Honor’s Thesis

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Abstract:

*Through a 30 question survey, I aim to examine flow experiences as a positive emotion-inducing activity and how individuals respond to these events. The survey targets the relationship between momentary happiness and life satisfaction as well as highlights important aspects of flow that require further research. The results depict how humans respond to flow experiences and what dimensions are shared among responses to various flow experiences as well as across participants. The dimensions of flow, and its relationship to appraisal theory and the Broaden-Build Model, provides insight into human emotion through positive experiences and the adaptive qualities they possess.*

**Flow - “I Know it when I see it”**

Flow summarizes an experience that is both complicated and simple it in its essence. Justice Potter Stuart made the saying famous “I know it when I see it” during the case of *Jacobellis v. Ohio* 378 U.S. 184 (1964), where he discussed identifying the obscenity and pornographic nature of the movie *The Lovers*. Similarly, flow is not easily explained, but is easily identified. For me when learning about flow in my studies, I immediately identified the feeling as how I felt during wrestling. A match, only six minutes long, simultaneously feels like a lifetime but passes in an instant. When wrestling, you do not have time to think, only to act. Thus, physical actions feel subconsciously enacted like a reflex. The crowd, coaches’ directions, temperature, smell of the mat were all lost in the almost subconscious performance. Furthermore, my internal recognition of reality was muted. The pains, frustrations, other every day stressors and emotions in general were put on hold until the match was over. It took me sometime to achieve this level of mastery where thought was unnecessary and wrestling was simply the translation of my thoughts to reality. It became muscle memory, but at the same time every match was different enough and demanding to challenge me to perform at my highest level. While I wrestle to win, the mere act of performing it releases me from the stress and angst of my life. I am constantly reinforced at every move and do not need a victory to feel good about my performance. The positivity of flow alters my conception of reality. During wrestling, I transcended my reality and time passed in a way that cannot be explained. I was so engrossed in the activity at hand that I ignored both the external stimuli that would otherwise attract the attention of our perceptual senses, and the internal emotions that we would normally process as a response to this external environment. In order to reach this state, we have to perceive our skills as matching the level of challenges that the activity presents. Without these conditions we would either be frustrated by the challenges or conversely bored by the lack there of. Another important aspect is that I did not wrestle solely to win or lose, but the mere act of it was positively reinforcing enough to yield joy. While this personal vignette may seem tangential, flow is a personal experience based totally on the subjective judgment of the activity we partake in. This is perhaps why the topic is so complicated, because while we can identify it for ourselves we our normal perception of reality is suspended and we cannot relate this to another person’s experience in their flow experiences. While this personal account may orient the reader to what a flow experience feels like it does not explain it on a psychological level and in order to do so I will compare previous literature on the nature of positive emotions.

**The Emergence of Positive Psychology**

Until recently there has been little emphasis on positive psychology. It was considered to be focused on subjective experiences unworthy for scientific exploration, such as well-being, contentment, satisfaction, hope and optimism, and the topic of interest in this thesis; flow and happiness. Like many doctors, psychologists have been victim to the medical model. After World War II, psychologists found out that they could make a living treating veterans, and psychology became a study of treating mental illnesses. They emphasized the medical model of curing problems as opposed to improving people’s lives through discovering ways to maximize potential and identifying the cause and effects of positive emotion. World War II was at time of human atrocity and showed how strongly we are effected by social constructs and vulnerable to negative emotions. However, during this time few people focused on the people who did was not expected, the few people who kept their decency during the Second World War. This was the inspiration behind the work of Mihaly Csikszentmihayli and his study of positive psychology, specifically the study of his coined term “flow”. He cited as the reason for his interest in the field of psychology; “a discipline that dealt with the fundamental issues of life and attempted to do so with the patient simplicity of the natural sciences” (Seligman & Csikszentmihayli, 2000). This perfectly encapsulates my view of psychology and what was my interest in researching and gaining a further understanding of humans and their interaction. I wanted to discover what makes us happy and how that relates to our satisfaction with our lives. This relationship is essential to positive psychology and the study of flow.

**Broaden and Build Model**

They seem to have differing beliefs on how positive emotions cause thought-action tendencies and what is the “true” cause of the positive emotion or state of joy and contentment. Barbra Fredrickson, in her piece “What Good Are Positive Emotions?”, presents the Broaden-Build Model, as the reason humans experience positive emotions and how they are adaptively vital. She begins by stating that scientific taxonomies of discrete or basic emotions typically include far more negative or neutral emotions than positive emotions (Fredrickson, 1998). These models have focused on the autonomic component, and that positive emotions, other than evoking laughter, lack this autonomic activation (Fredrickson, 1998). According to this model, the study of emotions must be designed for emotions that apply to situations containing threats or opportunities. Positive emotions, by consequence, are far less emphasized. Positive emotions form a negating or combating effect on negative emotions and can be the solution to avoiding or fighting mental illness. Fredrickson argues that positive emotions follow a different function and model, the Broaden-Build model. This model is more concerned with thought-action tendencies than specific action tendencies. These nonspecific action tendencies, can be seen in “free activation” (Frijda, 1986) and be further applied to thought-action tendencies and can examined on their affect on the momentary breadth thought-action repertoire. Fredrickson (1998) elaborates that positive emotions need not limit or focus someone’s momentary thought-action repertoire, but broaden it. Positive emotions, instead prompt individuals to discard every day behavioral scripts and pursue “novel, creative and often unscripted paths of thought and action” (Fredrickson, 1989). She further opines that this model will make the examination and contextualization of positive emotions easier than the old models.

Fredrickson examines four positive emotions in their thought-action tendencies and their ability to broaden and build someone’s repertoire and even act as a buffer to negative emotions. She starts with Joy, a term often used interchangeably with happiness, as an emotional state with high-arousal states and situations appraised as safe and familiar as well as requiring low effort (Fredrickson, 1989). They also may, in some cases, be evaluated as events that either accomplish or bring progress towards one’s goals. Frijda (1986) offered the action-tendency most commonly associated with joy as a term he coined *free activation*: “[it] is in part aimless, unasked-for readiness to engage in whatever interaction presents itself and in part readiness to engage in enjoyments” (p.86). This analysis would indicate that joy would cause a person to have an emotion or emotional state that would encourage a person to want to engage in activities, no matter their valence. She adds that joy can lead to activities of play or are playful in nature. These acts encapsulate events of not only physical and social play, but also intellectual and artistic play. In her mind, play promotes skill acquisition by offering a safe and risk-free environment to practice and further these skills. Thus, joy can have the incidental effect of furthering these skills. This conflicts with Mihaly Csikszentmihalyi’s model of *flow* which dictates that positive emotional states are reached during activities where no surplus of energy or focus can be applied to alternate activities and is often associated with tasks that are well-known to the individual and even have a developed expertise in. Then perhaps, Fredrickson’s model may include a different emotion that Csikszentmihalyi is discussing during times of flow. Fredrickson’s model of interest seems more fitting to Csikszentmihalyi of flow. She describes interest as being experiences in “contexts appraised as safe and as offering novelty, change and sense of possibility or emotion” (Fredrickson 1998). This would imply that flow, a enjoyment experience when a “person’s perceived skills math the perceived challenges of a particular type of interest” (Fredrickson 1998) as a type of interest, where the levels of skill are perceived as in alignment with that of the challenges faced. In addition, interest tends to be appraised as requiring effort and attention to important situations. Fredrickson continues that interest could be associated with a thought-action tendency to orient someone to attend to the challenge at hand. This form of exploration, “explicitly and actively aim[s] at increasing knowledge of and experience with the target of interest” (Fredrickson 1998). This coincides with her Broaden-Build model in that this openness and willingness to expand someone’s knowledge and ability in a given setting, applies to the broadening of interest during this emotion or emotional state. A broadening of interest could later provide as a solution to threatening stimuli that require innovative solutions in the face of the failure of the current technique of attending or solving the stimuli. Another tendency is the feeling of vigor and energy in response to problems or once a problem has been solved. This feeling is the basis for the positive emotional state associated with flow. However, this emotional state can be the result of interest but cannot be fully explained by the feeling of interest in itself.

Fredrickson’s third emotion, contentment, supplies a similar but somewhat contradictory explanation for this feeling of excitement or animation as a result of interest or in the face of an event that presents interest. Contentment is described as a low-arousal positive emotion similar to that of relief. It is the result of encountering a situation that is “appraised as safe and as having a high degree of certainty and a low degree of effort” (Ellsworth & Smith 1988). Thus there would no be specific action tendency, but a thought-action tendency that would be associated with cognitive states of alignment with the world, and would thus integrate the event and achievements that caused the emotion with their overall self-concept and worldview. This emotion, thus would perfectly support Fredrickson’s Broaden-Build Model in that it would supply a “mindful broadening” of a person’s cognitive state and self-concept. She continues to describe this state of contentment as to that described as one following an event of flow described by Csikszentmihalyi (1990); “when the flow episode is over, one feels more ‘together’ than before, not only internally but also with respect to other people and the world in general… the self becomes more complex as a result of experiencing flow” (Csikszentmihalyi, 1990). Thus contentment, in comparison with interest, creates an urge to incorporate an event that has already happened with feelings of savory and a need to integrate this feeling into our overall self-concept and attitude towards that event. Thus, according to Fredrickson, flow is an event that elicited interest, and after induces a feeling of contentment with the overall interaction or event. The fourth emotion was love and will be ignored for the purpose of this thesis. I will focus on the emotions important to experiences of flow and are in response to an event specifically is not usually extended to a person or relationship.

**True Happiness- Experiencing Positive Emotions versus Life Satisfaction**

Mihaly Csikszentmihalyi gained my interest in his piece, “If We Are So Rich, Why Aren’t We Happy” (1999), where he offers that happiness is not the result of actual gained material wealth, but the enjoyment we experience in the events we experience. To begin, he offers a distinction between events that elicit pleasure and those that elicit enjoyment. Pleasurable events are ones that satisfying biological drives such as sex, eating, sleeping and bodily comfort (Csikszentmihalyi, 2000). Enjoyable events are those where an individual experiences good feelings as the result of something that stretches past basic homeostatic needs, and leads to personal growth as well as long-term happiness (Csikszentmihalyi, 2000). Most people confuse this distinction and spend their life in search of money or power in order to obtain pleasurable stimuli as opposed to actually searching for stimuli and activities that will give them feelings of enjoyment. The focus of material wealth and the goal of gaining more that is deep engrained in our society. However, Csikszentmihalyi argues that with the emergence of more wealth in western societies, there has been an increase in the rates of violent crimes, family breakdown and psychosomatic complaints. The children of the lowest social economic strata report the highest happiness, and those of the upper middle-class the lowest Csikszentmihalyi, 1999). This begs the question of why are these people with more wealth and who are in possession of the materials needed to obtain the objects of their desire. Csikszentmihalyi argues that there is an escalation of expectation for these people. Those who have money, even if previously stated as their desired income, wanted more Csikszentmihalyi, 1999). This information is based on the idea that with material wealth there is no objective value for happiness or satisfaction, but rather a subjective feeling of relative depravity to those with more. No matter how much wealth one has, they will see quickly become habituated, and want more. This system of escalating expectations, known as the hedonic treadmill, coupled with the over-emphasis of success does not allow time and energy to be dedicated to acts of more intrinsic enjoyment. People are too concerned with their perceived worth as a reflection of price they are worth in the marketplace. They do not realize that wealth and success a lone can bring you pleasure, but not enjoyment. Pleasure is fleeting and even it is your needs are met, your mind or even soul will never be fulfilled without enjoyment in your life. Humans can be momentarily satisfied by pleasure, but without enjoyment we quickly habituate these material or basic gains and are constantly in need of more to feel satisfied. Those who experience enjoyment for enjoyment’s sake are happy for their accomplishment and need only to take the time to regularly experience enjoyment to be truly satisfied with their lives. This distinction is the basis for the flow model and by extension an outline for psychological approaches of happiness.

**The Definition of Flow**

Happiness is something that we make happen, not something that merely happens as the result of other things occurring. It is not based merely on the effects of having certain goals actualized, but how people appraise each success and activity one engages in. Flow focuses on “processes in which human consciousness uses its self-organizing ability to achieve a positive internal state though its own efforts, with minimal reliance on external manipulation of the nervous system” (Csikszentmihalyi, 1999) The experience is characterized as an autotelic experience or flow. This emotional state requires that an activity or event be so engrossing and enjoyable that it becomes autotelic or intrinsically gratifying. This encompasses any activity or event that is worth doing or enjoyable for its own sake as opposed to doing something for the obtained consequence or instrumental goal accomplished by performing the activity. Furthermore, this subjective feeling-state is described as one that is “separate from the routines of life” (Csikszentmihalyi, 1999) that focuses ones attention on “set of stimuli with their own rules” (Csikszentmihalyi, 1999) and does so in a fashion where this focus is so demanding that there is no surplus of attention to give to other stimuli outside the task at hand. It is the synchronization of being in control of the activity, while not consciously trying to control what one is doing.

The experience of flow is observed where the activity has expectations that are very clearly defined moment by moment and require that these expectations be met throughout. Another aspect of an autotelic event is that there must be immediate feedback. The activity must provide information about the level of performance; while the person performing this activity must have an internalized standard that makes it possible to know whether their actions have met the standard. Thus, there must be a strong intrinsic means of defining and evaluating their performance. It cannot be based on the goal or end product of the event, and especially cannot be based on comparative or socially determined feedback. When we have perceived our level of skills as to be in alignment with the internally defined challenge, then flow will most likely occur. This commitment and absorbing nature of the flow experience, causes us to abandon ourselves in that activity. This “abandoning” is a term that is not operationally defined, but noted by those who experience flow as the ability to ignore all other perceptual stimuli and just focus on attending to that of the activity, leading to all of our cognitive energy to shift from paying attention to what is in our focal awareness to putting all of it into meeting the demands of the task at hand. The ensuing feeling after this full pledge of psychic energy is a positive state as it is possible to feel (Csikszentmihalyi, 1999). This positive state can feel like enlightenment- where our lives are rich and full of purpose and meaning. This feeling could be described as happiness or joy, but is after an event of full cognitive commitment of energy and focus, and leads to a feeling of tranquility closer to that of contentment. Thus, according to Csikszentmihalyi, happiness is not a product of what we do, but how we do it.

**Responding to Positive Emotions**

Fredrickson (1998) found that emotions both broaden our scope of attention, cognition, and action as well as build on our physical, intellectual and social resources. This means that positive emotions like joy, interest, and contentment broaden an individual’s thought-action repertoire resulting in an individual being more inclined to engage in a wider range of thoughts or actions than would otherwise be typical. Thus, according to this model positive emotions act as a resource building feeling that can even buffer negative emotions. However, this model presents a seemingly conflicting model to that of Csikszentmihalyi’s flow model, in that if we are encouraged to pursue novel activities and think in such innovative ways during positive emotion states, then why is it that tasks involving routine or mastered activities give us the most positive emotion states. Is it that these mastered activities cue us to explore new activities that we have mastered and supply us with the positive emotional state that breeds confidence that we need to pursue these uncertain activities? Fredrickson continues, that during times of safety and satiation we engage in resource building. This act consists of playing, exploring, savoring or integrating as a means of using positive emotions to promote discovery of novel and innovative ideas and actions that will expand that person’s resources. This makes logical sense, that during times where there is no threat we enjoy the feeling of overall positivity to encourage us to use this time to explore new ideas, practice, and reinforce these moments so that we will try and obtain them again. So if positive emotion provides a foundation for interest-inspired exploration, than after activities of flow we must crave more and have a desire to engage in risky uncertain ventures. These ideas do not coincide with the fact that we search out activities where our skills matched the level of challenge and do not require novel and creative thinking. Finally, if positive emotions broaden our attention-focus, then why do we engage in activities that are demand all of our attention-focuses to complete to experience these positive emotions. If so, we must return to the flow model and analyze it each aspect of the experience.

In order to return to Fredrickson’s model of positive emotions broadening and building on thought-action repertoire, we must frame the flow model in a structure that makes them comparable. We will split Csikszentmihalyi’s event of flow into the appraisal of the activity before we engage in it, the subjective feeling state and cognitive demands of the event during its enactment, and the emotional state following the event as a result of the successful realization of our primary appraisal of its nature. These sections will be applied to the model proposed by Barbara Fredrickson (1998) based on their application of her proposed thought-action tendencies and overall cognitive effects as well as differentiating the emotional states during each of these sections of the flow experience.

An activity cannot be objectively defined in all of its parameters; we evaluate an activity based on the dimensions we perceive. Like a good piece of art, each person interprets every situation differently. We may share interpretations, but reality, subjective in its nature, is based on our perceptions. Appraisal theory posits this experience as the basis of our evaluation of all situations. While the evaluation of stimuli is essential to human survival, appraisal can occur without the influence or presence of stimuli. Richard Lazarus identifies two different types of appraisals, primary and secondary. Primary appraisals are defined by identifying the significance and relevance of an event to the person. Secondary appraisals consist of our ability to deal or cope with the consequences of the event. Both of these types of appraisals are essential in flow. Flowing involves an activity where we have a primary appraisal of high relevance and a secondary appraisal of high coping potential, based on our skills matching the level of challenges. This appraisal is what allows us to block out both, external stimuli and other internal mechanisms based on appraisal. When we are so engrossed with coping with the activity at hand, we are able to ignore our processes of other less relevant stimuli. This successful coping coupled with high relevance is how we elicit such strong positive emotions from flow activities. How we interpret events is essential to understanding flow, especially why it is so different across individuals. Every person evaluates situations differently, and based on our self-confidence and perception of difficulty. In any given situation, from person to person and even within every person over time, every appraisal is subject to change. This is the root of the complexity of the study of emotions but also why flow is such an elusive concept to comprehend.

Before we experience flow, we must appraise the activity as both matching our level of skill with the level of challenge, and that the event will have such clear expectations that it is engrossing enough to demand our full attention. These events would not coincide with the broaden and build model of positive emotion outlined by Fredrickson, but would instead be an activity that would elicit a positive emotion, in turn allowing us to strive for more novel and creative endeavors. According to this synthesis model, we show a type of interest based on strong amounts of intrinsic motivation towards an event that is appraised as safe but not novel and without a sense of possibility. Here our skills match up with the amount of challenge needed to complete the activity. Thus, we feel safe because we have mastered the activity and know that we will be able to not only perform the activity, but also succeed at it on an objective internal standard. This model of interest conflicts with the one differentiated by Barbra Fredrickson (1998) that indicated that interest must also have some sense of mystery and change. This distinction is the source of the first conflict between the models. In the next phase of a flow experience, that actual activity that demands flow, offers a model more consistent with Fredrickson’s description of contentment.

The activity of flow is one in which all of our attentional focus is required by the activity and this engrossment in such an intrinsically gratifying activity that elicits a positive emotional state. It is described as so engaging that you lose yourself in that you are no longer aware of your identity and all the perceptual stimuli and extra cognitive processes involved in creating your perception of the world and your interaction with it. This investment allows you to enter the activity and become a part of it. The constant positive reinforcement of the intense investment coupled with the intrinsic feedback supplied with such defined rules, causes a positive emotion state not only during, but also after. The emotion state would be described as contentment, according to Fredrickson’s differentiations. It is a state requiring low effort and producing low arousal, while having a high degree of certainty or safe environment. Thus, during this task where we able to perform with little thought or effort, we can succeed with no risk, but are not given a sense of joy or interest but relief and ease as we can escape the daily hassles and cognitive demands of everyday life. Furthermore, Fredrickson adds that this feeling of contentment “creates the urge to savor and integrate recent events and experiences creating a new sense of self and a new world view” (Fredrickson, 1999). This perfectly aligns with Csikszentmihalyi’s description of losing oneself of in an activity and emerging from the flow experience with a more complex self –concept and view of cognitive routine. However, the feeling after the flow experience is somewhat problematic to align with the Broaden-Build model.

After an autotelic activity, we experience the positive emotion that would be a distraction during the flow experience. It is described as one of the most positive emotions possible to feel because it reaches to the very depths of our soul and satisfies our needs for purpose and enjoyment. This state most aligns with the feeling of joy in Frerickson’s model. It is the unbridled positive emotion state that expands someone’s thought-action repertoire while encouraging the desire to pursue the novel situations described in interest. The distinction and center of my research is the difference between the state of joy described by Fredrickson and the subjective state after experiences of flow described by Csikszentmihalyi. According to Fredrickson, after flow experiences or any other activities that create positive emotions, we should experience a feeling of contentment, quickly followed by joy and the urge for more. We should in this positive state feel the need to satiate a newly vitalized self with creative, novel and unknown possibilities. However, these activities are not what made us happy in the first place, and the risk-prone activities we now need to quench our thirst for innovation could make us unhappy and frustrated. So, why do the positive states, even following contentment and flow, not cause us to feel satisfied with our condition and seek out more activities consistent in nature with that we derived the positive emotions from in the first place? This question is an important one on the implications of momentary feelings of happiness and long-lasting wellbeing. How do we balance the elation of succeeding and mastering something and then the need for challenging and novel situations to keep us motivated and progressing as people? We must be both content with our condition, while continue to desire more to be in constant that will further us a people and allow us not to become stagnate and habituated to our successes and positive subjective feeling states. In summary, in order to not become bored and jaded by our successes, we must challenge ourselves to seek out more challenging problems, while not being frustrated and defeated them. This balance should cause a feeling of life satisfaction and confidence in our self while allowing us to stay interested and fulfilled in our lives. The satisfaction and feeling of success, coupled with the constant drive of interest should give a person a life filled with purpose and meaning. Many more questions must be asked in order to more effectively examine and contrast these two models, but a further examination of flow and the thought-action tendencies of contentment, joy, and interest and how they balance perceived success in activities with the need for more challenging and novel activities.

**Methods:**

**Participants** 50 participants took the survey, however 1 did not finish. They were recruited using the Vanderbilt Sona-System and received course credit for their participation. The group consisted of 11 males and 39 females, between the ages of 18 and 22.

**Measures**

***Demographics*­.** Participants reported their age, gender, ethnicity, and political affiliation. They also answered questions based on their life satisfaction and questions concerning flow in their lives.

***Coding******Questions 1/2***

Coding Table

|  |  |  |
| --- | --- | --- |
| Category | **0** | **1** |
| **Broke Down the Task** | Not Applicable or  Focused on Whole task-  it just happens | Focused on individual pieces of task |
| **Ignored or Blocked out the external environment** | Nothing or  Not applicable | Mentions Ignoring Environment  other people, audience   * sense stimulation (sounds, smells) |
| **Having Prior Experience or Obtained Mastery** | Nothing or  Not applicable | Experience, developed mastery, proficiency  were needed to flow… they have to indicate that they had practice or repeated the task in  order to get to that point, |
| **In Competition** | Domain does not allow failure/success, truly autotelic   * Practice, activity elicits * no extrinsic judgment * still flow w/out   completion | Being Evaluated or Judged, culmination of  practice (try outs count)   * sports- game, playoffs etc * music – recital, try out etc * Writing- college essay or paper for class |
| **Overcame**  **Obstacles** | Nothing or  Not applicable | Difficulty at first and then how they flowed  when they mastered or surpassed their  obstacle |
| **In Solitude** | In order to perform  Activity their must be  other people involved   * Being watched * Cooperating with   other people (ex sports) | Alone, other people are not involved  in the completion of the task or watching  someone perform   * Tests, papers * Running, or doing something a   group where it doesn’t involved  them to complete (i.e. observing something) |
| **Transcending Consciousness** | Nothing or  Not applicable | Loss of control, autopilot Felt outside of themselves or reality was somehow  different (slowed down etc)  *Lost track of time*   * like it was happening separate from their deliberate intentions, cannot   remember the details -like being  released from a trance |
| **With an**  **Audience** | Only person is  individual | Where the activity is performed for a  group of people, they do not effect outcome, but they are still judging performance (not success/failure)   * recital or performance, acting,   singing, dancing or playing an  instrument   * Athletics don’t count- cant tell if   there was an audience   * Post-humus evaluation does not   count (i.e. writing a paper) |

Participants were given a variety of questions to define the parameters of flow in their life. They were asked to define flow in their own words. They were asked to report most recent, duration, and frequency of flow experiences. They were also asked to analyze aspects of their flow experiences and report their agreement with certain conditions needed for and in response to flow. Participants were also asked to describe their emotions during, before, and after flow experiences. These questions along with questions asking for personal vignettes describing their most recent and first flow experience were used to create a qualitative analyses of the flow experiences of participants. For questions 1 and 2, I created a rubric that would show commonalities between respondents as well as show aspects that were markedly different. While reading through each of the responses I looked to see whether the participants reported breaking down the task in order to set immediate constantly reinforcing goals, blocking out or ignoring the environmental or external stimuli as a part or result of their flow experience, having previous experience or developed mastery necessary to allow them to flow, experiencing flow in a competitive setting where there was an objective winner and loser, experiencing flow as the result of or chronologically after overcoming obstacles or difficulties, experiencing flow in solitude where there were no other persons present necessary to flow, experiencing flow with an audience, and finally most importantly and commonly whether the participant reported reality somehow being altered or transcended through time being slowed down or sped up or somehow not being totally aware or control of their thoughts and actions.

***Coding******Question 4*** Answers were identified as being under the various categories: daily, monthly, yearly, less than yearly and unsure or not applicable. The averages of ranges were taken and if someone reported a number in between such as twice a week, they were categorized under weekly, because they were not greater than or equal to daily.

***Coding******Question 5*** Responses were sorted into the categories: Less than a minute, 1-29 minutes, 30-59 minutes, 1-3 hours, more than 3 hours, infrequently or rarely, and also with unsure/situational. The averages of ranges were taken and if someone reported a number in between such as 30 minutes, they were categorized under 30-59 minutes, because they were greater than 1-29 minutes.

***Coding Question 13*** Answers were sorted into happy with achievements, ready to accomplish more, both, neither and unsure/not applicable. Answers Yes and No were sorted into unsure/not applicable.

***Coding Question 15/16*** Responses were coded into categories of yes or no responses, in order to see whether they had flowed without success (15) or challenge (16)

***Coding******Question 19*** Responses were categorized into today, this week, this month, this year, more than a year, or unsure/not applicable.

***LIWC analyses*.** The program Linguistic Inquiry Word Count (Pennebaker, Booth, & Francis, 2001) was used to analyze the frequency and nature of word groups of each participant. These levels were correlated to the coded data and the Life Satisfaction numbers. Questions 1, 2, 3, 6, 7, 8, 9, 10, 12, and 17 were all put through LIWC analyses with the same LIWC dictionary that had measured word count, parts of speech, and categories such as positive and negative emotions, social, insight, cognitive processes among many others.

***Life Satisfaction***. Life satisfaction was measured using the The Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). Participants respond to five items on a 7-point likert scale (1= strongly disagree to 7=strongly agree). However, instead of a Likert Scale, the survey offered a 3-point rating scale with a rating bar that the participants could drag across the spectrum and would yield a score between 1 and 100 (1- Not at all, 50- Somewhat, and 100-Extremely). Diener et al. (1985) reported adequate discriminant and convergent validity for the SWLS, and high internal consistency (Cronbach's alpha=0.87).

***Procedure*.** The participants were given a 30-question survey to gather this data. They were able to sign up via Sona-Systems and were given the link to a website where they could participate the survey online and alone, hosted by RedCap software. The participants were required to finish the survey in the same session as they began. The procedure of delivering this survey begins with a prompt, informing the participants what flow is and background information to contextualize their answers.

***Goals for Research***. The goal of my analysis was to illuminate a trajectory for flow experiences, similar to the activation of a neuron. The experience begins once the participant reaches a threshold, where the level of perceived challenge meets the level of perceived skills. Once their threshold has been reached, they enter a flow experience. The period is followed by a refractory period where the person experiences a lower level of energy where they are exhausted. This period is the one I am most interested in because it can illuminate further information on the dichotomous theories presented by Fredrickson and Csikszentmihalyi. The seemingly polar theories argue that a positive experience either broadens and builds ones thought-action repertoire and motivates further more demanding flow-inducing activities, or exhausts an individual’s resources leading them to need a refractory period where they must maintain a “mindless” level of stimulation. The refractory period can consists of savoring, where they relish the positive experience by integrating it into their self-concept and somehow positively reflecting or sharing their experience or need to simply “relax” and participate in more “mindless” endeavors so that they can replenish their psychological resources. Furthermore, a higher level of stimulation and happiness associated with a new threshold that is needed to repeat another flow experience should follow the aforementioned refractory period. It is clear that this experience causes positive emotion, however the purpose of my research is to examine whether this positive emotion universally causes a thought-action tendency or whether the results vary individually based on personality and specific flow experience. The question of mastery is described in the answers to the survey questions and whether a person must be experienced in their unique flow activity, or it is something that can occur at anytime where the perceived skills match the perceived challenge yielded by that activity. In addition, I hoped to describe some of the demographic factors that influence flow through correlational data based on the last few questions.

**Results**

**Figure 1**.Wordle graphic representation of the participants’ definition of flow



This Wordle graphic illustrates the participant’s aggregate definition of flow. The biggest words, other than “flow” follow various themes that helped me define my categories for coding. First, the words experience, “activity” and “task” jump out as the biggest words showing that the actual act of flowing is heavily based on the event that elicits it. This makes it important to note what activities subjects are flowing in, but also makes it challenging to find one single activity to elicit flow in the lab. Secondly, the words “everything, ” “completely, ” “world,” and “time” are all global and ubiquitous and are interestingly juxtaposed with the words “one,” “moment,” “focus” which are quite singular and specific. Next are the description words describing their emotional state, such as “engrossed,” “focused,” “feeling,” “attention” and “concentration;” these words accurately describe the mental state that is essential to flow. Finally sprinkled in are words such as “success,” “goal,” “stimuli,” “surrounding,” “completing,” “enjoyable,” “sense,” and others that I wanted to analyze how consistent they were among participants in their flow vignettes. There are a lot of seemingly contradictory words that contribute to the complexity of flow and how it is so hard to define.

**Figure 2**.Wordle graphic representation of how participants got into a flow experience



The second Wordle depicts the most common words from the responses of how subjects got into a flow state. Yet again, “flow” and “experience” are the most common words. However, while the words may seem similar in their definition of flow there are certain action words that are important to note. “Just” and “happens” are both quite common and coincidently next to each other, and along with “happens” with “usually” and “something’ add to the mystery and vague nature of how people are frankly unsure of exactly how they enter a flow episode, for if they were to think about it then it would probably prevent them from focusing on the activity at hand. There seem to be a lot of words that point to the activities such as “dancing,” “music” and “work” and “listening” that indicate that there are some activities that seem to elicit flow more than others. Finally, there are is the word “happen” and “happens” that appear multiple times that indicate that perhaps flow just happens, and that it is a more passive action by the person flowing than I had previously imagined.

**Figure 3.** Wordle graphic representation of how participants knew they were flowing



Apart from the obvious words participants use to describe their perceptual appraisals of knowing they were flowing, such as; “think” “know” “realize”, there are words like “passing” “afterwards” “remember” that make it seem as if perhaps it is impossible to introspect during the flow episode and one cannot think about anything but the activity at hand until the flow experience has ended.

**Figure 4** Wordle graphic representation of how participants reported feeling during flow



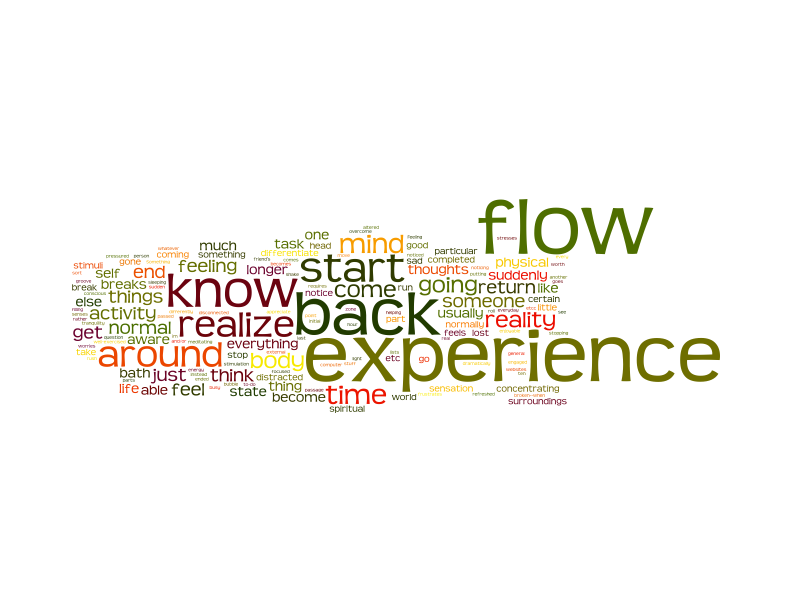
People reported feeling during flow with a variety of emotions. The words that were universally common described serenity such as “peace,” “complete,” “satisfied,” “bliss,” “untouchable,” “calm,” “centered,” and “relaxed”. “Happy” also sticks out as the most common emotion word. These words describe a place of being beyond emotions but simply being content, but in a thoughtful as opposed to a thoughtless way. It is interesting to examine how these feelings of serenity and elation relate to the trajectory of a neuron in that a neuron reaches its pinnacle and quickly ends, while a flow experience remains at a constant peak for some time.

**Figure 5.** Wordle graphic representation of how participants felt when a flow experience had ended



After a flow experience ended, participants reported feeling back in touch with reality as well as a positive reflective emotion such as pride. They used word like “accomplished,” “achieved,” “happy,” “able,” “content,” “satisfied” to describe their positively charged emotion towards their past action regarding their flow experience. The word “back” was very common as a testament to the propensity for people who have just flowed to feel like they are returning to “normal”. However, there were many negative emotions that were not as common bust still present that beg the question of whether people experience negative emotions after a flow experience because the status quo or normal state is not nearly as fulfilling as flowing. Perhaps this is the refractory period, where we experience more negative emotions than we had started with until we are emotionally recharged enough to enter a new and perhaps higher standard operating level of happiness and contentment with out lives.

**Figure 6.**Wordle graphic representation of how participants knew a flow experience was over



The next Wordle were the response to how participants knew a flow state had terminated. Similarly to their emotions after a flow state, there is evidence of a snap back to reality where participants used words such as “realize,” “start,” back,” “reality,” “normal,” “return,” and “suddenly” to describe this abrupt and perhaps harsh return to reality. This transition appears to be momentary and perhaps similar to that of when a neuron fires it quickly finishes and enters the refractory period.

**Figure 8.** Wordle graphic representation of how participants found flow experiences to be adaptive



This Wordle represents how participants felt that flow was helpful in their lives. Words like “allow,” give,” “get,” “continue,” imply that it does indeed broaden and build something. In addition, there are words like “mind,” “sense,” and “focus” that imply, perhaps, these benefits are in terms of coping potential or ability to expand thought-action repertoires. There are positive words similar to the feelings during flow from the Figure 4, which might imply that the effects of flow might lie in its autotelic or purely intrinsic benefits of positive emotions themselves. These conclusions are somewhat lofty and circular, so it would be important to test more objective and operational measures to see what effects flow episodes have over time.

**Figure 9.**Wordle graphic representation of how participants felt when they could not flow



The final Wordle describes how subjects felt without flow. Most of the words that were different from past responses concerning flow, were negatively charged emotions. More specifically, words like “unable,” “frustrated,” “disappointed,” “anxious,” and “stressed” provide and interesting perspective that perhaps flowing is used as a release of negative energy or buffer. Negative emotions may have adaptive value, but without positive emotions they can become debilitating and overwhelming.

**Figure 10.** How often do you experience flow?

Within my group of participants,16% reported flowing daily, 30% reported flowing weekly, 14% reported flowing monthly and 12% reported flowing yearly and 20% reported flowing infrequently or rarely, while 4% were unsure or did not give compatible answers. Thus, a majority (60%) experience flow at least once a month which is a encouraging number for inducing flow in a lab setting. Also, it is important to note that 32%, almost a third of the participants, experience flow once a year or less, which is quite rare and would make inducing flow in the lab quite difficult.

**Figure 11.** When was the last time you experienced a flow episode?

Participants reported congruent data on when they most recently flowed. 16% flowed today, 30% flowed this week, 22% flowed this month, 16% flowed this year, and 8% flowed more than a year ago, while 4% were unsure or did not give compatible answers. This consistency strengthens the validity of their previous answers and show that even college students flow often, however there is a decent minority who flow quite rarely.

**Figure 12.** For how long do you usually experience flow?

Participants reported the length of their average flow episode was 2% under a minute, 16% equal or greater that a minute and less than a half hour, 28% equal or greater to a half hour, and less than an hour 42% between 1 and 3 hours, 2% greater than 3 hours and 8% said their length depended on the situation or length of activity, were unsure or gave incompatible answers.

**Figure 13** Do experiences of flow make you feel ready to accomplish more or do you feel happy with your accomplishments?

For question 13, I attempted to code the data into participants who either felt motivated to accomplish more or were simply happy with their accomplishments after a flow experience (also accepting both or neither), and received results, but also received more than 20% of answers in either yes or no form which was erroneous to the format of the question. The fact that people reported almost equal numbers to each answers, including both, means that, perhaps not only is there no consistent answer between participants but also within subjects. Perhaps every flow experience is different for each person, each time. Results will be more concretely attained in a lab setting when the person is more recently connected with the experience.

**Figure 14** Flow without Success?

**Figure 15.** Flow with out Challenge

For questions 15 and 16, I discovered that it was almost an even split (54% needed challenge vs. 44% without challenge) between people who reported being able to flow without challenge and only 75% said that they could not flow without succeeding in that activity and 21% saying that they could flow without success. The remaining percentages were people who responded to the question with uncertainty or answered with something that could not be interpreted as either option.

**Figure 16**. First vs. Most Recent Flow Experiences

The highest category represented across participants was consistently transcending consciousness (62/62 %). Similarly, ignoring or blocking out the environment (52/32%) is very high among participants, as they both embody our appraisal of the flow activity as so demanding and relevant that we pay not attention to perceptual stimuli as well as the appraisals or responses that we feel throughout the activity. Another high number of note is the fact that most participants experienced flow in solitude where they did not need to or were unable to balance the actions of others in their flow experience (42/54%). Mastery and experience were also common among participants (32/40%). There were relatively low numbers for subjects who reported experiencing flow in situations where they had to overcome challenges (10/14%), performed in front of an audience (8/10%) and broke down the task into its basic components (22/6%). It seems that while relatively low numbers of participants experienced flow recently in a competition, the added pressure and culmination of something that they had worked on to develop mastery or success in was more relevant in their first flow experience (18/36%).

***LIWC Correlations***

In addition to coding the data for questions 1,2, 4, 5, 13, 15, 16, and 19 into quantifiable or categorized data, I put questions 1, 2, 3, 6, 7, 8, 9, 10, 12, and 17 through a LIWC analyses so that I could compare the responses with the coded responses of flow frequency, flow duration and time of most recent flow episode. I also used the life satisfaction numbers to relate the data on flow to overall life satisfaction. However, the data did not follow any coherent patterns.

**Discussion:**

Each question in the survey was an attempt to illuminate facts about flow that would show universalities across flow experiences and create an outline for describing the “average” flow experience the duration, frequency and the most recent flow to outline an the extent of flow’s involvement in people’s life (questions 4, 5, and 19). Most people have flowed this month and flow most often at least once a month. This is hopeful for attempting to induce flow in a lab because my data confirmed that flowing is a somewhat regular occurrence in people’s lives. However, because some people simply never or extremely infrequently flow some participants may be simply unable to flow in a lab setting. Since all of my participants were college students between the ages of 18-22 it would be interesting to see if this sample was representative of all ages, as in many of the responses there were qualitative data where subjects spoke about how busy their lives are an how they simply cannot make time for flow. I also tried to distinguish the after effects of flow as either an immediately broadening and building activity that expanded our thought-action repertoire, or as something that exhausted our intellectual resources and required refractory period of introspection to realize what truly makes us happy in order for it to broaden and build our thought-action repertoire. This trajectory and post-humus examination of the effects of flow experiences would hopefully be answered by questions 13 and 11, but as I did not effectively distinguish the answers and many of the participants misread the either or question, I was not supplied an easy answer. Furthermore, I believe that it is necessary to collect this kind of data immediately after the flow experience to get reliable data that is not influenced by emotional valence in recollection. Next, I hoped discover the prerequisites for a flow experience so that I could induce flow in the lab and was similarly hindered in a lack of response uniformity and responder understanding of the actual question. For question 14, the responders misunderstood my intentions and answered for each flow experience as opposed to examining how long they had to perform activities within a domain before they had developed sufficient mastery to flow. While the questions that were coded provided me some insight as to how flow was present in the participants lives, the vignette-responses of questions 1 and 2 invited me into each of the flow experiences of the subjects. However, before I could categorize and organize the data I had to decide what categories were relevant. In order to do so, I used the Wordle diagrams to see what words were being used most often and what themes they represented.

The Wordle graphic representations provided me with extent of complexity and abstraction concerning the concept of flowing. The definition of flow illuminated that it while the actions that elicits flow are important, it is the emotions and appraisals that allow us to enter it. However, entering and leaving flow were shrouded in a similar air of confusion. Entering it did not seem to suddenly occur as we were elevated into a state of tranquility and leaving it was abrupt as being thrown out of this peaceful place. However the after affects were also as complex, as it seems that as we exit flow states we have a mixture of feeling of longing to be back in the flow state but also pride and satisfaction that we were there. This contributes the hedonic treadmill that we need to savor a positive experience in order not to habituate it. Also, this concept might contribute to the fact after a flow experience we go through a refractory period, where our overall level of happiness is decreased because we have exhausted our positive energy during the flow state and need time to recharge before we feel the broadening and building effects of positive emotions. The Wordle diagram of the adaptive qualities of flow was interesting because it allowed me to think about the positive effects being simply the positive emotions we feel during a flow state. While this may seem circular, The Wordle diagram of the absence of flow seemed to cause negative emotions and thus confirming the buffering or strengthening aspects of positive emotions in our mental state. Finally, it is seemingly impossible to examine flow states during them as we are in a near hypnotic state, but the Wordle diagram informed me of how we think of flow in a reflective manner, which confirms the importance of a lab setting experience in the exploration of flow. Because of flow’s complex nature illuminated in the Wordle representation of subjects’ definition of flow, the actual vignettes were better than any definition they could give.

Describing the actual story and reliving it provided a picture of what their flow episodes were like and I got to see what each participant included as relevant to them as opposed to trying to think about the abstract construct of flow. Furthermore, I was able to see that while isolation was common in flow experiences, many of flow experiences took place in social settings where the subject had to participate in an activity involving others needed to complete, or simply had an audience that was observing their performance and judging them. The concept of a competitive setting where external goals are put in place by the pressure to win or the desire to impress and please others is a perplexing one. In my definition of flow I cited that the activity must be autotelic in its nature, however I spoke not only about wrestling in practice, but also about wrestling matches where there was both an audience and the threat of losing. I do not believe that these external pressures and goals make the activity any less autotelic. In fact, I think competition in of its self elicits positive emotion. Perhaps if you place your happiness with your performance on the dualist balance of success and failure than that would take away from the true joy of completing the activity or competing. Those who compete because they enjoy the adrenaline and pressure of trying to do one’s best can create appraisals that make the activity both relevant and within their ability to cope with. This appraisal is central to flow and in fact may be why so many people first flowed when they were competing. Because they needed that pressure and competition to make something they were doing relevant. The confidence built during experience and development of mastery is essential for this ability to believe that you can cope with this pressure. This aspect of flow, while not having directly to do with the trajectory, posits an interesting aspect of how we flow. Perhaps flowing requires only a certain appraisal and belief in our self and that if we believe something is important and that we can succeed we can flow in the unlikeliest of situations.

**Follow up and Future Considerations**

I wanted to discover how we integrate a flow experience, or by extension happiness, into our identity and how it translates into being satisfied with our lives. In this I hoped that there would be a strong correlation between the composite life satisfaction scores and how often individuals flowed. However, it was not that simple. This data did not prove to be significantly correlated across participants. Furthermore, I had hoped that the frequency of flow and life satisfaction numbers would translate to the responses to the first two questions, where they supplied a vignette of their first and most recent flow experiences. I hoped that those who really understood flow experiences and did not describe flowing in social or performance-based contexts where achievement was emphasized over the simple enjoyment of performing the flow-inducing activity. However, no significant data was yielded by performing a 2 way-ANOVA test comparing the LIWC numbers reporting the frequency of how often people described word categories such as positive emotions, achievement, social aspects among others. In fact, often the numbers were opposite of what I expected or were not significant in all of the first three questions, descriptions and definition of their own personal flow experiences. While the LIWC analysis correlations were insignificant, the accounts and other data illuminated important facts about flow. Finally, while I may not have concluded much of the relationship of between flowing and leading a satisfying life , I discovered some important blueprints for how flow fits into people’s lives. The seemingly null hypothesis has been confirmed; there is not much universality among people flowing. In fact, I think this discovery was equally as important as simply finding the equation for the parameters of each individual’s flow experiences. It is important that flow is not an objective experience or emotion, it is rather something we experience based on our own subjective evaluations of situations. Some need to be under pressure, some need to be alone, but in the end it is we as individuals who perceive when our skills are equal to the challenges we are faced with. It is our own evaluation of a given situation that allows us to flow, thus in order to induce flow in the lab one must ensure not that the activity matches their typical flow state, but that they are primed to believe that the setting matches to their subjective state necessary for them to flow.

Questions 11,14, and 18, whose data was not represented or reported, were excluded because the responses were not valid to the question due to misinterpretation of the question. For question 11, I attempted to word the question so that responses would yield an either savor or decompress responses, but because of the free response nature of the answers and my lack of clearly defining the two options, the responses did not follow any distinguishable trend, making the data uncodable. I experienced similar problems with questions 14 and 18 where a majority of the participants misunderstood the question and interpreted habituating flow or how long it takes to flow as a singular question for a specific flow episode as opposed to my intention of finding out how much mastery was necessary in order to flow within a domain and how long one could flow within a certain domain before the challenges no longer matched the participants skills.

To improve the survey, I would certainly revise the survey to yield more accurate and precise data. In order to more reliably attain data and categorize it, it is essential to use multiple-choice questions when looking for quantifiable data on flow. Additionally I would probably use less of an explicit prompt as to define flow as it probably confounded responses on how they decided what events to report as a flow episode. Once I had remade the survey, I would utilize the data to create flow experiences in the lab and evaluate biological processes and try and depict the emotional and psychological trajectory of a flow state. I would use follow up studies over a year with participants to see how flowing affected their overall life satisfaction and try and find a correlation between momentary happiness and life satisfaction. . I hoped to yield data that would allow me to create a lab experiment where I could induce a flow experience from all participants and evaluate the trajectory of a flow experience and relate experiences of momentary happiness to overall life satisfaction. These would be my two goals for future studies and uncovering more about flow.

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**Appendix:**