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The Flow Rendezvous: Where Flow and Reality Meet

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Abstract

This paper explores many published journal articles and one outstanding book which reported and conducted research on the phenomenon of flow. Flow captures the positive mental state of being completely absorbed, focused, and involved in your activities at a certain point in time, as well as having a feeling of enjoyment from being engaged in that activity. The articles detail the findings of the research conducted on flow in regards to the validity of flow, if it can be measured, how it could be measured, and various examples of the state. Each of the articles have a similar definition of the zone and describe it in a standardized manner. Most of the articles, as well as the book, *The Rise of Superman: Decoding the Science of Ultimate Human Perforce,* reference the works of Dr. Mihaly Csikszentmihalyi who pioneered the early research in this field. This paper examines the correlation between mind and body, and what is needed to reach this elusive state in order to produce one's own and group peek performance. This paper will also point to additional research needed to better understand the phenomenon of flow and how it can be better utilized.

The zone/flow describes feats of incredible physical and mental prowess. I will give examples of these feats from different genres. The examples will come from many different sports and certain performing arts. I will explain how one's mental fortitude correlates with his or her ability to perform at their peak. It has been argued if the zone is actually a phenomena, and if it is even measurable in the world of sports phycology. It is important to determine if the zone exist, and if it is measurable as its validity could ensure physical and mental practitioners of art and sport function at their peak potential.

I was an athlete growing up. I played basketball and ran track in high school, and was decent at both. Throughout my high school athletics career there were a couple of times when I felt unstoppable on the basketball court, and a period of time when I felt no one could jump higher than me in the high jump event in track and field. It was an exhilarating feeling, but I could not explain it. I attended high school from 1988 until 1992, which was an unbelievable era in sports. Some of the great athletes of this time were Carl Lewis – track and field, Jackie Joyner-Kersee – track and field, Michael Jordan – basketball, Wayne Gretzky – hockey, Karch Kiraly – volleyball, Roy Jones Jr. - ,boxing, Ken Griffey Jr. – baseball, and Bo Jackson – football. There have been thousands of athletes who have been in the zone/flow. Professional athletes, who at one time or another felt as if they could not miss a shot, made every putt, stuck out every batter, knocked out every opponent they face, Ect. This flow state does not only happen in sports, but it has translated to the performing arts as well.

There have been many definitions of state known as the zone or flow. According to Wasiak 2011, “Flow is characterized by intense concentration and intrinsic motivation. In a flow state, self-consciousness disappears and the sense of time is distorted (Time flies when you're having fun!). The activity produces such intrinsic gratification that people are willing to do it for its own sake, with little concern for extrinsic rewards (Csikszentmihalyi, 1997).” “It includes feeling a sense of control, having a high level of concentration on the work performed, enjoying cognitive pleasure, and having harmony between the skills and the performed tasks (Csikszentmihalyi, 1990), states Cakmak et al., 2015.

According to Bloom and Skutnick-Henley, who quote Csikszentmihalyi , “the term "flow" refers to a state of focused absorption--a merging of action and awareness--where consciousness, mind and body become harmoniously directed, without indecision or anxiety. Analogous terms for flow include attaining a "state of chi," (2) as well as being in "the zone" (athletics), being in "ecstasy" (religious mysticism) and being in "aesthetic rapture" (artists and musicians).” Dillon and Tait stated, “Prebish (1993) likens the state achieved by athletes to a peak experience in which total engrossment, effortlessness, and transcendence of self can be achieved independent of performance.” To continue to define the event of being in the zone/flow, Sodhi, Luthra, and Mehta stated, “the holistic sensation that people feel when they act with total involvement." He believed it to be the mental state wherein an activity becomes autotelic, or worth doing for its own sake, rather than a means towards the achievement of some other larger goal. According to him, this only occurs in situations where individuals perform activities right at the edge of their abilities; that is the point when the challenge provided by the activity and the individual's skill to counter this challenge are balanced so that they are able to just control the situation” (Csikszentmihalyi, 1975).

According to Turaga, 2018, “Flow is generally regarded as the state of mind in which a person doing any task is completely immersed in feelings of energized focus, full involvement, and enjoyment in the process of the task. A 'flow state' is the experience of being fully engaged with what one is doing in that moment.” Hagevik, 1999 stated, “In a book called Flow: The Psychology of Optimal Experiences, Mihaly Csikszentmihalyi (he prefers to be called Mike) defines flow as a distinctive state of mind and feeling in which learning is effortless and delightful. It's being swept away - so consumed and so fulfilled that one experiences joy. It's the state in which learning and happiness are most completely merged.”

Much of the research conducted for this project stems back to Csikszentmihalyi’s early and most recent works. In an interview and according to How to Find Flow, when speaking of flow, Csikszentmihalyi stated, “ It essentially says that people who seem to feel most positive about their lives possess a set of common characteristics, such as knowing clearly what they have to do, getting feedback on what they are doing, and being able to match their abilities with the opportunities for action so that skills and challenges are in balance. When those characteristics are present, people begin to concentrate very highly. As a result they forget the problems of everyday life, and they seem to step into a kind of alternative reality. That consolidation of characteristics is what I call the "flow experience."

According to Lee, “Csikszentmihalyi was professor of human development at the University of Chicago and currently is the Davidson Professor of Management at Claremont Graduate University in California. In the opinion of Multiple Intelligence Theorist Howard Gardner, his work is "profound and pathbreaking." It is also at the very core of success in our chosen profession. The thrust of the thesis is that many of us spend much of our day either bored or anxious, and by studying the characteristics of those who are in a "state of flow," we may

increase our ability to enjoy our lives." Lee, goes on to say the following about Csikszentmihalyi and his perception of flow, "In Flow: The Psychology of Optimal Experience--Steps Toward Enhancing the Quality of Life, by Harper & Row Publishers, Csikszentmihalyi summarizes the characteristics of flow. He elaborates on the details of the flow experience: The sense of self emerges stronger after the flow experience is over. The duration of time is altered, hours pass by in minutes. The combination of all these elements causes a sense of deep enjoyment that is so rewarding people feel that expending a great deal of energy is worthwhile simply to be able to feel it. Thoughts, intentions, feelings and all the senses are focused on the same goal. Experience is in harmony. And when the flow episode is over, one feels more "together" than he, re, not only internally but also with respect to other people and to the world in general. It is when we act freely, for the sake of the action itself rather than for ulterior motives, that we learn to become more than what we were. When we choose a goal and invest ourselves in it to the limits of our concentration, whatever we do will be enjoyable. And once we have tasted this joy, we will redouble our efforts to taste it again."

I read an article called, "*Toward a Conceptual Understanding on the Flow Experience in Elite Athletes," by* Susan A. Jackson. The issue discussed in this particular article was the existence of flow state, which according to Jackson, is defined as "a valued experience and source of motivation for many individuals undertaking physical activity, whether it be in high-level competitive sport or a fitness endeavor. Being able to attain flow during sport or exercise participation can elevate an experience to higher levels of enjoyment and achievement."

The purpose of the article was to attempt to gain a deeper understanding of the flow state through the eyes of the elite athlete. The author's approach to getting this information to the reader was to reference other well know sports psychologists who had done research in this

particular field. The one well know sports psychologist who was referenced the most was M. Csikszentmihalyi. According to Jackson, “Csikszentmihalyi's (1990) study of flow over the past two decades has produced a wealth of information about the construct through investigations ranging from in-depth interviews of individuals' optimal moments to quantitative measurements of flow in daily experiences.”

Through his research, Csikszentmihalyi formulated nine characteristics of flow and how it could be tracked or measured. The following are the nine characteristics: challenge-skill balance, merging of action and awareness, clear goals, clear and immediate feedback, total concentration of the task at hand, the paradox of control, loss of self-consciousness, a sense of transformation of time, and finally the ninth characteristic “is an intrinsically rewarding experience involving a sense of deep enjoyment,” says Jackson. The major conclusion of the author, according to Jackson, “the analysis of the athletes' flow experiences generally supported Csikszentmihalyi's (1990) model of flow,” but “not all of Csikszentmihalyi's (1990) dimensions of flow received strong support when athletes' descriptions of flow were matched with these dimensions.”

One could tell the work is important to her, and definitely to M. Csikszentmihalyi, but it is hard to surmise if the work has major relevancy in the social science field of sports. One could definitely say the experimental methods were described adequately. There was in depth observation in regards to Csikszentmihalyi’s nine dimensions of flow. All the athletes interviewed fell into specific categories of the nine dimensions. There had to be a miscellaneous category added to the dimensions as some of the athletes recollection of the flow state did not fit into one of Csikszentmihalyi’s classes.

Jackson thought it would be best to conduct her study of flow with elite athletes. According to Jackson, “There were several reasons for limiting this investigation to elite athletes. First, to understand the flow experience in athletes, more clarity may be obtained by interviewing athletes at a comparable standard of participation. It is possible that the flow experience is different for athletes varying widely in skill and experience level. Second, it was expected that athletes participating at a high-skill level would be more familiar with the concepts to be discussed than lesser skilled athletes would be. Experienced athletes by definition have been involved in their sport for a substantial amount of time and thus have a large reference base from which to draw upon when thinking about flow experiences.”

Jackson wanted to see if other athletes would respond the same way figure skaters did her earlier study. She stated, “The present investigation provided an opportunity to observe whether the characteristics Jackson (1992) found with elite figure skaters occur in other sports and to explore in greater detail the subjective experience of the elite athlete in flow using Csikszentmihalyi's (1990) conceptual model as a base.” Jackson conducted an in-depth study in which she employed the use of some very high level athletes from various different sports. According to Jackson, “The participants for this investigation were 28 elite-level athletes (14 women and 14 men) from seven sports. Elite-level participation was operationally defined as participation at an international level in one's chosen sport. All athletes had achieved at least a top 10 placement in international competition. “Seven medalists from either the Olympics or the World Championships were included in the sample. There were also 10 Commonwealth Games medalists among the participants. The mean age of the participants was 26 years, with a range of 18-35 years. Fourteen of the athletes were Australian and 14 were from New Zealand. Athletes from seven sports were interviewed. These sports were track and field, rowing, swimming,

cycling, triathlon, rugby, and field hockey. There were 4 athletes from each sport represented in the sample. Seventeen of the athletes competed as an individual participant, whereas 11 competed as part of a team."

Jackson used an interview guide as one of her instruments of study as she expounded on the works of Csikszentmihalyi. According to Jackson, "athletes were asked to describe an experience while they were participating in their sport (either in competition or training) that stood out as being better than average; that is, an experience where they were totally absorbed in what they were doing and that was very rewarding in and of itself. As an additional probe, athletes were read three quotes illustrating flow to either help them understand what was being asked for or react to as a comparison to their own experience. This use of quotes is a procedure used by Csikszentmihalyi (1975, 1982, 1985) and other flow researchers (Fave & Massimini), 1988; Han, 1988; Jackson, 1992) to orient respondents to flow. One of the quotes used was the following: My mind isn't wandering, I am not thinking of something else. I am totally involved in what I am doing. My body feels great. I don't seem to hear anything. The world seems to be cut off from me. I am less aware of myself and my problems.(Csikszentmihalyi, 1982, p. 23)**.**"

There was an extensive data analysis conduct for this study which required the researchers to make themselves very familiar with all the data which be collected. According to Jackson,"Previous research by Jackson (1992) used an exploratory (inductive) framework to investigate flow. The present study was designed to extend this exploratory research by seeking to confirm whether Csikszentmihalyi's (1990) theoretical descriptions of flow are an accurate portrayal of the flow experience of elite athletes. Thus, a deductive procedure was followed in addition to inductive analyses in order to assess the usefulness of the chosen theory to the data."

In Jackson's data collection, she used five different methods to establish the trustworthiness of her data; thick description, reflex journals, triangulation, peer debriefing, and audit checking were the most effective methods. According to (Jackson, 1996), and in regards to thick description, "Patton (1990) stated that the qualitative researcher has an obligation to report the study in sufficient detail to permit others to decide on the quality of the findings. This depth of description was provided about the process of data collection and the analysis of data." In regards to reflex journals, (Jackson, 1996) stated, "This is a kind of diary in which the investigator, on a regular basis, records information about "methodological decisions made and the reasons for making them" (Lincoln & Guba, 1985, p. 327). The investigator in this study kept a journal throughout the research process in accordance with Lincoln and Guba's guidelines. The journal served to help clarify the investigator's thought processes as decisions were made during the data collection, analysis, and write-up stages." (Jackson, 1996), went on to state the following about triangulation, "Triangulation is a frequently mentioned method of enhancing the credibility of the data. There are several different approaches to triangulation that can be used. Methods triangulation, or "checking out the consistency of findings generated by different data collection methods"(Patton, 1990, p. 464), was employed in that questionnaire assessments were also included with the interviews." (Jackson, 1996), went on to further state the following about triangulation, "Once the raw data, higher order, and general dimension theme levels were established by the investigator, another person independently categorized the themes into their respective higher levels. That is, the external checker categorized the raw data themes into the higher order themes and then categorized the higher order themes into the general dimensions. Interrater reliability was calculated as a percent agreement between the investigator's and external checker's categorization of responses."

The last two methods used by Jackson were peer debriefing and audit checks. According to Jackson, “The peer debriefer is another method of addressing the credibility issue. According to Lincoln and Guba, peer debriefing is "a process of exposing oneself to a disinterested peer in a manner paralleling an analytic session and for the purpose of exploring aspects of the inquiry that might otherwise remain only implicit within the inquirer's mind".” Jackson goes on to say this about peer debriefers, “The basic role of the peer debriefer, as understood by this investigator, is to provide an external check on the inquiry process. This involved clarifying interpretations and decisions made by the investigator, exploring any biases of the investigator, and generally acting in the role of "devil's advocate." A peer debriefer was involved in this investigation from the start of the data analysis phase.” In regard to audit checks, Jackson,stated the following, “The final step taken to build the trustworthiness of the study was to have an audit check conducted. Lincoln and Guba (1985) discussed the role of the auditor as being akin to that of a fiscal auditor. A person not otherwise associated with the study examined both the process and product of the inquiry and made a statement about the acceptability of the study and its interpretations.” All of these steps are put in place to ensure the validity of the testing in regards to flow and elite athletes.

In Jackson’s theory of flow, she used dimensions as did the originator of the theory Csikszentmihalyi, but in Jackson’s theory, and in this particular study she used ten dimensions in comparison to Csikszentmihalyi’s original nine dimensions. Jackson, stated, “Dimension 1: Challenge-skill balance. The higher order themes illustrate the perception that one is coping well with the demands of the task, as in doing skills really well, able to maintain speed, able to change pace easily, and challenging but able to meet challenge. A rugby player described the way challenge was perceived in flow by stating, "Guess it was the extreme challenge [World Cup

Final], but we didn't approach it as a major hurdle."" When speaking of the next dimension, Jackson stated, "Dimension 2: Action-awareness merging. As an illustration of the absorption in the activity, and resulting nonawareness of anything else, a track athlete said, "You're just so absorbed in what you're doing that you're not really aware of what is happening around you." Further, this absorption led to some very positive experiential aspects while performing, as reflected in the higher order themes of things happening automatically, everything flows, floating sensation, and felt easy." In dimension 3, Jackson stated the following, "Dimension 3: Clear goals. Two higher order themes organized the responses and reflected the perception of knowing that one was going to be successful as the time to compete drew close: "There was one stage when I went up to catch a ball, and I knew when he kicked it I was going to catch it."" Jackson's fourth dimension was ambiguous feedback. In regard to this dimension she stated, "The feedback provides information that one is succeeding in one's goal. Sometimes, as this field hockey player described, ". . . even your teammates knew you were going to do it right." "Popular expressions for describing this dimension by athletes include the terms listed as higher order themes of goes like clockwork, everything in harmony, everything goes perfectly, and everything clicks."

Jackson's fifth dimension was concentration on the task at hand. Jackson, stated this about the particular dimension, "The idea of total task focus was clearly represented in the higher order themes of complete task focus, total concentration, maintain concentration throughout performance, and not concerned with where others are. One rugby player described a time when he was in flow and how during this game he maintained his concentration for the entire event: "All I remember in that game was that I never noticed anything for the whole 80 minutes of the game; never was my concentration broken." Jackson's sixth dimension focused on paradox of

control. According to Jackson, “One of the rugby player's descriptions about control supports this idea and suggests that the control aspect may come at an automatic level:

"I was in control" - that's very odd because I didn't really feel like I had a lot of control over what I was doing. Obviously I did because I was doing those things instinctively . . . feeling like I was just emerging in places through instinct rather than I had control over what I was doing.”

The seventh dimension Jackson spoke of was loss of self consciousness. Jackson stated, “A cyclist described this sense of oneness in his perception of his relationship with his bike during a race in which he was in flow: You're working with the bike. It doesn't seem like you're sitting on the bike, it feels like altogether, it's just one piece of machinery working together . . . like you're a part of this machine that you were born with and it's how you move.”

Jackson’s eight dimension discussed was transformation of time. According to Jackson, “Some athletes experienced times speeding up, as represented by the time speeds up higher order theme; others experienced time slowing down, as represented by the higher order themes of time to think and time slows down. A javelin thrower described the sense of time slowing: "When I went to throw it, it was like things were in slow motion, and I could feel the position I was in, and I held my position for a long time." Other athletes expressed a sense of time disorientation, as represented by the higher order theme of that name. The ninth dimension was an important aspect of the flow state according to Jackson and Csikszentmihalyi. According to Jackson, “Csikszentmihalyi (1990) described the end result of all these descriptive dimensions of flow as being an autotelic, or enjoyable, experience. Doing the activity is its own reward. Csikszentmihalyi has given considerable weight to this idea of flow being an enjoyable experience, as indicated in his 1990 book, where he referred to the dimensions of flow as the elements of enjoyment. In fact, Csikszentmihalyi has often substituted the word enjoyment for

flow in his writings." Jackson went on to state the following about this particular dimension, "A cyclist described the acute sense of enjoyment from being in flow and how the movements felt during such a ride: "I was very aware of the wheel cutting through the air. The lean-in and the whole thing was just like you're enjoying the experience of doing it." For many of the athletes, the rewarding feeling of being in flow was a major source of continuing motivation. For example, one rower had this to say: "Knowing that [flow] can happen keeps you going through all the bad rows or the not-so-good rows. It's just a little bit of magic." Jackson spoke of how enjoyment was a crucial part of flow and how the rewarding feeling associated with enjoyment played into being able to enter the flow states. Jackson stated, "As well as expressing the ideas of enjoyment directly, as in the higher order themes of enjoying experience as it occurs, enjoy the effort, leaves you on a high, leaves you feeling great, and extremely rewarding, themes that may represent enjoyment for elite athletes were also included: movements feel great, no pain, feel strong, endless supply of energy, peaceful, or perfect/highest level performance."

Jackson had to create a tenth dimension for her study as she felt there were other factors which needed to be represented in the study. According to Jackson, "There were several themes that did not seem to fit easily into any of the dimensions proposed by Csikszentmihalyi (1990) and thus were placed into this miscellaneous dimension." Jackson wanted to ensure she obtained an understanding of each athletes experience, and wanted to make sure it was documented. This was another reason for creating this final dimension. Jackson felt it was an extremely important part of the whole process.

Through analysis of the data obtain by Jackson in regards to this study, most of the results show that most of the athletes' replies or experiences fit into one of Csikszentmihalyi's dimensions. According to Jackson, "Analysis of the athletes' responses to questions about what it

is like when they are in flow revealed a high degree of association with Csikszentmihalyi's (1990) conception of flow. Of the 295 flow state descriptor raw data themes extracted from the data, 97% were classifiable into one of Csikszentmihalyi's (1990) dimensions. Thus it appears that the flow state, as described in the psychological literature, is very pertinent to elite athletes' experience of flow."

Results of this study illustrated there were some of Csikszentmihalyi's dimensions more representing than others. According to Jackson, "The end result of the first eight components, the autotelic experience, was the most salient dimension, with almost all of the athletes referring to themes that were categorized as being intrinsically rewarding or enjoyable." Jackson went on to say the following, "The dimensions of action-awareness merging, concentration on the task at hand, and paradox of control captured over 80% of the athletes' experiences, suggesting that these may be more central dimensions to elite athletes in flow. Future research may be able to provide further information about the relative importance of the various dimensions of flow to sport."

In Csikszentmihalyi's model of flow, when reaching this state the activity performed usually comes to the person effortlessly. The data in this report found that some athletes to not experience the state in this manner. According to Jackson, "although the idea that when in flow movements seem easy, some athletes were aware of exerting effort during times of flow. In fact, one of the higher order themes in the miscellaneous dimension was aware of the effort." Jackson purposed an explanation to this particular issue stating, "This characteristic of flow may be an individual difference variable, not necessarily a universal aspect for athletes. Or perhaps the word effortless does not clearly convey what is occurring during flow in physical activities. What may be occurring is an absence of strain and tension rather than an absence of effort."

Jackson went on to speak about paradox of control dimension and the complexity of this specific dimension. According to Jackson, “It may be that by letting go of trying to control the situation that an athlete allows herself or himself to reach flow, a characteristic of which is control.” There were dimensions of the flow state in which the elite athletes did not find to be accurate, or they felt they did not experience what the particular dimension was suppose to experience. According to Jackson, “The time dimension, although relevant to some athletes, was a factor others found inappropriate to their task demands. Swimmers, for example, stated that they were very aware of the pace clock and used it as a means of obtaining feedback every time they turned at the wall. The loss of self-consciousness was also not a factor that some athletes considered as part of their experience, although the fine distinction between being aware of self and being self-conscious may be clouding the relevancy of this factor.”

In 1992 Jackson conducted a similar study with professional figure skaters in regards to flow. The results showed the outcome of the study closely resemble the results of the elite athlete group. According to Jackson, “from the quotations describing flow by the figure skaters, terms such as awareness, automaticity, narrow focus, things happening in slow motion, and feeling in control were characteristics that also surfaced in the descriptions of being in flow by the athletes in the present study. The figure skaters related to the term flow and what it signified, as did the athletes in the present study.” Jackson went on to state the following about the two studies, “The present study developed to a more specific and detailed level understanding of how flow is experienced by the elite athlete through its depth of analysis and drawing of associations between the athletes' descriptions and Csikszentmihalyi's (1990) characterization of flow. The methods used to enhance the trustworthiness of the procedures and analyses undertaken in the present study add to the credibility of the findings.”

Jackson felt this study was a tremendous step in the right direction in regards to the study of flow and in Csikszentmihalyi's previous studies in this field. Jackson feels there needs to be more studies done on flow to better understand the phenomena, and to generalize flow in the sports phycology field. In closing her article, she stated the following, " The richness of the athletes' descriptions about flow state clearly show that it is an experience elite athletes are familiar with and value highly. The variety of terms they used to describe flow adds to the understanding of this state from an athletic perspective. Being "in the groove," "tuned in," "on auto," or "switched on" may make more sense to some athletes than being "in flow." The dimensions of flow analysis resulted in a clearer specification of the components of flow described by Csikszentmihalyi (1990) as experienced by elite athletes," Jackson.

Csikszentmihalyi's nine dimensions of flow are considered a crucial aspect of flow, and many believe them to be necessary to achieve this state. They could be viewed as the prerequisites of the phenomenon. According to Cakmak, the nine dimensions are as follows: "(i) A clear purpose: Individuals know exactly and clearly what they want to do, and they are consistent when performing the relevant action. (ii) Equal and high level of skills and challenges: The difficulties encountered and the qualifications needed to address these challenges are compatible with each other. During flow experience, if the challenge is overly high compared to the individuals' skill level, they feel concern. In the opposite case, they become bored. (iii) Focused attention: Individuals direct their attention and energy to the action that the activity requires and fully focus on the task at hand. (iv) Control: Individuals' control over the activity process. Individuals who experience flow during the process are aware that they can reach excellence, they do not experience a fear of failure, they feel strong and they dominate the activity. (v) Loss of self-consciousness: Individuals do not consider their ego. Individuals with active consciousness are not aware of

active awareness. Individuals do not care how they are viewed and what people around them think about them. (vi) Feedback: If feedback about tackling the challenges is received instantly and clearly, individuals can experience pleasure and focus more on the activity. (vii) A change in the perception of time: During the activity process, time is considered to flow faster or slower. The reason for this change in the perception of time is the focus of attention. (viii) Autotelic experience: Autotelic experience refers to intrinsic activity. For individuals who live autotelic experience, the realization process of the activity is enjoyable and only intrinsic values are important."

The article, *Go with the Flow: How to Help People Have Optimal Recreation Experiences*, by Judith Voelkl, Gray Ellis, and Joseph Walker, contained pertinent information in regard to flow. Part of the title of the article states the issue discussed, which was how to help people have optimal recreation experiences. According to, Voelkl, Ellis, and Walker "Over the past two decades many professionals have contemplated how to maximize the link between their knowledge of flow and delivering recreation services that will foster absorbing flow experiences." The authors' purpose for writing the article was to, "briefly review early and contemporary conceptual models of flow, describe a contemporary model that specifies characteristics and conditions of flow experiences, summarize how flow research is related to important related daily experiences, and review research findings about flow in recreation and sport programs," Voelkl, Ellis, and Walker.

The authors of this particular article were writing from a perspective of people who have first hand knowledge in the field of flow and recreations. Judith Voelkl, Ph.D., CTRS, is an associate professor in the Department of Parks, Recreation and Tourism Management at Clemson University. Gary Ellis, Ph.D., is a professor and chair in the Department of Parks,

Recreation and Tourism at the University of Utah. Joseph Walker, Ph.D., is an instructor in the Department of Parks, Recreation and Tourism Management at Clemson University. Voelkl and Ellis in 1998 produce literature called, *Measuring flow experiences in daily life: An examination of the items used to measure challenge and skill* in the Journal of Leisure Research. Walker in 2002, wrote a doctoral dissertation called, *Exploring the influence of the individual's ability to experience flow while participating in a group-dependent activity on individual satisfaction with a group's performance* while at Clemson University, Clemson, South Carolina. All of these works by the authors would make one consider them familiar in the field correlated with the title of the article being critiqued.

The article seemed to only use information which had been researched previously by experts in the field. The article used and referenced a broad spectrum of recreational sports. I thought it was very detailed in that regard. Voelkl, Ellis, and Walker stated, “Stein, Kimiecik, Daniels and Jackson (1995) examined the experiences of tournament tennis players, college students enrolled in a basketball class, and golfers playing at a country club.” The article goes on to mention even more sports, particularly adventure sports. According to Voelkl, Ellis, and Walker, “Flow experiences have been studied during adventure activities. Jones, Hollenhorst, Perna and Selin (2000), for example, studied flow among kayakers.” This was extremely interesting.

Voelkl, Ellis, and Walker stated, “ flow is a phenomenon that has captured the attention of behavioral scientists and human service practitioners for almost three decades. Recent research on flow has revealed circumstances in our social and physical environments that may be conducive to flow experiences.” This observation is vitally important to the field of sports psychology. The most important thing about this observation in my opinion is that it shows the

time and effort placed on expanding and understanding this particular phenomena. Thirty years of research gives some credibility to experts who have pioneered the research in this field, as well as giving credibility to the theory of flow itself. I believe in another thirty years athletes and recreational participants of sports will have a deeper understanding and maybe even more control over their own sporting experience.

There have been attempts to measure the validity of flow, and according to Voelkl and Ellis, “the past two decades researchers have strived to understand how the flow model fits the day to day experiences of people. The experience sampling method (ESM), which involves participants carrying a pager or beeper watch and responding to items on a self-report form when "beeped" (e.g., what they are doing, level of challenge, level of skill, affect), has provided a method for gathering extensive data on daily experiences.” Just like every other field and every other theory which has been presented there have been critiques of this style of measurement. Voelkl and Ellis go on to state, “In a recent critique on the use of ESM data to examine flow experiences in daily life, Ellis, Voelkl, and Morris (1994) identified several issues including problems with the measurement of challenge and skill and loss of information on individual differences when scores are standardized.

When using ESM data to examine flow and according to Voelkl and Ellis, “Participants are typically asked to record perceived challenge and skill in relation to the "activity" they were involved in just prior to being beeped. However, Csikszentmihalyi (1975) has indicated the complexity of challenge and skill: "at any given moment, people are aware of a finite number of opportunities which challenge them to act" (p. 50). The very "finite number" of challenges may create difficulty for a participant who is responding to one item measuring challenge and one item measuring skill.” Voelkl and Ellis attempted to modify this technique and conduct their own

student. In this study, and according to Voelkl and Ellis, “Participation involved wearing a "beeper" watch for four days that was programmed to "beep" the participant at five random times each day between the hours of 8:00 am and 10:00 pm. Upon hearing the "beep," participants were instructed to complete a self-report form that contained items on current activity, location, companionship, perceived challenge, perceived skill, affect, and self-affirmation (Larson & Csikszentmihalyi, 1983; Larson & Richards, 1994).”

In the article, *Validation of the Flow Theory in an On-Site Whitewater Kayaking Setting,* written by Christopher Jones, Steven Hollenhorst, Frank Perna, and Steve Selin., there was another attempt to measure the validity of flow. This article speaks of the proposed conceptual theory of flow and how it excluded certain aspects of sport, or certain sports in general. According to, Jones, Hollenhorst, Perna, and Selin (2000), “To explore the immediate states of mind of participants in intrinsic and challenging activities, Csikszentmihalyi (1975) proposed the concept of flow, which was originally defined as a psychological state that occurs when an individual perceives a balance of challenge and skill.” The article went on to speak about the work of Csikszentmihalyi and how he spoke of rock climbing, and how he emphasized this activity may induce one of the more powerful experiences of flow. Jones, Hollenhorst, Perna, and Selin stated, “Despite this emphasis, further theoretical development of the flow model has neglected to include a quantitative methodology suitable to outdoor adventure settings.”

Jones, Hollenhorst, Perna, and Selin, spoke to Csikszentmihalyi’s,” flow experience in terms the nine dimensions mentioned previously, these dimensions again include the balance between challenge and skill, and the following eight dimensions which he theorizes to depend on the challenge/skill balance: merging of action and awareness, clear goals, unambiguous feedback, concentration on the task at hand, sense of control, loss of self-consciousness,

transformation of time, and the autotelic experience." According to Jones, Hollenhorst, Perna, and Selin, "A reformulated model, the four channel model, was developed to improve the original model and attempt to validate the theory based on the following assumptions: (1) flow occurs when perceived challenge and skill are above an individual's personal average, (2) anxiety occurs when an individual's average perceived challenge is greater than skill, (3) boredom occurs when an individual's average perceived skill exceeds challenge, and (4) apathy occurs when both the perceived challenge and skill are below the personal average."

With the exclusion of quantitative methodology suitable to outdoor adventure settings in the research of flow, and the reformulated method of the four channel model approach being explored, the title of this article is fitting. Jones, Hollenhorst, Perna, and Selin, conducted a study on the Canyon section of the Cheat River near Albright, West Virginia, on May 3, 1997 to validate the flow theory in an onsite whitewater kayaking setting. They proposed three different hypotheses, "1.The four channel model will be related to flow indicators, with the level of these indicators highest during flow experiences, 2.The explanatory power of the four channel model will be greater than that of the original model, and 3.Flow and anxiety will occur more frequently than apathy and boredom at difficult sections of the river."

Jones, Hollenhorst, Perna, and Selin write the article from a perspective of having some firsthand knowledge on the subject. Dr. Steve Hollenhorst was a faculty member at the University of Idaho, where he served as the Associate Dean of the College of Natural Resources and Chair of the Department of Conservation Social Sciences. He was also director of the U of I's Park Studies Unit, which is a branch of the National Park Service Social Science Program. Christopher D. Jones worked in the Department of Physical Education and Recreation at Utah Valley State College. Dr. Frank Perna was a tenured associate professor at West Virginia

University and later served as an associate professor and director of health psychology at Boston University School of Medicine where he maintained an active program of (NIH) funded research and a clinical practice. His research and practice areas include performance enhancement work with professional and recreational athletes. Steven Selin is a Professor in the School of Natural Resources at West Virginia University. He earned a Ph.D. in Recreation Resource Management from the University of Oregon. His research interests include operationalizing sustainable recreation.

The authors used a compare and contrast type of text structure in this article as they were looking to expound on the four channel model of flow. The authors primarily presented information by using examples, details, descriptions, and information gathered and quoted from other experts in the field of flow. The authors used scientific method to reveal results of the four channel model of by employing “Experience Sampling Method (ESM) which requires that subjects fill out a brief questionnaire when randomly beeped (generally '7 per day) throughout a one week period (Csikszentmihalyi & Larson, 1987)”, Jones, Hollenhorst, Perna, and Selina.

There is yet another model of flow presented. In the article, *Yerkes-Dodson Law for Flow: A Study on the Role of Competition and Difficulty in the Achievement of Flow*, written by Ketaki Sadhi, Mahi Luthra, and Dhavani Mehta, in the International Journal of Education and Management Studies, Sodhi, Luthra, and Mehta stated, “we borrowed from Ghani, Supnick, and Rooney's (1991) model of flow, which proposes two key characteristics concentration or engagement in the activity and enjoyment attained from the activity.” These authors felt there had been numerous studies conducted which concentrate on these two current factors and wanted to attempt something slightly different. This led to Sodhi, Luthra, and Mehta stating, “we measure flow as the combination of three factors engagement in the task, enjoyment from the

task, and control of the task. To measure flow as a function of these factors, the questionnaire created by Ghani, Supnick and Rooney (1991) was used."

According to Sodhi, Luthra, & Mehta, "the Yerkes-Dodson law states that "the optimum motivation for a learning task decreases with increasing difficulty" (p. 322). The implication here is that motivation and difficulty both contribute to task anxiety; and anxiety when perfectly moderate leads to optimum performance." Sodhi, Luthra, and Mehta believed and stated the following, "In this optimum state of anxiety, an individual is aroused enough to channel cognitive resources into performing the task at hand while eliminating competing motives; and at the same time, is not so aroused so as to impair task performance." They went on to further state, "this optimal state mobilizes the body to enable individuals to readily take up the actions required for goal achievement", Sodhi, Luthra, and Mehta.

Sodhi, Luthra, and Mehta went on to conduct their study, they stated, "Participants in this study are exposed to four tasks: difficult competitive task, easy competitive task, difficult non-competitive task and easy non-competitive task. We hypothesize that a balance in competition and difficulty(as in easy competitive tasks or difficult non-competitive tasks) will lead to a state of flow whereas the presence or absence of both (as in difficult competitive and easy noncompetitive tasks respectively) would result in a reduction in the achievement of flow. Therefore, statistically we predicted a two-way interaction between competition and difficulty", Sodhi, Luthra, and Mehta. They had 14 males and 18 females participate in the study for a total of 32 participants, who ranged in age from 18 to 25. There were two types of materials used to conduct the experiment, which were the flow questionnaire and the primary tasks. According to Sodhi, Luthra, and Mehta, "Participants were subjected to four primary tasks each. Word search puzzles were used as the primary tasks since they provide a two-fold advantage: first, most

individuals are familiar with this task; second, the instructions involved are relatively easy participants were simply asked to look for the listed words in the puzzle grid."

In this experiment conducted by Lodhi, Luthra, and Mehta, the flow state questionnaire which was contrasted by Csikszentmihalyi was used to measure flow. Challenge and skill were measured as well in this experiment. Parts of Csikszentmihalyi's method was used in this portion of the experiment as well, as his experience sample form was put to use. According to Sodhi, Luthra, & Mehta, "the participants were informed that they would be competing against each other in terms of performance and would be ranked on the number of words found within the five minutes, which would then be revealed at the end of the experiment. In the non-competitive conditions, participants were informed that each would be given a different word search puzzle to solve (although the same puzzle was provided to all). It was additionally specified that their individual performance was of primary interest and no performance ranks would be provided."

There were formulas drafted and statistics were complied in regard to this experiment, but according to Sodhi, Luthra, and Mehta, "Participants, when engaged in competition, experienced greater flow in easy word search tasks than in difficult word search tasks. The opposite pattern, however, was observed when participants were placed in non-competitive situations. This is in line with our hypothesis, suggesting the flow works in a pattern similar to the Yerkes-Dodson law." There was part of this study which was very intriguing to me and seemed to catch Sodhi, Luthra, and Mehta off guard. Sodhi, Luthra, and Mehta stated, "An unexpected result of this study involved the gender differences in the pattern of flow in terms of the interaction between competition and difficulty. Females adhered to the expected Yerkes-Dodson pattern, while males displayed higher flow in competitive situations regardless of task difficulty. The responsiveness of males to competitive situations has been previously established

in a number of studies (e.g., Gneezy, Niederle, & Rustichini, 2003; Larson, 2005) and provides a possible explanation for the obtained results. Other general explanations include that women have lower expectations about their ability, prefer to avoid risk, or are perhaps averse to situations with possibilities of direct feedback regarding their relative performance (Niederle & Vesterlund, 2007). These gender patterns in competiveness have been often attributed to broader mechanisms such as evolution (e.g., Vugt, Cremer, & Janssen, 2007), socialization (e.g., Low, 1989), and physiology (Barber & Odean, 2001)."

Sodhi, Luthra, and Mehta were astounded and pleased with the results of their study, "The robustness of this finding can be established by using different types of tasks (such as academic tasks or sports activities) and different experimental designs (between-subjects design for the factors of competition and difficulty). Further, flow being such a debated construct, different conceptualizations of flow can be employed. The present study solely focused on flow without including actual task performance; hence, there is a possibility that though males exhibit high flow in difficult, competitive tasks, their performance may not be proportionally high. Thus, future studies can include performance as an additional dependent variable. The topic of flow from cognitive and psycho physiological perspective also presents opportunity for future research, (Sodhi, Luthra, & Mehta, 2016)."

There are so many avenues and channels to flow and its theory. There have been people who felt as if they have experience flow in the most mundane of tasks. This is the part of flow which interests me the most. What one person finds challenging, another finds absolutely boring. Most of the research I have found suggest this is the gateway to flow, this challenging and boring state. In the article, *When You're in the State Called "Flow," You're Performing at Your Best. Here's How to Go with the Flow* by Patty Onderko, who has been a freelance writer and editor

since 2002, (Onderko, 2014) states, “The first time I experienced flow occurred during my high school geometry final exam. I'd never been a math person, but something about the tangible shapes, lines and corners made sense to me. I remember steadily writing the formulas, finishing problem after problem, flipping the page to start the next set, and repeating. The test was challenging, but I felt confident. I recall a strong feeling of physical comfort even though I was wedged in a bare-bones student desk surrounded by dozens of nervous teens. I didn't so much as glance at the cage-enclosed classroom clock. When I completed the test, I patted it in satisfaction, something that, as an aspiring writer, I would never have imagined doing.”

In this article there is a definition of the phenomenon which I personally feel is the best description of the event. Patty Onderko references Steven Kolter and states, “Basically flow is the scientifically researched theory behind the lay expressions "in the zone" or "getting in the groove." During flow, your attention is focused and held without effort. And it's found in "those moments of total absorption, when we're so sucked in by the task at hand that time seems to either slow down or speed up," explains Steven Kotler, author of The Rise of Superman: Decoding the Science of Ultimate Human Performance and co-founder of the Flow Genome Project, a for-profit organization based in Austin, Texas, that aims to help organizations and individuals achieve flow more often. (He calls it "flow hacking."), Onderko. Onderko goes on to speak of the famed Csikszentmihalyi and recalls a portion of an interview conducted with him. Onderko stated, "Flow makes life much better," the author told SUCCESS. "You don't feel like you're working against the current, but with it. Work doesn't seem like an obligation, and you get better at what you're doing."

It has even been documented that executives have experienced some form of flow. According to Onderko, “The management consulting firm McKinsey & Co. interviewed more

than 5,000 executives over 10 years about their moments of flow at the office. The executives reported that they felt 5 times more productive when they are in flow. Kotler's not surprised. "Flow is an optimal state of consciousness where we feel and perform our best," he says. In this way, we can think of flow as an evolutionary encouragement--and reward--for getting stuff done." Onderko also stated the following, "Shernoff says research shows that flow actually happens more at the workplace, where we're being challenged and pushed. But the more we think of work as a tedious obligation, the harder it is to enter and enjoy flow. "If you don't pay attention, you could miss the opportunities for flow," Csikszentmihalyi says."

In the article, *Get in the Performance Flow*, published in the Ivey Business Journal Online, 2018, by Mark Hollingworth (M.Eng, EMBA), it speaks of flow in the business sector as well. In this article, there are references to being able to obtain the flow state within a group of co-workers. According to Hollingworth, "a prerequisite for achieving team flow is that team members be aware of their "real-time" relationships with their counterparts in what is known as the "social field Kurt Lewin defines the social field as "the dynamic energy of life space that interacts with human consciousness whereas Arawana Hayashi describes it as the "structure of relationships among individuals, groups, organizations and systems at any given moment that give rise to collective behaviors."

Hollingworth has an interesting take on the joint element of flow. He states the following, "When two team members work together, their work space-their social field-is filled with (apparently empty) space and energy." "A third person entering the room may simply see the two people, or may be able to sense the social field and effect their entry has had on it." "According to Hayashi, the third person's entrance means that the interpersonal dynamics and possibilities have now changed and different collective behaviors and outcomes are now possible, while other

behaviors are no longer possible," Hollingworth. The author goes on to speak about leadership. It is at this point, in Hollingworth's opinion, leaders have the ability to influence the flow state upon a group. According to Hollingworth, "your job as a team leader is to influence your team's social field so that it can be the catalyst that helped the team achieve a state of flow. This represents a huge challenge. It means being aware of, and sensitive to your own body's physical messaging along with the emotions you are personally experiencing. It also means being aware of what is happening among the team and its members in terms of tangible, measurable progress toward a deliverable and the ever-morphing social field containing them."

Previously, this paper has discussed the nine dimensions need to obtain the flow state, this according to Csikszentmihalyi. In this particular article presented by Hollingworth, he proposed there are six other elements or dimensions which are needed to achieve flow with a group of workers. According to Hollingworth, "There are 6 steps you can take. In addition to the n considerations must also be in place:

1: Know each team member's current capabilities and the corresponding assignment of tasks. For example, consider a group of three team members where one is very capable and fully experienced, another some experience, and the third is fresh out of school. For this group, a specific task might be boring or demeaning for the experienced employee and yet overwhelming for the new employee. However, the task ma represent the perfect challenge to achieve a flow state for the employee with some experience. Ideally, you w assign tasks to your team members that represent the perfect level of challenge for each member to reach flow.

2: The team has a high level of decision-making autonomy and an entrepreneurial culture. Team members must feel that success or failure is firmly in their own hands. Consulting with superiors

before each decision relinquishes their control, empowerment, and entrepreneurship. Micromanagement kills flow.

3: The team has unity and each member has a vested interest. As the team leader, you must instill the understanding that the team can only win if everyone contributes and works together, giving and receiving support and relying on all members to deliver.

4: Communication and conversations must be at level 4. Using strong "level 4" conversation, team members speak with honesty, integrity, coherence, a positive tone, and clear body language, recognizing that everyone else's truth is equally valid and valuable, and respecting the other team members' points of view. Tough issues are not avoided but addressed in a healthy, non-toxic way. Level 4 conversations challenge existing strategic assumptions and favor the emergence of new, undiscovered insights.

5: Avoid the practice of "absencing." The term "absencing" refers to team members who are somehow "still (i.e., inflexible, closed, or preoccupied) with something other than the task at hand, making it impossible for the team to reach the flow state. It is the opposite of being fully present. Even one team member absencing can undermine the ability of a tightly knit team to reach a state of flow. Team members must be fully present physically, emotionally, and intellectually to avoid having a destructive effect on the team's performance.

6: Each team member must be aware of and be managing the team's social field. The essence of what is known as "authentic leadership" requires an acute level of one's presence and awareness of others. This is aligned with the ancient Sufi saying that states, "You think that because you understand 'one' that you must therefore understand 'two' because one and one make two."

Hollingworth eludes to the amount of work and effort which goes into achieving flow as a team, but also mentions the benefits of reaching flow as a group. The group achieving flow is able to produce a great amount of work. According to Hollingworth, “Although it may seem like a lot of effort to mold a team that can achieve flow, the potential outcome is enormous. Theoretically, a team that can work in the flow state at all times can be five times more productive, according to McKinsey & Company. Realistically, however, a team achieving a state of flow only half the time would still increase the team's output considerably. More importantly, team members would be thankful and feet great! In many ways, experiences and accomplishments at work can begin to compare with the ‘highs’ you experience outside work when engaging in flow-inducing activities.”

Patty Onderko has a very unique perspective on flow. Throughout my research I have not came across this type of thinking. Onderko stated, his possibility for optimal productivity is one way that flow differs from other feel-good states of consciousness such as meditation and daydreaming, for which it is often confused. While meditation seeks to empty the mind, flow focuses it on the task at hand. And while daydreaming can be seen as "zoning out," flow is zoning-- or zeroing--in. We like the way David Shernoff, Ph.D., puts it (he's a psychologist who studies flow in education and the author of Optimal Learning Environments to Promote Student Engagement): "Flow is playful work or serious play."”

An interesting and key element to flow according to Onderko is participating in autotelic activities. Onderko states, “The adjective "autotelic" is used to describe any activity or creative work that has an end or purpose in itself. That is, you do the activity for the experience of doing it, not because you are trying to reach a separate goal. You would participate in it whether you had to or not.” The other key element of flow is getting our challenge and skill ration correct.

The optimal situation for the phenomenon of flow to take place is having a challenge which is great, but also having a high skill set in that particular challenge. According to Onderko,“if the challenge is high and so are your skills, ahh, that's the sweet spot--up in the top right corner of the graph--where flow happens. But it's a moving target: As your skills sharpen, the challenge must rise to the occasion, lest you fall into apathy or boredom. And as the challenge increases, your skills have to step up. What allowed for flow two years ago--putting a budget report together, say--won't necessarily work today, as your experience has grown.”

In Onderko’s article, she states it difficult for one to reach the state of flow, so do not get frustrated when you can not reach it, or if you never reach it. Onderko states, “Plenty of times, instead of feeling like you're in the swift current of flow, you'll feel stuck in the goopy sludge of a swamp. Instead of buckling down to work, you cave to obsessive Facebook checks and Words With Friends.” I myself find this to be true. I often give in to the temptations of the world wide web and drift away into that world of endless knowledge, all the while being aware of the fact I have pressing issues to address. This article goes on to say it is a good thing not to be able to be in a flow state very often, or very long, as it would take a toll on a person’s body and mind if they did so too often. According to Onderko, “You want to be in flow as often as possible, but it's not realistic to be there all the time. Most flow sessions don't last longer than an hour and a half. "The chemicals involved in flow--particularly dopamine--have short life spans," he says. And afterward, "Your body and mind need that time to recover." Plus, if you never feel anxious or bored, you won't be motivated to challenge yourself.” This is when the article made mention of procrastination and how it is a key element of flow as well. The article spoke of procrastination in a positive manner. According to Onderko, “’There's a lot of cultural baggage surrounding procrastination, but it's actually an important part of the flow process, at least when

it comes to work. You procrastinate until enough pressure has built up that you can then release into your project.'" If this is the case and is a valid statement, I should be on my way to being in the state of flow.

There have been many studies of flow, but one which was very interesting studied flow in general exercise. In the article, *Flow for Exercise Adherence: Testing an Intrinsic Model of Health Behavior*, by Lingyak Petosa and Brian, the authors conduct a study of flow adherence of exercise. According to Petosa and Holtz, "Flow theory posits that exercise can be intrinsically rewarding if the experiences of self/time transcendence and control/mastery are achieved during performance. It was hypothesized that higher levels of flow during exercise would be associated with exercise adherence rates." The authors of this article pay homage to well known expert in this field, Dr. Csikszentmihalyi. According to Petosa and Holtz, "Flow is a concept first described by Dr. Csikszentmihalyi. (2) He identified flow as an optimal experience occurring from a deep involvement in a self-chosen activity. The heightened concentration required by the activity results in a reduction in ego awareness and time consciousness. The flow experience is facilitated by being fully immersed in a level of activity that challenges the skill level of the participant. Athletes have often reported flow experiences when placed in challenging, competitive situations."

Petosa and Holtz stated, "According to Dr. Csikszentmihalyi, flow is a state of mind when consciousness is harmoniously ordered and focused on the execution of an activity. (3) Flow is characterized by deep immersion in the performance of a behavior. During flow, a person's attention is so completely focused on the activity that awareness of self and the environment is reduced, resulting in a reduction self-conscious cognitions. Perception of time is often altered. Time may be transcended or "forgotten," potentially reducing perceptions of

boredom. In other cases, time can be perceived as slowing down or passing quickly. During flow experiences, people often report a sense of elevated control or mastery.” The authors of this article believed there was much evidence of the type of flow mentioned above, but did not find much information on flow in regards to vigorous activity.

The purpose of the authors’ study was a simple one, Petosa and Holtz stated, “The flow experience is a positive state of mind produced by engagement in an activity that is self-reinforcing. Flow may be a factor in adherence to regular exercise participation. The purpose of this study was to test the flow theory of exercise adherence.” The method of testing the flow theory by these authors is somewhat complex. According to Petosa and Holtz, “Item development began by establishing operational definitions for each of the 2 dimensions of flow believed to be most consistent with exercise adherence. Focus was defined as "high level concentration on the exercise task characterized by perceptions of power, control, accomplishment and reduced concern for factors outside the exercise experience." Self-transcendence was defined as "a reduction of thoughts about self during exercise characterized by reduced awareness of time and effort." These definitions were then used to construct a pool of 14 items. The items were reviewed by an expert panel of judges for both content and face validity. The panel consisted of 3 judges who were all familiar with the original work of Dr. Csikszentmihalyi and the exercise adherence literature.”

The authors had developed their own scale of measurement for exercise adherence and put this scale to use in this particular experiment. According to Petosa and Holtz, “The 7-day recall instrument developed by Petosa et al. (12) was used to measure exercise adherence. This scale was chosen for this study because it produces more detailed, valid results than most self-report scales of exercise. It is designed to measure bouts of vigorous exercise in terms of mode,

duration, and day of the week." The authors go on to state, "The scale defines vigorous exercise as planned physical activity done to enhance health/fitness that is continuous for 20 min or longer, during which the heart beats rapidly, breathing is rapid and deep, and a conversation is challenging. Examples provided on the scale include running, swimming laps, aerobic classes, and cycling over 10 mph. Subjects record duration and mode of each bout of exercise for each of the previous 7 days. A 3-round expert panel review process established the face and content validity", Petosa & Holtz.

To compilate the results of their measures, the authors would first conduct an analysis. Petosa and Holtz stated, "Statistical analyses consisted of confirmatory factor analysis and correlation and linear regression using SPSS. Confirmatory factor analysis was used to examine a priori item-scale structure. If the solution is well defined and matches the targeted theory constructs, the scale is judged to have construct validity. Pearson product moment correlation analysis was used to examine the relationships between FEAS scores and days of vigorous exercise over 4 weeks by stage of change for exercise." Just like most result in regard to studying flow, they were varied. According to Petosa and Holtz, "The results need to be considered in the context of the limitations of this study. A nonrandom, convenience sample was used. Although the large cross-sectional sample used in this study is generally representative of students taking a general studies lecture course, caution should be used in generalizing the results to other college student populations. This study also relied upon a self-report instrument of exercise. Currently there is no gold standard for the measurement of exercise. Though the 7-day recall has established validity and reliability, caution should be taken in interpretation of results."

The authors of this article believe the phenomenon of flow can be taught to individuals who are looking to experience this state, but the people looking to experience this must be

motivated within themselves to reach the state, and if they are not, reaching the flow state can not take place. According to Petosa & Holtz, “Flow theory suggests that participants can be trained to experience flow during physical activity. Further, such skill would establish a base of intrinsic motivation for exercise that would support long-term adherence. Though this hypothesis is intriguing, it remains to be tested.” The authors spoke of not knowing if all individuals could reach a flow state or not, especially during exercise. They assume there is only a small number of people and state, “Conversely, it is possible that only a percentage of the population is prone to flow states during exercise. If this is the case, flow may be a useful approach to promoting exercise adherence for a segment of the population, but only as one part of a more comprehensive approach.”

The authors of this article made a point to emphasize the importance of physical activity. According to Petosa and Holtz,“PA (physical activity) rates of Americans are in decline. (7) Transportation, occupational, and home-related PA demands have all declined in the past 50 years. Only about 25% of adults report adequate leisure time PA. (8) The only increase identified in the past 50 years was in time spent in sedentary activities. There is a clear need for coordinated health promotion efforts to increase planned exercise to counterbalance increasingly inactive lifestyles.” The authors made an eloquent closing statement in regard to physical adherence and its correlation to flow. Petosa and Holtz stated, “Physical activity adherence is a challenge; it requires a substantial investment of time and physical effort on the part of individuals. People consistently report significant barriers, including lack of time, boredom, and self-consciousness. This study presented preliminary evidence that flow theory may be useful in the promotion of physical activity adherence in young adults. Flow theory posits that there are identifiable attributes of the flow experience that promote the autotelic experience: an enjoyable

physical activity experience producing intrinsic rewards. Rewards inherent in the activity can be an important foundation for adherence."

In their conclusion of the article, the authors spoke of how exercise should be taught and viewed. One of the main aspects they thought should be focused on was individuals when exercising should focus on the experience of exercise itself instead of the fitness results. According to Petosa and Holtz stated, "Based on flow theory, health educators would pay particular attention to the personal tailoring of the personal physical activity experience. Instructional interventions would be designed to help participants identify activities that enhance perceptions of flow. Students would be encouraged to be mindful of the attributes of flow: challenge, engagement, focus when exercising. Exercise experiences should be designed to provide challenge and a personal sense of accomplishment. Exercise activities should focus on the experience of exercise and less on fitness results. Concepts of mastery and progression should be employed to avoid overwhelming a person's skill or fitness level. Efforts should be made to reduce self-conscious thought during exercise bouts. Students should be trained to be mindful of the experience of flow and how to shape the exercise experience to increase the likelihood of flow."

In the article, *Getting to Know Flow*, there are steps listed in order to obtain the flow state. According to Getting to Know Flow, " First, your inner critic (some refer to this as your inner Woody Allen) is silenced. I mean shut down, gone. Second, your sense of time can go either way, hours can seem like minutes, or seconds seem like an eternity. Third, the part of your brain that monitors your sense of separateness from other objects and people shuts down and you begin experiencing a feeling of "oneness" with whatever you are focusing on. Fourth, the area of the brain that drives creative self- expression becomes hyperactive and your productivity

skyrockets.” The article goes on to describe the different types of activities which flow can be reached in. Getting to Know Flow stated, “In this state, with no critic, no concern for time (making you totally focused on the present) and a wonderful feeling of oneness with a mountain, rock, wave, book, instrument, another person, project, or any object of your attention, you feel great and become super productive. Some describe it as feeling like Superman.”

“The article also explains why it feels so good when people are able to achieve the flow state. The article also goes on to elaborate about the body’s chemistry and what happens to the body physically when in this state. According to Getting to Know Flow, “When you are deep in the state of flow, you experience a massive natural chemical dump of neurotransmitters including dopamine, epinephrine, endorphins, anandamide and serotonin. These are all feel-good, performance-enhancing chemicals. That's why they also refer to flow as "a runner's high," "a peak experience," "being in the zone," and for musicians, "being in the pocket." The article went on to pose another question, “So, what can you do if you want to experience flow more often?” Getting to Know Flow. In response to its own questions, Getting to Know Flow stated the following, “You can learn about the 17 flow triggers or "on ramps to the flow highway." In a nutshell, all triggers serve to focus your attention on the present moment. It is also a good idea to learn about the four stages of flow: struggle, release, flow and recovery. When you understand the stages, you get better at selecting the best trigger to get you to the next stage. You also become more comfortable with the struggle and recovery stages because you know they are simply natural phases of the flow cycle and good things will follow if you understand how to move through the stages.” One of the closing statements of the article would give one confidence in being able to achieve flow at some point in one’s life. According to Getting to Know Flow, “Learning to experience flow more often, or more deeply, is relatively easy and the gains are

astronomical (up to 500 percent for executives according to a 10-year McKinsey report, more according to other research)."

Steven Kotler has gone on to expanded the research of Dr. Csikszentmihalyi and has broken flow down into neurobiology. His study and findings are ground-breaking and may hold the key to mastering the state of flow. According to Kolter, "flow originates in the brain, thus our attempt to unpack the science behind the state has been focused there. As most researcher describe basic brain function with a triumvirate approach neuroelectricity, neuroanatomy, and neurochemistry (i.e., The two ways the brain communicates internally and the places where those communications take place.), we too have followed that path." According to Kotler, "flows two defining characteristics are its feel good nature (flow is always a positive experience) and its function as a performance enhancer. The chemicals described herein are among the strongest mood-boosters and performances-enhancers the body can produce." In regards to flow and those mood boosting and performance enhancing chemicals Kotler stated the following, "Flow is an extremely potent response to external events and requires an extraordinary set of signals. The process includes dopamine, which does more than tune signal-to-noise ratios. Emotionally, we feel dopamine as engagement, excitement, creativity, and a desire to investigate and make meaning out of the world." Kolter goes on to state this about dopamine, "By increasing attention, information flow, and pattern recognition in the brain, and heart rate, blood pressure, and muscle firing timing in the body, dopamine serves as a formidable skill-booster as well."

Kotler continued to speak about the mood boosting and performance enhancing chemicals the body produces. According to Kotler, "Norepinephrine provides another boost. In the body, it speeds up heart rate, muscle tension, and respiration, and triggers glucose release so we have more energy. In the brain, norepinephrine increases arousal, attention, neural efficiency,

and emotional control. In flow, it keeps us locked on target, holding distractions at bay. And as a pleasure-inducer, if dopamine's drug analog is cocaine, norepinephrine's is speed, which means this enhancement comes with a hell of a high." Kotler went on to mention endorphins, which is another key chemical the body releases during flow. In regards to this chemical (Kotler, 2015) stated, "Endorphins, our third flow conspirator, also come with a hell of a high. These natural "endogenous" (meaning naturally internal to the body) opiates relieve pain and produce pleasure much like "exogenous" (externally added to the body) opiates like heroin. Potent too. The most commonly produced endorphin is 100 times more powerful than medical morphine."

Kotler went on to speak of the importance of the neurotransmitter anandamide. According to (Kotler, 2015), "The next neurotransmitter is anandamide, which takes its name from the Sanskrit word for "bliss"—and for good reason. Anandamide is an endogenous cannabinoid, and similarly feels like the psychoactive effect found in marijuana. Known to show up in exercise-induced flow states (and suspected in other kinds), this chemical elevates mood, relieves pain, dilates blood vessels and bronchial tubes (aiding respiration), and amplifies lateral thinking (our ability to link disparate ideas together). More critically, anandamide also inhibits our ability to feel fear, even, possibly, according to research done at Duke, facilitates the extinction of long-term fear memories." The last chemical mention by Kotler was serotonin. This chemical plays a major role in the flow state as well. (Kotler, 2015) stated the following about this chemical, "serotonin, the neurochemical now associated with SSRIs like Prozac. "It's a molecule involved in helping people cope with adversity," Oxford University's Philip Cowen told the New York Times, "to not lose it, to keep going and try to sort everything out." In flow, serotonin is partly responsible for the afterglow effect, and thus the cause of some confusion. "A lot of people associate serotonin directly with flow,"

In Kotler's book, he described the power of each of these chemicals on the human body. He goes on the elaborate about the power of these chemicals on the human body when they are release in conjunction to one another. Kotler stated the following, "These five chemicals are flow's mighty cocktail. Alone, each packs a punch, together a wallop. Consider the chain of events that takes us from pattern recognition through future prediction. Norepinephrine tightens focus (data acquisition); dopamine jacks pattern recognition (data processing); anandamide accelerates lateral thinking (widens the date base searched by the pattern recognition system)." Kotler talks about how this whole process came together for former NBA legend Bill Russell. From Kolter's book, Bill Russell stated," Every so often a Celtic game would heat up so that it would become more than a physical or even mental game, and would be magical. That feeling is difficult to describe, and I certainly never talked about it when I was playing. When it happened, I could feel my play rise to a new level.… At that special level all sorts of odd things happened.… It was almost as if we were playing in slow during those spells I could almost sense how the next play would develop and where the next shot would be taken. Even before the other team brought the ball in bounds, I could feel it so keenly I'd want to shout to my teammates, 'It's come there,' except I knew everything would change if I did. My premonitions would be constantly correct, and I always felt then I not only knew all the Celtics by heart but all the opposing players, and that they all knew me. There have been many times in my career when I felt moved or joyful, but these were the moments when I had chills pulsing up and down my spine," Kolter.

In Kotler's book, he talks about the high one feels from the release of the feel good chemicals mentioned previously. The book maintains the flow high is unlike any other high. This high supposedly shows up when we need it the most, but are challenged the most

simultaneously. According to Kolter, “author and adventurer Rob Schultheis writes in his cult classic, Bone Games, under life-threatening conditions (he’s describing a flow state that occurred while mountaineering), it’s utterly transformational: “The person I became…was the best possible version of myself, the person I should have been throughout my life. No regrets, no hesitation; there were no false moves left in me. I really believe I could have hit a mosquito in the eye with a pine needle at thirty paces; I couldn’t miss because there was no such thing as a miss. It didn’t matter whether I fell or not, because I couldn’t fall, any more than two plus two can equal three.” In regards to Rob Schultheis’ statement about being the best version of himself Kotler stated the following, “When doing what we most love transforms us into the best possible version of ourselves and that version hints at even greater future possibilities, the urge to explore those possibilities becomes feverish compulsion. Intrinsic motivation goes through the roof. Thus flow becomes an alternative path to mastery, sans the misery.”

Kotler dug deep in his book. The evolution of man was discussed and how man’s inevitable evolution ties in to flow. According to Kotler, “Humans evolved in an era of immediacy, where threats were always of the tiger-in-the-bush variety. Immediate threats require immediate responses, and this fact has shaped our brain more than any other.” Kotler turned again to the body’s physical and biological changes in regards to flow, and really dissected some of the key elements. According to Kotler, “Since nothing is more critical than survival, the first stop most of this incoming information makes is our danger detector: the amygdala. An almond-shaped sliver of the temporal lobe, the amygdala is responsible for primal emotions like hate, anger, and fear. It’s our early warning system, an organ always on high alert. With most incoming sensory information heading there, when there’s danger lurking in the environment, we don’t have to rely on artificial forces like office design to drive attention. Merely by plying their

trade in a “high consequence” environment—with high consequence being the first of the external triggers we’ll be examining—extreme athletes rely on risk to drive focus, the requisite first step toward producing flow.”

In Kotler’s book, he talked about flow in regards to being in or out of flow, and if there was any middle ground. Kotler’s book emphasized this is where most individuals go wrong in their thinking or perspective of flow. According to Kotler, “There are two common misconceptions about flow. The first is that the state works like a light switch—on or off. You’re either in flow or out. Yet flow is not binary. The state is just one step in a four-part flow cycle. It’s impossible to experience flow without moving through this entire cycle. And this brings us to the second critical misconception: that flow always feels flowy.” Kotler purposed there are steps to flow and there are things which must happen in order for flow to take place, or to be reached. Kotler stated the following in regards to the steps of flow, “ The first step in the flow cycle is known as “struggle.” Herbert Benson, the Harvard cardiologist who did much of the foundational research on this cycle, chose that name for a reason. Struggle is a loading phase: we are overloading the brain with information. “For a businessperson,” writes Benson in his book The Breakout Principle, “this may be concentrated problem analysis or fact gathering. The serious athlete may engage in extensive and demanding physical training. The person on a spiritual quest may plunge into concentrated study…or intense prayer, meditation, or soul searching.” A profound chemical change takes place during struggle. To amp up focus and alertness, stress hormones like cortisol, adrenaline, and norepinephrine are pumped into the system.”

The next step in Kotler’s book in regards to moving through the flow cycle was the release cycle. According to Kotler, “To move through struggle takes a leap of faith that the effort

will really result in skill acquisition. By definition, this demands a growth mindset. The next stage in the cycle is “release.” To move out of struggle and into flow, you must first pass through this second stage. Release means to take your mind off the problem, to, as Benson says, “completely sever prior thought and emotional patterns.” If you’ve been cramming for a test all day, go for a walk. If you’ve been trying to master double black-diamond ski slopes, take a few runs down the blues. If the innovation team has been pulling all-nighters for a week, send them out for dinner and a movie. The method is unimportant. The message is relaxation. The moment this occurs, another chemical change follows: nitric oxide floods the system. This endogenous gaseous signaling molecule causes stress hormones to decline and feel-good neurochemicals like dopamine and endorphins to rise in their place.”

There is third cycle to move through in the flow state, and the flow state itself is the actual third cycle. After the flow cycle is the fourth and final cycle. According to Kotler, “Afterward, we move into the fourth and final step in the cycle: “recovery.” Flow is an extremely expensive state for the body to produce and maintain. It requires a lot of energy and a lot of neurochemistry and both take a little while to replenish. This is some of what goes on in recovery. More important, memory consolidation is taking place. Information is moving from short-term holding into long-term storage. Here, to borrow the gamer’s phrase, we are “leveling up,” or, as Benson prefers “returning to a new normal.” But just like struggle, recovery is another cycle step that doesn’t feel flowy. Handling the massive delta between the world-at-your-feet sensation that comes with flow and the utterly ordinary, all-too-human reality that shows up afterward is not always pleasant. There’s no more feel-good neurochemistry, no more superhuman powers. It can take a considerable amount of resilience to navigate recovery; here too a growth mindset makes a difference.”

Kolter also talks about the ability to get into the flow state with a group of individuals. Kotler uses the example of Keith Sawyer, a professor of psychology, education, and business at the Washington University in St. Louis. According to Kotler, “Sawyer played piano. By the time he was a teenager, he was playing in groups. That’s when he first noticed it. “When you play in ensembles there’s a shift that can occur,” he says. “It’s an incredible sensation. The group finds its groove. Creativity goes through the roof. Performance soars. Suddenly everyone can anticipate what the other person is going to do before they do it. It’s an emergent property; a whole is greater than the sum of its parts effect.” It just so happened that In 1990, Sawyer began a University of Chicago doctoral program in psychology under Mihaly Csikszentmihalyi. According to Kotler, “Sawyer’s partnership with Csikszentmihalyi proved fortuitous. In his 1990 book Flow, Csikszentmihalyi described a peculiar phenomenon that arose in groups: “Surgeons say that during a difficult operation they have the sensation that the entire operating team is a single organism, moved by the same purpose; they describe it as a ‘ballet’ in which the individual is subordinated to the group performance, and all involved share in the feeling of harmony and power.”

Kotler’s book spoke of Sawyer wanting to further this research. This set Sawyer out to conduct his own field study. According to Kotler, “Sawyer took a field biologist’s approach to decoding this dynamic: heading out into the world to videotape incredible creative groups engaged in improvisational performance. His studies ran the gamut, from improv-theater performers to earthquake-relief workers. He developed a technique known as “interaction analysis,” a research tool that allowed him to chart the real-time conversational turns that make collaboration possible. After fifteen years of research, Sawyer realized that Csikszentmihalyi hadn’t taken things far enough. “When performance peaks in groups,” he says, “this isn’t just

about individuals in flow—it's the group entering the state together, a collective merger of action and awareness, a 'group flow.' "

Kotler's book discussed many different aspects of the flow state. One of the main elements the book touched on that none of the other research I found mentioned was the negative effects of flow. Kolter spoke of the looming dark side of flow. According to Kotler, "The state of flow, like the path that bears its name, is volatile, unpredictable, and all-consuming. Flow feels like the meaning of life for good reason. The neurochemicals that underpin the state are among the most addictive drugs on earth. Equally powerful is the psychological draw." This definitely would make one look at obtaining the flow state in a different light. Kolter goes on to state the following, "Scientists who study human motivation have lately learned that after basic survival needs have been met, the combination of autonomy (the desire to direct your own life), mastery (the desire to learn, explore, and be creative), and purpose (the desire to matter, to contribute to the world) are our most powerful intrinsic drivers—the three things that motivate us most. All three are deeply woven through the fabric of flow. Thus toying with flow involves tinkering with primal biology: addictive neurochemistry, potent psychology, and hardwired evolutionary behaviors."

In this very intriguing aspect of flow, Kotler spoke about how humans have a propensity for addiction. The book spoke of how individuals who reach the flow state are then constantly chasing that high, that, feeling, and are willing to do almost anything to achieve. This is much like any other addict. According to Kotler, "Walking this path demands constantly increasing the challenges we face. We are climbing a ladder of escalating risk—with this ladder being the first of the dangers encountered on the flow path." Kotler goes on to state the following in regards to the dark side of flow, "If you embark down this road, the requisite risk taking will continuously

back you into uncomfortable corners. It's almost ironic. How many self-help books have been written about living with passion and purpose (i.e., traveling the flow path); yet how few actually mention the dangers involved."

Kolter's book went on to speak about the dark side of flow, and in doing so he mentioned how the sense of having a healthy fear slowly starts to goes away. Kotler stated the following, "Equally insidious is how flow prepares us to handle these dangers. In the state, our skills are peaking, our inner critic shut down, and our ability to feel fear significantly dampened. "I felt I could not be hurt…," wrote Brazilian soccer star Pelé in his autobiography, My Life and the Beautiful Game. "Perhaps it was merely confidence, but I have felt confident many times before without that strange feeling of invincibility." And while Pelé's correct, there's a serious catch—flow makes you feel invincible, right up to the moment you're not." This is a chilling thought. What's even more chilling is that the great Pele' was far from the only athlete who felt this way. According to Kotler, "'The joy I get from skiing, that's worth dying for,'" said C. R. Johnson—not long before he died skiing. Canadian freestyle skier and four-time X Games champ Sarah Burke is now sorely missed. So are Arne Backstrom, Caleb Moore, Jeremy Lusk, Ryan Hawks, Aaron Robinson, Kip Garre, Antoine Montant, and many more. ESPN called 2011 the "grimmest year in [action] sports' collective history," and then explained why: "[T]he action-sports community averaged one pro athlete death every three weeks."

There was a great quote used by Kotler in regards to this portion of flow. Kotler stated, "No question about it," says Flow Genome Project executive director Jamie Wheal, "there's a dark night of the flow. In Christian mystical traditions, once you've experienced the grace of God, the 'dark night of the soul' describes the incredible pain of its absence. The same is true for flow." One could really tell the individuals who reached the flow state in Kotler's book were

changed afterwards. They would do anything to get back to that state, even if it meant risking their lives, and once they reached the flow state and were not able to obtain the state again, it seem to really effect them mentally and emotionally in a negative manner. Kotler received first hand information on this part of the flow process and stated this, "As professional big-wave surfer turned filmmaker, cattle rancher, and Patagonia Ocean Ambassador Chris Malloy pointed out in an e-mail to me, sometimes being cut off from the source simply means growing older: I hope you talk a little about how utterly fucked we can become when we get too old or broken or smart to keep it up. Not all of us experience a happy life after doing this shit for a couple of decades. I bet there are some PTSD similarities. It's funny, I read Sebastian Jungers's War and I learned something: The guys coming home are all screwed up, not because they saw people die as much as they missed the rush. I would never put myself in the same category as those fighting men, but it can be hard to get excited again. Ever. And that feeling sucks," Kotler.

Kotler's book goes on speak about the future of flow. The book poses a few questions which may or may not be able to be answered. Kotler talked about the new generation of athletes who have seen, heard, and know about the flow state their whole lives. This generation has been like none other in this regard. This generation is well aware of the benefits and dangers of pushing themselves to uncomfortable limits. According to Kotler, "They're the only generation in history to have been raised in a flow-hacking tradition, a high-flow environment, and a culture where using flow to push past impossible is par for the course. They are, to borrow the Silicon Valley term, fast followers. And by examining how fast and how far these followers have come, we can better gauge what just might be possible for ourselves and our children."

Kotler goes on to talk about the possibilities of this new generation. He thinks there are very few boundaries for this generation. According to Kotler, "We start imagining the impossible

as possible. What does impossible feel like, sound like, look like. And then we start to be able to see ourselves doing the impossible—that's the secret. There is an extremely tight link between our visual system and our physiology: once we can actually see ourselves doing the impossible, our chances of pulling it off increase significantly." Kolter spoke to this generation of athletes being in the best situation possible in order to obtain flow. All the years of research is or will be available to them and they will have the appropriate tools in order to achieve the state. Kotler, stated, "Putting flow-prone kids into high-flow environments means a lot of flow. Arming them with advanced flow-hacking techniques means even more. All this flow makes the activity deeply rewarding, both fulfilling a child's innate need for autonomy, mastery, and purpose and further increasing their sense of intrinsic motivation.

Kotler's book was an excellent source and reference in regards to my research on the flow state. There were a couple of points which were made in the book that stood out. This particular point was also noticed in all my other research. The fact that flow is so elusive and rare continues to be one of the points which stood out. Kotler had a quote from Ken Ravizza which really resonated with me. According to Kotler, "Ken Ravizza, a psychologist at California State University at Fullerton, who examined instances of flow in bat-and-ball and track-and-field sports (and who calls flow by Maslow's name, "peak experiences"), explains: "The peak experience in sport is a rare personal moment that remains etched in the athlete's consciousness. It serves as reminder of the great intrinsic satisfaction that sport participation can provide. Peak experiences during an athlete's career are relatively rare but their intensity acts as a standard, or qualitative reference point, for subjectively evaluating future performance." At 45 years old, and until this very day, I think about when I played high school basketball and found myself in the flow state. It is something which has never left my mind or memory. I even dream about some

nights. On the nights I can't sleep, I replay that particular game in my head. If I've had a horrible nightmare, I think about the night I felt unstoppable on the basketball court. It soothed me to the point of being able to go back to sleep. It's a moment in time of which I will never forget and will always cherish.

There other piece of Kotler's book which resonated with me was the flow state correlated to the individuals self esteem and confidence, or lack there of. The individuals who reached the flow state not only reached the peak of their performance, but also reached their peek level of confidence which ultimately put them at their peek level of how they felt about themselves. Again, I experience all this blissful joy as a high school basketball player. However, as mentioned in the book, I was not able to reach the flow state afterwards. This was a great deal of pressure for a 17 year old senior in high school. I was placed on a pedestal and held to a different standard of which I was not able to meet. Ultimately, the pressure of performing in this manner again and consistently was too much for me. My senior year in the eyes of many was a disappointment. I was disappointed in myself as well. I took a great deal of time for me to overcome what I felt to be a failure all due to the flow state.

In conclusion and through my research, I have discussed flow, the prerequisites of the phenomena, how mental toughness correlates to it, the dimensions of it as discussed by different expects, and much more. Hopefully, by reading this paper one can have a greater understanding of flow. There are many different aspects of the state and some of the aspects are even biophysical. There are a plethora of changes the body goes through to get in and out of this state. The body is an amazing tool, but through this research I have found the mind may be an even greater instrument. However, these two things used in unison can complete and possibly excel at any feat.

The zone is one of the most intriguing phenomena in the world. The study of it will only continue to expand, which will allow individuals to place no limits on their abilities. In my life time I have witnessed athletes become bigger, faster, and stronger. Athletes are utilizing sports psychology and sports psychologist now more than ever. The sky is literally the limit in regards to what we can do.

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