).

The three concepts (optimal arousal, optimal experience, and leisure replacement) are essential to understanding what activities people choose during their leisure time and why. The three are cyclical in that leisure replacement happens when optimal arousal cannot be achieved through current leisure pursuits, and optimal arousal may only be balanced through engaging and challenging activities that offer flow. Activities that offer a flow state experience will replace those activities that do not, hence promoting leisure replacement of inadequate activities.

There have been various studies of motivation in the context of exercise, recreation, and sports motivation. Bandura's Social Cognitive study (Dzewaltowski, 1989) presented evidence that individuals who believed they could participate successfully and eventually achieve a predetermined level of mastery were more likely to participate in an exercise activity. These findings relate to the flow dimensions of clear goals and skill challenge balance. Duda and Tappe (1989) studied personal incentives for exercise and found that the dimensions of appearance, competition, mental benefits, affiliation, mastery, flexibility/agility, social recognition, health benefits, and weight management made up the nine most important constructs of personal incentives for participating in exercise. These findings relate to the flow dimension of challenge skill balance and relate

to a sense of individual satisfaction. Dishman, Ickes, and Morgan (1980) performed a study on self-motivation and adherence to habitual physical activity and found that self-motivation proved to be the most reliable discriminator between active participants and dropouts. The importance of self motivation is germane to habitual physical activity and correlates to the flow dimension of optimal arousal and indicates a link to individual satisfaction. Marcus, Rossi, Selby, Niaura, and Abrams (1992) found that the change processes of adoption of exercise were similar to those of cessation of smoking. This study presented the nine change processes as consciousness raising, dramatic relief, environmental reevaluation, social liberation, counter-conditioning, helping relationships, reinforcement management, self-liberation, and stimulus control. The comparison of activity change with the cessation of smoking underscores the serious mental aspects of leisure replacement and the importance of experiencing optimal arousal and achieving optimal experience. Manfredo and Driver (1996) performed a meta-analysis of the Recreation Experience Preference Scales (REPS) and found that the desired goal states of recreationists are encompassed by the 19 subcategories of achievement/stimulation, autonomy/leadership, risk taking, equipment, family togetherness, similar people, new people, learning, enjoying nature, introspection, creativity, nostalgia, physical fitness, physical rest, escape personal-social pressures, escape physical pressure, social security, teaching-leading others, and risk reduction. These categories mirror the constructs of this study (i.e. social aspects, satisfaction, optimal arousal and optimal experience). Finally, Pelletier et al. (1995) studied intrinsic, extrinsic, and amotivation in sports, and found that intrinsically motivated and self-determined participants were more fully involved and

performed better, while extrinsically motivated participants performed the minimum amount of work in order to receive an award, defeat an opponent, or avoid punishment. In contrast to these findings, however, was the fact that no clear link has been determined between intrinsic motivation and self-determination to athletic performance. This study also identified seven subscales of sports motivation. Intrinsic subscales include to know, to accomplish, and to experience stimulation. Extrinsic subscales include identified, interjected, and external. The final subscale was that of amotivation. Given the noted importance of intrinsic motivation in sports, flow is also related to motivation through the dimensions of challenge skill balance, clear goals, loss of self consciousness, and an autotelic experience.

Summary

There is a paucity of literature focused on paintball as a recreational activity. In fact, most is limited to studies found in medical journals addressing injuries related to paintball activities. As with any growing phenomenon, literature on the game of paintball is, to date, relegated to a handful of books, online forums, websites, and blogs. The researcher was unable to find any studies that investigated the effects of social units, such as a team, on an individual's flow state. There was also a lack of literature in regard to how individuals' satisfaction with their performance or how a specific event may influence flow. Studies have stated that confidence in one's skills plays a large part in achieving flow, but few have investigated the concept of satisfaction in regard to flow. Studies were limited in terms of many "alternative sports" other than rock climbing and

skateboarding, which have become more mainstream due to televised events such as the Gravity Games and the X Games. Paintball motivations appear to be both intrinsic and extrinsic depending on the type of game and arena of play. It can intuitively be speculated that in extreme circumstances, players are offered an abundance of optimal arousal and flow state opportunities that form the basis for their motivations.

The previously discussed studies explore participant motivations for participation in an activity, and incorporate related constructs such as self-determination, intrinsic motivation, affiliation, and mastery. By using the Flow State Scale (FSS) in conjunction with several social and demographic variables, scenario paintball can be systematically studied rather than focusing on intuitive extrapolation. The literature review has shown that some of the nine dimensions of flow overlap with dimensions of other motivational theories (e.g., Recreation Experience Preference Scale and Sport Motivation Scale). Scenario paintball is a unique activity that provides a structured experience that may result in achievement of a flow state and individual satisfaction. This study focuses on the potential outcomes of scenario paintball through the theoretical lens of flow. While the FSS will assess an individual's experience, individual satisfaction items will be measured in relation to the experience of playing the game and individual perceptions towards the quality of service provided at the event. This sense of satisfaction will be examined in terms of whether an individual's satisfaction may be related to their flow state scores during a game of scenario paintball. It is evident through this research that flow and satisfaction are motivating outcomes for playing scenario paintball; therefore, this study

will focus on identifying links between achieving flow and levels of individual satisfaction in the case of scenario paintball.

CHAPTER 3

The purpose of this study is to examine the relationship between satisfaction and flow in terms of motivation for and outcomes of playing scenario paintball. A cross-sectional study of scenario paintball players of all skill levels, race/ethnicities, and genders was implemented at four scenario paintball games in Summer and Fall 2012. In particular, the study was structured as a quantitative, non-experimental design. By identifying correlations between scaled items, respondents' answers in terms of flow and satisfaction can be clearly evaluated. Better understanding these participant outcomes (i.e., flow state, satisfaction) the researcher may be able to better identify environmental and motivational influences for scenario paintball play.

Participants

Active scenario paintball participants were surveyed during Summer and Fall 2012. The surveys were distributed at scenario games in Maryland, Pennsylvania, and New York. The players surveyed were approached at the paintball facilities before and during the games. Verbal consent was received from the paintball field owners and the players before administering the survey instrument.

A purposive and stratified sampling strategy was employed to select survey participants. An attempt to interview all of the players in attendance at four scenario

games was made. Due to a limited amount of consenting players and a goal of surveying between 50 and 100 players, extra efforts were made to oversample demographics appearing to be under-represented. The purposive strategy was required since only active scenario paintball players were sought for participation. The four games ranged in duration from 6 to 24 hours, which allowed for players of all skill levels and experience to be surveyed. The researcher attended four games and interviewed 98 participants. All respondents were 18 years of age or older, and age was verified through drivers' licenses.

In an effort to diversify the survey results, a stratified sampling method that targeted players with different amounts of experience and genders was employed. An effort was made to interview equal amounts of the identified skill levels: beginners, advanced beginner, intermediate, advanced, and post advanced. The researcher attempted to achieve gender-based equity and racial diversity in as much as it was possible. Participants were asked to classify their own skill levels and report their gender and race.

Instrumentation

Respondents were asked to complete a 69-question survey. This survey instrument comprised 23 demographic questions, 42 Likert scale questions, and 4 short answer questions. The questions included in the survey were designed to measure levels of satisfaction, psychological aspects of flow, and degrees of social interaction players exhibit in scenario paintball games. The Flow State Scale (Jackson & Marsh 1996) comprises 36 items with five point Likert scale responses; four questions addressing each of the nine dimensions of flow. Negatively phrased questions in the FSS were reverse

coded into Microsoft Excel. Six five point Likert scale questions were included to address levels of participant satisfaction. All Likert scaled items were scaled from 1 to 5, where 1 = strongly disagree and 5 = strongly agree. The 23 demographic questions and 4 open ended questions addressed personal background information, social interactions during the game, opinions, and recreational pursuits.

The reliability of the Flow State Scale was assessed to have a Cronbach's alpha of .814, indicating high reliability. This level is comparable to past studies reporting a reliability from .65 to .90 (Martin & Cutler, 2002).

The validity of questions was determined based on researcher and committee review in terms of clarity and understanding. A pilot study consisting of 10 respondents was utilized in order to measure and establish validity of the survey instrument. Survey questions were submitted to members of the scenario paintball community and professors in George Mason University's Sport and Recreation Studies program. All were asked to critique the questions and determine if they measured the intended constructs, and found the item valid. Demographic questions were based on the researchers previous knowledge of the sample population.

The threat identified as the most likely to affect the validity of this study is the external threat of setting, since the numbers of available and willing participants were limited to a small cross-section of the scenario community (Mid-Atlantic) during the 2012 season (Creswell, 2009). The study was framed to insure that neither the process or survey questions would be taken as deceptive, manipulative, or geared toward producing any specific outcome.

Setting

Data were collected from attendees at events held in three different paintball parks: Outdoor Xtreme Chesapeake City Paintball Park in Maryland, EMR Paintball Park in Pennsylvania, and GRC Paintball Park in New York (Figure 3.1).



Figure 3.1 Survey Locations (www.maps.com)

The first scenario survey was held at the GRC Paintball Park near Angelica, New York on July 28th-29th. The game was titled “*American Gangsters*,” and as might be expected

had mobster themed missions, objectives, props, and characters. The weather was sunny and warm with highs in the 80s during the day but became quite cold during the evenings; this game yielded 14 surveys. The second survey was held at the EMR Paintball Park near New Milford Pennsylvania on August 10th-11th. The game was titled “*The Holy Grail*” and was themed after a Monty Python movie of the same name. This game relied heavily upon movie references, themes, props, and characters. The weather was warm and sunny with highs in the 80s during the day and cool at night; this game yielded 22 surveys. The third scenario survey was held at the OXCC Paintball Park near Chesapeake City Maryland on October 13th-14th. The game was titled “Wasteland Warriors” and was themed as a turf war between rival drug gangs and consisted of missions and props related to illicit drug dealing and manufacturing. The weather was nice with sun and wind, highs in the 70s and cool in the evening. This game yielded 17 surveys. The fourth scenario survey was held at the OXCC Paintball on December 8th and was a one day 8 hour game. The game was titled Battle of the Bulge and was themed after the crucial battle of Bastogne in World War Two with missions, props, and characters relating to the famous axis versus allies battle. The weather was cold and foggy with highs in the 50s; this game yielded 45 surveys.

Data Collection

After having received approval to collect data on-site by field owners and the Human Subjects Review Board at George Mason University, the researcher traveled to four scenario games in the Summer and Fall of 2012. The study was conducted at four

different scenario paintball games; these games were located in Maryland, Pennsylvania, and New York states. The first three games surveyed were framed as 24-hour scenario games. These games did not run continuously for 24 hours, but were held over a two day period. There were a total of 53 participants surveyed at the three 24 hour games. Additionally, 45 participants were interviewed at the 8-hour game. The sample population consisted of a total of 98 respondents of all skill levels, both genders, and various race/ethnicities.

Upon arrival, the researcher checked in with the field management and set up an area to distribute and collect surveys. Players were approached as they arrived at the field and throughout the day and were asked if they would be interested in participating in a survey about scenario paintball.

Scenario teams often arrive very early to paintball games, and in the case of 24-hour scenario games, they may arrive one to two days early if camping is offered at the field. For the smaller and shorter 8-hour games, participants were solicited from the parking lot during the course of the day. In the case of the larger, 24-hour games, the researcher arrived at the field one day early and walked throughout camp sites and informed as many of the paintball team camps and bunkhouses (EMR has bunkhouses that may be rented by teams) as possible about the survey in advance of the beginning of the game. The survey process was described during the pre-game announcements by the field owners and instruments were distributed by the researcher during the lunch and dinner breaks as well as after the evening stand down.

Participants were directed in the pre-game announcements to the researcher's interview station, which consisted of five camp chairs, a table, clipboards, pens, and surveys. The researcher also solicited participants by walking through camp sites and staging areas. The researcher used a methodical counter clockwise route through the campsites to eliminate potentially distributing surveys to the same player twice at the same event; however there is a possibility that some players were surveyed at multiple events. The researcher approached individuals that appeared to be taking a break and asked if they would be interested in taking a survey on their paintball experience that day. Upon initially contacting potential participants the researcher introduced himself and asked if potential participants had a moment to help fill out a survey based on their experience in the game. It was explained that the survey was part of a study the researcher was performing for a graduate study at George Mason University. Individuals willing to participate were asked to provide a drivers license to verify their age and were issued a survey. The researcher stayed with the participants to answer any further questions they had pertaining to the survey.

All of the surveys were distributed during the course of the game. Surveying opportunities included meal breaks for lunch and dinner, and the mandatory evening stand-down breaks. By distributing surveys during these periods of time, participants were expected to be better able to recall their psychological experiences in terms of flow since their individual experiences would still be fresh in their memories. An added benefit to surveying during the course of the game is that the game's final outcome was

not decided; this allowed for participants to evaluate their experiences without being influenced by a negative or positive final outcome.

Data Analysis

Survey responses were coded and analyzed using SPSS. Negatively phrased FSS questions were reverse coded. A series of independent t-Tests was used to assess the difference between team and individual players with regard to flow experience (overall and the nine separate dimensions). The researcher used descriptive statistics including percentages and means to assess participant responses to all questions. The reliability of scales was measured using cronbach's alpha focused on inter-item correlation. The intercorrelation of flow (and its dimensions) with satisfaction and social interactions were measured using Pearson Correlations. Differences among subgroups were measured using independent t-Tests.

Confidentiality

Confidentiality of respondents was insured as no identifying information was requested other than scenario team name. Surveys will be kept by the researcher and will not be duplicated or distributed. The surveys were coded for each participants using a number-letter-number code (i.e., event number, format code, participant number). Team affiliation information is not included in the survey results. Only the frequency of team affiliations and aggregate information is included. This study fits the guidelines for

exempt status, since the study is not researching educational outcomes, public service or benefits, or food quality and consumer acceptance (of food services).

CHAPTER FOUR

The purpose of this study was to examine the relationship between flow and satisfaction among scenario paintball players. A total of 98 surveys were completed over the course of the data collection phase of this research study. Individuals with various levels of playing experience, genders, race/ethnicities, education, ages and team affiliations were interviewed at four different scenario games. Likert scaled items were used to evaluate participants' experience in terms of flow and satisfaction, while short answer questions were used to evaluate demographic and social characteristics. Information from the survey was coded and analyzed using SPSS. The reliability of scales was assessed. Demographic variables were descriptively analyzed (e.g., frequencies, means, and standard deviations). Interrelationships of key variables were determined using Pearson's Correlation tests, and the differences between subgroups on key scaled dependent variables were measured using a series of independent t-Tests. The results of these analyses are included in this chapter.

Descriptive Analyses

Study Subjects

The sample population included players from the Mid-Atlantic region of the United States of America. Participants ranged in age from 18 to 59 years old with a mean age of 22 years, and included representation from five different racial/ethnic backgrounds and members of both genders. Of the 98 study participants 98% were male and 2% were female; this is consistent with current patterns of participation in the game. Respondents were diverse, but predominantly white/Caucasian (87.8%). Additionally, 2% were Black/African American, 5.1% Hispanic/Latino, 4.1% Asian or Pacific Islander, and 1% Native American. The educational background of participants was assessed through the seven sub-categories of less than high school, high school, junior college, trade school, college (baccalaureate, graduate school, and post-graduate education. Levels of participant education were broken down as follows: less than high school (3%), high school (33%), junior college (11%), trade school (9%), college (baccalaureate) (33%), graduate school (8%), post-graduate education (3%) (Figure 4.1).

Nearly 20% of those surveyed had served in the military, and represented the Army (31.6%), Navy (10.5%), Air Force (21.1%), and Marines (36.8%) (Figure 4.2). The length of military service was reported to range from one to twelve years with an average of five years of service ($M = 5.132$, $SD = 2.87$). Of the participants with military experience, only one member was still serving on active duty. Six percent of respondents reported having law enforcement experience. The range of law enforcement service was reported to be between one and eighteen years with an average of near seven years of

service ($M = 6.75$, $SD = 6.16$), with four respondents (66%) still serving in law enforcement.

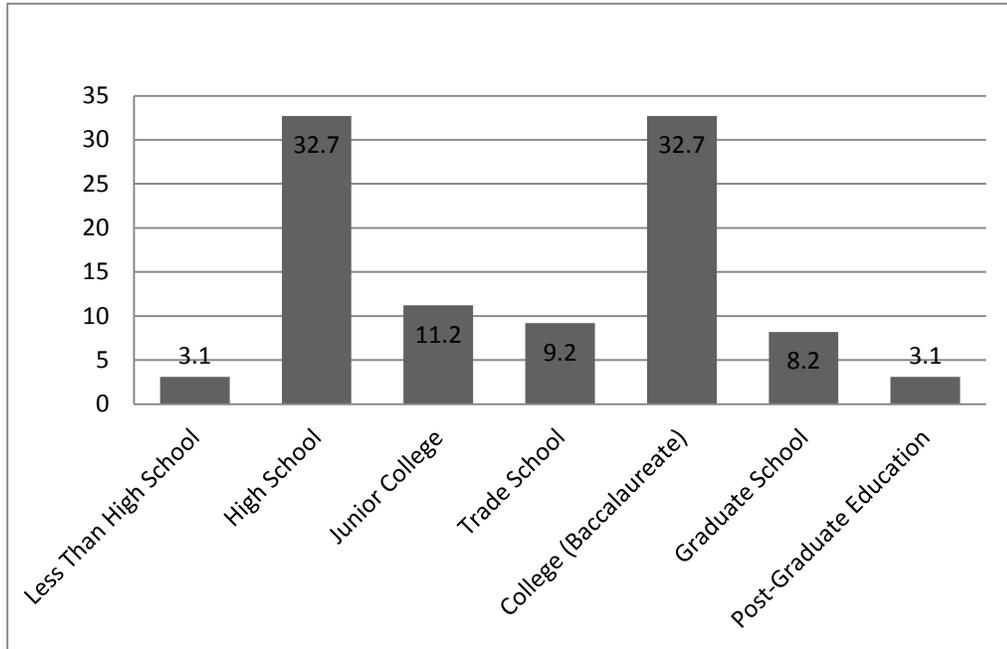


Figure 4.1 Respondent Level of Education

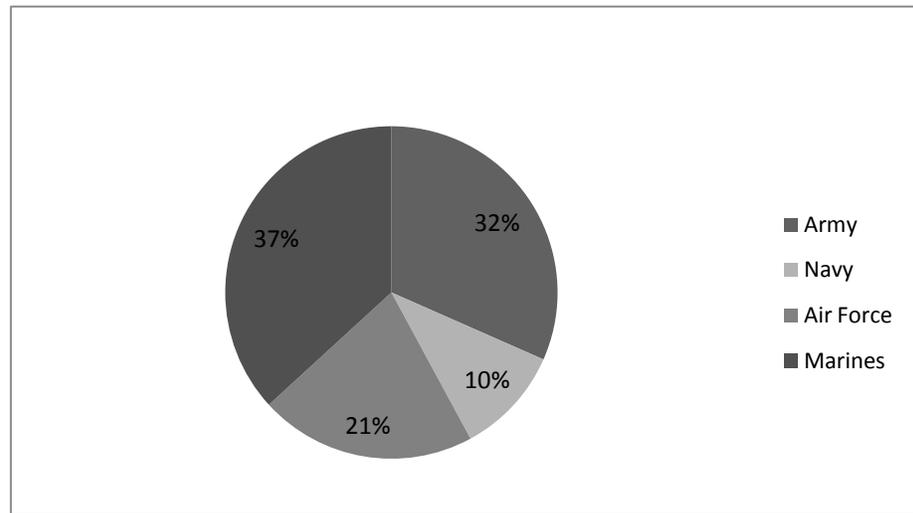


Figure 4.2 Respondent Service in Military Branches ($n = 19$)

Participants experience in paintball (in any format) ranged from less than one year to 28 years ($\bar{X} = 10.21$ years). Participants averaged 6.68 years of *scenario* paintball experience, ranging from less than one year to 25 years. Participants represented a range of skill levels with 4% beginners, 11% advanced beginners, 24% intermediate, 38% advanced, and 23% post- advanced. These levels of development are expected given the significant years of experience (Figure 4.3).

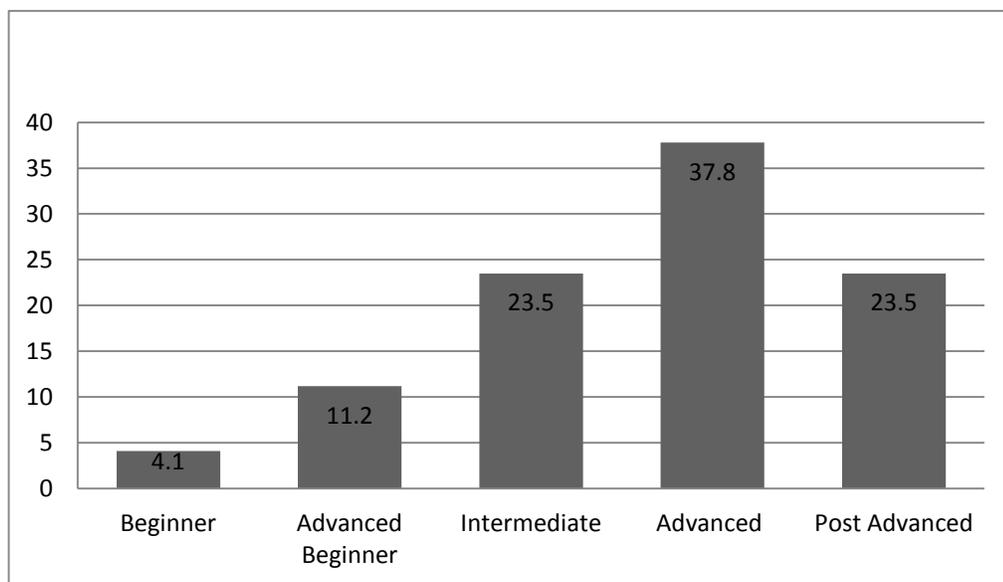


Figure 4.3 Respondent Scenario Paintball Skill Level

Social aspects of participants' scenario paintball experience were also surveyed and measured. A majority of respondents were affiliated with scenario teams (86%), and had traveled with someone they considered to be a teammate (70%). The majority of team members (84%) ate dinner together during or after the game. Participants were divided in their planned eating venues with 44% having plans to eat at the field, 41% planning to eat at a restaurant and 15% planning to eat at home. Only 39% of those

surveyed reported that they would stay at the field overnight for those at a 24-hour event, while 61% were staying somewhere other than the paintball park. Sleeping accommodations were mixed; respondents reported the following overnight accommodations: hotel (17%); tent (24%); R.V. (3%); bunk house (14%); and house (42%) (Figure 4.4).

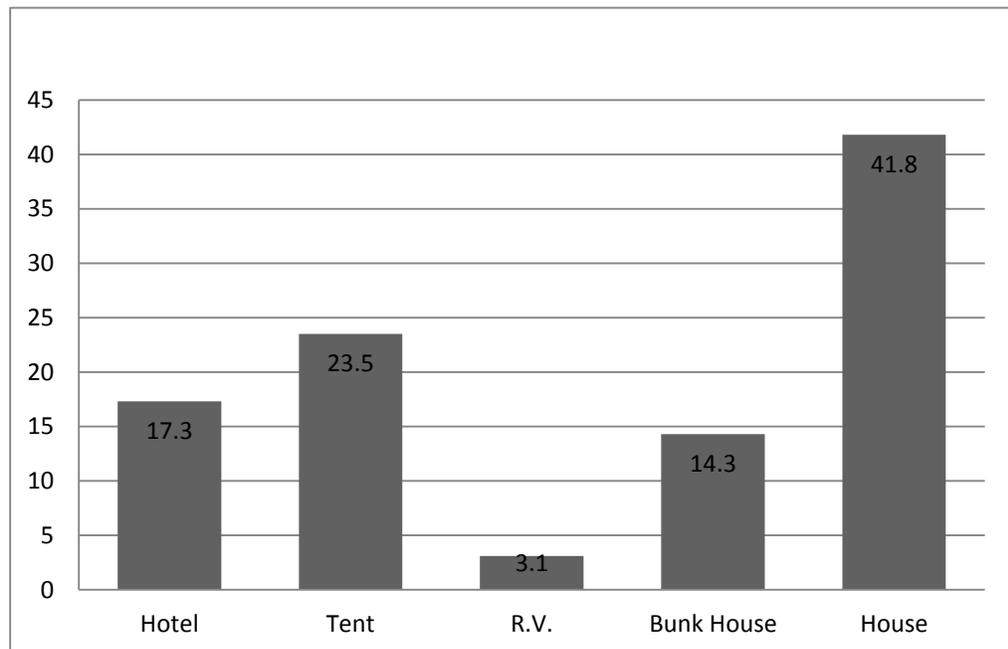


Figure 4.4 Respondent Overnight Accommodations

Special roles were also measured as a social aspect of the game due to the unique leadership qualities of taking on such roles. Special roles are limited at scenario games but over a quarter (28%) of those surveyed reported to have fulfilled special roles.

Flow State Dimensions

The nine dimensions of flow were assessed with four questions per dimension (Table 4.1). Mean scores are based on a Likert scale of 1 through 5, with 1 = strongly disagree and 5 = strongly agree. Respondents indicated overall achieving flow on the nine dimensions. None of the means fell below the 3.0 threshold of neutrality. Four dimensions scored means above 3.5 and four dimensions scored means above 4.0. These mean scores depict a positive feeling of the sample with regards to flow. The autotelic experience dimension scored an average of 4.39, indicating the highest flow state in the survey. The mean dimension of challenge/skill was 4.18, indicating a relatively high flow state. The clear goals dimension ($\bar{x} = 4.18$), was relatively high indicating a high flow state. Flow was found to be lower for attention to the task ($\bar{x} = 3.99$), unambiguous feedback ($\bar{x} = 3.94$), and action-awareness merging ($\bar{x} = 3.88$). Loss of self-consciousness was a less salient state of flow ($\bar{x} = 3.54$). The transformation of time dimension was the lowest for respondents with an average of 3.13. This indicates a neutral state of flow.

Table 4.1 Frequencies and Mean Responses on the Flow State Scale

Variables

	SD	D	N	A	SA	N	\bar{x}	SD
1. Challenge/Skill								
I was challenged, but I believe my skills would allow me to meet the challenge	3.1%	3.1%	13.3%	48.0%	32.7%	98	4.04	0.93
My abilities did not match the high challenge of the situation*	-	49.0%	38.8%	7.1%	5.1%	98	4.32	0.82
I felt I was competent enough to meet the high demands of the situation	-	-	9.2%	37.8%	53.1%	98	4.44	0.66
The challenge and my skills were at an equally high level	1.0%	7.1%	16.3%	49.0%	26.5%	98	3.93	0.90
2. Action-Awareness Merging								
I made the correct movements without thinking about trying to do so	-	2.0%	13.3%	61.2%	23.5%	98	4.06	0.67
Things just seemed to be happening automatically	8.2%	10.2%	25.5%	38.8%	17.3%	98	3.47	1.14
I performed automatically	1.0%	7.1%	13.3%	53.1%	25.5%	98	3.95	0.88
I did things spontaneously and automatically without having to think	1.0%	3.1%	11.2%	62.2%	22.4%	98	4.02	0.75
3. Clear Goals								
I knew clearly what I wanted to do	1.0%	2.0%	10.2%	43.9%	42.9%	98	4.26	0.80
I had a strong sense of what I wanted to do	-	1.0%	5.1%	53.1%	40.8%	98	4.33	0.67
I did not know what I wanted to achieve*	-	46.9%	43.9%	6.1%	3.1%	98	4.35	0.73
My goals were not clearly defined*	25.5%	41.8%	20.4%	7.1%	5.1%	98	3.76	1.08

	SD	D	N	A	SA	N	\bar{x}	SD
4. Unambiguous Feedback								
It was not clear to me that I was doing well*	27.6%	34.7%	19.4%	12.2%	6.1%	98	3.65	1.19
I was aware of how well I was performing	-	1.0%	17.3%	57.1%	24.5%	98	4.05	0.68
I had a good idea while performing about how well I was doing	-	2.0%	17.3%	56.1%	24.5%	98	4.03	0.71
I could tell by the way I was performing how well I was doing	2.0%	-	14.3%	62.2%	21.4%	98	4.01	0.74
5. Attention to the Task at Hand								
My attention was not focused entirely on what I was doing*	9.2%	9.2%	6.1%	31.6%	43.9%	98	3.92	1.31
It took effort to keep my mind on what was happening*	27.6%	39.8%	11.2%	15.3%	6.1%	98	3.67	1.21
I did not have total concentration*	-	41.8%	45.9%	8.2%	4.1%	98	4.26	0.78
I was not completely focused on the task at hand*	36.7%	46.9%	7.1%	8.2%	1.0%	98	4.10	0.93
6. Sense of Control								
I felt in control of what I was doing	1.0%	1.0%	7.1%	41.8%	49.0%	98	4.37	0.75
I felt like I could not control what I was doing*	56.1%	32.7%	5.1%	3.1%	3.1%	98	4.36	0.94
I had a feeling of total control	2.0%	2.0%	20.4%	49.0%	26.5%	98	3.96	0.86
I did not feel in control of my body*	42.9%	45.9%	6.1%	3.1%	2.0%	98	4.24	0.86
7. Loss of Self-Consciousness								
I was not concerned with what others may have been thinking of me	6.1%	12.2%	15.3%	34.7%	31.6%	98	3.73	1.21
I was worried about my performance during the event*	26.5%	36.7%	23.5%	9.2%	4.1%	98	3.72	1.08
I was not concerned with how I was presenting myself	12.2%	27.6%	13.3%	31.6%	15.3%	98	3.10	1.30
I was not worried about what others may have been thinking of me	5.1%	18.4%	15.3%	33.7%	27.6%	98	3.60	1.22

	SD	D	N	A	SA	N	\bar{x}	SD
8. Transformation of Time								
Time seemed to alter (either slowed down or speeded up)	5.1%	7.1%	34.7%	25.5%	27.6%	98	3.63	1.12
The way time passed seemed to be the same as normal (did not seem to slow down or speed up)*	25.5%	27.6%	18.4%	19.4%	9.2%	98	3.41	1.31
I felt like time stopped while I was performing	13.3%	37.8%	29.6%	14.3%	5.1%	98	2.60	1.05
At times it almost seemed like things were happening in slow motion	12.2%	29.6%	21.4%	30.6%	6.1%	98	2.89	1.16
9. Autotellic Experience								
I did not really enjoy the experience*	69.4%	20.4%	4.1%	4.1%	2.0%	98	4.53	0.88
I love the feeling of that performance and want to capture it again	2.0%	-	7.1%	44.9%	45.9%	98	4.33	0.78
The experience left me feeling great	2.0%	1.0%	5.1%	43.9%	48.0%	98	4.35	0.80
I found the experience extremely rewarding	2.0%	1.0%	10.2%	32.7%	54.1%	98	4.36	0.87

SD= Strongly Disagree D= Disagree N= Neutral A= Agree SA= Strongly Agree

* Negatively worded item was inversely coded

Satisfaction Scale

Respondents reported overall satisfaction with their scenario paintball experience (Table 4.2). Additionally, satisfaction with specific aspects of their experience was also high. Specifically, on a scale of 1-5 where 1 = very dissatisfied and 5 = very satisfied, satisfaction with individual play ($\bar{x} = 4.37$); Satisfaction with the paintball park ($\bar{x} = 4.06$); Satisfaction with team play ($\bar{x} = 4.33$); Satisfaction with field set-up ($\bar{x} = 4.18$); Satisfaction with sides ($\bar{x} = 3.85$); and satisfaction with game challenge ($\bar{x} = 3.86$) indicates a high level of satisfaction from players in terms of all the satisfaction items.

Table 4.2 Frequencies and Means of Satisfaction Items

Variables

	VD	D	N	S	VS	N	\bar{x}	SD
1. How satisfied are you with your individual play today?	0.0%	2.0%	5.1%	46.9%	45.9%	98	4.37	0.68
2. How satisfied with the paintball park are you?	5.1%	4.1%	8.2%	44.9%	37.8%	98	4.06	1.04
3. How satisfied are you with your team's play today?	1.0%	4.1%	9.2%	32.7%	53.1%	98	4.33	0.88
4. How satisfied with the field set-up are you?	2.0%	5.1%	9.2%	39.8%	43.9%	98	4.18	0.95
5. How satisfied are you with your side's play today?	4.1%	15.3%	11.2%	30.6%	38.8%	98	3.85	1.21
6. How satisfied with the game's level of challenge are you?	3.1%	8.2%	14.3%	49.0%	25.5%	98	3.86	1.00

VD= Very Dissatisfied, D= Dissatisfied, N= Neutral, S= Satisfied, VS= Very Satisfied

Social Behavior

Teams are generally social, and the majority makes plans to travel (70%) and eat (84%) together. Teams and players were mixed with regard to their dinner plans with 44% eating at the field, 41% eating at a restaurant, and 15% eating at home. Nearly 40% of participants surveyed reported plans to stay at the field while 60% of respondents planned to stay elsewhere. The night *before* the games at which the survey was given, 17.3% of players reported staying in or at hotels, 23.5% in tents, 3.1% in R.V.s, 14.3% in bunk houses, and 41.8% in houses. The night *after* each game, respondents reported plans to stay in or at hotels (15.3%), tents (19.4%), R.V.s (3.1%), bunk houses (12.2%) and houses (50.0%). The large percentage reporting plans to stay at a house the night after the game is to be expected, as those surveyed at a one-day game are not faced with an overnight break, and two-day game participants were surveyed on the second day with the game drawing to a close that afternoon. Nearly 30 % of players surveyed reported taking on the added social pressures of special roles, (e.g., General, Executive Officer, Tanker, Demolition, Engineer, Sniper, Medic).

Hypothesis Testing

Hypothesis One

It was hypothesized that there would be a significant difference between individual and team players with regard to flow. A series of independent t-Tests were performed to differentiate individual and team players for aggregate flow and the nine dimension scores (Table 4.3). There was a significant difference between individual and

team players with regard to the clear goals dimension [$t(96) = 2.09, p = .04$]; specifically team members expressed a higher level of flow than individuals in terms of clear goals ($\bar{X} = 4.22$ for team players, $\bar{X} = 3.87$ for individuals). Interestingly, there was no significant difference between team and individual players with regard to overall flow and the dimensions of challenge/skill, action-awareness merging, unambiguous feedback, attention to the task at hand, sense of control, loss of self consciousness, transformation of time, or autotelic experience.

Hypothesis Two

It was hypothesized that overall flow state would be significantly and positively related to the level of individual satisfaction with the game experience. A series of Pearson Correlations were computed to assess the inter-correlations of individual satisfaction items and aggregate flow scores (Table 4.4). Satisfaction with individual play [$r(96) = .505, p = .00$]; the game's level of challenge [$r(96) = .320, p < .01$]; the paintball park [$r(96) = .242, p = .02$]; the field set-up [$r(96) = .214, p = .04$]; and team's play [$r(96) = .198, p = .05$] were all significantly correlated with flow. Satisfaction with a side's play was not found to be significantly correlated to flow.

Table 4.3 t-Test Table of Flow Dimensions by Group Membership (n = 98)

Variable	N	\bar{x}	SD	t	df	p
Challenge/Skill						
Team	84	4.20	.56	.897	96	.372
Individual	14	4.05	.67			
Action-Awareness Merging						
Team	84	3.90	.62	.791	96	.431
Individual	14	3.75	.72			
Clear Goals						
Team	84	4.22	.58	2.09	96	.040
Individual	14	3.88	.53			
Unambiguous Feedback						
Team	84	3.91	.58	-1.23	96	.223
Individual	14	4.11	.45			
Attention to the Task at Hand						
Team	84	3.98	.75	-.278	96	.782
Individual	14	4.03	.22			
Sense of Control						
Team	84	4.21	.56	-.783	96	.435
Individual	14	4.33	.52			
Loss of Self-consciousness						
Team	84	3.57	.75	.792	96	.430
Individual	14	3.39	.80			
Transformation of Time						
Team	84	3.14	.91	.270	96	.788
Individual	14	3.07	.94			
Autotelic Experience						
Team	84	4.37	.70	-.652	96	.516
Individual	14	4.50	.54			
Aggregate Flow						
Team	84	3.94	.34	.412	96	.681
Individual	14	3.90	.38			

Table 4.4 Correlation of Overall Flow Satisfaction by Experience

Variables	Pearson Correlation	Sig. (2-tailed)	N
Satisfaction with individual play	.505	.000	98
Satisfaction with paintball park	.242	.016	98
Satisfaction with team's play	.198	.051	98
Satisfaction with the game's level of challenge	.320	.001	98
Satisfaction with side's play	.147	.147	98
Satisfaction with field set-up	.214	.035	98

Hypothesis Three

It was hypothesized that overall flow state is significantly and positively related to the level of social interaction players have with their team. A series of independent t-Tests were performed to differentiate the individual behaviors of those traveling with a teammate or not, eating dinner with a teammate or not, staying at the field or not, and taking a special leadership role or not with regard to aggregate flow and the nine flow dimension scores (Table 4.5). There were no significant differences between those engaging in social behaviors and those who did not with regard to aggregate flow.

Table 4.5 t-Test Table of Social Behaviors and Overall Flow Experience (n = 98)

Variables	\bar{x}	N	SD	t	df	p
Did you travel with a teammate?						
Yes	3.91	69	.360	-.902	96	.369
No	3.99	29	.322			
Will your team eat together tonight?						
Yes	3.95	82	.338	.860	96	.392
No	3.87	16	.403			
Will you be staying at the field tonight?						
Yes	3.95	38	.380	.200	96	.842
No	3.93	60	.330			
Did you play a special role today?						
Yes	3.98	27	.284	.715	96	.477
No	3.92	71	.371			

CHAPTER FIVE

This study was undertaken in order to explore the psychological theory of flow and how it may influence the enjoyment of and the motivational constructs for playing scenario paintball. In addition to measuring the nine dimensions of flow, the study explored several social behaviors and experience-related satisfaction levels as they correlated to flow.

Summary of Procedures

Data Collection

Data were collected from scenario paintball players engaged in 8 hour and 48 hour events on paintball fields in or near Angelica, New York; New Milford, Pennsylvania; and Chesapeake City, Maryland. Surveys were distributed during the course of scenario games to avoid any bias from the final outcome of the games and to facilitate response validity through immediate recollection from the game in progress. Participants 18 years and older were recruited through announcements made at the field during pregame safety meetings and through solicitations made during the game. A total of 98 participants completed surveys during the data collection phase.

The researcher implemented a purposive and stratified sampling strategy. The sample was purposive in nature due to the need to target scenario paintball players who were playing the game, and a stratified strategy was used in an attempt to diversify experience levels, genders, and race/ethnicity as well as provide adequate representation

based on the actual demographic characteristics of those attending the event. The final sample consisted of 98 respondents. Over the course of the study, it was estimated that a total of 1,000 players participated in the four scenario games selected. This estimate is broken down as follows: 150 +/- at GRC in New York (June 2012), 150 players +/- at EMR in Pennsylvania (July 2012), 200 +/- at OXCC in Maryland (August 2012), and 500 +/- at OXCC in Maryland (December 2012). Players at the four scenario games were not always readily available to participate due to their concentration on getting ready for the game, their taking breaks and not wanting to be disturbed, or their mistrust of what the information would be used for.

The demographic characteristics of respondents were representative of the player population. The only discrepancy would be that only 2 percent of respondents identified as Black/African-American; this appears to have been an underrepresentation. The researcher believes that the African-American representation could actually be between five and ten percent of the population. Skill levels and gender percentages appear to be in line with what the researcher believes to be an accurate representation of the population based on his observations as a researcher and a scenario participant for over ten years.

Instrumentation

A cross-sectional study design was utilized. Data were collected via distribution of a 69-question survey instrument comprising 42 Likert scale questions assessing flow and flow dimensions, 23 short-answer demographic questions, and 4 open-ended questions. The Flow State Scale comprised 36 questions (Jackson & Marsh, 1996) and six questions were included related to overall satisfaction and satisfaction with elements of

the experience. The data were then descriptively analyzed using SPSS software and subsequent inferential statistics (t-Tests, correlations) were calculated to test hypotheses.

Summary of Major Findings and Conclusions

To what extent do scenario paintball players experience flow?

There was no significant difference found between team affiliated players and individuals with regard to aggregate flow scores and the dimensions of challenge/skill, action-awareness merging, unambiguous feedback, attention to the task at hand, sense of control, loss of self-consciousness, transformation of time, and autotelic experience. However, there was a significant difference between individual and team players with regard to the clear goals dimension; specifically team members expressed a higher level of flow than individuals in terms of clear goals.

The researcher posits that, due to the nature of the game, scenario paintball games consist of hundreds of players, and several objectives and mission are in play at the same time. Without a player knowing what is happening and what missions are under way, the player would certainly be lost in the game. Without understanding the goal of the game, the player will have a tendency to wander aimlessly and engage in what might be fun but useless firefights with opponents. Team affiliated players may feel a stronger sense of flow in regards to the clear goals dimension due to the hierarchy of playing on a team that consists of command, planning, and communication.

How is flow related to satisfaction with the larger scenario experience?

There was a significant correlation between aggregate flow scores and satisfaction; specifically satisfaction with individual play, the paintball park, the field set-up, team's play, and the game's level of challenge were found to be significantly and positively correlated to flow. These results provide clear evidence that flow state was related to satisfaction with the larger scenario experience.

Only satisfaction with a side's play was not found to be significant. This may be a result of a personal lack of control (by the player) over the side's play given the size of the group, and also that a player may already be comfortable with the members of the team and does not look to teammates in terms of his or her own flow experience. What the researcher has found to be significant in terms of flow is the presentation of the game and an individual's performance. The data suggest that there is a relationship between satisfaction with a well planned paintball facility in terms of services and field set-up and player flow. To enhance a personal quality experience and increase the draw and retention of visitors, the need for adequate services and field set-up is key. Similarly, the producers must consider environments by which players have an adequate level of game challenge and a desire to experience a high level of individualized play. When a player is comfortable with a paintball park's infrastructure, he or she can register and prepare for the game in a much more relaxed and efficient manner. In terms of play, when a field is balanced with bunkers and objectives, it facilitates higher individual playing satisfaction due to an even playing experience and the freedom and ability to make the necessary moves in order to enjoy the experience. Add to these ideals an adequate level of

challenge, and a player will most likely be able to experience high levels of flow and dimensional flow values.

How do an individual's social interactions relate to flow state?

Individual social behaviors were measured in terms of traveling with teammates, eating with teammates, staying at the field, and taking on special leadership roles within the scenario game. No significant differences between participants who did and did not engage in the measured social behaviors was found with regard to flow state. This is understandable if social behaviors take place before or after the actual experience at which flow is realized. This study looked at flow from a very individualized perspective during a group event. Clearly flow has been found to relate to an individual's experience and perceptions, but may not be a function of social interactions.

Theoretical Implications

Flow has been studied as applied to varied activities (e.g., Jackson, 1996 study of elite athletes) in relation to quality of life (Csikszentmihalyi, 1990); however, this study points to a significant relationship of flow and an individual's overall satisfaction and satisfaction with group elements experienced. While most elite-level sporting venues are uniform in nature as to dimensions and scoring methods, there are other aspects of life according to Csikszentmihalyi (1999) that are not as structured or standardized. For example, the gardener may seek out a higher quality of life through experiencing flow by creating an aesthetically pleasing or bountiful landscape of flowers, fruits, or vegetables. While this gardener may successfully create a landscape with the materials he or she

possesses, would this gardener experience a greater sense of optimal experience with more extravagant or ornate plants than are available to him or her? Would a greater experience be had with a better vista surrounding the garden? Would an audiophile feel a greater sense of optimal experience with a more pleasing environment or a smoother transaction at the music store when purchasing music or equipment?

The sense of satisfaction is most likely related to the theories of optimal arousal and leisure replacement (Iso-Ahola & Jackson, 1994). As individuals participate in and experience life, they will be guided by an underlying sense of satisfaction. This idea of satisfaction as an overarching goal behind participation and enjoyment can help to define the various stages of boredom and arousal as well as the starting, ceasing, and replacing of leisure activities, and the pursuit of flow and optimal experience. While an individual may experience success, it will only be optimally enjoyable if that experience was satisfactory, which may be dependent on the level of challenge/skill. Perhaps optimal experience relies on a certain level of satisfaction in life to placate the senses during transitions between seemingly non-related events (i.e., the purchasing process of acquiring materials related to a possible flow state activity).

Implications for Social Change

Flow state is a uniquely individualized experience. The flow state of respondents in this study was found to be related to satisfaction with individual play, satisfaction with the game's level of challenge, satisfaction with the paintball park, satisfaction with the field set-up, and satisfaction with team's play. Only the performance of other individuals

on the same side was found to be insignificant. At the same time, an individual may be affected by the quality of service, the level of play, and the quality of a particular venue. This evidence leads the researcher to posit that, in life as in scenario paintball, it is not our immediate family and friends or our neighbors and community members that truly affect our quality of life. In fact, it is perhaps an individual's perception of reality that drives optimal experience.

Socially, if individuals can adopt reasonable goals and expectations for services, environments, cityscapes, and life in general, they may be able to experience a better quality of life. In contrast to this individualistic ideal, it may be that service providers offering satisfactory services, environments, cityscapes, and views on life, enhance the loyalty of customers and quality of life for those they serve; thereby becoming successful business owners and improving their own quality of life. This idea of enjoying others and expecting fair and satisfactory interactions is supported by the most frequently reported favorite and least favorite aspects of the respondents' scenario experiences: camaraderie and cheaters, respectively.

Recommendations for Action

Given the discovered correlations between an individual's satisfaction level and a venue's services, the set-up of the paintball field, and the level of game challenge, the researcher suggests that field owners, players, and game producers work together to offer uniquely challenging and satisfying scenario game experiences. Field owners should take the necessary steps to ensure a well-organized facility and operation that allows

customers to feel at ease and enjoy their time spent at the paintball park. Additionally, they should take steps to facilitate and ensure their customers' satisfaction with aspects such as parking, toilets, registration, paint sales, air fills, and the communication of rules. The focus should be on individuals, as much of the current marketing is to teams that they sponsor, as there is evidence that individuals of any skill and experience levels can experience flow. By focusing on the individual players, field owners can cultivate a customer base that does not rely upon sponsorship deals or exhibit the entitled attitudes of sponsored teams that can force out and disenfranchise new players. Field owners and producers should extend their customer service to include player packets (containing rules and mission examples) being mailed to participants after online registration. Emails should also be sent to players, keeping them updated on any new developments regarding the game and rules. Relying on players to check out game forums online is not enough. The owners and producers need to be proactive and engage their customer base through social networks, individual email accounts, and the postal service. The satisfaction of being a successful business owner relies on the satisfaction your customers.

Game producers should carefully analyze the field layout of each game and change it when using the same field twice. Challenging missions and objectives must be formulated and implemented in order to raise player satisfaction with scenario games. Repeatedly used missions and objectives do not relate to participants achieving flow. Scenario paintball games offer action and a sense of novelty. If the novelty wears off due to producers offering the same game, players will not achieve flow or satisfaction, and will likely seek a better experience somewhere else. Fields should be remodeled for each

game; applying a new coat of paint to the same set of obstacles does not create novelty. If field owners and producers want to establish and keep a customer base, they must offer unique and challenging games and formats; otherwise, their games will seem repetitive, and players will lose their sense of challenge and ultimately their interest in attending scenario games put on at a field or by producers who do not innovate. Fields and producers must exercise customer service by communicating with the players and asking what the players want. In order to keep scenario games engaging the service providers must provide new and unique experiences at each event.

In order to keep scenario games new and exciting, as well as keep rules clearly defined and achieve a minimum level of expectation for the service provider and customer alike, creation of a regulatory group should be considered. This regulating group should consist of stakeholders that have a valued interest in scenario paintball, field owners, producers, players, and industry leaders. Each field is its own private operation and one regulating body may not be feasible, but each field should take steps to create a group of players to serve as a board of directors for their scenario endeavors. With the proper advisors in place, fields can receive guidance about how to refurbish, maintain and redesign. In this process of keeping scenario games fresh and unique, customers remain engaged and are retained, and new markets may be attracted.

Recommendations for Future Research

Although flow by nature, and the research that has been conducted, is fundamentally an individual experience, this study sought to examine whether flow could

be achieved by the individual in the group context of scenario paintball. Given the significant relationship of satisfaction in this study to flow, the researcher suggests further research into how satisfaction may result from optimal experience and quality of life. Satisfaction can be aligned with flow dimensions such as challenge/skill balance and autotelic experience. Due to the nature of flow, optimal arousal, leisure replacement, and leisure boredom, it is essential for individuals to find both challenge and satisfaction in what they do. The researcher posits not only that satisfaction with services and experience may influence quality of life, but also that satisfaction with one's environment may contribute to optimal experiences. Satisfaction could also be measured in terms of individual perspectives and how an individual interprets his or her own reality. Lastly, there is room to study whether satisfaction is linked more strongly to pre-game perspectives or post-game perspectives. Are individuals satisfied because they experienced flow, or do the venue and service facilitate flow through satisfactorily prepared game elements?

While the findings of how social interaction relates to flow state did not support the researcher's hypotheses, there is a need for further study of these relationships. There were no significant correlations found between flow and an individual's satisfaction with a side's play. Yet there is evidence of players and teams signing up months in advance for certain sides based on themes and who else is playing for or against a certain side. How can a preferred side not be significant in terms of flow if players are known to be so passionate about this aspect of play? The researcher suggests that further research into group affiliations and flow be considered.

Data from this study can also be used to develop new hypotheses in regard to satisfaction, flow, skill levels, and experience. Correlations between skill levels and experience were not broken down into individual segments in this study. By further breaking down the aggregate results, flow levels and satisfaction levels could be measured against skill, experience, and individual games. By studying individual games, fields and producers could be measured in terms of the quality of experience that they provide.

Summary

The concepts of recreation and leisure and the way individuals pursue enjoyment during their leisure time are, in fact, vaguely outlined in the phrase “We hold these truths to be self-evident, that all men are created equal, that they are endowed by their creator with certain unalienable rights, that among these are Life, Liberty, and the pursuit of Happiness.” Recreational pursuits are generally not forced on an individual and are usually synonymous with fun. When individuals seek out an optimal experience—whether through recreation or through other aspects of life—it is believed to enhance the quality of life through growth, complexity, and personal development. This idea of beneficial recreation and improved quality of life relates to the unalienable right of “Life.” As individuals experience new activities, they will learn to balance their skills with the challenge at hand or else move on by dropping less challenging or overly challenging activities in favor of a better chance for mastery or enjoyment in another activity. This action of replacing leisure and seeking optimal experiences correlates with

an unalienable right of “Liberty” or the freedom to choose. Flow in itself is described to be a wonderful feeling and a sensation that individuals seek in order to increase their experience in life. In essence, the researcher believes that seeking flow is similar in nature to, if not the same as, the unalienable right of “the pursuit of Happiness” or satisfaction.

This study has found that flow is linked to satisfaction. Similar in nature to the question of whether flow occurs as a product of optimal performance is the question of whether flow results from a sense of satisfaction, or vice versa. From the perspective of the researcher, it is theorized that satisfaction is not the result of flow, in that while an optimal experience may be exhilarating, it may not result in satisfaction. Satisfaction is thought by the researcher to be driven more by a sense of intrinsic motivation, which, in turn, leads right back to the flow dimension of autotelic experience. The subtle correlations between the various dimensions of flow and an individual’s satisfaction are indeed difficult to define; however, this research suggests a legitimate link between the two in terms of scenario paintball and optimal experience.

Ultimately, this researcher found that all those who play can enjoy scenario paintball. The ability to achieve a flow state or optimal experience was not found to be hindered by age, skill, experience, or team affiliation. In terms of scenario paintball play, there is evidence to suggest that the most important flow dimension that correlates to an optimal scenario paintball experience is defining clear goals for the players. As stated earlier, scenario paintball is complex and presents simultaneous objectives and missions that must be disseminated to hundreds of players or else many players are left in the dark

about what needs to happen. While playing paintball may have intrinsic value, it is difficult to achieve flow without knowing what is needed in order to be successful in the game. Satisfaction was found to significantly relate to flow scores; however, satisfaction with others was not found to be significant. Satisfaction with one's self and the venue/product was found to be significantly important in terms of flow. Finally, it was found that the social behaviors of traveling together, eating together, staying at the field together, and taking on leadership roles were not significantly related to flow.

The researcher agrees with Csikszentmihalyi (1990) in that flow can be experienced in all aspects of life. Flow, if understood, can be used as a tool to enhance personal enjoyment of life. The importance of satisfaction found in this study, while somewhat elusive in nature, cannot be understated. When both the concept of flow and the importance of satisfaction are recognized by not only participants but service providers as well, a symbiotic relation can be created in which both parties work together to enhance the quality of life for each other. These ideals again are echoed in the Declaration of Independence, a political document. Perhaps this idea of circular symbiosis can one day help improve the quality of life and services in all aspects of life—even in politics. Perhaps by setting clear and reasonable goals, which are, in turn, linked to the satisfaction of those involved, a higher quality of life, enjoyment, and flow can be had by all individuals, including scenario paintball players.

APPENDIX A: CONSENT FORMS

Scenario Paintball: An Individual's Flow State Experience

INFORMED CONSENT FORM (Facility Manager)

RESEARCH PROCEDURES

This research project is being conducted to assess the motivations of scenario paintball players. If you agree to participate, you will allow for the researcher, Christopher Goldbecker, to conduct a survey inside your paintball facility. This survey will consist of four sections comprising 69 total questions and will be distributed to participants only with their consent. Your facility will be cited as a survey location in the final analysis and presentation.

RISKS

There are no foreseeable risks for participating in this research.

BENEFITS

The benefits to you include improved public relations, a better understanding of your participant's motives, and a further developed understanding of how scenario paintball player's social interactions and in-game satisfaction may influence the personal rewards of playing the game. In addition, the benefits to the public will include a chance to express their opinions regarding their enjoyment of and continued participation in scenario paintball events.

CONFIDENTIALITY

The data in this study will be confidential. This research project will utilize anonymous surveys and respondents' names will not be included on the surveys and other collected data. Surveys will utilize identification codes that will correspond to participant logs.

PARTICIPATION

The paintball facility's participation is voluntary, and you may withdraw from the study at any time and for any reason. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party.

CONTACT

This research project is being conducted by Christopher Goldbecker for the School of Recreation, Health, and Tourism at George Mason University. He may be reached at 571-722-7814 for questions or to report a research-related problem. Mr. Goldbecker's faculty advisor, Dr. Pierre Rodgers, may also be contacted at 703-993-8317. You may contact the George Mason University Office of Research Subject Protections at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

This research has been reviewed according to George Mason University procedures governing your participation in this research.

CONSENT

I have read this form and agree to participate in this study.

Name

Date of Signature

Version date: 5/6/12

Scenario Paintball: An Individual's Flow State Experience**INFORMED CONSENT FORM (Participants)****RESEARCH PROCEDURES**

This research project is being conducted to assess the individual and social motivations for playing scenario paintball. If you agree to participate, you will be asked to fill out a 59 question survey and return it in person or mail it back to the researcher, Christopher Goldbecker, using an included stamped envelope by September 7, 2012.

RISKS

There are no foreseeable risks for participating in this research.

BENEFITS

The benefits to you as a participant include helping to define the individual motives behind playing scenario paintball. With your help the researcher will gather data in regards to the various dimensions of scenario paintball and how they may be applied to social-psychological theories. By assisting with this survey you will be lending your

knowledge and experience to an academic study of scenario paintball. This will in turn result in a scientific analysis of the sport's benefits as well as player motives that will help define scenario paintball as an intricate series of physical, mental, and social challenges.

CONFIDENTIALITY

The data in this study will be confidential. This research project will utilize anonymous surveys and respondents' names will not be included on the surveys and other collected data. Surveys will utilize identification codes that will correspond to participant logs.

PARTICIPATION

Your participation is voluntary, and you may withdraw from the study at any time and for any reason. You must be 18 years an older to participate in this survey.

CONTACT

This research project is being conducted by Christopher Goldbecker for the School of Sport, Recreation, and Tourism at George Mason University. He may be reached at 571-722-7814 for questions or to report a research-related problem. Mr. Goldbecker's faculty advisor, Dr. Pierre Rodgers, may also be contacted at 703-993-8317. You may contact the George Mason University Office of Research Subject Protections at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

This research has been reviewed according to George Mason University procedures governing your participation in this research.

CONSENT

I have read this form and agree to participate in this study.

Name

Date of Signature

Version date: 5/6/12

APPENDIX B: SURVEY INSTRUMENT

Date: _____

Dear Survey Participant,

I would like to thank you in advance for your time and hopefully welcome you as a participant in a survey being performed to assess motivations for playing Scenario Paintball. I am conducting this survey as part of my graduate study at George Mason University. All personal information will be kept confidential and will not be used for reporting purposes. You must be at least 18 years or older to participate in this study.

This is an exciting opportunity for me to survey members of the Scenario Paintball community. With your help I will be gathering evidence that may help define the sport's characteristics in terms of motivation and experience. While the motives, experiences, and benefits of Scenario Paintball may seem pretty straightforward to you as a player, they are not easily identified or understood by those who are unfamiliar with the game. This study will help to better define the motives for playing scenario paintball and may be used to further enhance and promote the sport as well as measure and compare scenario paintball player's psychological involvement with athletes of other sports. I hope to gather information that can be used in a scientific manner to better define Scenario Paintball as a uniquely challenging, and exciting form of sport and recreation.

Thank you again for your time and help with this survey.

Sincerely,

Christopher Goldbecker

Participant Code

Thank you again for your willingness to participate in this study. Please note that participation is strictly voluntary. Survey results will be held strictly confidential. No personal information will be shared with others. Only aggregate data will be reported.

Section I. Today's Play

The following questions are about your play experience during **today's** scenario paintball game.

Please circle the appropriate answer.

1. Did you travel with a teammate to today's game? NO YES
2. Will your team eat dinner together tonight? NO YES
3. Where will you eat dinner tonight? AT THE FIELD AT A RESTAURANT AT HOME
4. Will you be staying at the field tonight? NO YES
5. What accommodations did you have *last night*? HOTEL TENT R.V. BUNK HOUSE HOUSE
6. What accommodations will you have *tonight*? HOTEL TENT R.V. BUNK HOUSE HOUSE
7. Did you play a special scenario role today? NO YES

If yes, what role?

GENERAL EXECUTIVE OFFICER TANKER DEMOLITION ENGINEER SNIPER MEDIC

Other: _____

Section II. Your Scenario Experience

The following questions are about your scenario playing experience **today**. Please indicate your level of agreement with each item on a 5 point scale from Strongly Disagree to Strongly Agree.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I was challenged, but I believe my skills would allow me to meet the challenge.	SD	D	N	A	SA
2. I made the correct movements without thinking about trying to do so.	SD	D	N	A	SA
3. I knew clearly what I wanted to do.	SD	D	N	A	SA
4. It was not clear to me that I was doing well.	SD	D	N	A	SA

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
5. My attention was not focused entirely on what I was doing.	SD	D	N	A	SA
6. I felt in total control of what I was doing.	SD	D	N	A	SA
7. I was not concerned with what others may have been thinking of me.	SD	D	N	A	SA
8. Time seemed to alter (either slowed down or speeded up).	SD	D	N	A	SA
9. I did not really enjoy the experience.	SD	D	N	A	SA
10. My abilities did not match the high challenge of the situation.	SD	D	N	A	SA
11. Things just seemed to be happening automatically.	SD	D	N	A	SA
12. I had a strong sense of what I wanted to do.	SD	D	N	A	SA
13. I was aware of how well I was performing.	SD	D	N	A	SA
14. It took effort to keep my mind on what was happening.	SD	D	N	A	SA
15. I felt like I could not control what I was doing.	SD	D	N	A	SA
16. I was worried about my performance during the event.	SD	D	N	A	SA
17. The way time passed seemed to be the same as normal (did not seem to slow down or speed up).	SD	D	N	A	SA
18. I loved the feeling of that performance and want to capture it again.	SD	D	N	A	SA
19. I felt I was competent enough to meet the high demands of the situation.	SD	D	N	A	SA
20. I performed automatically.	SD	D	N	A	SA
21. I did not know what I wanted to achieve.	SD	D	N	A	SA
22. I had a good idea while I was performing about how well I was doing.	SD	D	N	A	SA
23. I did not have total concentration.	SD	D	N	A	SA
24. I had a feeling of total control.	SD	D	N	A	SA
25. I was not concerned with how I was presenting myself.	SD	D	N	A	SA
26. It felt like time stopped while I was performing.	SD	D	N	A	SA
27. The experience left me feeling great.	SD	D	N	A	SA
28. The challenge and my skills were at an equally high level.	SD	D	N	A	SA
29. I did things spontaneously and automatically without having to think.	SD	D	N	A	SA
30. My goals were not clearly defined.	SD	D	N	A	SA
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
31. I could tell by the way I was performing how well I was doing.	SD	D	N	A	SA

32. I was not completely focused on the task at hand.	SD	D	N	A	SA
33. I did not feel in control of my body.	SD	D	N	A	SA
34. I was not worried about what others may have been thinking of me.	SD	D	N	A	SA
35. At times, it almost seemed like things were happening in slow motion.	SD	D	N	A	SA
36. I found the experience extremely rewarding.	SD	D	N	A	SA

Section III. Your Scenario Satisfaction

The following questions are about your satisfaction of play **today**. Please indicate your level of satisfaction with each item on a 5 point scale from Very Dissatisfied to Very Satisfied.

	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
1. How satisfied are you with your individual play today?	VD	D	N	S	VS

If not satisfied, why? _____

	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
2. How satisfied with the paintball park are you?	VD	D	N	S	VS

If not satisfied, why? _____

	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
3. How satisfied are you with your team's play today?	VD	D	N	S	VS

If not satisfied, why? _____

	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
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- HIGH SCHOOL
- JUNIOR COLLEGE
- TRADE SCHOOL
- COLLEGE (BACCALAUREATE)
- GRADUATE SCHOOL
- POST-GRADUATE EDUCATION

15. What would you consider your level of scenario paintball play?

- BEGINNER
- ADVANCED BEGINNER
- INTERMEDIATE
- ADVANCED
- POST ADVANCED

16. In what other recreational activities do you participate?

17. Thinking about the best scenario paintball event you have ever been a part of, what made the event so good?

-Please continue to the next page-

18. What do you enjoy most about playing scenario paintball?

19. What do you enjoy least about playing scenario paintball?

Thanks for your time!

For office use only:

Scenario Name: _____ Date: _____

Field: _____ Temperature: _____

Weather Conditions: _____

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CURRICULUM VITAE

Christopher Goldbecker was born in Fairfax, Virginia. He graduated from James W. Robinson Secondary School in 1992, and received his Bachelor of Science in Leisure Services from Radford University in 1999. He has worked in the field of recreation since 1996 having worked for a private camp in Virginia, Camp Friendship, the Vienna Community Center, Fairfax County Park Authority, George Mason Athletics, George Mason's Center for Outdoor Education, North Star at Tahoe Resort, and the Fairfax County Department of Community and Recreation Services. Chris currently works as the operations manager at Audrey Moore Recreation Center in Annandale, Virginia. He has been playing paintball since 1991 and started playing scenario paintball in 2003. He started studying for his Masters degree at George Mason in Fall 2010.