

Optimal Experience in Relationships, Activities, and Beyond:

Connecting Flow with Self-Expansion

---

A Dissertation

Presented to

The College of Graduate and Professional Studies

Department of Psychology

Indiana State University

Terre Haute, Indiana

---

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Clinical Psychology

---

By

Brandy M. Dean

December 2009

© Brandy M. Dean 2009

Keywords: flow, self-expansion, attraction, happiness, positive psychology

## COMMITTEE MEMBERS

Committee Chair: Virgil Sheets, Ph.D.

Professor of Psychology and Department of Psychology Chairperson  
Indiana State University

Committee Member: Michael Murphy, Ph.D., ABPP

Professor of Psychology and Director of Clinical Training  
Indiana State University

Committee Member: Kevin Bolinskey, Ph.D.

Assistant Professor of Psychology  
Indiana State University

## ABSTRACT

Flow is a state of optimal experience characterized by complete immersion in an enjoyable activity and has been associated with positive experience in activities. Self-expansion is a state of increase in the diversity and complexity of the self and has been linked with positive experience in relationships. Despite phenomenological similarities, the connection between these two states has not been examined. The current study used a correlational design to explore the degrees of overlap between these states by comparing them in general, situation-specific, and predictive contexts. It was expected that flow and self-expansion would occur at similar frequencies, be produced by similar situations, be positively correlated within given activities and relationships, similarly predict attraction to other within a given relationship, and be similarly predicted by a personality trait. Results indicated that these experiences do tend to co-occur. Among students reporting both experiences, the frequencies of the experiences were positively related, although flow experiences were reported as more frequent. Flow and self-expansion experiences were produced by similar sources across activities and relationships, and students tended to specify the same type of activity or relationship as the source of both experiences. As expected, flow and self-expansion were positively related within a given activity and within a given relationship. Both flow and self-expansion experienced in a relationship were positively related to attraction to the other, although the relationship between self-expansion and attraction was stronger than the relationship between flow and attraction. Neither flow nor self-

expansion experienced in an activity was related to trait happiness, and there was no significant difference between these correlations. These results are reviewed in the context of previous research, and implications for theory, research, and practice are discussed. Finally, considerations for future research comparing these two theories, as well as other varieties of positive experience, are discussed.

## TABLE OF CONTENTS

ABSTRACT .....	iii
LIST OF TABLES .....	viii
LIST OF FIGURES .....	ix
CHAPTER 1: INTRODUCTION .....	1
<i>Overview</i> .....	1
<i>Flow</i> .....	3
<i>Self-expansion</i> .....	25
<i>Phenomenological Similarities of Flow and Self-expansion</i> .....	38
<i>Current Study</i> .....	40
CHAPTER 2: METHOD .....	42
<i>Design</i> .....	42
<i>Participants</i> .....	43
<i>Materials</i> .....	44
<i>Procedure</i> .....	48
CHAPTER 3: RESULTS .....	50
<i>Overview</i> .....	50
<i>Preliminary Analyses</i> .....	50
<i>Primary Analyses</i> .....	55

<i>Additional Analyses</i> .....	59
CHAPTER 4: DISCUSSION.....	61
<i>Overview</i> .....	61
<i>Summary of Results</i> .....	61
<i>Explanation of Findings</i> .....	63
<i>Implications of Findings</i> .....	68
<i>Limitations</i> .....	72
<i>Future Directions</i> .....	73
<i>Conclusion</i> .....	76
REFERENCES .....	77
APPENDIXES .....	88
A. FLOW QUESTIONNAIRE .....	88
B. GENERAL SELF-EXPANSION.....	90
C. DISPOSITIONAL FLOW SCALE-2.....	92
D. RELATIONSHIP FLOW SCALE.....	95
E. SELF-EXPANSION QUESTIONNAIRE .....	98
F. ACTIVITY SELF-EXPANSION .....	99
G. LIKING AND LOVING SCALES .....	100
H. GENERAL HAPPINESS SCALE.....	104
I. DEMOGRAPHIC FORM .....	105
J. INFORMED CONSENT.....	107
K. DEBRIEFING FORM.....	109

L. PARTIAL CORRELATIONS AMONG FLOW AND SELF-EXPANSION EXPERIENCES IN ACTIVITY AND RELATIONSHIP CONTEXTS CONTROLLING FOR ETHNICITY .....	110
M. SOCIAL AND ASOCIAL SOURCES OF FLOW AND SELF-EXPANSION EXPERIENCES .....	111
N. ACTIVITY SOURCES OF FLOW AND SELF-EXPANSION EXPERIENCES.....	112
O. ROMANTIC AND NONROMANTIC RELATIONSHIP SOURCES OF FLOW AND SELF-EXPANSION .....	113
P. RELATIONSHIP SOURCES OF FLOW AND SELF-EXPANSION EXPERIENCES .....	114

## LIST OF TABLES

Table 1: Reported Frequencies of Flow and Self-Expansion Experiences.....	52
Table 2: Intercorrelations among Flow and Self-Expansion Experiences in Activity and Relationship Contexts.....	56
Table 3: Comparisons of Correlations of Flow and Self-Expansion within and across Relationship and Activity Contexts .....	57



## LIST OF FIGURES

Figure 1: Flow channel model .....	8
Figure 2: Four channel model .....	10
Figure 3: Eight channel model.....	11

## CHAPTER 1

### INTRODUCTION

#### *Overview*

Csikszentmihalyi's (1975a; 1997c) theory of flow proposes a universal state of optimal experience that occurs when a person is completely engaged in an activity that he or she finds enjoyable. The initial work on flow identified characteristics and conditions central to the experience through interviews with creative and talented individuals such as athletes and artists. Characteristics of the flow state include intense experiential involvement and concentration, merging of action and awareness, a perception of control, an altered sense of time, a loss of self-consciousness, and autotelic (intrinsically motivated) experience. Conditions necessary for experiencing flow in a given activity include clear goals and steps for reaching goals, a balance between perceived challenges and skills, and clear and immediate feedback. Models of flow have focused on the balance of challenge and skill and operationally define flow as equal challenge and skill or, alternatively, above-average challenge and skill. Csikszentmihalyi (1997b) also emphasizes this aspect of flow in his discussion of the tendency of flow experiences to facilitate growth of the self. Currently, investigations in flow theory examine other qualities of experience and personality characteristics that are associated with the experience of flow in the context of work, sports, computer-based activities, academic environments, art and creativity, autotelic

personality, and therapeutic settings. Overall, research on flow has focused on the experience of flow within given activities and has not systematically addressed flow in interpersonal interactions.

Self-expansion is a state of increase in the diversity and complexity of the self and is “common to every satisfying experience” (Aron & Aron, 1996, p. 46). The theory of self-expansion states that individuals are motivated to expand the self and that one common method for expanding the self is the development of close relationships in which the other is included in the self (Aron & Aron, 1986). Expansion of the self refers to increasing the complexity and diversity of the self through new experiences, knowledge, skills, and other resources. Inclusion of the other in self refers to the tendency of partners in close relationships to experience the other as part of, or connected to, the self. The desire to expand the self is considered to be a “central human motivation” that guides many behaviors (Aron & Aron, 1997). The experience of self-expansion is affectively positive, so in addition to desiring the increase in perceived efficacy and competency that results from expansion of the self, people engage in self-expanding activities because the experience is enjoyable (Aron et al., 2004). However, research on self-expansion has focused on the positive effect of self-expansion on self-efficacy and participation in self-expanding activities on relationship satisfaction and has neglected the phenomenological quality of the state of expansion.

Despite the difference in focus between these two literatures, similarities between the states of flow and self-expansion can be identified. Both states are characterized as universal, affectively positive, and intrinsically motivating. Novelty and challenge are fundamental qualities of the activities that produce these states. Finally, both flow and self-expansion result in an increase in the growth and complexity of the self through novel and complex experiences.

This paper reviews the histories of the concepts, including the theories they derive from and the empirical research on them, provides suggestions for linking flow with self-expansion, presents the findings of a study to explore the overlap between the two states of experience, and discusses the theoretical, research, and practical implications of these findings.

### *Flow*

Csikszentmihalyi's (1975a; 1997c) theory of flow proposes a universal state of optimal experience that occurs when a person is completely engaged in an activity that he or she finds enjoyable. Flow has been described as a holistic state or trance that is vastly different from normal experience yet accessible to everyone given the proper circumstances. Flow experiences are stimulating and intense but not so overly arousing to be uncomfortable. Flow demands complete involvement, but the requirements do not exceed the individual's capabilities for action, so as not to be overwhelming. Basically, flow is the best experience people can have.

In support of the theory's universality, the experience of flow has been identified in various age groups (Abbott, 2000; Han, 1988), cultures (Asakawa, 2004; Clarke & Haworth, 1994, Delle Fave & Massimini, 1988; Moneta 2004a; 2004b; Sato, 1988), and socioeconomic classes (Allison & Duncan, 1988; Csikszentmihalyi & LeFerve, 1989). It has also been applied to such diverse fields as teaching (Bakker, 2005; Csikszentmihalyi, 1997d), business (Csikszentmihalyi, 2003; Donner & Csikszentmihalyi, 1992), academics (Egbert, 2003; Rathunde & Csikszentmihalyi, 2005; Schiefele & Csikszentmihalyi, 1994; Shernoff, Csikszentmihalyi, & Schneider, 2003; Wong & Csikszentmihalyi, 1991), psychotherapy (Delle Fave & Massimini, 1992; Massimini, Csikszentmihalyi, & Carli, 1987), museum design (Harvey, Loomis, Bell, & Marino, 1998), theater acting (Martin & Cutler, 2002); occupational

therapy (Emerson, 1998; Jacobs, 1994; Rebeiro & Polgar, 1999), sports (Jackson, 1992; 1995; Nicholls, Polman, & Holt, 2005; Russell, 2001), and web design (Johnson & Wiles, 2003).

Flow theory originated in Csikszentmihalyi's (1975a, 1975b) examination of play and enjoyment in intrinsically motivating activities. In his original book on flow, he described his experience observing a painter at work:

As I watched and photographed painters at their easels, one of the things that struck me most vividly was the almost trancelike state they entered when the work was going well. Once the painting started to take shape, the artist became completely enthralled. The motivation to go on painting was so intense that fatigue, hunger, or discomfort ceased to matter. Why were these people so taken with what they were doing?...The reigning behaviorist explanation suggested that artists are so motivated to paint because they want a reward – the finished painting – and it is this goal that motivates their behavior. But I noticed that the artists I was observing almost immediately lost interest in the canvas they had just painted. Typically they turned the finished canvas around and stacked it against a wall. Nor were they particularly eager to show it off, or very hopeful about selling it. They could hardly wait to start on a new one. (Csikszentmihalyi, 1975a, p. xiv)

Csikszentmihalyi sensed that he could learn something fundamental about human psychology by studying activities that people engage in purely for the experience they provide, rather than the secondary rewards they offer. His initial exploration was guided by the following questions: Are there common pleasurable experiences that people report across a variety of play activities? What are the common elements in play activities that produce such experiences? Are these experiences unique to play or do they also occur in other situations? He first conducted pilot

interviews with hockey and soccer players, spelunkers, explorers, a mountain climber, a handball player, and a long-distance swimmer and asked these participants how they felt when their favorite activity was going well (Csikszentmihalyi, 1975a). Based on the results of the interviews, he developed a questionnaire and a structured interview form, which were subsequently used with groups of rock climbers, chess players, composers, modern dancers, and basketball players to verify the results from the pilot study. Through analysis of those interviews, he developed a model of flow and identified nine dimensions, including six characteristics and three conditions of flow, that were consistent across the respondents' descriptions.

### *Characteristics of Flow*

According to Csikszentmihalyi (1975a), persons in flow exhibit *intense experiential involvement and concentration* in an activity. Attention is centered on a limited stimulus field (the chess board in a chess match, the rock one is climbing, or the movement of the body in dance), and irrelevant stimuli are not attended to. Individuals also experience a *merging of action and awareness*. Not only is attention intensely focused on the activity, there is no reflection on the activity or one's thoughts and feelings about engaging in the activity. The person is only aware of his or her actions and the immediate demands of the activity. Individuals describe a *sense of control* accompanying the experience of flow. Csikszentmihalyi clarifies this characteristic as the absence of worry about losing control rather than an actual perception of control, which would require reflection on one's experience of the activity. During flow, the possibility of losing control is not considered because the activity is structured so that one knows what needs to be done and has the skills to meet the challenges required by the activity. Another characteristic of the flow experience is an *altered sense of time*. Time seems to pass either more quickly or slowly than usual. Csikszentmihalyi (1997b) described this distortion of time as

though “clock time no longer marks equal lengths of experienced time; our sense of how much time passes depends on what we are doing” (p. 113). A *loss of self-consciousness* is also described in individuals’ accounts of flow. During a flow experience there is no reflection on the self, only complete immersion in the activity. According to Csikszentmihalyi, this loss of awareness of the self facilitates the growth of the self-concept that is a consequence of flow:

Yet after an episode of flow is over, we generally emerge from it with a stronger self-concept; we know that we have succeeded in meeting a difficult challenge. We might even feel that we have stepped out of the boundaries of the ego and have become part, at least temporarily, of a larger entity. The musician feels at one with the harmony of the cosmos, the athlete moves at one with the team, the reader of a novel lives for a few hours in a different reality. Paradoxically, the self expands through acts of self-forgetfulness. (Csikszentmihalyi, 1997b, p. 112-113)

Finally, a central characteristic of flow is the *autotelic nature* of the experience. The term “autotelic” comes from the Greek words “auto” (“self”) and “telos” (“goal” or “purpose”) and describes an activity that is intrinsically rewarding, or worth doing for its own sake (Csikszentmihalyi, 1975a). Activities are autotelic when no external rewards or goals are needed to engage in the activity, in contrast to exotelic activities (from the Greek “exo” or “outside”), which are done for a later goal rather than the experience itself. According to Csikszentmihalyi, a good strategy for improving the quality of life is to make as many activities autotelic as possible.

#### *Conditions of Flow*

In addition to these six characteristics, Csikszentmihalyi (1975a) also identified a set of three conditions necessary for an activity to provide a flow experience. First, the activity must have *clear goals and clear steps to reach the goals*. During flow, there is no ambiguity or

conflict about the goal or purpose of the activity. The marathon runner must meet or exceed a particular speed, the rock climber must reach the top of the mountain, and the chess master must win the match. Similarly, the activity's demands for action must also be clear; the person must know exactly what needs to be done next. The musician must hit the right note, the surgeon must make a precise incision, and the basketball player must shoot the ball. Second, flow occurs when there is *balance between the challenge of the activity and the skill of the individual*. When challenges exceed skills, the person is overwhelmed and intimidated by the experience. When skills exceed challenges, a person will feel that his or her potential is being wasted and will be less likely to become engaged in the experience. Equality of challenge and skill ensures that an activity is experienced as both interesting and manageable. Third, the activity must provide *clear and immediate feedback*. A person in flow is aware of how well he or she is doing in meeting the goals of the activity; ordered rules characteristic of sports and other games allow for the evaluation of each action as soon as it is committed. The player knows whether a point has been scored, and the artist knows whether the brush stroke was right.

Together, these requirements create a condition in which the six experiential characteristics discussed earlier can occur. Csikszentmihalyi (1982b) suggests that many activities, including religious rituals, games, sports, and artistic performances are designed to promote the experience of flow through ordered rules and clarity of goals. However, flow theory suggests that any activity can provide a flow experience if it is structured to meet these basic requirements.

### *Models of Flow*

Although the experience of flow is quite complex, models of flow focus on two basic dimensions of experience: what a person is doing (challenge of the activity) and what a person is



capable of doing (skill of the individual). As stated previously, optimal experience occurs when these two dimensions are equal or in balance (Csikszentmihalyi, 1982b). The three models of flow that have been described in the literature elaborate on the quality of experience that is produced by various combinations of these two dimensions.

*Flow Channel model.* The first model of flow proposed by the theory consists of a graph with skill level plotted on the x-axis and challenge level plotted on the y-axis (Csikszentmihalyi, 1975a; see Figure 1). A diagonal band beginning at the origin of the graph (where both skill and challenge are low) and extending to the upper right corner (where both skill and challenge are high) is identified as the flow channel, or the points at which skills and challenges are equal and experience is optimal. The model also describes experiences outside of the Flow Channel. High skill paired with moderate challenge yields boredom, while anxiety is likely to result when skill is high and challenge is low. When challenge is high and skills are moderate, the experience will likely be one of worry, and when challenge is high and skills are low, one of anxiety.

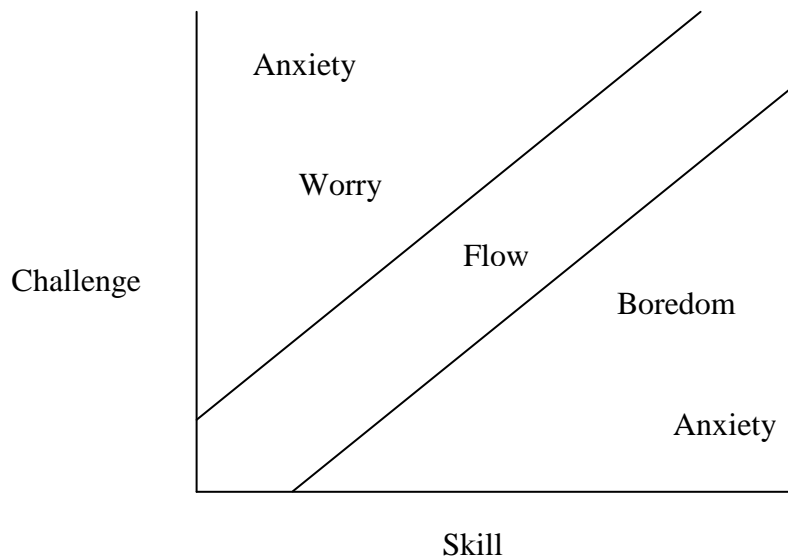


Figure 1. Flow channel model.

Although all points along the flow channel provide the experience of flow, the intensity of flow may vary, experiences at the lowest levels of skill and challenge represent a less intense “microflow,” and experiences at the highest levels of skill and challenge represent deeper “macroflow.” These states also differ in the complexity of the experience. Higher on the flow channel, experiences become more complex, and this change in complexity proposed by the model explains how flow results in growth of the self.

But the most important feature of the flow model in the present context is its implication for understanding the growth of the self...People must progress upward along the diagonal if they wish to keep enjoying whatever they are doing. If they do not move, boredom or worry is likely to ensue. Incidentally, the same argument explains why some activities are more conducive to flow in the long run than others. A game of tick-tack-toe, for instance, soon becomes boring because it cannot offer new opportunities for action. Chess, on the other hand, provides an almost unlimited range of increasing challenges. (Csikszentmihalyi, 1982a, p. 176)

For an activity to continually provide flow experiences, it must offer increasing challenges that require the individual to also increase his or her skill level, and therefore move up the diagonal flow channel into experiences of greater and greater complexity.

*Four Channel model.* The second model of flow also plots challenges versus skills on a graph, except that the axes represent the level of challenge and skill a person experiences throughout his or her daily activities rather than during a single activity. The origin of the graph corresponds to the average level of skill and challenge of all a person’s activities (LeFevre, 1988; see Figure 2). Activities that are above the average skill level for all activities are placed on the top half of the graph, and activities that are above the average challenge level for all activities are

placed on the right half of the graph. Above average skill and challenge (quadrant I) represents flow. When challenge is above average and skill is below average (quadrant IV), the experience is likely characterized as anxiety. When challenge is below average and skill is above average (quadrant II), the experience is one of boredom. Finally, when both challenge and skill are below average (quadrant III), apathy characterizes the experience. The Four Channel model allows researchers to operationalize the experience of flow in studies of people’s day-to-day lives. Using this model, activities that are rated above the participant’s average level of both challenge and skill for all activities are considered to be an occurrence of flow; other activities can be placed in one of the three remaining channels.

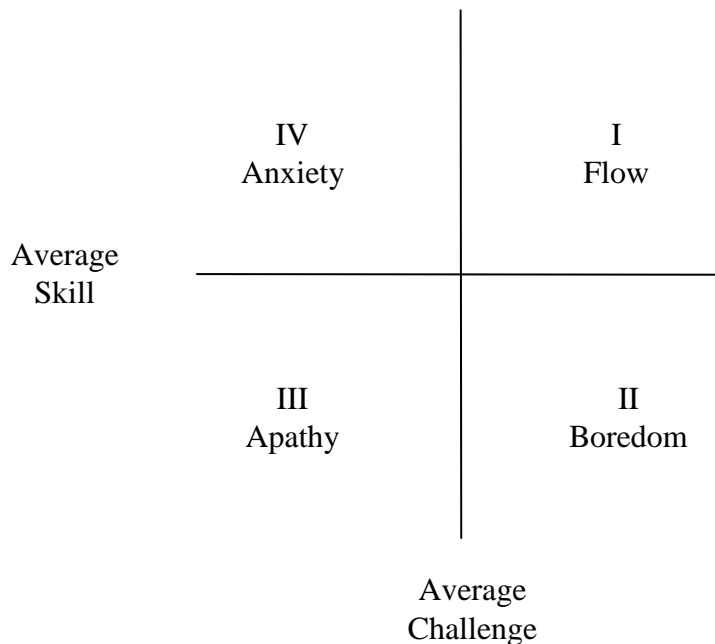


Figure 2. Four channel model.

*Eight Channel model.* The Eight Channel model of flow is an elaboration of the Four Channel model (Massimini & Carli, 1988; see Figure 3). Levels of challenge and skill are divided into low, moderate, and high, resulting in eight challenge-skill combinations rather than

four. The categorization of flow, apathy, boredom, and anxiety remain the same, and categories of control, arousal, relaxation, and worry are added. The Eight Channel model serves the same purpose as the Four Channel model (i.e., examination of the occurrence of flow in peoples' day-to-day experiences). However, the model offers a more precise categorization of experience and a slightly more narrow definition of flow. Although widely adopted in flow research, Ellis, Voelkl, and Morris (1994) suggest that the Eight Channel model does not have adequate theoretical justification.

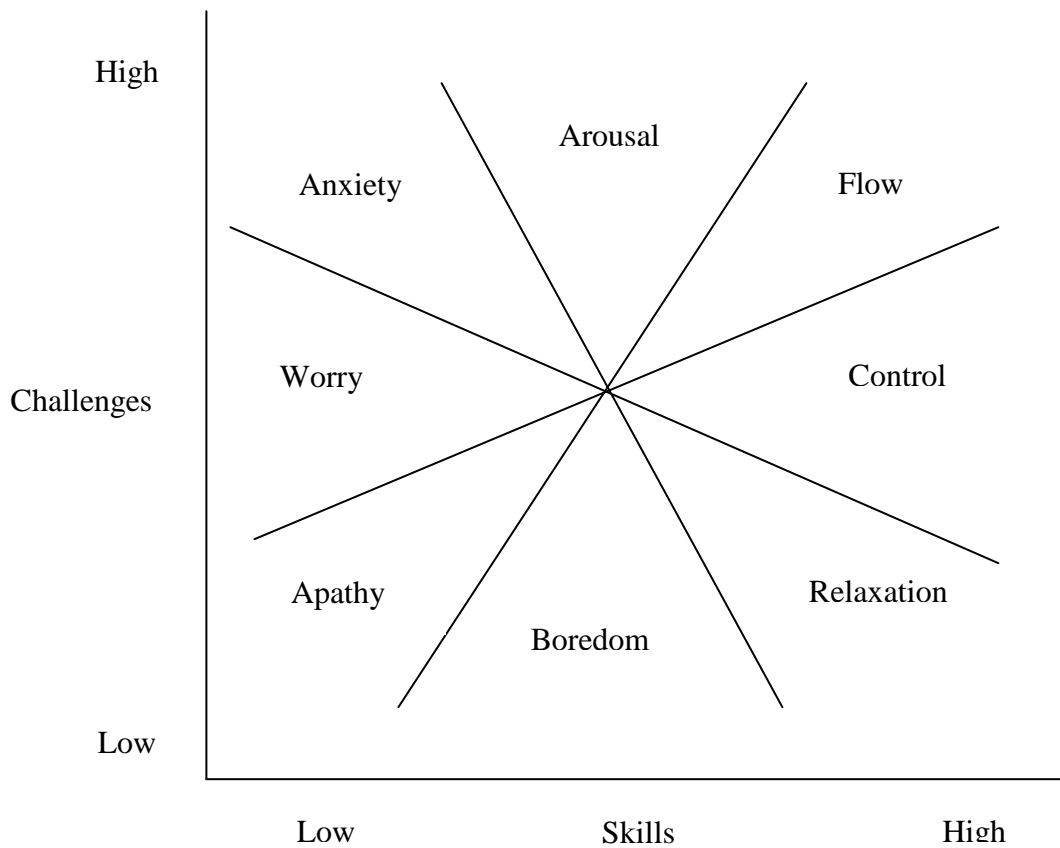


Figure 3. Eight channel model.

## *Measurement of Flow*

*Interviews and questionnaires.* Initially, interviews were the primary method of exploring the flow experience. Participants were asked how they felt when their favorite activity was going well, and their answers were coded and the content analyzed (Csikszentmihalyi, 1975a; Csikszentmihalyi & Rathunde, 1993). Interviews became more structured with the development of the Flow Questionnaire, which presents respondents with three standard quotes describing flow that were taken from the initial interviews conducted by Csikszentmihalyi. The interviewer then asks the participant if they have ever had a similar experience, and if the response is affirmative, the interviewer probes for details, including frequency, duration, context, and other characteristics of the experience. The Flow Questionnaire quotes are:

“My mind isn’t wandering. I am not thinking of something else. I am totally involved in what I am doing. My body feels good. 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.”

“My concentration is like breathing. I never think of it. I am really quite oblivious to my surroundings after I really get going. I think that the phone could ring, and the doorbell could ring, or the house could burn down or something like that. When I start, I really do shut out the whole world. Once I stop, I can let it back in again.”

“I am so involved in what I am doing. I don’t see myself as separate from what I am doing.” (Csikszentmihalyi, 1975a, as cited in Han, 1988, p. 140)

The Flow Questionnaire is also frequently used as an open-ended written survey and often accompanied by a version of the Flow Scales, which were first developed by Mayers (1978, as cited in Delle Fave & Massimini, 1988). The Flow Scales are comprised of a list of statements

taken from the flow model, such as “I get involved,” “I get direct clues as to how well I am doing,” and “I feel I can handle the demands of the situation.” Respondents rate the statements as applied to a particular activity (often one they have identified in the Flow Questionnaire as providing a flow experience) on a Likert-type scale. Various researchers have revised the Flow Scales to adapt the items to a particular context (such as work or sports) or to emphasize different components of the theory (e.g., Trevino & Webster, 1992).

In an effort to facilitate research on flow in sport and physical activity, Jackson and Marsh (1996) developed the Flow State Scale (FSS), which was designed to assess the experience of flow in a particular athletic performance. The FSS includes items to assess the nine dimensions of flow, including the three conditions (balance of challenge and skill, clear goals, and unambiguous feedback) and six characteristics (action-awareness merging, intense experiential involvement and concentration on task at hand, sense of control, loss of self-consciousness, transformation of time, and autotelic experience) of flow. A confirmatory factor analysis supported the independence of these nine dimensions. Marsh and Jackson (1999) provided further construct validation for the FSS in another sample of athletes and also designed a trait version of the measure (Flow Trait Scale; FTS) to assess the tendency to experience flow in a particular physical activity rather than a single athletic performance. Together, the FSS and FTS allow researchers to assess state and trait experiences of flow in physical activity, respectively.

Jackson and Eklund (2002) modified the original versions of the FSS and FTS to produce the Flow State Scale-2 (FSS-2) and the Dispositional Flow Scale-2 (DFS-2); the trait version was renamed to reflect the intention of the measure to assess a dispositional tendency to experience flow rather than a personality trait (Jackson et al., 2001). Jackson and Eklund (2002) suggest that

the FSS-2 and DFS-2 have demonstrated improved reliability over the original versions of the scales while retaining the nine dimensional model supported by factor analysis.

*Experience Sampling Method.* Despite their value in examining flow experiences through an open-ended format or as it relates to a predetermined activity or situation, interviews and questionnaires do not allow for large scale investigations into the frequency of flow experiences across and within individuals or activities. Awareness of these limitations led Csikszentmihalyi and his colleagues (Csikszentmihalyi & Larson, 1992) to develop the Experience Sampling Method (ESM). The goal of ESM is to capture data regarding a person's experience in daily life, and ESM accomplishes this goal with frequent sampling of participants' experiences in their day-to-day activities. Participants in ESM studies are given a pager or wristwatch that is programmed to beep or signal the participant randomly throughout a day (usually seven or eight times) for a set number of days (often one week). Signals are limited to waking hours (16 hours, from 7 a.m. to 11 p.m., for example); each two hour block contains only one signal, and all signals are at least thirty minutes apart. Participants are also given Experience Sampling Form (ESF) booklets, which contain questionnaire items regarding activity, mood, presence of others, and other variables of interest. Participants complete one ESF each time they are signaled. Eight signals a day for one week results in fifty-six completed ESFs, which provide a rich source of data regarding fluctuations in a person's experience over time and across a variety of activities. When included in a large sample of participants, numerous hypotheses can be explored regarding situational elements, such as activity or time of day, and subjective experience.

Csikszentmihalyi (1992) has resisted the opportunity to offer a precise operational definition of flow for fear of limiting research on the construct. However, ESM studies routinely use the definition of "above-average skills and above-average challenge" offered by the Four

Quadrant and Eight Channel models of flow. The operationalization of this definition is not consistent in the literature, with some studies categorizing experiences as flow when skill and challenge ratings are above the individual's average ratings of skill and challenge, and other studies labeling an experience as flow only if skill and challenge ratings are above the group's average ratings of skills and challenge.

The standard ESM technique has also been modified for use in examining subjective experience in an activity over a shorter amount of time. For example, rather than giving chess players a Flow Scale or Flow State Scale after a match, when responses are retrospective, players are signaled throughout the activity and complete ESF booklets at various points during the match. This method provides for a fuller understanding of fluctuations in subjective experience throughout an activity but does not allow for comparisons to individuals' experience in other activities. Research on flow in computer-based activities has adopted a modified ESM with much success (see Chen, 2006 for an example). Computer programs track the type of task the participant is engaged in (Web browsing, sending emails, typing documents, etc.), and ESF questions are presented as a pop-up on the computer screen at random intervals. The type of task and ESF responses are easily linked to allow for comparison of individual experience across a range of computer-based activities.

Despite the richness of data and the inventiveness of the technique, ESM has some limitations. In their examination of ESM data, Ellis et al. (1994) acknowledge some concerns about the validity of the ESF item ratings, the operational definition of flow used in ESM studies, as well as the model of flow that the operational definition derives from. They argue that ESM studies using the Eight Channel model of flow explain a very small proportion of the variance in the data and suggest that the model may not be the appropriate framework for interpretation of



ESM data. Although ESM is touted as high in ecological validity, they suggest that the construct validity of ESM measures of flow (above-average skills and challenge) has not been adequately examined. They indicate that individuals participating in ESM studies can be signaled in ambiguous situations in which thought and activities may not be of equal levels of challenge, potentially confounding ratings of challenge and the measurement of flow. For example, a person could be signaled while they are driving a car and thinking about a difficult assignment at work. The person must choose whether to answer items in the ESM booklet according to the experience of driving a car, which may be rated as low challenge, or the experience of thinking about a difficult task, which may be rated as high challenge. According to Ellis et al., problems with ESM data arise when any experience rated as over the individual's mean for challenge and skill is classified as a flow experience, because challenge and skill, while high, are not necessarily equal.

### *Research on Flow*

Initial research on flow focused on the identification of characteristics and conditions central to the experience. After the experience of flow was documented and described in interviews, researchers aimed to validate the theory by identifying flow in a wide range of activities and cultures. Currently, investigations in flow theory examine other qualities of experience and personality characteristics that are associated with the experience of flow in the context of work, sports, computer-based activities, academic environments, art and creativity, autotelic personality, and therapeutic settings.

*Flow in work and leisure.* Early research on flow in work and leisure found that a majority of people experience flow more often in work than in leisure activities (Csikszentmihalyi, 1982b; Csikszentmihalyi & LeFevre, 1989). Subsequent research revealed

that professional women reported frequent flow experiences at work, whereas blue-collar women did not (Allison & Duncan, 1988). Recent research has focused on identifying job characteristics that facilitate the experience of flow at work, as well as personality characteristics that moderate these relationships. Bakker (2005) examined the impact of job resources related to goal attainment on teachers' experience of flow at work and found that four job resources (autonomy, social support, coaching by supervisor, and performance feedback) correlated with teacher's reports of flow. Eisenberger, Jones, Stinglhamber, Shanock, and Randall (2005) investigated the association among flow, positive mood, task interest, and need for achievement in workers and found that the association between flow and positive mood and task interest was stronger among achievement-oriented workers than workers who reported a lower need for achievement. In a study of the relationship between motivating job characteristics and flow, Demerouti (2006) concluded that skill variety, task identity, task significance, autonomy, and performance feedback were positively correlated with work-related flow. Also, conscientiousness moderated the relationship between work-related flow and performance, such that the experience of flow at work was associated with improved job performance only for employees high in conscientiousness.

*Flow in sports and physical activity.* Initial work on flow in sports focused on identification and description of the experiential state of flow during athletic performance. Jackson (1992) found that athletes described a state of optimal experience that paralleled the flow state. Athletes indicated that a positive mental attitude, positive pre-competitive and competitive affect, appropriate focus, physical readiness, and unity with partner (for athletes performing with a partner) facilitated the experience of flow during an athletic performance. Athletes reported that physical problems or mistakes, inability to focus, a negative mental

attitude, and lack of response from the audience were likely to prevent or disrupt a flow experience. Jackson (1995) extended the investigation of factors that influence the experience of flow in athletic performance and identified ten broad dimensions affecting the experience of flow: pre-competitive and competitive plans and preparation, confidence and positive attitude, general physical preparation and readiness, achieving optimal arousal level before competing, motivation to perform, performance feeling good, focus, optimal environmental and situational conditions, positive team play and interaction, and experience. Russell (2001) found similar dimensions in a sample of college athletes, suggesting that the experience of flow in athletic performance is not restricted to elite athletes. Also, athletes in individual versus team sports did not report any differences in their experience of flow during athletic performance. These results support the universality of the flow experience for athletes across skill levels and types of sports.

After the experience of flow during sports and physical activity had been described, research focused on identifying antecedents and consequences of flow in athletic performance. Jackson and Roberts (1992) examined the relationship among goal orientation, perceived ability, and flow in athletes. They found that athletes with high orientation towards mastery and perceived ability were more likely to experience flow than athletes with low mastery orientation and perceived ability. Athletes also reported experiencing flow more often in their best performances than their worst performances. In an investigation of psychological correlates of flow in athletes, Jackson et al. (1998) found positive relationships between perceived sports ability and intrinsic motivation and both trait and state measures of flow, and a negative relationship between competitive trait anxiety and trait and state flow. The relationship between perceived ability and experience of flow supports the theoretical importance of perceived skill in the flow model. Jackson, Thomas, Marsh, and Smethurst (2001) investigated the relationship

between self-concept, psychological skills, and flow. They found that aspects of self-concept, including mental competence, performance, and skills were positively related to the experience of both trait and state flow. Psychological skills such as emotional control, activation, and relaxation were also positively related to trait and state flow, and negative thinking was negatively related to flow. The experience of flow in a particular athletic event also predicted athletes' subjective rating of their performance, the objective outcome of their performance (athlete's finishing position in a race), and the number of errors made in the performance, such that experience of flow was related to greater subjective and objective performance as well as fewer errors. In a study of motivational determinants of flow in athletes, Kowal and Fortier (1999) found that intrinsic motivation and perceptions of autonomy, competency, and relatedness were positively related to the experience of flow in an athletic performance.

Flow theory may have practical implications for improving athletic performance. Mandigo and Thompson (1998) suggest that individuals who work with children in physical activity environments can use flow theory to engage children in physical activity and motivate them to become more physically active. They offer recommendations for structuring physical activity to produce flow experiences, including evaluating the developmental appropriateness of the activity, increasing the opportunity for fun, allowing children to control or adapt the activity, increasing clarity of the activity's goals, and a focus on intrinsic rather than extrinsic rewards.

*Flow in computer-based activities.* In one of the first studies of flow in computer-based activities, Chen, Wigan, and Nilan (1999) found that web users reported feelings of inspired involvement, loss of self-consciousness, excitement and fascination, enjoyment, and timelessness, providing evidence for the experience of flow in computer-based activities. Since then, studies of flow in computer-based activities have dramatically increased in number. Current

research in the area focuses on associations of flow with other qualities of experience, as well as elements of web design and various types of computer activities. Chen (2006) investigated the experience of positive affect in relation to flow in Web activities using a modified ESM technique and found that flow was correlated with all ratings of positive affect, including fun, excitement, enjoyment, sociability, and relaxation.

*Flow in academics.* Early in the development of flow theory, Csikszentmihalyi (1982a) identified flow as a potential aide to learning. He encouraged educators to focus on the positive experience of gaining knowledge rather than the objective amount of knowledge students accumulate and suggested that this approach will facilitate the experience of flow in the classroom. In an ESM study of high school students, Shernoff, Csikszentmihalyi, Schneider, and Shernoff (2003) found that during experiences of flow, students reported higher levels of engagement (including interest, concentration, and enjoyment), attention to the task, positive mood, self-esteem, intensity of task, and motivation. However, flow is not common to all academic environments. In an ESM study comparing middle school students in Montessori schools to students in traditional schools, Rathunde and Csikszentmihalyi (2005) found that Montessori students reported more flow experiences than traditional students. They attributed this finding to the focus in Montessori schools on intrinsic motivation to learn, time for self-directed activity, collaboration among students, and lack of mandatory grading. Student characteristics may also influence the experience of flow in the classroom. For example, Eppler (1997) found that nontraditional (older) college students were more likely to report flow experiences while learning than traditionally-aged college students.

Researchers have also examined the relationship between flow and study habits. Brinthaupt and Shin (2001) examined the experience of flow in academic cramming. After

completing several measures of study habits, students were given ten minutes to “cram” for an exam on unfamiliar material. Results indicated that students who typically cram for exams were more likely to report flow while cramming than students who do not typically cram. Brinthaup and Shin suggest that students who cram may procrastinate studying for an exam until the challenge of the task is sufficiently high to match their perceived skill level, providing a flow experience. Contrary to these results, Lee (2005) found a negative relationship between procrastination and the experience of flow. However, Lee compared a tendency to procrastinate to the experience of flow while learning rather than examining flow experienced while cramming. It is possible that students who procrastinate do not generally experience flow while learning and only experience it when cramming. Future studies should consider this distinction.

*Flow in art and creativity.* Flow theory originated from Csikszentmihalyi’s (1975a, 1996) interest in the creative process. He initially noticed the intense experiential state in artists but soon discovered commonalities of experience among practitioners of diverse fields, including “engineers and chemists, writers and musicians, businesspersons and social reformers, historians and architects, sociologists and physicians” (Csikszentmihalyi, 1996, p. 107). Csikszentmihalyi provides an evolutionary explanation for the association with the positive state of flow and the process of creativity, suggesting that humans are naturally predisposed to enjoy discovery and invention, which aide survival and adaptation. He also emphasizes the importance of novelty in the experience of flow in creative pursuits. Despite the strong theoretical foundations for a link between flow and creativity, relatively few empirical studies have examined this relationship. However, existing studies support the connection between flow and creativity; as an example, Byrne, MacDonald, and Carlton (2003) found that students’ ratings of flow while composing music were significantly related to the creativity of the pieces they produced.

*Autotelic personality.* Although flow is posited to be a universal experience with features that are consistent across persons and activities, there seem to be individual differences in the tendency to experience flow. According to Csikszentmihalyi (1997a), the range of time spent in flow varies considerably. In ESM studies using the “above-average skill and challenge” definition of flow, some people report being in flow 5% of the time, while others indicate that they are in flow 45% of the time. Persons who spend a proportionately high amount of their time in flow, regardless of the activities they engage in, are considered to have an autotelic personality, suggesting that they may naturally structure their activities according to the conditions for flow discussed earlier.

Asakawa (2004) conducted an ESM study of Japanese college students in which he identified a subgroup of the sample as autotelic personalities based on the amount of time they spent in flow, and compared them to another group of students that experienced very little amount of time in flow. He found that autotelic students spent more time in schoolwork and active leisure activities (extracurricular activities, sports/games, and hobbies) than non-autotelic students. Autotelic students also reported higher levels of concentration, enjoyment, activation, satisfaction, perceived control of the situation, and perceived importance for the future, but did not report higher levels of happiness, even while engaging in maintenance and passive leisure activities (such as grooming, eating, and watching television). The relationship between perceived challenges and quality of experience (concentration, happiness, enjoyment, activation, satisfaction, perceived control, and perceived importance) was stronger for autotelic students than non-autotelic students. In other words, autotelic students had a higher quality of experience with increased perceived challenges. Autotelic individuals also balanced their skill and challenge

level more than non-autotelic individuals and tended to place themselves in situations where their perceived challenge level was higher than their perceived skill level.

*Therapeutic applications of flow.* Csikszentmihalyi (1993) suggested that flow theory could be applied in a therapeutic setting by identifying the skills the client possesses and assisting them in engaging in activities that would allow them to use those skills. Delle Fave and Massimini (1992) presented a case study utilizing ESM measures of flow theory in the psychotherapeutic treatment of a 25-year-old woman diagnosed with Panic Disorder with Agoraphobia. They collected ESM data at nine points over one year and four months; each testing period lasted for one week. The ESM booklet contained items assessing activity, content of thought, place, companionship, and quality of experience (mood, activity level, concentration, motivation, perceived skill, experienced challenge, physical complaints). By identifying the moments at which quality of experience was optimal through the analysis of the ESM data, the therapist tailored the treatment to focus on increasing similar experiences and decreasing experiences which were identified as less optimal. Over the treatment period, the participant reported less time spent watching television, increased time spent in new activities, increased time spent alone, and increased congruence between thoughts and activities, or thinking about what she was doing. Time spent in apathy (as defined by the Eight Channel model) decreased, and time spent in flow increased.

*Flow in social interaction.* Since the development of flow theory, the focus of the literature has been on activities that provide flow, whether work, play, or some combination of the two. The experience of flow in social interaction has been neglected, although data from interview, questionnaire, and ESM studies indicates that flow occurs in an interpersonal context. For example, a study using the Flow Questionnaire found that social interaction was the prime



source of flow for 16% of the sample (Csikszentmihalyi, 1982b). To date, Rathunde (1997) has conducted the only study directly examining the experience of flow in interpersonal interactions. He used a modified ESM procedure to investigate communication in families and found that communication complexity, characterized by reciprocal integration (listening to others' statements) and differentiation (speaking as an individual), was related to family members' experience of flow. According to Rathunde, a complex communication pattern balances challenges and skills, two essential components of flow. Despite these interesting findings, further exploration of the effects of communication on flow has not emerged.

Although his assertions have not been empirically tested, Csikszentmihalyi (1997c) has written about the experience of flow in relationships, and others have also speculated about the occurrence of flow in social interaction (see Bakker, 2005; Byrne et al., 2003; Ghani, Supnick, & Rooney, 1991). According to Csikszentmihalyi, interactions in intimate relationships share many of the conditions of activities that provide flow, including focused attention, clear goals, immediate feedback, and potential for a balance of skill and challenge.

When we have to interact with another person, even a stranger, our attention becomes structured by external demands. The presence of the other imposes goals and provides feedback. Even the simplest interaction – like that of asking another person the correct time – has its own challenges, which we confront with our interpersonal skills. Our tone of voice, a smile, our bearing and demeanor are part of the skills we need in stopping a stranger on the street and making a good impression. In more intimate encounters, the level of both challenges and skills can grow very high. Thus interactions have many of the same characteristics of flow activities.” (Csikszentmihalyi, 1997c, p. 42)

Csikszentmihalyi also suggests that relationships are optimal when they are stimulating and constantly offer new challenges and experiences which allow the self to grow. According to flow theory, ideal relationships

...provide ever new emotional and intellectual stimulation, so that the relationship does not fade into boredom or apathy. We try new things, activities, and adventures; we develop new attitudes, ideas, and values, we get to know friends more deeply and intimately. While many flow activities are enjoyable only in the short run, because their challenges are soon exhausted, friends offer potentially infinite stimulation throughout life, honing our emotional and intellectual skills. (Csikszentmihalyi, 1997c, p. 82)

These statements indicate that social interaction is a likely source of flow and that intimate relationships that are challenging and stimulating may provide a consistent experience of flow that encourages personal growth.

### *Self-expansion*

The theory of self-expansion states that the motivation to expand the self accounts for a large number of affective, cognitive, and behavioral phenomena (Aron & Aron, 1986). The theory also proposes that one common method for expanding the self is the development of close relationships in which the other is included in the self. Expansion of the self refers to increasing the complexity and diversity of the self through new experiences, knowledge, skills, and other resources. Inclusion of the other in self corresponds to the tendency of partners in close relationships to experience the other as part of, or connected to, the self. The simplicity of the theory is one of its greatest strengths.

Self-expansion theory originated from concepts in Eastern psychology, particularly Vedic literature, but it also has roots in other fields, including love and attraction, motivation,

cognition, and sociology (Aron & Aron, 1986; 1996). According to Aron and Aron, they turned to Vedic scriptures to find a conceptual framework of a theory of love after reviewing Western thoughts and research on love, which they found scattered across diverse fields of study, lacking any coherent connection. Although Vedic literature states that all activities are directed toward expansion of the self, and Aron and Aron retain this claim in their theory, they focus almost exclusively on self-expansion experience in relationships.

In addition to the relative simplicity of the theory, another strength is the use of the expansion metaphor, which seems particularly appropriate for love. A common view of love is that it “is about union, transcendence, and the merging of identities” (Aron & Aron, 1996, p.50-51). A benefit of the metaphor of expansion and inclusion of the other in the self is the correspondence to visceral experiences of intimacy in relationships. Aron and Aron also attribute some of the success of the theory to the ability of the metaphor to capture the visceral experience of close relationships.

A sense of expansion in the heart or the chest is a common bodily experience associated with deeply felt positive experiences, such as when people fall in love, or looking at their sleeping child. A bodily experience of having the other included in the self can occur when one’s own muscles move while watching a beloved partner perform, or when one receives news that would please or upset the other were she or here there, and one feels the physical signs of joy or grief that the other would feel. Most striking, perhaps, are descriptions of losing a partner being like having a part of one’s body ripped out or die. (Aron & Aron, 1997, p.254)

Self-expansion is actually a two-part process consisting of two alternating states of expansion and integration (Aron & Aron, 1986). The state of expansion occurs when the

individual is participating in new activities, gaining knowledge, and having novel experiences. However, for these resources to be incorporated into the self, a person must go through a phase of integration during which he or she does not engage in expanding activities. According to Aron and Aron, the desire for integration is equal to the desire for expansion and is necessary for expansion of the self. However, this part of the theory has not been explored by researchers (Aron, Norman, & Aron, 1998).

### *Characteristics of Expanding Activities*

Aron and Aron (1986) describe two characteristics of activities that expand the self: novelty and arousal. Novelty is the primary feature and is essential for self-expansion; novel activities are those that allow for new information and experiences to be incorporated into the self. Arousal was initially considered a secondary characteristic of expanding activities; through its association with novelty (because novel activities are often arousing), attraction, and past experiences of expansion (in novel activities), arousal was thought to be so strongly associated with the experience of expansion that it could produce it in activities that were not necessarily novel (Aron et al., 1998). However, in a direct comparison of novel versus arousing activities, novelty was determined to be the necessary factor for self-expansion; arousal, alone, did not produce expansion (Lewandowski & Aron, 2006). In addition to novelty and arousal, challenge has also been suggested as a key characteristic of expanding activities, due to its association with novelty (Aron, Norman, Aron, & Lewandowski, 2002).

### *Measurement of Self-expansion*

The vast majority of the research on self-expansion has used indirect measures of the construct, including increases in the diversity and complexity of the self-concept, increases in self-efficacy and self-esteem, increases in inclusion of other in self, and confusion of self with

other (Aron, Aron, Tudor, & Nelson, 1991; Aron, Paris, & Aron, 1995; Lewandowski, Aron, Bassis, & Kunak, 2006). In fact, there is no direct measure of the state of self-expansion. The Self-Expansion Questionnaire (SEQ, as cited in Lewandowski et al., 2006) measures the extent to which a particular relationship provides opportunities for self-expansion, but cannot be used as a measure of state of expansion.

### *Self-expansion Research*

Empirical investigation of self-expansion has focused on the theory's two components: the motivation to expand the self and expansion of the self through relationships in which the other is included in the self (Aron & Aron, 1996). Aron, Norman, and Aron (2001) indicate that the majority of work on self-expansion theory has been focused on the second implication of the model rather than the first.

*Motivation to expand the self.* The desire to expand the self is considered to be a "central human motivation" that guides many behaviors, including the development of close relationships (Aron & Aron, 1997). According to Aron et al. (1998), there are two motivational processes in the self-expansion model: first, the desire to increase potential efficacy by gaining resources that will allow for goal attainment, and second, the desire to experience the state of self-expansion, which is associated with intensely positive affect, and is therefore an enjoyable state that is intrinsically rewarding. According to Aron, Aron, and Norman (2004), the motivation to expand the self is focused on gaining the resources to attain goals rather the actual achievement of goals. They suggest that the most important resource for achieving goals in present society is knowledge, although they also recognize the importance of other resources, including social, material, and physical resources. Self-expansion results in an increase in perceived self-efficacy through the attainment of these resources (Aron et al., 2002). The experience of self-expansion is

positive, so in addition to desiring the increase in perceived efficacy and competency that results from expansion of the self, people engage in self-expanding activities because the experience is enjoyable (Aron et al., 2004). Self-expansion creates positive affect, so that relationships or activities that are associated with self-expansion become desirable, or intrinsically rewarding, in their own right due to their association with the positive affect produced by self-expansion.

Aron et al. (1998) identify two aspects of self-expansion theory related to motivation: the role of potential for self-expansion in partner selection and the development of close, romantic relationships. First, self-expansion theory suggests that two factors moderate a person's decision to enter into a close relationship with another person: the potential for expansion of the self (desirability) and the perceived probability of actually entering into and maintaining the relationship (probability) (Aron & Aron, 1997). Others who are very different from the self offer a higher potential for self-expansion through exposure to new knowledge, perspectives, and experiences, and are therefore high in desirability. However, the likelihood of developing a relationship with a very different other is low, compared to a similar other, so probability is low. When individuals select partners, they must balance these two factors, one of which pulls for difference between the other and the self and one of which pulls for similarity.

According to Aron and Aron (1997), the model of attraction proposed by self-expansion theory sheds light on a conundrum in the relationship literature. Generally, people are more attracted to similar others than to dissimilar others. However, when individuals believe that others are attracted to them, they are less attracted to similar others than to dissimilar others. The authors interpret this phenomenon through the lens of self-expansion theory and the concepts of desirability (the potential for expansion of the self) and probability (the likelihood of entering into and maintaining a relationship). When individuals are unaware of whether or not others are

attracted to them, they will tend to be attracted to similar others, with whom the probability of a relationship is high. However, when individuals are aware that others are attracted to them, probability is high for relationships with both similar and dissimilar others. However, desirability is higher for dissimilar others, because they offer a greater opportunity for self-expansion. Therefore, when individuals are aware of others' attraction to them, they will tend to select relationships with dissimilar rather than similar others. Aron and Aron suggest that probability and desirability correspond to the two factors identified in relationship research as "universal precursors" to falling in love: knowledge that the other likes the self and attractiveness (physical and personal), respectively.

Second, self-expansion theory states that one method for expanding the self is the development of close, often romantic, relationships. According to the theory, falling in love expands the perceived content of the self, and the rapid rate of self-expansion that falling in love provides may account for the high level of positive affect associated with the early stages of close relationships (Aron et al., 1998). Aron et al. (1995) had college students complete a measure of content of the self-concept at five separate testings over a period of several months. They also asked students whether or not they had fallen in love since the previous testing. The increase in perceived content of the self was greater for students who had fallen in love; they also reported greater increases in self-efficacy and self-esteem than students who had not fallen in love, and these differences were not accounted for by changes in mood.

Lewandowski et al. (2006) proposed that, if entering into a relationship increases the perceived content of the self, ending a relationship should result in a contraction of the perceived content of the self, and this effect should be moderated by the degree to which the relationship allowed for self-expansion. The authors asked students who had recently experienced the

dissolution of a romantic relationship to complete a measure of the impact of the break-up on the content of the self-concept and also assessed for the pre-dissolution degree of self-expansion offered by relationship. As expected, they found that the self-concept decreased in diversity and complexity after the end of the relationship, and that this decrease was related to the degree of self-expansion provided by the relationship. Also, predissolution closeness of the relationship did not affect these findings. The finding of this study, along with the results of the investigation by Aron et al. (1995), provide support for the hypotheses that close romantic relationships provide opportunities for self-expansion.

In addition to explaining partner selection and the motivation for developing close, romantic relationships, self-expansion theory offers an important prediction for increasing satisfaction in romantic relationships. As previously stated, self-expansion creates positive affect, so that relationships or activities that are associated with self-expansion become desirable in their own right due to their association with self-expansion (Aron et al., 2004). Therefore, when a relationship no longer offers the potential for self-expansion, couples may engage in self-expanding activities together, and the positive affect that accompanies the experience of expansion will be associated with the relationship, thereby increasing satisfaction with the relationship.

Aron et al. (2002) suggest that the initial period in a relationship is characterized by exhilaration and intense, positive affect, which may be accounted for by the novelty and arousal of forming a new relationship, and accompanying sense of expansion; however, there is an inevitable decline in satisfaction with the relationship, along with the introduction of boredom and even apathy as the relationship continues. This well-documented decline in relationship satisfaction is often attributed to habituation, which suggests that time spent together may



actually decrease satisfaction with the relationship (Reissman, Aron, & Bergen, 1993). Self-expansion theory elaborates on the habituation explanation of the decline in relationship satisfaction by stating that the loss of new information about the other to include in the self accounts for the decrease in novelty in the relationship. Also, the habituation is experienced as aversive because the opportunity for self-expansion decreases (Aron & Aron, 1997; Aron et al., 2004).

Self-expansion theory offers the prediction that couples who have passed through the period of rapid self-expansion can increase satisfaction with their relationship by spending time together in self-expanding activities (Aron & Aron, 1997). Participation in these activities will allow each partner to experience self-expansion while associating the affectively positive state of expansion with the relationship. When couples engage in self-expanding activities, both the relationship and the activity is reinforced through the desired experience of self-expansion. According to Aron and Aron, participation in self-expanding activities should only increase relationship satisfaction after the couple has passed through the initial stages of the relationship, during which the development of the relationship itself satisfies the need for self-expansion.

Several empirical studies provide support for this prediction. Reissman et al. (1993) asked couples to engage in either pleasant or exciting (“exciting” is the term often used in the literature to represent “novel and arousing”) activities for an hour and a half each week for ten weeks; the study also included a no-activity control condition. Couples who engaged in exciting activities reported a greater increase in marital satisfaction than couples who engaged in pleasant activities. Also, couples who engaged in pleasant activities reported a decrease in marital satisfaction, which is consistent with the prediction of self-expansion theory that time spent

together in non-expanding activities may actually decrease marital satisfaction through an association of boredom with the relationship.

Aron, Norman, Aron, McKenna, and Heyman (2000) presented findings from two questionnaire studies and three laboratory experiments that support the hypothesis that engaging in expanding (novel and arousing) activities increases relationship satisfaction/quality. In the two questionnaire studies, married individuals reported the types of activities that they engaged in with their partner and completed measures of relationship satisfaction and boredom with the relationship. Aron et al. found that individuals who engaged in self-expanding (exciting) activities with their partner reported greater satisfaction with their relationship, and this effect was mediated by boredom with the relationship, which is consistent with self-expansion theory. In the laboratory studies, couples participated in either mundane or exciting activities (one study included a no-activity control condition) and completed pre- and post-test measures of relationship satisfaction and passionate love. Findings indicated that couples who participated in the exciting activity experienced a greater increase in relationship satisfaction and passionate love than couples who participated in either a mundane activity or no activity. One of the laboratory studies also included a pre- and post-test video-taped interaction in which participants were videotaped for five minutes engaging in a standardized discussion task. Interactions were coded for communication characteristics associated with relationship quality. Couples who engaged in an exciting activity exhibited greater increases in positive communication indicative of relationship quality than couples who engaged in a mundane activity. Taken together, these studies all provide support for the prediction made by self-expansion theory that engaging in expanding activities improves experienced relationship quality, and the three laboratory studies make a causal connection between these two factors.

The implications of self-expansion theory and the positive relationship between participation in self-expanding activities and relationship satisfaction have practical significance. Encouraging couples to engage in self-expanding activities is a relatively simple and easy intervention to employ (Aron et al., 2000). Aron et al. (2001) suggest that the intervention may be especially beneficial in the beginning stages of couples therapy due to its potential to immediately create positive affect in the context of the relationship. Another benefit of a self-expansion based intervention for couples is that it requires minimal professional resources. Also, it is a very straightforward intervention and could likely be implemented with couples who are not appropriate for or do not respond well to traditional verbal interventions (Aron et al., 2002). While traditional marital therapy encourages couples to engage in caring or positive behaviors, the finding of decreased marital satisfaction for couples who engaged in pleasant, but not exciting, activities suggests that this approach may not be best (Aron et al., 2000). However, Aron et al. (2001) caution that both partners must find the activities to be exciting, and they also suggest that therapists not encourage couples to participate in exciting activities when there are other activities in their life that are novel and arousing because too much excitement and arousal may be stressful for the couple.

*Inclusion of the other in the self.* In addition to a desire to experience expansion that can be fulfilled through close relationships and self-expanding activities, self-expansion theory also elaborates on the cognitive process of including the other in the self. According to Aron et al. (2004), “inclusion of the other in the self is the essence of relationshipness” (p. 112). When the other is included in the self, the two identities seem to be merged or connected, and what is one’s becomes the other’s, so the self is expanded through this overlap with the other (Aron & Aron, 1997). In close relationships, the inclusion of the other in the self is mutual. Research on

inclusion of the other in the self has focused on two aspects of the process: the extent to which partners in close relationships seem to view the other as overlapping or connected to the self, and the tendency of partners to include the other's resources, perspectives, and identities in the self.

Exploration of the view of close partners as overlapping or connected has centered on the development and use of the Inclusion of Other in Self Scale (IOS Scale, Aron, Aron, & Smollan, 1992). The IOS Scale presents 7 Venn-like diagrams of pairs of circles overlapping to various degrees and instructs participants to select the diagram that best represents their relationship with a specified other. The total area of the figures is constant, so the diameter of each circle increases as the overlap increases, and the progression of overlap is linear, representing a 7-point interval scale. Greater overlap of the circles is thought to correspond with a greater degree of closeness in the relationship. Aron et al. (p. 598) suggest that this pictorial metaphor represents shared elements of the self and other, as well as a "general union of self and other."

According to Aron et al. (1992), the IOS Scale has exhibited adequate reliability, including test-retest and alternate-form reliability, as well as convergent validity (adequate correlation with other measures of closeness), discriminant validity (low correlation with a measure of anger and sadness in a similar over-lapping circles format), and predictive validity (correlation with whether or not couples had broken up several months after testing). Aron et al. conducted a factor analysis with the IOS Scale and other measures of intimacy and closeness which yielded a two-factor model. The two factors corresponded to feeling close and behaving close. The IOS Scale had high to moderate loadings on both factors. The IOS Scale seems to measure both components of closeness, feeling close and behaving close.

Agnew, Van Lange, Rusbult, and Langston (1998) also provided support for the validity of the IOS Scale as a measure of closeness in relationships. They asked participants to complete

a relationship-description task as well as measures of relationship centrality and relationship commitment. Use of plural pronouns in the relationship-description task, which they described as a measure of “cognitive interdependence,” was positively related to responses on the IOS Scale. Similarly, reported centrality of the relationship to the self, as well as commitment to and satisfaction with the relationship were positively associated with inclusion of other in self.

Although the desire to possess the other’s perspectives, identities, and resources initially motivates a person to enter into a close relationship, once the relationship is established, the other is included in the self, so that everything the other possesses is also possessed by the self, and vice versa (Aron & Aron, 1996). The motivation to expand the self may initially be a selfish reason to enter into a relationship; however, after self-expansion has occurred and the other is included, each partner seeks to protect the other person’s resources, perspectives, and identities, because they are also his or her own (Aron & Aron, 1997). Including the other in the self results in similar cognitive processing and motivational evaluation for the other’s resources, perspectives, and identities as for the self’s (Aron & McLaughlin-Volpe, 2001).

Aron et al. (1991) identified three areas of research that explore cognitive effects of behavioral interdependence in close relationships: change in resource allocation, change in perspective, and sharing identities. According to Aron et al., resources are shared, difference in perspectives of self and other decrease, and characteristics of the other’s identify are considered as one’s own. Aron et al. designed a three-part study to examine the relationship between each of these factors and inclusion of the other in the self. Participants were asked to allocate a series of monetary amounts between the self and a specified other. Participants made least difference in allocation of money for best friends (greatest degree of inclusion of other in self), intermediate

difference for friendly acquaintances (moderate degree of inclusion of other in self), and greatest difference for strangers (least degree of inclusion of other in self).

To examine change in perspective, Aron et al. (1991) asked participants to imagine one of three target individuals: their self, their mother, or an entertainment personality. Then, they presented participants with a series of 60 nouns on a screen and given the instructions to imagine the target individual interacting with the noun on the screen. After the entire series had been presented, participants were instructed to write down as many of the nouns as they recalled. Participants who imagined the entertainment personality interacting with the nouns recalled more nouns correctly than participants imagining themselves or their mother interacting with the nouns, indicating a greater similarity of perspective between the self and the close other (mother) than between the self and the unclosed other (entertainment personality).

Finally, in an exploration of the shared identity between close others, Aron et al. (1991) hypothesized that individuals would be more likely to confuse elements of the self with elements of the close other, due to the shared identity, than with elements of an unclosed other. They hypothesized that participants would exhibit longer reaction times for adjectives that were rated differently for self and spouse than for adjectives rated the same for self and spouse. Participants rated the descriptiveness of a list of adjectives for themselves, their spouse, and an entertainment personality. After completing a distraction task, they were presented with the same list of adjectives and asked to categorize each word as “me” or “not me.” Participants responded to adjectives that were rated differently for spouse and self more slowly than to adjectives that were rated similarly for spouse and self. How the trait was rated for the entertainment personality did not affect this pattern. Aron et al. suggest that these findings indicate that individuals confuse characteristics of close others with characteristics of the self, as indicated by the longer reaction

times. Also, closeness (as measured by the IOS Scale) correlated with reaction time, suggesting that closeness correlates with the degree of confusion between the self and the other.

*Focus on relationship.* As previously stated, the Vedic literature that forms the basis of self-expansion theory views the desire for expansion of the self as motivation for all human activities (Aron & Aron, 1986). Due to their interest in love, Aron and Aron have focused on the experience of self-expansion in relationships, although they do address the nature of self-expanding activities; they emphasize the effect of these activities on relationship, but it is understood that novel and arousing activities can create self-expansion outside the context of relationships. In fact, they list individual areas of self-expansion as “learning, career, family, friendships, athletics, travel, artistic self-expression, politics, gossip, religion, and peak experiences in nature” (Aron & Aron, 1996, p. 47).

#### *Phenomenological Similarities of Flow and Self-expansion*

The review of these bodies of literature reveals some phenomenological similarities between flow and self-expansion. First, these states are characterized as affectively positive and intrinsically motivating. The state of flow is associated with a wide variety of positive moods, including happiness, excitement, enjoyment, cheerfulness, friendliness, and satisfaction (Asakawa, 2004; Chen, 2006; Csikszentmihalyi & LeFevre, 1989). In fact, the frequency of time spent in flow is a strong predictor of an individual's overall level of happiness (Csikszentmihalyi and Hunter, 2003). Also, a defining feature of flow is that the experience is autotelic, or engaged in for its own sake. Although self-expansion theory suggests that the motivation for expansion of the self is the attainment of resources to achieve goals, Aron and Aron (1997) acknowledge that the state of expansion becomes desirable in its own right, so that individuals will engage in self-expanding activities just to experience the affectively positive state of expansion. Second, the

activities that produce these states share fundamental qualities. Novelty is essential to both flow and self-expanding activities. Flow activities must be novel to the degree that they offer a challenge to the individual. Novelty is also the primary characteristic of self-expanding activities, because novel activities offer the knowledge and experiences that increase the content of the self. Third, both flow and self-expansion result in an increase in the growth and complexity of the self. The Flow Channel model describes how increases in challenge and skill within a given activity contribute to the growth of the self. Csikszentmihalyi (1997b) also suggests that the loss of self-consciousness characteristic of the flow experience results in a more complex self-concept. Increase in the growth and complexity of the self is the defining feature of self-expansion theory, which states that much, if not all, human behavior is motivated by a desire to expand, or increase the diversity and complexity, of the self.

Graham (2008) has also suggested that there may be some commonality between these experiences. He used an experience-sampling methodology to investigate the experience of self-expansion in romantic relationships. However, his study did not include a direct comparison of the states; instead, a measure of “activation” was adapted from studies of flow and used as an indicator of self-expansion. As predicted by self-expansion theory, activation was positively related to relationship satisfaction, and this relationship was mediated by positive affect. Unfortunately, by not including measures of both self-expansion and flow, Graham was unable to compare the experiences and, some may argue, may have obscured his results by using a measure of flow as an indicator of self-expansion when there is not yet sufficient evidence for their equivalence.



### *Current Study*

Given the phenomenological similarities of flow and self-expansion, it is possible that they do not comprise two distinct forms of experience. The current study explored the degrees of overlap between the states of flow and self-expansion at various levels of examination, including general, activity-specific, relationship-specific, and predictive contexts. General measures of flow and self-expansion identified a particular activity that produces the experience of flow, an activity that produces the experience of self-expansion, a relationship that produces the experience of self-expansion, and a relationship that produces the experience of flow.

Participants then completed traditional measures of both flow and self-expansion, which assess the experience of flow in the selected activity and the experience of self-expansion in the selected relationship. They also completed modified versions of these measures that assess the experience of flow in the relationship and the experience of self-expansion in the activity. The information from activity versions of flow and self-expansion measures allowed for comparison of these states within a given activity, and the information from relationship versions of flow and self-expansion measures allowed for comparison of these states within a given relationship.

To examine flow and self-expansion in predictive contexts, the ability of flow and self-expansion experienced within a particular relationship to predict a characteristic of the relationship was examined, and the ability of a personality trait to predict flow and self-expansion experienced within a particular activity were evaluated. To allow for these comparisons, participants completed a measure of attraction to the other, and the ability of the relationship versions of flow and self-expansion measures to predict attraction to the other were compared. Self-expansion theory suggests that self-expansion experienced within a particular relationship would be strongly related to attraction to other (Aron & Aron, 1997). Similarly,

participants completed a measure of trait happiness, which was selected due to the association between time spent in flow and overall level of happiness, and the ability of this trait to predict activity versions of flow and self-expansion was assessed (Csikszentmihalyi & Hunter, 2003).

Hypotheses included:

1. Within a given activity, flow and self-expansion would be positively correlated.
2. Within a given relationship, flow and self-expansion would be positively correlated.
3. Relationship-specific measures of flow and self-expansion would similarly predict attraction to other.
4. Trait happiness would similarly predict activity-specific flow and self-expansion.

## CHAPTER 2

### METHOD

#### *Design*

The current study used a correlational design to examine the similarity of two experiential states, flow and self-expansion, by comparing them in general, activity-specific, and relationship-specific contexts; examining their ability to predict attraction in relationships; and evaluating the ability of trait happiness to predict flow and self-expansion in activities. General flow was measured by the Flow Questionnaire (Flow Q), and general self-expansion was measured by a version of the Flow Questionnaire modified to assess self-expansion (General Self Expansion; GSE). The experience of flow specific to a given activity was measured with the Dispositional Flow Scale-2 (DFS-2); flow experience in a particular relationship was measured with a modified version of the DFS-2 (Relationship Flow Scale; RFS). Relationship-specific self-expansion was measured by the Self Expansion Questionnaire (SEQ), and a parallel version of the Self Expansion Questionnaire that assesses the experience of self-expansion in a particular activity was created to measure activity-specific self-expansion (Activity Self Expansion Questionnaire; ASEQ). Attraction in a specific relationship was measured with Liking and Loving Scale, which assesses companionate love. Trait happiness was measured with the General Happiness Scale (GHS). All measures were given in a single administration.

## *Participants*

### *Participant Characteristics*

Participants were 127 undergraduate students enrolled in Introductory Psychology courses at Indiana State University (ISU). Students received extra credit in exchange for their participation. Previous research on both flow and self-expansion has been conducted with university students, and the measures of general flow (Flow Q), activity-specific flow (DFS-2), relationship-specific self-expansion (SEQ), attraction (Liking and Loving Scale), and trait happiness (GHS) have been used with college student samples.

Ninety-one women and 36 men participated in the study (71.7% and 28.3% of the total sample, respectively). Participants' mean age was 20.9 with a range of ages from 18 to 45. Approximately 80% of the sample were Caucasian, 17% were African American, 6% were American Indian/Alaskan Native, and 7% indicated another ethnicity. (Percentages do not sum to 100% because participants were allowed to indicate more than one ethnicity.) Approximately 40% of participants were freshmen, 22% were sophomores, 16% were juniors, and 22% were in their senior year at the university. Thirty-four participants indicated that they were not currently employed, 8% were employed full-time, and 58% were employed part-time. Approximately 65% of participants indicated that they were involved in a romantic relationship. The average length of relationship was 28 months with a range of one month to eight years. Fifty-nine percent of participants indicated that they were involved in a close non-romantic relationship; the average length of the relationship was 6.1 years with a range of one month to 23 years. Students had to be at least 18 years of age to participate. No other exclusionary criteria were employed.

## *Materials*

### *Measures*

Each participant completed general, activity-specific, and relationship-specific measures of flow and self-expansion, as well as measures of attraction in a relationship and trait happiness, and a demographic questionnaire.

*General flow.* General experience of flow was measured by the Flow Q (Csikszentmihalyi, 1982b; Csikszentmihalyi & Csikszentmihalyi, 1988; Appendix A). The Flow Q has been used with a variety of populations, including villagers in Northern Italy, cave explorers, dancers, former drug addicts, students in Arizona, Bangkok, and Thailand (Massimini, Csikszentmihalyi, & Delle Fave, 1988), professional and blue-collar working women (Allison & Duncan, 1988), and elderly Korean immigrants (Han, 1988). The Flow Q presents respondents with quotes from a rock climber, composer of music, and dancer describing the flow experience. Csikszentmihalyi took the quotes from the interviews in his original studies in which participants were asked to describe how they felt when their favorite activity was going well (Csikszentmihalyi, 1975a, as cited in Massimini et al.). After respondents read the three quotes, they are asked if they have ever had a similar experience; if they answer yes, they are prompted to indicate what they were doing when they had the experience and how frequently they have had the experience. Csikszentmihalyi (1982b) categorized participants' responses into five activity domains: social activities, passive attending activities (watching television, listening to music), work activities, hobbies and home activities, and sports and outdoor activities.

For the purposes of the current study, two additional items were included to directly assess whether participants have had such an experience in the context of a particular activity and interpersonal relationship, respectively, and to identify the type of relationship and activity

in which the experience has occurred. Responses were recorded by the web survey program, and participants were prompted to respond to the activity measures (DFS-2 and ASEQ) according to their experience in the activity they identified.

*General self-expansion.* A parallel version of the Flow Q was created to assess for general self-expansion experience (GSE; Appendix B). The GSE presented respondents with three quotes describing the experience of self-expansion. Participants were asked if they have ever had a similar experience, and if so, how frequently they have the experience and what type of activity would produce the experience.

Consistent with the addition to the Flow Q, two items were included to directly assess whether participants have had such an experience in the context of a particular activity and interpersonal relationship and to identify the type of relationship and activity in which the experience has occurred. Responses were recorded by the web survey program, and participants were prompted to respond to the relationship measures (RFS and SEQ) according to their experience in the relationship they identified.

*Activity-specific flow.* Flow experienced in the context of a particular activity were measured with the DFS-2 (Jackson & Eklund, 2002; Appendix C). The DFS-2 is a 36-item measure that presents respondents with a series of statements. Participants are asked to rate each item according to their experience in a predetermined activity on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). Items include statements describing nine dimensions of flow: challenge-skill balance, action-awareness merging, clear goals, unambiguous feedback, concentration on task, sense of control, loss of self-consciousness, time transformation, and autotelic experience; these subscales correspond to the six characteristics and three conditions of flow discussed earlier. According to Jackson and Eklund, factor analyses have supported a nine-

factor structure for the DFS-2, with factors corresponding to the nine dimensions. Examples of items include “It feels like time goes by quickly” (time transformation) and “I have a sense of control over what I am doing” (sense of control).

For the present study, participants were asked to respond to the DFS-2 according to their experience in the activity they identified in the Flow Q as providing an experience of flow. The DFS-2 demonstrated adequate reliability with an alpha coefficient of .96. Similarly, the subscales of the DFS-2 also demonstrated good reliability with alpha coefficients of .84 (challenge-skill balance), .84 (merging of action and awareness), .86 (clear goals), .89 (unambiguous feedback), .92 (concentration on task), .92 (sense of control), .90 (loss of self-consciousness), .93 (time transformation), and .94 (autotelic experience).

*Relationship-specific flow.* Flow experienced in a particular relationship was measured with a version of the DFS-2, in which participants were instructed to respond to items according to their experience in the relationship they identified in the GSE as providing an experience of flow (RFS; Appendix D). The RFS demonstrated good reliability with an alpha coefficient of .98. The subscales of the RFS also demonstrated adequate reliability with alpha coefficients of .89 (challenge-skill balance), .91 (merging of action and awareness), .93 (clear goals), .93 (unambiguous feedback), .92 (concentration on task), .92 (sense of control), .90 (loss of self-consciousness), .93 (time transformation), and .94 (autotelic experience).

*Relationship-specific self-expansion.* Self-expansion experiences within a particular relationship were measured with the SEQ (Lewandowski & Aron, 2002, as cited in Lewandowski et al., 2006; Appendix E). The SEQ presents 14 statements and instructs respondents to rate each item on a 7-point Likert scale ranging from 1 (*not very much*) to 7 (*very much*) according to their current romantic relationship. Examples of items include “How much

do you feel that you have a larger perspective on things because of your partner?” and “How much does your partner help to expand your sense of the kind of person you are?”

For the purposes of the current study, instructions were modified to ask participants to respond to the SEQ according to their experience in the relationship they have identified in the GSE as providing an experience of self-expansion. Items were also modified to apply to platonic as well as romantic relationships. The SEQ demonstrated good reliability with an alpha coefficient of .98 in the current sample.

*Activity-specific self-expansion.* The experience of self-expansion in a particular activity was measured with a version of the SEQ adapted to describe an activity rather than a relationship (ASEQ; Appendix F). Participants were instructed to respond to the ASEQ according to their experience they identified in the Flow Q as providing a flow experience; this was the same activity that they used to respond to the DFS-2. The ASEQ demonstrated good reliability with an alpha coefficient of .95.

*Attraction.* Attraction to another was measured with the Liking and Loving Scales (Rubin, 1970; Appendix G). The Liking and Loving Scales consist of two scales which assess liking and loving towards a particular person, respectively. Each scale contains 13 items with a “\_\_\_\_\_” in which respondents insert the name of their romantic partner. Examples of items include “I think that \_\_\_\_\_ and I are quite similar to one another” and “I feel that I can confide in \_\_\_\_\_ about virtually everything.” Respondents rate items on a 9-point Likert-type scale ranging from 1 (*not at all true, completely disagree*) to 9 (*definitely true, agree completely*).

For the purposes of the current study, instructions were modified to ask participants to respond to each item according to their experience with the person in the relationship that they have identified in the GSE as providing an experience of self-expansion; this was also the same



relationship that they have described in their responses to the relationship-specific measures of flow (RFS) and self-expansion (SEQ). In the current sample, the Liking scale demonstrated good reliability with an alpha coefficient of .97. Similarly, the Loving scale demonstrated good reliability with an alpha coefficient of .94. The correlation between the Liking and Loving scales was highly positive and significant ( $r = .71$ ); therefore, for the purposes of the current study, all items from both subscales were averaged to create a single measure ( $\alpha = .97$ ).

*Trait Happiness.* Trait happiness was measured with the GHS (Lyubomirsky & Lepper, 1999; Appendix H). The GHS contains four items that assess the respondent's perceived level of happiness. Each item consists of a prompt and a 7-point Likert-type rating scale. Examples of items include "In general I consider myself..." which respondents rate on a scale ranging from 1 (*not a very happy person*) to 7 (*a very happy person*), and "Compared to most of my peers, I consider myself..." which respondents rate on a scale ranging from 1 (*less happy*) to 7 (*more happy*). In the current sample the GHS demonstrated adequate reliability with an alpha coefficient of .84.

*Demographic Information.* Participants completed a form assessing standard demographic variables, including age, gender, and ethnicity (Appendix I). Participants were also asked about their current romantic relationship status, involvement in other close relationships, and participation in activities including sports, outdoor activities, video games, and other hobbies.

#### *Procedure*

Participants were recruited through an announcement in their undergraduate psychology course. Students were asked to participate in a study on experiences in relationships and

activities, and they were instructed to access the survey through a hyperlink provided by the investigator.

Upon accessing the website, participants viewed an informed consent statement (see Appendix J). After giving consent (via clicking on the link), participants completed the measures in the following order: general flow (Flow Q), activity-specific flow (DFS-2), activity-specific self-expansion (ASEQ), general self-expansion (GSE), relationship-specific flow (RF), relationship-specific self-expansion (SEQ), attraction in a relationship (Liking and Loving Scale), trait happiness (GHS), and demographic information.

After completing the measures, the website presented a debriefing form to participants (Appendix K) containing a brief explanation of the study's theory, hypotheses, and methods. The debriefing form also contained the investigator's name and email address so that participants could contact her for questions about the study or to request information regarding the outcome of the study.

## CHAPTER 3

### RESULTS

#### *Overview*

The results are presented in three sections. The first presents preliminary analyses. These include information on descriptive statistics and data-cleaning procedures. Also reported are responses to the general flow and self-expansion questionnaires. The second section is comprised of correlational analyses that test the previously stated hypotheses that are based on a proposition that flow and self-expansion are closely-related constructs. The final section includes additional analyses that test for differences in the conditions and characteristics of flow experiences in activities and relationships.

#### *Preliminary Analyses*

Distributions of all variables were reviewed. The results presented below include all cases with available data on all variables. Additional analyses that excluded the most extreme cases yielded substantively identical results and are therefore not reported.

Descriptive statistics were calculated on all variables, and though not hypothesized, demographic differences were explored. Although prior research has not reported differences based on gender, age, or ethnicity in flow or self-expansion experiences, two significant differences related to ethnicity were obtained in the current study. Participants who indicated a

minority ethnicity reported higher levels of flow in relationships ( $M = 3.93$ ,  $SD = 0.53$ ) than did Caucasian participants ( $M = 3.56$ ,  $SD = 0.62$ ),  $t(61) = -2.01$ ,  $p = .049$ . Ethnic minority students also reported higher levels of self-expansion in relationships (minority:  $M = 5.96$ ,  $SD = 1.16$ ; Caucasian:  $M = 5.09$ ,  $SD = 1.41$ ),  $t(61) = -2.11$ ,  $p = .309$ . Given these differences, all correlations reported below were recomputed controlling for minority effects. Results based on these partial correlations are presented in Appendix L. As the partialling made no difference in the pattern of results (and typically yielded stronger findings), only the original, unpartialled results are presented below.

#### *Frequency of Flow and Self-expansion Experience.*

On the Flow Q, a majority of students (67.7%) reported having a previous flow experience; a majority of students (66.9%) also reported having a previous self-expansion experience on the GSE. To examine the correspondence of these experiences, a chi-square analysis was performed. Fourteen percent of participants reported never having had a flow nor self-expansion experience while 49% reported having had both. Nineteen percent reported having a flow experience but not a self-expansion experience, and 18% reported having a self-expansion experience but not a flow experience. The chi-square was marginally significant,  $\chi^2(1, N = 127) = 3.21$ ,  $p = .07$ ,  $\phi = .16$ , suggesting that these experiences do co-occur: students reporting one experience are slightly more likely to report the other experience as well.

Table 1 presents distributions of the frequency of students' flow and self-expansion experience (grouped for display purposes; note that ungrouped responses were used for analysis below). A large-sample approximation to  $z$  (based on the Wilcoxin matched-pairs signed-ranks test) was significant,  $z = -2.101$ ,  $N = 61$ ,  $N$  minus Ties = 43,  $p = .036$ , suggesting that, among students reporting both experiences, flow experiences were reported as more frequent (between

2-3 times per month and once per week) than self-expansion experiences (between once a month and 2-3 times per month). Even so, frequency of having these two experiences was significantly correlated, Spearman's  $r = .415, p < .001$ .

Table 1

*Reported Frequencies of Flow and Self-Expansion Experiences*

Frequency	State	
	Flow	Self-Expansion
Never <sup>a</sup>	41 (32.3%)	42 (33.1%)
Frequently (At least once per week) <sup>b</sup>	44 (51.2%)	38 (44.7%)
Occasionally (Less than once per week but more than once per year) <sup>b</sup>	27 (31.8%)	34 (40.0%)
Rarely (Once per year or less) <sup>b</sup>	14 (16.5%)	13 (15.3%)
Total <sup>b</sup>	85 (100%)	85 (100%)

*Note.* <sup>a</sup>Percentages based on overall sample,  $N = 127$ . <sup>b</sup>Percentages based on number of participants reporting a previous flow experience (column 1) or self-expansion experience (column 2). One participant reported having a previous flow experience but did not provide a rating for frequency of flow experiences and, therefore, is not included in the total.

### *Flow and Self-expansion Activities*

Of the 86 students reporting a previous flow experience, 13 (15.1%) failed to identify a particular activity in which they experience flow, and 34 (40%) of the 85 students who reported a previous self-expansion experience failed to identify a particular activity in which they experience self-expansion. Activities reported as sources of each experience were coded by the investigator as “social” (being with family, romantic partners, or friends; vacationing with others; parties; traveling) or “asocial” (all other activities, including work and school, sports, hobbies, watching television); Appendix M presents the percentages of responses in each category. The results using a more complex categorization scheme developed by Csikszentmihalyi (1982b) are found in Appendix N, which also includes Csikszentmihalyi’s findings for comparison.

Consistent with prior research, only a minority of students who specified an activity as the source of flow experiences identified a social activity (10.4%) while almost twice as many students who specified an activity as the source of self-expansion identified a social activity (19.6%); however, these proportions were not significantly different ( $N = 35, p = .559$ ), perhaps because of the small number of participants reporting activity-contexts for both experiences. Moreover, although a majority (68.6%) reported "asocial" activities as sources of both flow and self-expansion experiences and no one identified "social" activities as sources of both experiences, a chi-square test did not achieve significance,  $\chi^2(1, N = 35) = 1.13, ns, \phi = .18$ , lending support to a null hypothesis that the activity-bases for flow and self-expansion are independent, although caution is warranted given the small N available for this analysis.

### *Flow and Self-expansion Relationships*

Of the 86 students reporting having had a flow experience, only 40 (46.5%) identified a particular relationship in which they experienced flow, and only 48 (56.5%) of the 85 students who reported having had a previous self-expansion experience identified a particular relationship in which they experienced self-expansion. Because of the presumed importance of self-expansion as a source of romantic passion, these relationships were coded by the investigator as romantic (boyfriend, fiancé, etc) or non-romantic (friend, family member, etc). The proportions of responses in each category are presented in Appendix O, and the results using a more complex categorization scheme are found in Appendix P. While a majority of respondents who experienced flow described romantic relationships as the source of their experience (65%), unexpectedly, a majority of respondents who experienced self-expansion described a non-romantic relationship as the source of their experience (60.4%). However, there was no significant difference in the likelihood that romantic (vs. non-romantic) relationships were the source of either experience ( $N = 23$ ,  $p = .508$ ), again perhaps a result of the small available  $N$ .

Of students who reported relationships as the source of both flow and self-expansion experiences, 35% reported romantic relationships as the source of both experiences, while 26% reported non-romantic relationships as the source of their experiences. Another 25% reported experiencing flow in romantic relationships but self-expansion in non-romantic relationships, and 13% reported romantic relationships as the source of their self-expansion experiences, but non-romantic relationship as the source of their flow experiences. Although a chi-square test,  $\chi^2(1, N = 23) = 1.25$ ,  $ns$ ,  $\phi = .23$ , lends support to the null hypothesis that self-expansion and flow occur in different categories of relationship, the very small  $N$  for this analysis reduces confidence in this conclusion.

### *Primary Analyses*

Tables 2 and 3 present results that test the primary hypotheses of this study. Table 2 presents the correlations between flow and self-expansion as measured within the same context (relationship or activity) and across-contexts. If flow and self-expansion are identical constructs, they should be highly correlated within a particular context, more highly correlated, in fact, than when either is measured across contexts (where the correlation may reflect shared measurement techniques). For completeness, correlations that cross relationship and activity contexts as well as self-expansion and flow constructs, though not easily interpretable, are also reported. Table 3 presents comparisons of these correlations, which were analyzed t-tests of the significance of the difference between dependent  $r$ s. Note that listwise deletion, as necessary to compare different sets of correlations from the same sample, results in slightly different values being compared in Table 3 than shown in Table 2.



Table 2

*Intercorrelations among Flow and Self-Expansion Experiences in Activity and Relationship**Contexts*

Context and State	Activity		Relationship	
	Flow	Self-Expansion	Flow	Self-Expansion
<b>Activity</b>				
Flow	–			
Self-Expansion	.49** (N = 91)	–		
<b>Relationship</b>				
Flow	.48** (N = 48)	.32* (N = 48)	–	
Self-Expansion	.39** (N = 48)	.34* (N = 48)	.53** (N = 64)	–

*Note.* \*p < .05. \*\*p < .01.

Table 3

*Comparisons of Correlations of Flow and Self-Expansion within and across Relationship and Activity Contexts*

Within-State Correlations		
Within-Context Correlations	Activity and Relationship Flow ( $r = .48^{**}$ )	Activity and Relationship Self-Expansion ( $r = .34^*$ )
Activity Flow and Self-Expansion ( $r = .56^{**}$ )	0.61	1.56
Relationship Flow and Self-Expansion ( $r = .60^{**}$ )	0.93	1.80 <sup>+</sup>
Across-State and -Context Correlations		
Within-Context Correlations	Activity Flow and Relationship Self-Expansion ( $r = .39^{**}$ )	Relationship Flow and Activity Self-Expansion ( $r = .32^*$ )
Activity Flow and Self-Expansion ( $r = .56^{**}$ )	1.17	1.81 <sup>+</sup>
Relationship Flow and Self-Expansion ( $r = .60^{**}$ )	1.58	1.96 <sup>+</sup>

*Note.*  $df = 45$  for all comparisons.

The values represent t values for two-tailed t-tests.

<sup>+</sup> $p < .10$ . \* $p < .05$ . \*\*  $p < .01$ .

### *Hypothesis 1: Activity-specific Flow and Self-expansion*

In support of Hypothesis 1, degree of flow and self-expansion experienced within reported activities were significantly positively correlated,  $r = .49$ , as shown in Table 2. But as seen in Table 3, the correlation between self-expansion and flow in a specified activity was not significantly greater than the correlation between measures of self-expansion across contexts, nor was it greater than the correlation between measures of flow across contexts. The correlation between flow and self-expansion within activities was also not significantly greater than the correlation between flow measured in activities and self-expansion measured in relationships; it was (marginally) greater than the correlation between flow measured in relationships and self-expansion measured in activities.

### *Hypothesis 2: Relationship-specific Flow and Self-expansion*

Also shown in Table 2, degree of flow and self-expansion experienced within reported relationships were significantly positively correlated,  $r = .53$ , in support of Hypothesis 2. As seen in Table 3, this correlation was (marginally) significantly greater than the correlation between self-expansion measured across relationship and activity contexts, but it was not significantly greater than the correlation between flow measured across contexts. In addition, the correlation between flow and self-expansion within relationships was (marginally) greater than the correlation between flow measured in relationships and self-expansion measured in activities, but it was not significantly greater than the correlation between flow measured in activities and self-expansion measured in relationships.

### *Hypothesis 3: Relationship-specific Flow and Self-expansion and Attraction*

Ratings of self-expansion in reported relationships were positively correlated with attraction to other in the same relationship,  $r = .81$ ,  $N = 64$ ,  $p < .001$ . As expected, ratings of flow

in reported relationships were also positively correlated with attraction to other in the same relationship,  $r = .48$ ,  $N = 64$ ,  $p < .001$ . But unexpectedly, the correlation between self-expansion and attraction in a relationship was significantly greater than the correlation between flow and attraction in a relationship,  $t(61) = -3.30$ ,  $p < .01$ . Therefore, the data were only partially supportive of Hypothesis 3.

#### *Hypothesis 4: Activity-specific Flow and Self-expansion and Trait Happiness*

Unexpectedly, ratings of flow within reported activities were not related to trait happiness,  $r = .03$ ,  $N = 88$ , *ns*. Consistent with this latter result, ratings of self-expansion within reported activities were also unrelated to trait happiness,  $r = .10$ ,  $N = 88$ , *ns*, and there was no significant difference between these correlations,  $t(88) = 0.66$ , *ns*. Thus Hypothesis 4 was only partly supported.

#### *Additional Analyses*

##### *Conditions and Characteristics of Flow Experience in Activities and Relationships*

In order to examine the similarities between the conditions and outcomes of flow experiences in activities and relationships, scores on the subscales of the DFS-2 and the RFS were compared. As noted earlier, these subscales correspond to the three conditions (challenge-skill balance, clear goals, and unambiguous feedback,) and six characteristics of flow (action-awareness merging, concentration on task, sense of control, loss of self-consciousness, time transformation, and autotelic experience) that originated from Csikszentmihalyi's theory of flow and were confirmed in Jackson & Eklund's (2002) factor-analysis of the DFS-2. The mean of each DFS-2 subscale was compared with the corresponding subscale of the RFS. Regarding the flow condition subscales, there were significant differences in all three subscales. Students reported greater balance of challenge and skills in activities ( $M = 3.63$ ,  $SD = 0.77$ ) than in

relationships ( $M = 3.39$ ,  $SD = 0.84$ ),  $t(97) = 2.37$ ,  $p = .02$ . Similarly, students reported a greater clarity of goals in activities ( $M = 3.88$ ,  $SD = 0.72$ ) than in relationships ( $M = 3.57$ ,  $SD = 0.95$ ),  $t(97) = 2.87$ ,  $p = .005$ . Students also rated the level of unambiguous feedback higher in flow activities ( $M = 3.65$ ,  $SD = 0.77$ ) than in flow relationships ( $M = 3.42$ ,  $SD = 0.90$ ),  $t(97) = 2.26$ ,  $p = .026$ .

Regarding the flow characteristics subscales, there were no significant differences on five of the six subscales between students' ratings for activities and relationships, including merging of action and awareness, concentration on task, loss of self-consciousness, time transformation, and autotelic experience. Student did report a greater sense of control in activities ( $M = 3.73$ ,  $SD = 0.71$ ) than in relationships ( $M = 3.46$ ,  $SD = 0.88$ ),  $t(97) = 2.82$ ,  $p = .006$ .

## CHAPTER 4

### DISCUSSION

#### *Overview*

Results of the current study are discussed in five sections. The first presents a brief summary of the purpose and method of the study and reviews the major findings. The next section examines the major findings in the context of the existing literature on flow and self-expansion theories. Following is a discussion of the implications of these results for theory, research, and practice. Next, the limitations of the current study are evaluated, particularly in respect to design and internal validity, analyses, and measurement issues. The final section identifies future directions for research in this area.

#### *Summary of Results*

The phenomenological similarities between the states of flow and self-expansion suggests that they may constitute the same experience, although they have been identified and studied in separate subfields of psychology. The aim of the current study was to explore the similarities between two states of optimal experience, flow and self-expansion, by comparing them in general, activity- and relationship-specific, and predictive contexts. If flow and self-expansion are, in fact, the same state, they could be expected to occur in similar frequencies and in similar

situations (general context), occur similarly within a given context (activity and relationship contexts), and have similar outcomes (predictive contexts).

Evidence for the correspondence of flow and self-expansion experiences includes the tendency for individuals to have either had both or neither experience, the correlated frequency of the experiences, correspondence in the categories and activities in which they occur (though non-significant), correlations between experiences within activity and relationship contexts, their similar predictive validity, and the similar quality of flow when measured in both activity and relationship domains. Evidence against the correspondence of flow and self-expansion experiences includes the small size of coefficients measuring their relatedness within particular activity and relationship categories, the low specificity of the correlations (within context versus across contexts), and the much stronger relationship between self-expansion and attraction for one's partner than flow and attraction to one's partner.

Findings from the current study indicate that there is a positive relationship between the frequency of flow and self-expansion experiences. People who reported one experience tended to report the other, and although flow experiences may occur slightly more often, people reporting frequent flow experiences also reported more frequent self-expansion experiences. While flow and self-expansion experiences appear to be produced by a variety of activities and relationships across individuals, whether they emerge from the same activities or relationships (or even the same categories of activities or relationships) within an individual is unclear. Majorities of respondents reporting both experiences reported similar categories of activities (or relationships) as the source of their experiences, but the small N available for analyses means that their true relationship may have been missed (though it must be noted that phi-coefficients representing their correspondence were small). Regarding the main hypotheses, flow and self-expansion

experienced within a given activity were significantly positively related, and flow and self-expansion experienced within a given relationship were also significantly positively related, and although the relationships between flow and self-expansion within a given activity or relationship context were larger than the correlations of either trait measured across contexts or the nonsense correlations that cross states and contexts, these differences did not reach significance. Both flow and self-expansion experienced within a given relationship predicted attraction to another, although the relationship between self-expansion and attraction to another was stronger than the relationship between flow and attraction to other. Neither flow nor self-expansion in a specific activity predicted trait happiness, and even though such a correlation was expected, it is notable that even here, measures of flow and self-expansion showed correspondence.

Given these findings, it appears that flow and self-expansion are highly related constructs. It is possible that these two states are comprised of a core experience that is common to both, resulting in the similarities described above, but that each state represents some slight variations in this core experience associated with different contexts, i.e. activities and relationships.

### *Explanation of Findings*

#### *Frequency of Flow and Self-expansion*

A majority of participants (68%) reported a previous flow experience, and a similar majority (67%) reported a previous self-expansion experience. In addition, participants who reported having experienced one state were slightly more likely to report experiencing the other state. The frequencies of flow and self-expansion experiences were also positively related, although flow experiences occurred slightly more often than self-expansion experiences.



Csikszentmihalyi (1982b) found a higher proportion of respondents reporting a previous flow experience (approximately 87%) and at higher frequencies, with 70% of his participants reporting flow experiences at least once per week. There have been no published studies directly assessing the frequency of self-expansion experiences, either directly or through recall, but Aron & Aron (1986) assert that individuals are constantly in a state of self-expansion or integration, which would suggest that these experiences should be common. The current study represents the first collection of such data via self-report. Future research would benefit from direct assessment of the frequency of self-expansion experiences, possibly through the use of ESM, and investigation into the correlates of higher frequencies of the experience.

#### *Sources of Flow and Self-expansion*

A variety of activities and relationships were identified as sources of flow and self-expansion in the current sample. There appears to be some correspondence between sources of flow and self-expansion, but the degree of correspondence is unclear, partly due to the small number of participants in these analyses.

In the only published study linking flow and self-expansion theories, Graham (2008) asserted that flow activities were the same activities that produce self-expansion, which is consistent with the findings presented here. Indeed, sources of flow and self-expansion share many of the same characteristics. They must be sufficiently novel to present an above-average level of challenge and allow the person to become absorbed in the activity. They are also intrinsically motivating, in that persons tend to engage in them primarily for the experience itself rather than some external reward. Both types of activities also result in the acquisition of new information, skills, and resources. In addition, both flow and self-expansion theories suggest that

nearly any activity, when approached with a particular attitude, can produce the experience (Aron & Aron, 1986; Csikszentmihalyi, 1990).

Although Aron and Aron (1986) clearly assert that self-expansion can occur in any context where there is a sufficient degree of novelty, research has focused only on expansion occurring through initiating and maintaining a relationship. Questionnaire data considered couples to be engaging in expanding activities when they participated in activities judged as “exciting” by the participating couples (Aron et al., 2000). Experimental manipulations of self-expansion typically involve novel games that couples are asked to play in laboratory (e.g., Aron et al., 2000; Reissman et al., 1993). The present study represents the first investigation of self-expansion outside of romantic relationships, and findings support a broader conceptualization of the sources of expansion, which is consistent with the theory as originally described by Aron and Aron (1986).

In the current study, categorizing sources of flow and self-expansion experiences as “social” and “asocial” allowed for a general comparison of social sources of the experiences versus other sources (such as work, sports, etc.). However, many of activities categorized as “asocial” by this scheme are likely to have an interpersonal component. For example, many work activities involve interaction with others (meetings, communications with coworkers and consumers, collaborating on projects) as do school activities (classes, study groups, group projects). Many sports are team sports where the interpersonal interaction is likely to significantly contribute to (or detract from) positive experiences. Of course, there are also situations in which others may be present but do not play a central role, such as watching a movie. Therefore, future research on the specific sources of flow and self-expansion experiences

in activities should assess the interpersonal component of the context separately from the classification of the activity.

In the current study, the comparison of flow within relationships and flow within activities may serve as a starting point for this line of investigation. For example, ratings of each of the three conditions necessary for a flow experience were higher in the activity context than in the relationship context, suggesting that these conditions may be more common in the context of an activity. However, five of the six characteristics of the flow experience were rated similarly across activities and relationships, suggesting that the experience of flow is similar in both contexts. Sense of control was the only characteristic rated more highly in activities than in relationships, possibly because people are likely to perceive that they have less control over an experience when another person is involved. In future research, it would be beneficial assess whether other people were merely present during or integral to the experience.

#### *Flow and Self-expansion in Activities and Relationships*

The degree of flow and self-expansion experienced in a particular activity were positively related, as were the degree of flow and self-expansion experienced in a particular relationship. The relationships between flow and self-expansion within these contexts is not surprising, given the phenomenological similarities of flow and self-expansion experiences, as well as the similarity of types of activities and relationships that produce them. However, these relationships did not demonstrate a high degree of specificity when compared to correlations of flow and self-expansion across contexts and with correlations of flow and self-expansion across states and contexts. Correlations between flow and self-expansion—though higher than correlations across contexts or both contexts and constructs—were not significantly higher. This lack of specificity

may reflect individual differences in the tendency to experience psychological states like flow and self-expansion.

Indeed, Csikszentmihalyi (1997a) has found that some individuals spend a greater proportion of time in flow than others, regardless of the type of activity they engage in, which he cites as evidence for an autotelic personality. These individuals are thought to actively seek out situations that produce the flow experience and also to structure activities so that a flow experience is more likely (i.e., setting goals for an activity or increasing/decreasing the challenge of an activity to match the individual's skills). Similarly, Aron and Aron (1986) have suggested that some individuals may experience self-expansion more often than others, representing some sort of dispositional tendency toward self-expansion, although this claim has not been empirically investigated. Future research is needed to examine the nature of individual differences in the experience of flow and self-expansion.

#### *Flow, Self-expansion, and Attraction to the Other*

Both flow and self-expansion experienced in a relationship were positively related to attraction to the other, which is consistent with self-expansion theory (Aron & Aron, 1997); there have been no previous investigations of the relationship between flow experienced in a relationship and attraction to the other. However, the relationship between self-expansion and attraction was stronger than the relationship between flow and attraction. One potential explanation for this finding may be related to the measures used to assess flow, self-expansion, and attraction experienced within a relationship. Measures of the latter two constructs were specifically written to assess the construct within the relationship context, while the measure of the former construct was an adaptation of measure designed to assess the construct within the

context of an activity. Future research should utilize other measures or indicators of these constructs to clarify the relationship among them.

### *Flow, Self-expansion, and Trait Happiness*

Contrary to expectations, neither flow nor self-expansion experienced in an activity was related to trait happiness. Although previous research has found a relationship between flow and happiness (Csikszentmihalyi & Hunter, 2003), it was the overall time spent in flow that was related to overall happiness levels. The current study assessed the degree to which a particular activity produced a flow experience but not the amount of time spent in flow. Even if a person experiences a high degree of flow while engaged in a particular activity, these experiences may have little effect on the person's overall level of happiness if little time is spent in the activity or in other flow-producing activities. However, it is possible that flow and self-expansion within a particular activity may be related to satisfaction with that activity, given the association between self-expansion and satisfaction within a relationship (Aron & Aron, 1997), so future studies assessing the predictive ability of flow and self-expansion in an activity could use satisfaction as an outcome variable.

### *Implications of Findings*

#### *Theory*

The connection of flow and self-expansion does not require major revisions to either theory. The descriptions of the experiences, their role in promoting personal growth, the situations that produce them, and their outcomes, as described in the original theories, are quite compatible. However, as flow theory is considered to be a major component of the field of positive psychology, the connection of these two states has implications for this broader area. Rather than arising from a single theory or group of related theories, positive psychology has

developed as an umbrella, growing to encompass some constructs that have been studied for decades (Cowen & Kilmer, 2002). The current study contributes to this field by identifying another well-studied theory (i.e., self-expansion theory) that belongs under the umbrella of positive psychology. But, is it possible that self-expansion theory has something even greater to offer this burgeoning field?

Positive psychology has been criticized for lacking a cohesive theory (Cowen & Kilmer, 2002). At first, the field does seem too big and disparate to have an overarching theory that could apply to each of the various constructs and lines of research. A theory would need to be simple and universal; one that is too specific or too complex would not apply to some areas and potentially limit research in others. The theory of self-expansion, however, offers a simple and intuitively appealing framework for identifying and exploring constructs in light of the process of self-expansion. Accepting self-expansion theory as an organizing framework would also address many of the current issues in the field of positive psychology, including how a construct is judged to be positive (Kelley, 2000; self-expansion theory would suggest that a construct is positive to the degree that it presents opportunities for expansion), the role of positive experiences and positive relationships (Gable & Haidt, 2005), and the criticism that positive psychology has ignored contributions from Eastern traditions and previous work in other scientific fields (Robbins & Friedman, 2008; Walsh, 2000).

In summary, the current study connected two theories, one of which is prominent in the positive psychology literature and the other of which is rooted in relationship studies and Eastern Psychology. The theory of self-expansion is an appropriate addition to the field of positive psychology and may, in fact, offer a cohesive organizing framework to a sometimes disjointed field.

## *Research*

Researchers of both flow and self-expansion have developed unique research paradigms to study these phenomena. One of the benefits of linking the theories of flow and self-expansion is the possibility of applying research paradigms associated with one state to investigations of the other. For example, the Experiential Sampling Method, developed to examine the flow experience across a period of days and weeks (Csikszentmihalyi & Larson, 1992), can be used to study self-expansion over time, as Graham (2008) did in his study of self-expansion in couples. Interviews, which were essential to the development of flow theory and in creating a description of the experience (e.g., Csikszentmihalyi, 1975a; Csikszentmihalyi & Rathunde, 1992), could be used to elicit descriptions of the experience of self-expansion, which are sorely lacking in the literature.

Similarly, research methodologies from the self-expansion literature could be applied to and enrich understanding of flow theory. For example, studies have manipulated the state of self-expansion (e.g., Aron et al., 2000), while the majority of flow research relies on recall of the flow experience. Eliciting the state of flow in the laboratory, as has been done with self-expansion, would allow flow research to move beyond correlational findings and identify causal relationships between the flow experience and other constructs.

## *Practice*

Although neither theory has been systematically studied in clinical populations, both theories have practical implications. Multiple researchers have discussed the prescription of flow activities to individuals in order to increase positive emotion and quality of life in (Csikszentmihalyi, 1993; Delle Fave & Massimini, 1992; Karwoski, Garratt, & Ilardi, 2006). It may also be beneficial to recommend activities that provide for a self-expansion experience by

using the criteria of novelty and arousal when selecting these activities. Similarly, Aron and Aron (1997) have described the application of self-expansion theory to couples therapy by prescribing novel and arousal activities to couples in order to decrease boredom and increase satisfaction with the relationship, and a causal relationship has been found between participation in expanding activities and increased relationship satisfaction (Aron et al., 2000). Assisting couples in identifying and participating in activities that produce flow may also improve marital satisfaction through the same mechanism of associating the relationship with the positive experience.

Both of these suggested applications of flow and self-expansion theories involve the prescription of engagement in a particular activity. Behavioral activation is a commonly used therapeutic intervention that has been shown to decrease symptoms of depression and increase positive emotion in clinical populations (Martell, 2003). Typically, the only criterion for selecting an activity is that the patient perceives it as pleasant. However, participation in pleasant events does not necessarily produce the flow experience (Karwoski et al., 2006) nor does it always produce self-expansion (Reissman et al., 1993), because pleasant events may not be sufficiently novel or challenging to produce the intense absorption associated with flow and self-expansion experiences. Therefore, an argument can be made for modifying behavioral interventions to include activities that provide the opportunity for positive experiences, such as flow and self-expansion, in hopes of producing outcomes associated with these respective states, including increase in personal growth (Aron & Aron, 1986; Csikszentmihalyi, 1990), positive emotions (Aron & Aron; Csikszentmihalyi & LeFevre, 1989), and satisfaction with relationships (Aron et al., 2000).



## *Limitations*

### *Design and Internal Validity*

The design of the current was correlational; flow and self-expansion experiences were not manipulated. Therefore, no statements can be made regarding causation between identified sources of flow and self-expansion and the experiential states or between the states and their predicted outcomes. Quasi-experimental and experimental methods are needed to fully explore the connection between the experiences of flow and self-expansion and make statements regarding causation.

The study also relied on recall of flow and self-expansion experiences. Students were allowed to choose flow and self-expansion experiences to respond to questionnaire items, so the length of time between the occurrence of the experience and the time of the study could be quite variable. An experimental design that allows for the manipulation of flow and self-expansion experiences in the laboratory would allow causal statements to be made and limit the period between the experience and the recall of the experience, possibly improving the accuracy of the information provided by the participants.

### *Analyses*

For the analyses comparing two sets of correlations within the predictive context (e.g., the comparison of the correlations of attraction with flow and self-expansion, and the comparison of the correlations of trait happiness with flow and self-expansion), no differences between the relationships were expected, as flow and self-expansion were hypothesized to be the same construct. Therefore, the null hypothesis was predicted in these analyses and retained in one, but the absence of differences – even those consistent with one’s hypothesis – is always difficult to interpret.

Regarding the sources of flow and self-expansion, it was necessary to reduce the number of categories and create dichotomous categorization schemes in order to compare the distributions across types of activities and relationships. While this strategy allowed for specific comparisons, such as between social and asocial activities, it would also be beneficial to compare the distributions in more complex (non-dichotomous) categorization schemes. Even after re-categorization, it is noteworthy that many of these comparisons still had small numbers of subjects, which should reduce confidence in non-significant findings.

### *Measurement*

No general measure of self-expansion exists, so a measure of flow (the Flow Questionnaire) was adapted in order to collect information regarding frequency and sources of self-expansion experiences. In addition, the wording of a measure designed to assess flow experience within a given activity was modified to allow for the assessment of flow experience within a given relationship, and the wording of a measure of self-expansion within a given relationship was similarly modified to allow for the assessment of self-expansion within a given activity. Future investigations in this line of investigation should use other operational definitions of these two states. Csikszentmihalyi (1992) has described the drawbacks of limiting a definition of a construct to a particular score on a measure, and this point is certainly important in comparisons of these two states to ensure that the similarities and distinctions identified are due to actual similarities and differences between the experiences, rather than the measures being utilized.

### *Future Directions*

The current study represented a preliminary investigation of the connection between two types of positive experiences, flow and self-expansion. Given the strong correlation between

these two states across relationship and activity contexts, as well as the relationship both states exhibited with attraction to the other, further exploration of this overlap is warranted. Future research should continue to explore the connection between flow and self-expansion using other methodologies. For example, a potential follow-up study could involve giving participants a definition of flow and self-expansion as well as unlabeled descriptions of the experiences, and then having participants sort descriptions into flow and self-expansion experiences according to the definitions of each state. If participants are unable to correctly sort the descriptions, it would lend further support to the hypothesis that the states are the same.

#### *Attending to the Unexplored*

Although considered central to the model, the processes of integration and de-expansion have not been explored in empirical investigations of self-expansion theory. In order to compare the complete theory of self-expansion with that of flow, these aspects of the model must be investigated to determine whether they function as theorized. Interestingly, corresponding processes have been described in the literature on flow.

Csikszentmihalyi (1990) proposed two psychological processes resulting in complexity of the self: differentiation and integration. Although these labels sound similar to the expansion-integration cycle proposed by self-expansion theory, their meanings are slightly different. According to Csikszentmihalyi, differentiation refers to a state of increase in uniqueness and separating oneself from others, while integration consists of a union with others and with ideas outside of the self. With these definitions, Csikszentmihalyi's process of integration is closer to self-expansion theory's process of expansion, while his process of differentiation is more akin to the process of integration. Despite this nominal confusion, it is striking that both theories posit an alternating cycle of expansion and synthesis.

Csikszentmihalyi (1982b) also discussed a process that may be akin to de-expansion. He states that if a person fails in accomplishing a goal, the awareness of this failure “will usually result in a weakening of the self” (p. 30). Self-expansion research has identified a similar decrease in the complexity of the self-concept after the dissolution of an expansion-producing relationship (Lewandowski et al., 2006); a similar methodology could be employed to explore the “weakening of the self” described by Csikszentmihalyi.

#### *Comparing and Connecting Varieties of Positive Experience*

Additionally, the current study supports the need to develop a methodology for examining connections among optimal states of experience. Research may identify other states of positive experience, while also exploring the connections of these states with flow and self-expansion and consolidating the theories into a coherent framework. Mindfulness practice, for example, produces a state of nonjudgmental awareness of the present moment (Kabat-Zinn, 1990) that has similarities with flow and self-expansion. For example, descriptions of both flow and mindfulness emphasize attentional control, focus on the present moment, and a nonjudgmental stance (Kabat-Zinn, 1990; Csikszentmihalyi, 1990), while Aron and Aron (1986) identified meditation (specifically Transcendental Meditation) as a source of self-expansion for frequent practitioners. Other positive experiences that warrant consideration include peak experience (Maslow, 1971) and the oceanic experience described by Freud (1930/1961, as cited in Aron & Aron, 1986), and there are many examples of positive experience among religious traditions, such as the Eastern concept of *Samadhi*, although these states have been described as occurring less frequently than either flow or self-expansion and may represent particularly intense forms of positive experience.

While many of the differences between flow and self-expansion are somewhat superficial and easily dealt with (i.e., self-expansion theory's focus on romantic relationships, flow theory's focus on the subjective experience), there may be true differences between them, as well as among several varieties of positive experience. One potential framework for comparing varieties of positive experience may be to consider their place on dimensions of intensity and activity-passivity. Peak experiences, for example, are often described as occurring in passive activities, while persons in flow tend to be more active (Privette, 1983). Additionally, flow experiences can range from less intense (microflow) to more intense, as can self-expansion experiences.

### *Conclusion*

The current study presents a framework for comparing two states of positive experience, flow and self-expansion, in general, activity- and relationship-specific, and predictive contexts. Findings indicate that flow and self-expansion are consistently related across each of these contexts, although some differences do exist. In general, results support a conceptualization of flow and self-expansion as being comprised of the same core experience, with differences arising from the context in which each of these theories has been studied. Connecting the theories of flow and self-expansion has implications for theory, research, and practice, as well as for the field of positive psychology, in which flow theory originated and self-expansion belongs.

## REFERENCES

- Abbott, J. (2000). "Blinking out" and "having the touch:" Two fifth-grade boys talk about flow experiences in writing. *Written Communication, 17*, 53-92.
- Agnew, C. R., Van Lange, P. A., Rusbult, C. E., & Langston, C. A. (1998). Cognitive interdependence: Commitment and the mental representation of close relationships. *Journal of Personality and Social Psychology, 74*, 939-954.
- Allison, M. T., & Duncan, M. C. (1988). Women, work, and flow. In M. Csikszentmihalyi, & I. S. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 118-137). New York: Cambridge University Press.
- Aron, A., & Aron, E. N. (1986). *Love and the expansion of self: Understanding attraction and satisfaction*. New York: Harper & Row.
- Aron, A., & Aron, E. N. (1996). Self and self-expansion in relationships. In G. J. O. Fletcher, & J. Fitness (Eds.), *Knowledge structures in close relationships: A social psychological approach*. Hillsdale, NJ: Lawrence Erlbaum Associates. 325-344.
- Aron, A., & Aron, E. N. (1997). Self-expansion motivation and including other in the self. In S. Duck (Ed.), *Handbook of personal relationships: Theory, research, and interventions, 2<sup>nd</sup> ed.* (pp. 251-270). Hoboken, NJ: John Wiley & Sons.
- Aron, A., Aron, E. N., & Norman, C. (2004). Self-expansion model of motivation and cognition in close relationships and beyond. In M. B. Brewer, & M. Hewstone (Eds.), *Self and social identity* (pp. 99-123). Malden, MA: Blackwell Publishing.
- Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of Other in the Self Scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology, 63*, 596-612.

- Aron, A., Aron, E. N., Tudor, M., & Nelson, G. (1991). Close relationships as including other in the self. *Journal of Personality and Social Psychology*, *60*, 241-253.
- Aron, A., & McLaughlin-Volpe, T. (2001). Including others in the self: Extensions to own and partner's group memberships. In C. Sedikides, & M. C. Brewer (Eds.), *Individual self, relational self, collective self* (pp. 89-108). New York: Psychology Press.
- Aron, A., Norman, C. C., & Aron, E. N. (1998). The self-expansion model and motivation. *Representative Research in Social Psychology*, *22*, 1-13.
- Aron, A., Norman, C. C., & Aron, E. N. (2001). Shared self-expanding activities as a means of maintaining and enhancing close romantic relationships. In J. Harvey, & A. Wenzel (Eds.), *Close romantic relationships: Maintenance and enhancement* (47-66). Mahwah, NJ: Lawrence Erlbaum Associates.
- Aron, A., Norman, C. C., Aron, E. N., & Lewandowski, G. (2002). Shared participation in self-expanding activities: Positive effects on experienced marital quality. In P. Noller, & J. A. Feeney (Eds.), *Understanding marriage: Developments in the study of couple interaction* (pp. 177-194). New York: Cambridge University Press.
- Aron, A., Norman, C., Aron, E. N., McKenna, C., & Heyman, R. (2000). Couple's shared participation in novel and arousing activities and experienced relationship quality. *Journal of Personality and Social Psychology*, *78*, 273-284.
- Aron, A., Paris, M., & Aron, E. N. (1995). Falling in love: Prospective studies of self-concept change. *Journal of Personality and Social Psychology*, *69*(6), 1102-1112.
- Asakawa, K. (2004). Flow experience and autotelic personality in Japanese college students: How do they experience challenges in daily life? *Journal of Happiness Studies*, *5*(2), 123-154.

- Bakker, A. B. (2005). Flow among music teachers and their students: The crossover of peak experiences. *Journal of Vocational Behavior, 66*(1), 26-44.
- Brinthaupt, T. M., & Shin, C. M. (2001). The relationship of academic cramming to flow experience. *College Student Journal, 35*(3), 457-471.
- Byrne, C., MacDonald, R., & Carlton, L. (2003). Assessing creativity in musical compositions: Flow as an assessment tool. *British Journal of Music Education, 20*(3), 277-290.
- Chen, H. (2006). Flow on the net-detecting web users' positive affects and their flow states. *Computers in Human Behavior, 22*(2), 221-233.
- Chen, H., Wigand, R. T., & Nilan, M. S. (1999). Optimal experience of Web activities. *Computers in Human Behavior, 15*, 585-608.
- Clarke, S. G., & Haworth, J. T. (1994). "Flow" experiences in the daily lives of sixth-form college students. *British Journal of Psychology, 85*, 511-523.
- Cowen, E. L., & Kilmer, R. P. (2002). Positive psychology: Some plusses and some open issues. *Journal of Community Psychology, 30*(4), 449-460.
- Csikszentmihalyi, M. (1975a). *Beyond boredom and anxiety*. San Francisco: Jossey-Bass.
- Csikszentmihalyi, M. (1975b). Play and intrinsic rewards. *Humanistic Psychology, 15*, 41-63.
- Csikszentmihalyi, M. (1982a). Learning, flow, and happiness. In R. Gross (Ed.), *Invitation to life-long learning* (pp. 167-187). New York: Fowlett.
- Csikszentmihalyi, M. (1982b). Toward a psychology of optimal experience. In L. Wheeler (Ed.), *Review of personality and social psychology, Vol. 2* (pp. 13-35). Beverly Hills, CA: Sage Publications.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: HarperCollins.



- Csikszentmihalyi, M. (1992). A response to the Kimiecik & Stein and Jackson papers. *Journal of Applied Sport Psychology, 4*(2), 181-183.
- Csikszentmihalyi, M. (1993). Activity and happiness: Towards a science of occupation. *Journal of Occupational Science, 1*(1), 38-42.
- Csikszentmihalyi, M. (1997a). Activity, experience, and personal growth. In J. E. Curtis, & S. J. Storm (Eds.), *Physical activity in human experience: Interdisciplinary perspectives* (pp. 61-88). Champagne, IL: Human Kinetics Publishers.
- Csikszentmihalyi, M. (1997b). *Creativity: Flow and the psychology of discovery and invention*. New York: HarperCollins Publishers.
- Csikszentmihalyi, M. (1997c). *Finding flow: The psychology of engagement with everyday life*. New York: Basic Books.
- Csikszentmihalyi, M. (1997d). Flow and creativity. *NAMTA Journal, 22*(2), 61-97.
- Csikszentmihalyi, M. (2003). *Good business: Leadership, flow, and the making of meaning*. New York: Viking.
- Csikszentmihalyi, M., & Hunter, J. (2003). Happiness in everyday life: The uses of experience sampling. *Journal of Happiness Studies, 4*(2), 185-199.
- Csikszentmihalyi, M., & Larson, R. (1992). Validity and reliability of the Experience Sampling Method. In M. W. de Vries (Ed.), *The experience of psychopathology: Investigating mental disorders in their natural setting* (p. 43-57). New York: Cambridge University Press.
- Csikszentmihalyi, M. & LeFevre, J. (1989). Optimal experience in work and leisure. *Journal of Personality and Social Psychology, 56*(5), 815-822.

- Csikszentmihalyi, M., & Rathunde, K. (1993). The measurement of flow in everyday life: Toward a theory of emergent motivation. In J. E. Jacobs (Ed.), *Nebraska Symposium on Motivation, 1992: Developmental perspectives on motivation* (pp. 57-97). Lincoln, N. E.: University of Nebraska Press.
- Delle Fave, A., & Massimini, F. (1988). Modernization and the changing contexts of flow in work and leisure. In M. Csikszentmihalyi, & I. S. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 192-213). New York: Cambridge University Press.
- Delle Fave, A., & Massimini, F. (1992). The ESM and the measurement of clinical change: A case of anxiety disorder. In M. De Vries (Ed.), *The experience of psychotherapy* (pp. 280-289). New York: Cambridge University Press.
- Demerouti, E. (2006). Job characteristics, flow, and performance: The moderating role of conscientiousness. *Journal of Occupational Health Psychology, 11*(3), 266-280.
- Donner, E., & Csikszentmihalyi, M. (1992). Transforming stress to flow. *Executive Excellence, 9*, 16-17.
- Egbert, J. (2003). A study of flow theory in the foreign language classroom. *Modern Language Journal, 87*(4), 499-518.
- Eisenberger, R., Jones, J. R., Stinglhamber, F., Shanock, L., & Randall, A. (2005). Flow experiences at work: For high need achievers alone? *Journal of Organizational Behavior, 26*(7), 755-775.
- Ellis, G. D., Voelkl, J. E., & Morris, C. (1994). Measurement and analysis issues with explanation of variance in daily experience using the flow model. *Journal of Leisure Research, 26*(4), 337-356.

- Emerson, H. (1998). Flow and occupation: A review of the literature. *Canadian Journal of Occupational Therapy, 65*, 37-44.
- Gable, S. L., & Haidt, J. (2005). What (and why) is positive psychology? *Review of General Psychology, 9*(2), 103-110.
- Ghani, J. A., Supnick, R., & Rooney, P. (1991). The experience of flow in computer-mediated and in face-to-face groups. Paper presented at the Proceedings of the Twelfth International Conference on Information Systems, New York.
- Graham, J. M. (2008). Self-expansion and flow in couples' momentary experiences: An experience sampling study. *Journal of Personality and Social Psychology, 95*(3), 679-694.
- Han, S. (1988). The relationship between life satisfaction and flow in elderly Korean immigrants. In M. Csikszentmihalyi, & I. S. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 138-149). New York: Cambridge University Press.
- Harju, B. L., & Eppler, M. A. (1997). Achievement motivation, flow, and irrational beliefs in traditional and nontraditional college students. *Journal of Instructional Psychology, 24*(3), 147-157.
- Jackson, S. A. (1992). Athletes in flow: A qualitative investigation of flow states in elite figure skaters. *Journal of Applied Sport Psychology, 4*, 161-180.
- Jackson, S. A. (1995). Factors influencing the occurrence of flow state in elite athletes. *Journal of Applied Sport Psychology, 7*, 138-166.

- Jackson, S. A., & Eklund, R. C. (2002). Assessing flow in physical activity: The Flow State Scale-2 and Dispositional Flow Scale-2. *Journal of Sport and Exercise Psychology*, 24(2), 133-150.
- Jackson, S. A., Kimiecik, J. C., Ford, S. K., & Marsh, H. W. (1998). Psychological correlates of flow in sport. *Journal of Sport and Exercise Psychology*, 20, 358-378.
- Jackson, S. A., & Marsh, H. W. (1996). Development and validation of a scale to measure optimal experience: The Flow State Scale. *Journal of Sport and Exercise Psychology*, 18(1), 17-35.
- Jackson, S. A., & Roberts, G. C. (1992). Positive performance states of athletes: Toward a conceptual understanding of peak performance. *The Sport Psychologist*, 6, 156-171.
- Jackson, S. A., Thomas, P. R., Marsh, H. W., & Smethurst, C. I. (2001). Relationships between flow, self-concept, psychological skills, and performance. *Journal of Applied Sport Psychology*, 13, 129-153.
- Johnson, D., & Wiles, J. (2003). Effective affective user interface design in games. *Ergonomics*, 46(13-14), 1332-1345.
- Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. New York: Bantam Dell.
- Karwoski, L., Garratt, G. M., & Ilardi, S. S. (2006). On the integration of cognitive-behavioral therapy for depression and positive psychology. *Journal of Cognitive Psychotherapy: An International Quarterly*, 20(2), 159-170.
- Kelley, T. M. (2000). The need for a principle-based positive psychology. *American Psychologist*, 56(1), 88-89.

- Kowal, J., & Fortier, M. S. (1999). Motivational determinants of flow: Contributions from self-determination theory. *The Journal of Social Psychology, 139*(3), 355-368.
- Lee, E. (2005). The relationship of motivation and flow experience to academic procrastination in university students. *The Journal of Genetic Psychology, 166*(1), 5-14.
- LeFevre, J. (1988). Flow and the quality of experience during work and leisure. In M. Csikszentmihalyi, & I. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 307-318). New York: Cambridge University Press.
- Lewandowski, G. W., & Aron, A. (2006). The effects of novel/challenging versus arousing activities on couples' experienced relationship quality. Unpublished manuscript.
- Lewandowski, G. W., Aron, A., & Bassis, S. (2006). Losing a self-expanding relationship: Implications for the self-concept. *Personal Relationships, 13*(3), 317-331.
- Mandigo, J. L., & Thompson, L. P. (1998). Go with their flow: How flow theory can help practitioners to intrinsically motivate children to be physically active. *Physical Educator, 55*(3), 145-159.
- Marsh, H. W., & Jackson, S. A. (1999). Flow experience in sport: Construct validation of multidimensional, hierarchical state and trait responses. *Structural Equation Modeling, 6*(4), 343-371.
- Martell, C. R. (2003). Behavioral activation treatment for depression. In W. O'Donohue, J. E. Fisher, & S. C. Hayes (Eds.), *Cognitive Behavior Therapy: Applying empirically supported techniques in your practice*. Hoboken, NJ: John Wiley & Sons.
- Martin, J. J., & Cutler, K. (2002). An exploratory study of flow and motivation in theater actors. *Journal of Applied Sport Psychology, 14*, 344-352.
- Maslow, A. H. (1971). *The farther reaches of human nature*. New York: Arkana/Penguin Books.

- Massimini, F., & Carli, M. (1988). The systematic assessment of flow in daily experience. In M. Csikszentmihalyi, & I. S. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 266-287). New York: Cambridge University Press.
- Massimini, F., Csikszentmihalyi, M., & Carli, M. (1987). The monitoring of optimal experience: A tool for psychiatric rehabilitation. *Journal of Nervous and Mental Disease*, 175, 545-549.
- Massimini, F., Csikszentmihalyi, M., & Delle Fave, A. (1988). Flow and biocultural evolution. In M. Csikszentmihalyi, & I. S. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 60-81). New York: Cambridge University Press.
- Moneta, G. B. (2004a). The flow experience across cultures. *Journal of Happiness Studies*, 5(2), 115-121.
- Moneta, G. B. (2004b). The flow model of intrinsic motivation in Chinese: Cultural and personal moderators. *Journal of Happiness Studies*, 5(2), 181-217.
- Nicholls, A. R., Polman, R. C. J., & Holt, N. L. (2005). The effects of individualized imagery interventions on golf performance and flow states. *Athletic Insight: Online Journal of Sport Psychology*, 7(1).
- Privette, G. (1983). Peak experience, peak performance, and flow: A comparative analysis of positive human experiences. *Journal of Personality and Social Psychology*, 45(6), 1361-1368.
- Rathunde, K. (1997). Parent-adolescent interaction and optimal experience. *Journal of Youth and Adolescence*, 26(6), 669-689.

- Rathunde, K., & Csikszentmihalyi, M. (2005). Middle school students' motivation and quality of experience: A comparison of Montessori and traditional school environments. *American Journal of Education, 111*(3), 341-371.
- Rebeiro, K. L., & Polgar, J. M. (1999). Enabling occupational performance: Optimal experiences in therapy. *Canadian Journal of Occupational Therapy, 66*(1), 14-22.
- Reissman, C., Aron, A., & Bergen, M. R. (1993). Shared activities and marital satisfaction: Causal direction and self-expansion versus boredom. *Journal of Social and Personal Relationships Special Issue: Relationship Maintenance, 10*(2), 243 – 254.
- Robbins, B. D., & Friedman, H. (2008). Introduction to our special issue on positive psychology. *The Humanistic Psychologist, 36*, 93-95.
- Rubin, Z. (1970). Measurement of romantic love. *Journal of Personality and Social Psychology, 16*(2), 265-273.
- Russell, W. D. (2001). An examination of flow state occurrence in college athletes. *Journal of Sport Behavior, 24*(1), 83-107.
- Sato, I. (1988). Boso-zoku: Flow in Japanese motorcycle gangs. In M. Csikszentmihalyi, & I. S. Csikszentmihalyi, *Optimal experience: Psychological studies of flow in consciousness* (pp. 92-117). New York: Cambridge University Press.
- Schiefele, U., & Csikszentmihalyi, M. (1994). Interest and the quality of experience in classrooms. *European Journal of Psychology, 9*(3), 251-270.
- Sheets, V., & Ajmere, K. (2005). Are romantic partners a source of college students' weight concern? *Eating Behaviors, 6*(1), 1-9.

- Shernoff, D. J., Csikszentmihalyi, M., Shneider, B., & Shernoff, E. S. (2003). Student engagement in high school classrooms from the perspective of flow theory. *School Psychology Quarterly, 18*(2), 158-176.
- Trevino, L. K., & Webster, J. (1992). Flow in computer-mediated communication: Electronic mail and voice mail evaluation and impacts. *Communication Research, 19*, 539-573.
- Walsh, R. (2000). Positive psychology: East and West. *American Psychologist, 56*(1), 83-84.
- Wong, M., & Csikszentmihalyi, M. (1991). Motivation and academic achievement: The effects of personality traits and the quality of experience. *Journal of Personality, 59*, 539-574.



Appendix A

FLOW QUESTIONNAIRE

The following quotes describe a particular type of experience. Please read the quotes and answer the questions that follow.

“My mind isn’t wandering. I am not thinking of something else. I am totally involved in what I am doing. My body feels good. 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.”

“My concentration is like breathing. I never think of it. I am really quite oblivious to my surroundings after I really get going. I think that the phone could ring, and the doorbell could ring, or the house could burn down or something like that. When I start, I really do shut out the whole world. Once I stop, I can let it back in again.”

“I am so involved in what I am doing. I don’t see myself as separate from what I am doing.”

1. Have you had a similar experience to the one described in the quotes?

- Yes
- No

If YES, please answer the following questions:

2. How often have you had such an experience?

- More than once per day
- Daily
- 5-6 times per week
- Once per week
- 2-3 times per month
- Once per month
- Several times per year
- Once per year
- Several times in my life
- Once or twice in my life

3. Please describe the situation that would produce such an experience for you (If more than one situation would produce such an experience, please describe the one situation that has produced this experience most often):

---

---

---

---

---

4. Is there a particular activity that provides such experiences when you engage in it?

Yes

No

If YES, please describe the activity in the space below.

---

5. Are there particular people that generate such experiences when you interact with them?

Yes

No

If YES, please describe the nature of your relationship with this person:

---

Appendix B

GENERAL SELF-EXPANSION

The following quotes describe a particular type of experience. Please read the quotes and answer the questions that follow.

“Boundaries seem to dissolve, and I feel connected to everything and everyone around me. I am aware that I am part of something greater than myself.”

“I feel as though I am expanding, taking in everything. I feel a sense of wholeness and unboundedness. It is peaceful, yet exciting.”

“I am in a state of alert awareness – without specific thoughts, feelings, or perceptions. I am exhilarated. My energy increases, and I am able to achieve more, accomplish more. I feel more capable.”

1. Have you had a similar experience to the one described in the quotes?

- Yes
- No

If YES, please answer the following questions:

2. How often have you had such an experience?

- More than once per day
- Daily
- 5-6 times per week
- Once per week
- 2-3 times per month
- Once per month
- Several times per year
- Once per year
- Several times in my life
- Once or twice in my life

3. Please describe the situation that would produce such an experience for you (If more than one situation would produce such an experience, please describe the one situation that has produced this experience most often):

---

---

---

---

---

4. Is there a particular activity that provides such experiences when you engage in it?

Yes

No

If YES, please describe the activity below:

---

5. Are there particular people that generate such experiences when you interact with them?

Yes

No

If YES, please describe the nature of your relationship with this person in the space below.

---

Appendix C

DISPOSITIONAL FLOW SCALE-2

Please answer the following questions in relation to your experience in [INSERT THE ACTIVITY IDENTIFIED IN ITEM #4 OF THE FLOW-Q]. These questions relate to the thoughts and feelings you may experience during participation in your activity. You may experience these characteristics some of the time, all of the time, or none of the time. There are no right or wrong answers. Think about how often you experience each characteristic during your activity and circle the number that best matches your experience.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Always

When participating in \_\_\_\_\_ (name activity):

1. I am challenged, but I believe my skills will allow me to meet the challenge.

1	2	3	4	5
---	---	---	---	---

2. I make the correct moves without thinking about trying to do so.

1	2	3	4	5
---	---	---	---	---

3. I know clearly what I want to do.

1	2	3	4	5
---	---	---	---	---

4. It is really clear to me how my performance is going.

1	2	3	4	5
---	---	---	---	---

5. My attention is focused entirely on what I am doing.

1	2	3	4	5
---	---	---	---	---

6. I have a sense of control over what I am doing.

1	2	3	4	5
---	---	---	---	---

7. I am not concerned with what others may be thinking of me.

1	2	3	4	5
---	---	---	---	---

8. Time seems to alter (either slows down or speeds up).

1	2	3	4	5
---	---	---	---	---

9. I really enjoy the experience.

1	2	3	4	5
---	---	---	---	---

10. My abilities match the high challenge of the situation.

1	2	3	4	5
---	---	---	---	---

11. Things just seem to happen automatically.  
1                      2                      3                      4                      5
12. I have a strong sense of what I want to do.  
1                      2                      3                      4                      5
13. I am aware of how well I am performing.  
1                      2                      3                      4                      5
14. It is no effort to keep my mind on what is happening.  
1                      2                      3                      4                      5
15. I feel like I can control what I am doing.  
1                      2                      3                      4                      5
16. I am not concerned with how others may be evaluating me.  
1                      2                      3                      4                      5
17. The way time passes seems to be different from normal.  
1                      2                      3                      4                      5
18. I love the feeling of the performance and want to capture it again.  
1                      2                      3                      4                      5
19. I feel I am competent enough to meet the high demands of the situation.  
1                      2                      3                      4                      5
20. I perform automatically, without thinking too much.  
1                      2                      3                      4                      5
21. I know what I want to achieve.  
1                      2                      3                      4                      5
22. I have a good idea while I am performing about how well I am doing.  
1                      2                      3                      4                      5
23. I have total concentration.  
1                      2                      3                      4                      5
24. I have a feeling of total control.  
1                      2                      3                      4                      5
25. I am not concerned with how I am presenting myself.  
1                      2                      3                      4                      5

26. It feels like time goes by quickly.  
1                      2                      3                      4                      5
27. The experience leaves me feeling great.  
1                      2                      3                      4                      5
28. The challenge and my skills are at an equally high level.  
1                      2                      3                      4                      5
29. I do things spontaneously and automatically without having to think.  
1                      2                      3                      4                      5
30. My goals are clearly defined.  
1                      2                      3                      4                      5
31. I can tell by the way I am performing how well I am doing.  
1                      2                      3                      4                      5
32. I am completely focused on the task at hand.  
1                      2                      3                      4                      5
33. I feel in total control of my body.  
1                      2                      3                      4                      5
34. I am not worried about what others may be thinking of me.  
1                      2                      3                      4                      5
35. I lose my normal awareness of time.  
1                      2                      3                      4                      5
36. The experience is extremely rewarding.  
1                      2                      3                      4                      5

Appendix D

RELATIONSHIP FLOW SCALE

Please answer the following questions in relation to your experience in [INSERT THE RELATIONSHIP IDENTIFIED IN ITEM #4 OF THE GSE]. These questions relate to the thoughts and feelings you may experience in your relationship. You may experience these characteristics some of the time, all of the time, or none of the time. There are no right or wrong answers. Think about how often you experience each characteristic in your relationship and circle the number that best matches your experience.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Always

In my relationship with \_\_\_\_\_ (name relationship):

1. I am challenged, but I believe my skills will allow me to meet the challenge.

1	2	3	4	5
---	---	---	---	---

2. I make the correct moves without thinking about trying to do so.

1	2	3	4	5
---	---	---	---	---

3. I know clearly what I want to do.

1	2	3	4	5
---	---	---	---	---

4. It is really clear to me how my performance is going.

1	2	3	4	5
---	---	---	---	---

5. My attention is focused entirely on what I am doing.

1	2	3	4	5
---	---	---	---	---

6. I have a sense of control over what I am doing.

1	2	3	4	5
---	---	---	---	---

7. I am not concerned with what others may be thinking of me.

1	2	3	4	5
---	---	---	---	---

8. Time seems to alter (either slows down or speeds up).

1	2	3	4	5
---	---	---	---	---

9. I really enjoy the experience.

1	2	3	4	5
---	---	---	---	---

10. My abilities match the high challenge of the situation.

1	2	3	4	5
---	---	---	---	---



11. Things just seem to happen automatically.  
1                      2                      3                      4                      5
12. I have a strong sense of what I want to do.  
1                      2                      3                      4                      5
13. I am aware of how well I am performing.  
1                      2                      3                      4                      5
14. It is no effort to keep my mind on what is happening.  
1                      2                      3                      4                      5
15. I feel like I can control what I am doing.  
1                      2                      3                      4                      5
16. I am not concerned with how others may be evaluating me.  
1                      2                      3                      4                      5
17. The way time passes seems to be different from normal.  
1                      2                      3                      4                      5
18. I love the feeling of the performance and want to capture it again.  
1                      2                      3                      4                      5
19. I feel I am competent enough to meet the high demands of the situation.  
1                      2                      3                      4                      5
20. I perform automatically, without thinking too much.  
1                      2                      3                      4                      5
21. I know what I want to achieve.  
1                      2                      3                      4                      5
22. I have a good idea while I am performing about how well I am doing.  
1                      2                      3                      4                      5
23. I have total concentration.  
1                      2                      3                      4                      5
24. I have a feeling of total control.  
1                      2                      3                      4                      5
25. I am not concerned with how I am presenting myself.  
1                      2                      3                      4                      5

26. It feels like time goes by quickly.
- 1                      2                      3                      4                      5
27. The experience leaves me feeling great.
- 1                      2                      3                      4                      5
28. The challenge and my skills are at an equally high level.
- 1                      2                      3                      4                      5
29. I do things spontaneously and automatically without having to think.
- 1                      2                      3                      4                      5
30. My goals are clearly defined.
- 1                      2                      3                      4                      5
31. I can tell by the way I am performing how well I am doing.
- 1                      2                      3                      4                      5
32. I am completely focused on the task at hand.
- 1                      2                      3                      4                      5
33. I feel in total control of my body.
- 1                      2                      3                      4                      5
34. I am not worried about what others may be thinking of me.
- 1                      2                      3                      4                      5
35. I lose my normal awareness of time.
- 1                      2                      3                      4                      5
36. The experience is extremely rewarding.
- 1                      2                      3                      4                      5

## Appendix E

### SELF-EXPANSION QUESTIONNAIRE

These questions ask about your experience in a particular interpersonal relationship. Please answer these questions according to your experience in [INSERT THE RELATIONSHIP IDENTIFIED IN ITEM #4 OF THE GSE]. Answer each question according to the way you personally feel, using the following scale. Please place your answer in the space next to each item.

1	2	3	4	5	6	7
Not Very Much						Very Much

- \_\_\_\_\_ 1. How much does being with this person result in your having new experiences?
- \_\_\_\_\_ 2. When you are with this person, do you feel a greater awareness of things because of him or her?
- \_\_\_\_\_ 3. How much does this person increase your ability to accomplish new things?
- \_\_\_\_\_ 4. How much does being with this person make you more appealing to potential future mates?
- \_\_\_\_\_ 5. How much does this person help to expand your sense of the kind of person you are?
- \_\_\_\_\_ 6. How much do you see this person as a way to expand your own capabilities?
- \_\_\_\_\_ 7. Do you often learn new things about this person?
- \_\_\_\_\_ 8. How much does this person provide a source of exciting experiences?
- \_\_\_\_\_ 9. How much do this person's strengths as a person (skills, abilities, etc.) compensate for some of your own weaknesses as a person?
- \_\_\_\_\_ 10. How much do you feel that you have a larger perspective on things because of this person?
- \_\_\_\_\_ 11. How much has being with this person resulted in your learning new things?
- \_\_\_\_\_ 12. How much has knowing this person made you a better person?
- \_\_\_\_\_ 13. How much does being with this person increase the respect other people have for you?
- \_\_\_\_\_ 14. How much does this person increase your knowledge?

## Appendix F

### ACTIVITY SELF-EXPANSION

These questions ask about your experience in a particular activity. Please answer these questions according to your experience in [INSERT THE ACTIVITY IDENTIFIED IN ITEM #4 OF THE FLOW-Q]. Answer each question according to the way you personally feel, using the following scale. Please place your answer in the space next to each item.

- | 1        | 2 | 3 | 4 | 5 | 6 | 7    |
|----------|---|---|---|---|---|------|
| Not Very |   |   |   |   |   | Very |
| Much     |   |   |   |   |   | Much |
- 
- \_\_\_\_\_ 1. How much does engaging in this activity result in your having new experiences?
  - \_\_\_\_\_ 2. When you are engaging in this activity, do you feel a greater awareness of things?
  - \_\_\_\_\_ 3. How much does this activity increase your ability to accomplish new things?
  - \_\_\_\_\_ 4. How much does engaging in this activity make you more appealing to potential future mates?
  - \_\_\_\_\_ 5. How much does this activity help to expand your sense of the kind of person you are?
  - \_\_\_\_\_ 6. How much do you see this activity as a way to expand your own capabilities?
  - \_\_\_\_\_ 7. Do you often learn new things about this activity?
  - \_\_\_\_\_ 8. How much is this activity a source of exciting experiences?
  - \_\_\_\_\_ 9. How much does participation in this activity allow you to compensate for some of your own weaknesses in other areas?
  - \_\_\_\_\_ 10. How much do you feel that you have a larger perspective on things because of this activity?
  - \_\_\_\_\_ 11. How much has engaging in this activity resulted in your learning new things?
  - \_\_\_\_\_ 12. How much has engaging in this activity made you a better person?
  - \_\_\_\_\_ 13. How much does engaging in this activity increase the respect other people have for you?
  - \_\_\_\_\_ 14. How much does this activity increase your knowledge?

## Appendix G

### LIKING AND LOVING SCALES

Each of the statements below contains a \_\_\_\_\_. Read each statement to yourself, inserting in the \_\_\_\_\_ the name of the person in [INSERT THE RELATIONSHIP IDENTIFIED IN ITEM #4 OF THE GSE]. Please indicate your response to the following questions by circling the number that best reflects your current feelings.

#### Love Scale

1. If \_\_\_\_\_ were feeling bad, my first duty would be to cheer him/her up.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

2. I feel that I can confide in \_\_\_\_\_ about virtually anything.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

3. I find it easy to ignore \_\_\_\_\_'s faults.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

4. I would do almost anything for \_\_\_\_\_.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

5. I feel very possessive toward \_\_\_\_\_.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

6. If I could never be with \_\_\_\_\_, I would feel miserable.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

7. If I were lonely, my first thought would be to seek \_\_\_\_\_ out.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

8. One of my primary concerns is \_\_\_\_\_'s welfare.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

9. I would forgive \_\_\_\_\_ for practically anything.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

10. I feel responsible for \_\_\_\_\_'s wellbeing.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

11. When I am with \_\_\_\_\_, I spend a good deal of time just looking at him/her.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

12. I would greatly enjoy being confided in by \_\_\_\_\_.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

13. It would be hard for me to get along without \_\_\_\_\_.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

### Liking Scale

1. When I am with \_\_\_\_\_, we almost always are in the same mood.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

2. I think that \_\_\_\_\_ is unusually well-adjusted.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

3. I would highly recommend \_\_\_\_\_ for a responsible job.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

4. In my opinion, \_\_\_\_\_ is an exceptionally mature person.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

5. I have great confidence in \_\_\_\_\_'s good judgment.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

6. Most people would react favorably to \_\_\_\_\_ after a brief acquaintance.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

7. I think that \_\_\_\_\_ and I are quite similar to one another.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

8. I would vote for \_\_\_\_\_ in a class or group election.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

9. I think that \_\_\_\_\_ is one of those people who quickly wins respect.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

10. I feel that \_\_\_\_\_ is an extremely intelligence person.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

11. \_\_\_\_\_ is one of the most likable people I know.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

12. \_\_\_\_\_ is the sort of person who I myself would like to be.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely

13. It seems to me that it is very easy for \_\_\_\_\_ to gain admiration.

1	2	3	4	5	6	7	8	9
Not at all true, completely disagree				Moderately true, agree to some extent				Definitely true, agree completely



## Appendix H

### GENERAL HAPPINESS SCALE

For each of the following statements and/or questions, please read each one and then circle the number on the scale that you feel is most appropriate in describing you.

1. In general I consider myself:

1	2	3	4	5	6	7
Not A Very Happy Person						A Very Happy Person

2. Compared to most of my peers, I consider myself:

1	2	3	4	5	6	7
Less Happy						More Happy

3. Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?

1	2	3	4	5	6	7
Not At All						A Great Deal

4. Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?

1	2	3	4	5	6	7
A Great Deal						Not At All

Appendix I

DEMOGRAPHIC FORM

Please answer the questions below.

1. Age: \_\_\_\_\_

2. Sex: Female \_\_\_\_\_ Male \_\_\_\_\_

3. Ethnicity: (Please circle all that apply)

- a. American Indian/Alaskan Native
- b. Asian/Asian American
- c. Native Hawaiian or other Pacific Islander
- d. Black/ African American

- e. White/Caucasian
- f. Hispanic/ Latino
- g. Other

4. Year in school: (Please circle one)

- a. Freshman
- b. Sophomore
- c. Junior
- d. Senior

5. Employment status:

- a. Not employed
- b. Employed full-time
- c. Employed part-time

6. Are you currently involved in a romantic relationship?

- \_\_\_\_\_ Yes
- \_\_\_\_\_ No

If YES, how long have you been in your current relationship?

\_\_\_\_\_ Month(s)                      \_\_\_\_\_ Year(s)

7. Do you currently have a close relationship with someone other than a romantic partner?

- \_\_\_\_\_ Yes
- \_\_\_\_\_ No

If YES, please describe the nature of your relationship with this person:

---

How long have you been in this relationship?

\_\_\_\_\_ Month(s)                      \_\_\_\_\_ Year(s)

9. Do you currently play any sports or participate in outdoor activities?

Yes

No

If YES, please describe the sport(s) and/or outdoor activities:

---

10. Do you currently engage in any hobbies?

Yes

No

If YES, please describe the hobby(ies):

---

11. Do you play video games?

Yes

No

If YES, how many hours per week do you spend playing video games?

hours

## Appendix J

### INFORMED CONSENT

## **CONSENT TO PARTICIPATE IN RESEARCH**

### *Experiences in Relationships and Activities*

You are asked to participate in a research study conducted by Brandy Dean, who is a doctoral student in the department of psychology at Indiana State University. The research is being conducted as part of a graduate dissertation. Dr. Virgil Sheets is the faculty sponsor for the research project. Your participation in this study is entirely voluntary. Please read the information below and contact the investigator with any questions you may have before deciding whether or not to participate.

#### **PURPOSE OF THE STUDY:**

The current study is intended to examine the relationship between the experiences people have while interacting with others and engaging in activities.

#### **PROCEDURES:**

If you volunteer to participate in this study, you will be asked to complete a set of questionnaires. The questionnaires will take approximately 30 minutes to complete.

#### **POTENTIAL RISKS AND DISCOMFORTS:**

Any risks, discomforts, or inconveniences experienced during participation are likely to be minor and are not expected to happen.

#### **POTENTIAL BENEFITS:**

It is possible that you may gain some insight or personal value from having the opportunity to think about their experiences. Also, your participation will benefit others by contributing to scientific knowledge about experiences in relationships and activities and factors that affect them.

#### **COMPENSATION FOR PARTICIPATION:**

If you choose to participate, you will receive extra credit in your psychology course. The amount of extra credit you receive will be determined by the course instructor. If you decide to withdraw from the study, you will receive the full amount of extra credit.

#### **CONFIDENTIALITY:**

Your responses to the questionnaires are private information and will be handled in a confidential manner. Your name will not be requested, and it will not be linked to your responses to the questionnaires.

#### **PARTICIPATION AND WITHDRAWAL:**

You can choose whether or not to be in this study. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind or loss of benefits to which you are otherwise entitled. You may also refuse to answer any questions you do not want to answer. There is no penalty if you withdraw from the study and you will not lose any benefits to which you are otherwise entitled.

#### **IDENTIFICATION OF INVESTIGATORS:**

If you have any questions or concerns about this research, please contact Brandy Dean, Principal Investigator, or Virgil Sheets, Co-Investigator.

Brandy Dean, M.S.  
Principal Investigator  
Department of Psychology  
B 218 Root Hall  
Indiana State University  
Terre Haute, IN 47809  
812 237 3488  
bdean6@indstate.edu

Virgil Sheets, Ph.D.  
Co-Investigator  
Department of Psychology  
B 205 Root Hall  
Indiana State University  
Terre Haute, IN 47809  
812 237 2445  
vsheets@indstate.edu

**RIGHTS OF RESEARCH PARTICIPANTS:**

If you have any questions about your rights as a research participant, you may contact the Indiana State University Institutional Review Board (IRB) by mail at Indiana State University, Office of Sponsored Programs, Terre Haute, IN 47809, by phone at (812) 237-8217, or e-mail the IRB at irb@indstate.edu. You will be given the opportunity to discuss any questions about your rights as a research participant with a member of the IRB. The IRB is an independent committee composed of members of the University community, as well as lay members of the community not connected with ISU. The IRB has reviewed and approved this study.

- 
- By checking this box, I am indicating that I am at least 18 years of age and I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to participate in this study. I have printed a copy of this form.
- 

Indiana State University Institutional Review Board APPROVED
IRB Number: _____
Approval: _____
Expiration Date: _____

## Appendix K

### DEBRIEFING FORM

#### **PARTICIPANT DEBRIEFING**

Thank you for your participation! The purpose of this project is to examine the similarities between two experiential states, flow and self-expansion. Flow is a state of optimal experience characterized by complete immersion in an enjoyable activity, and self-expansion is defined as a state of increase in the diversity and complexity of the self. This project compares the experience of flow and self-expansion in activities and relationships, examines their ability to predict attraction in relationships, and evaluates the ability of trait happiness to predict the experience of flow and self-expansion.

If you have any questions about the project or would like further information about the study or to request a summary of the results of the project when they are available, please contact Brandy Dean, Principle Investigator, at [bdean6@indstate.edu](mailto:bdean6@indstate.edu).

Appendix L

PARTIAL CORRELATIONS AMONG FLOW AND SELF-EXPANSION EXPERIENCES IN  
ACTIVITY AND RELATIONSHIP  
CONTEXTS CONTROLLING FOR ETHNICITY

Context	Activity		Relationship		Predictive	
	Flow	Self-Expansion	Flow	Self-Expansion	Attraction	Happiness
Activity						
Flow	–					
Self-Expansion	.48**	–				
Relationship						
Flow	.46**	.29*	–			
Self-Expansion	.37**	.31*	.50**	–		
Predictive						
Attraction	.28	.23	.46**	.79**	–	
Happiness	.02	.09	.30*	.42**	.38**	–

Note. \*p < .05. \*\*p < .01.

Appendix M

SOCIAL AND ASOCIAL ACTIVITY SOURCES OF  
FLOW AND SELF-EXPANSION EXPERIENCES

---

Activity	State	
	Flow	Self-Expansion
Social	8 (11.6%)	10 (20%)
Asocial	61 (88.4%)	40 (80%)
Total <sup>1</sup>	69 (100%)	50 (100%)

---

---

<sup>1</sup> Percentages are based on the number of students reporting activities that produce flow and self-expansion experiences, respectively.



Appendix N

ACTIVITY SOURCES OF FLOW AND SELF-EXPANSION EXPERIENCES

Activity	Csikszentmihalyi (1982b)	Current Study	
	Flow	Flow	Self-Expansion
Work	31%	27 (37.0%)	6 (11.8%)
Hobbies/Home Activities	22%	7 (9.6%)	6 (11.8%)
Sports/Outdoor Activities	18%	18 (24.7%)	15 (31.4%)
Social Activities	16%	8 (11.0%)	9 (17.7%)
Passive Attending Activities	13%	9 (12.3%)	14 (27.5%)
Other/Uncodable		4 (5.5%)	1 (2.0%)
Total <sup>2</sup>	100%	73 (100%)	51 (100%)

*Note.* The data in column 2 are from “Toward a Psychology of Optimal Experience,” by M.

Csikszentmihalyi, 1982, In *Review of Personality and Social Psychology*, Vol. 2, p. 13-35.

Copyright 1982 by Sage Publications.

Only percents of participants reporting activities in each category were available from the prior study.

<sup>2</sup> Percentages are based on the number of the students reporting a source of flow or self-expansion experience, rather than the overall sample.

Appendix O

ROMANTIC AND NON-ROMANTIC RELATIONSHIP  
SOURCES OF FLOW AND SELF-EXPANSION

Relationship	State	
	Flow	Self-Expansion
Romantic	26 (65%)	19 (39.6%)
Non-romantic Friend/Other	14 (35%)	29 (60.4%)
Total <sup>3</sup>	40 (100%)	48 (100%)

<sup>3</sup> Percentages are based on the number of students reporting relationships that produce flow and self-expansion, respectively.

Appendix P

RELATIONSHIP SOURCES OF FLOW AND SELF-EXPANSION EXPERIENCES

Relationship	State	
	Flow	Self-Expansion
Romantic partner	26 (65%)	19 (39.6%)
Non-romantic friend	6 (15%)	10 (20.8%)
Family	2 (5%)	6 (12.5%)
Other/Uncodable	6 (15%)	13 (27.1%)
Total <sup>4</sup>	40 (100%)	48 (100%)

<sup>4</sup> Percentages are based on the number of the students reporting a relationship that produces a flow or self-expansion experience, rather than the overall sample.