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# Dualistic Model of Passionate Video Gameplay: Addiction or Flow?

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## ABSTRACT

The video game industry is expanding rapidly and video games have become an important part of our society. However, it is still unclear if the increasing amount of time spent on playing video games causes positive or negative consequences. This research-in-progress paper proposes a model, rooted in the Dualistic Model of Passion, to explain why video games can create addiction or non-pathological flow in video game players based on gamers' type of passion for video gameplay. Moreover, this research aims to explain the environmental and personal factors that define different forms of passion towards video games. The findings of this research will also clarify the role of emotional reactions during video gameplay on gamers' subjective well-being.

## Keywords

Video Games, Dualistic Model of Passion, Flow, Game Addiction, Intrinsic Motivation

## INTRODUCTION

Since the 1980s, video games have expanded rapidly and created a large and growing industry (McGonigal, 2011). Video games are a pervasive element of today's society: as the recent reports show, 67% of Americans play video games (ESA, 2010). One of the striking aspects of video gameplay is the fact that gamers spend a considerable amount of their time playing every week (Arnseth, 2006). Consequently, addiction to video games, having symptoms seen in substance addicts, is a serious phenomenon, in particular for the new generations, because of its potential negative effects on adolescent health (Kuss and Griffiths, 2012).

However, merely the fact that people spend a considerable amount of time playing video games does not indicate that they are addicted and it will have a negative consequence on their lives (Skoric, 2009). In contrast, some scholars have advocated the use of video games in educational and work-related environments to leverage their engaging characteristics (McGonigal, 2011; Sepehr and Head, 2011). Scholars have also shown that people who experience high engagement (Flow) in online video games do not share the same characteristics as with addicted gamers (Charlton and Danforth, 2007). As such,

addiction should be differentiated from the state of Flow in gameplay activity.

In the field of Information Systems and related areas, scholars have recently analyzed both positive and negative effects of video gameplay. Some scholars have measured addiction to video game addiction, the factors that influence or inhibit this type of addiction (Xu, Turel, and Yuan, 2012), and the consequences of pathological gaming (Lemmens, Valkenburg, and Peter, 2011). To the extent of our knowledge, current literature lacks theoretically-based research that examines the fine line between positive and negative effects of video games on the users. This study aims to help fill this gap by seeking to answering the following questions: (1) What are the underlying psychological concepts of involvement in video games that determines the separation of positive and negative consequences? (2) Can we validate the different (positive and negative) outcomes of playing video games in parallel, within a framework? (3) What are the environmental/social factors and individual differences that contribute towards experiencing positive or negative outcomes from video gameplay?

The remainder of this research in progress paper begins with describing the theoretical background of the study, followed by the proposed model and the supported hypotheses. Then, the planned research methodology is explained followed by potential contributions.

## THEORETICAL BACKGROUND

In order to understand the psychological sources of diverging outcomes of high engagement in video game, the *Dualistic Model of Passion* (Vallerand et al., 2003) is employed. The Dualistic Model of Passion proposes that people show two forms of passion towards the activities they enjoy: *Harmonious Passion* and *Obsessive Passion*. This model provides us the theoretical framework that can be utilized to understand the psychology of video game engagement and its consequences. The Dualistic Model of Passion emerged in the late 1990s following a stream of research on intrinsic motivation for engaging in activities, which is explained by Self-Determination Theory (SDT; Deci and Ryan, 1985, 1991, 2000). As such, the fundamentals of SDT are briefly discussed in the following section.

**Self Determination Theory**

Starting in the late 1980s, Deci and Ryan (1985) proposed the Self-Determination Theory (SDT) for understanding the basic psychological needs that are the basis of intrinsic motivation in any activity. SDT is an “organismic meta-theory” that overarches five mini-theories, each explaining a different aspect related to intrinsic and extrinsic motivation besides personality characteristics and behaviours related to them (Ryan and Deci, 2000). To clarify the Dualistic Model of Passion, two of the most relevant sub-theories of SDT, namely Cognitive Evaluation Theory (CET) and Organismic Integration Theory (OIT) are explained in this section. While SDT explains the psychological basis of intrinsic motivation, the Dualistic Model of Passion extends SDT by clarifying positive and negative forms of utmost motivation – passion.

**Cognitive Evaluation Theory (CET):** Based on CET, people are intrinsically motivated to perform tasks that satisfy three of their basic needs, namely the need for *competence*, *autonomy*, and *relatedness* (Deci and Ryan, 1985, 2000). These basic needs capture the motivation of individuals for feeling capable of doing a task (competence) and having control over their actions (self as the *locus of causality*) in performing that task (autonomy). Additionally, people also prefer to participate in tasks that enable them to have social connections with other people (relatedness). CET attempts to predict how various forms of social, environmental, and interpersonal events can facilitate or hinder achieving competence or autonomy, and consequently, to enhance or diminish intrinsic motivation in any activity.

**Organismic Integration Theory (OIT):** OIT extends CET by introducing the concept of extrinsic motivation (Deci and Ryan, 1985). OIT elaborates different forms of motivation based on the variation of tasks regarding their level of autonomy or how locus of causality is shaped in those tasks. Thus, extrinsic motivations can shape a continuum ranging from pure extrinsic to pure intrinsic motivations, considering to what extent people internalize and integrate the motivation of a task (Ryan and Deci, 2000). The level of internalization of the task defines the locus of causality, ranging from the self as the locus of causality to completely the task as the locus.

**Dualistic Model of Passion**

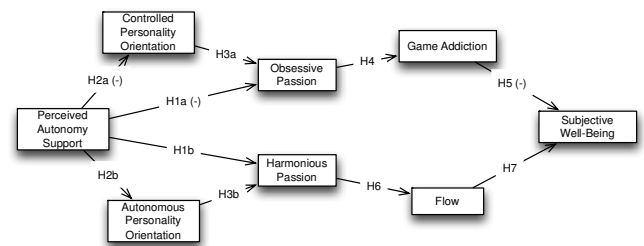
As mentioned above, the Dualistic Model of Passion (Vallerand et al. 2003) captures two types of passion: *Harmonious Passion (HP)* and *Obsessive Passion (OP)*. Passion can be defined as “a strong inclination toward an activity that people like, that they find important, and in which they invest time and energy” (Vallerand et al., 2003, p. 757). In alignment with CET and OIT, which focus on autonomy, passion towards activities can be separated into HP and OP in terms of the degree to which the activity is internalized into one’s identity, through supporting the autonomy of the individual. Accordingly, HP is referred to a passion towards an activity that results

from “autonomous internalization of the activity,” which is “freely” selected and does not depend on any “contingencies” (Vallerand 2008, p. 2). On the other hand, OP is the outcome of “controlled internalization of the activity into one’s identity” (Vallerand et al., 2003, p.757), originating from “intra and/or interpersonal pressure” (Vallerand 2008, p. 2). In OP, it is the activity that holds the control of the person and diminishes his/her autonomy, forming “obsessive” behaviour.

The Dualistic Model of Passion has been utilized in various contexts such as sport (Vallerand, Rousseau, and Grouzet, 2006), music playing (Vallerand et al., 2007) and video games (Wang and Chu 2007). Some research has shown the positive influence of HP and the negative influence of OP in leisure, artistic, and sports activities on subjective well-being (Stenseng et al. 2011; Vallerand et al. 2006, 2007), which needs to be assessed among video gamers.

**RESEARCH MODEL AND HYPOTHESES**

Grounded in the Dualistic Model of Passion, the research model of this study is shown in Figure 1.



**Figure 1. The Proposed Research Model**

**Determinants of Passion**

Two main categories of determinants have been identified for the process of passion formation: social environment and personality differences. Passion towards an activity can be developed through a three-stage process: (1) “activity selection”, (2) “activity valuation”, and (3) choosing the type of internalisation of the activity into one’s identity (Vallerand, 2008, p. 8). In order to form passion towards a task, one should first select the activity that is more enjoyable to them. After the activity that has the potential of receiving passion is selected, its value has to be evaluated to decide how important it is for the person. Finally, in the main stage, it is essential to decide on the type of internalisation, the process that would result in OP or HP. It is through this last stage that the antecedents play a defining role.

The social environment in which a person shows passion for an activity can influence the type of passion by either controlling or providing autonomy for the internalisation of the activity. If the social environment supports an individual’s autonomy in selecting and valuating an activity, such as playing video games, the person is able to feel in control of the task by having free choice and reaching HP. Previous research has shown the positive

effect of autonomy support on higher HP (Mageau et al., 2009, study 3). On the other hand, people in controlling environments demonstrate higher controlling behaviour that leads to obsessive passion (Mageau et al. 2009, study 3). Similarly, in the context of video games, higher intrinsically motivated actions are more related to HP, while higher extrinsically regulatory styles predict higher levels of OP (Wang et al., 2011).

Consistent with previous research (Vallerand et al., 2006), the other antecedent of passion in activities that is considered here is the individual's personality orientation. The two main groups of personalities regarding one's tendency towards autonomy are *autonomous* and *controlled personality orientation* (Vallerand, 2008). People with autonomous personality orientation have "a tendency to do things out of pleasure and/or choice" while high controlled personality orientation is attributed to people who prefer "to do things out of outside or inner pressure" (Vallerand et al., 2006, p. 458). Autonomous personality type is more inclined to internalizing activities in an autonomous fashion while controlled personality type enables controlled internalization of enjoyable tasks (Vallerand, 2008). Therefore, autonomous personality predicts more HP orientation while controlled personality is more prone to OP, as has been shown among athletes (Vallerand et al., 2006). We would expect to observe the same pattern among video gamers. Thus, we hypothesize:

**Hypothesis 1a:** Higher levels of Perceived Autonomy Support will decrease Obsessive Passion.

**Hypothesis 1b:** Higher levels of Perceived Autonomy Support will increase Harmonious Passion.

**Hypothesis 2a:** Controlled Personality Orientation will mediate the negative relationship between Perceived Autonomy Support and Obsessive Passion.

**Hypothesis 2b:** Autonomous Personality Orientation will mediate the positive relationship between Perceived Autonomy Support and Harmonious Passion.

**Hypothesis 3a:** Higher levels of Controlled Personality Orientation will increase Obsessive Passion.

**Hypothesis 3b:** Higher levels of Autonomous Personality Orientation will increase Harmonious Passion.

### Passion and Game Addiction or Flow

Both OP and HP are related to higher than normal engagement in an activity. However, the type of involvement caused by OP and HP are different. Both OP and HP have a positive effect on engagement in an activity; however, OP is a source of conflict and psychological problems, while HP creates Flow and satisfaction with the task (Mageau et al. 2009).

**Game Addiction:** People who develop OP towards an activity are expected to be more persistent toward it, which arises from their engagement being "ego-involved rather than integrative self process" (Vallerand, 2008). Because of the conflict arising from OP, individuals may

be more vulnerable to pathological involvement and become addicted to the task. Recent studies have shown that OP in leisure activities is strongly associated with addiction to the activity (Stenseng et al., 2011). This can perhaps be rooted in the fact that the internalisation of the activity into one's identity is controlled, "which imposes an imbalance between one's inner will and felt obligations" (Stenseng et al., 2011). Similarly, among video game players, we would expect to observe the same effect of OP on addictive behaviour.

The negative influence of addiction on Subjective Well-Being (SWB), due to conflict, withdrawal, and other symptoms, seems evident. SWB can be defined as "people's cognitive and affective evaluations of their lives" (Diener, 2000). Psychological well-being is shown to be negatively affected among adolescent gamers with pathological gaming problems (Lemmens et al., 2011). Therefore, we would expect to observe a negative relationship between gaming addiction and SWB. In summary, we hypothesize:

**Hypothesis 4:** Higher levels of Obsessive Passion (OP) in video gameplay will increase video game addiction.

**Hypothesis 4-2:** Harmonious Passion (HP) during video gameplay will have no or reverse relationship with video game addiction.

**Hypothesis 5:** Video game addiction will negatively affect Subjective Well-Being.

**Flow:** As Charlton and Danforth (2007) discuss, addiction and high engagement should be distinct. High engagement and addiction share some criteria, but addiction goes beyond high engagement and covers other aspects, such as conflict and withdrawal symptoms. Based on the Dualistic Model of Passion, the concept of Flow (Ciszkoszmentmihalyi, 1991) is considered to be another positive outcome of HP (Vallerand et al., 2003). Flow is a state that relates to the experience of complete absorption through which one loses track of time and gets completely immersed in the activity, resulting in enjoyment (Ciszkoszmentmihalyi, 1997).

The experience of Flow is the outcome of having the balance of skill and challenge throughout performing a task. Under Self-Determination Theory (SDT), this balance can be seen as satisfaction of the need for competence (Deci and Ryan, 1985), which is aligned with the feelings experienced while engaging in harmoniously passionate activities (Stenseng, 2011). In addition, Vallerand (2008) states: "Flow can be seen as a consequence of passion" and "should result mainly from one specific type of passion, namely harmonious passion" (p. 2). Earlier research has supported the connection between HP and Flow and showed that OP has no such relationship (Vallerand et al. 2003). Wang and Chu (2007) have also supported this relationship in the study of passion among gamers.

Ultimately, there is a higher probability for video gamers who experience Flow as a consequence of HP to be satisfied with their experience, compared to gamers who

do not feel cognitively absorbed. As SDT explains, people who achieve higher levels of basic needs can have higher levels of well-being (Deci and Ryan, 2000). Unlike video game addiction, which does not predict SWB, non-addicts' Flow state can better predict satisfaction (Wan and Chiou, 2006), which is an indicator of psychological well-being (Lemmens et al., 2011). Other studies further support this relationship by showing the significant relationship between Flow and satisfaction among video gamers (Hsu, 2010). In sum, we hypothesize:

**Hypothesis 6:** Higher levels of Harmonious Passion (HP) in video gameplay will increase the experience of Flow.

**Hypothesis 6-2:** Obsessive Passion (OP) during video gameplay will have no or reverse relationship with the experience of Flow during video gameplay.

**Hypothesis 7:** Flow state in video game will positively affect Subjective Well-Being.

## RESEARCH METHODOLOGY

To validate the proposed research model, two studies are outlined. The first study will employ Experience Sampling Methodology (ESM) in order to collect emotional responses from participants at different time periods while they play video games (Hektner, Schmidt, and Csikszentmihalyi, 2007). By asking a small sample size from the first study's participants to participate in an EEG (Electroencephalography) study, the second study further verifies the proposed model and tests a sub-model of the proposed model.

Participants will be recruited from North American university students, who are expected to represent a proper sample for this research. 200 university students who are active in video gaming will be recruited for the first study to answer a survey developed from the proposed model, regarding their passion for a video game of their choice. Participants will be instructed to use the designed ESM questionnaire on mobile devices that are given to them, which measures their emotions and the state of Flow while they are playing during the period of one week. ESP 4.0, an open-source tool for designing questionnaires on mobile devices will be used to design the questionnaires (HP, OP, and Flow). After the period of one week, participants will be asked to complete another survey, containing the instruments of the remaining constructs (namely Game Addiction, SWB, Perceived Autonomy Support, and personality items).

Since the nature of this study is more exploratory than confirmatory, PLS Structural Equation Modeling (SEM) is appropriate for testing the proposed model (Gefen, Straub, and Boudreau, 2000). In order to test the hypotheses that indicate no relationship between two constructs (H4-2 and H6-2), two alternative models will be tested to compare with the proposed model.

For study 2, participants of study 1 will be asked if they would be willing to be contacted for participating in another study. From the volunteers, 20 participants will be selected, 10 with high HP and the other 10 with high OP.

These participants will be recruited for an EEG study through which, we further analyze the model by testing the relationship between different forms of passion, emotions, and SWB. During the experiments, the participants will be playing the video game that they are passionate about. The EEG measurement enables us to more precisely evaluate the emotional responses of participants during gameplay (Dimoka, Banker, Benbasat, and Davis, in Press). The results allow us to triangulate the findings of both studies for richer interpretation of the data, and mitigating common method variance.

**Pilot Study:** In order to test and refine the measurements of the proposed model, and to test the design of ESM survey on mobile devices, a pilot study will be conducted prior to the main studies. The pilot study will help to contextualize and refine the survey. A sample of 30 students from the same target population of the main studies will be recruited to participate in the pilot study.

**Survey Measurements:** All the constructs of the proposed model will be measured using reflective constructs that have been previously developed and validated, which are found to be reliable. The constructs will be taken from: Vallerand et al. (2003) for HP and OP, Hagger et al. (2007) for Perceived Autonomy Support, Xu et al. (2012) for Game Addiction, Ryan and Connell (1989) for Personality Orientation constructs, Novak, Hoffman, and Yung (2000) for Flow, and Diener's (2000) approach for SWB by combining the scales of life satisfaction, positive affect, and negative affect.

**Post-hoc Analysis:** Demographic data will be assessed for their potential moderating effects on the proposed model. Alternative models will also be tested and compared with the proposed model, including a saturated model to explore non-hypothesized possible relationships.

## POTENTIAL CONTRIBUTIONS AND LIMITATIONS

From a theoretical perspective, this research contributes to IS literature by extending knowledge on hedonic systems via the psychology of passion lens. Understanding the psychology behind engagement with video games will provide a deeper understanding of current and upcoming generations of students and employees. Consequently, scholars can gain more thorough understanding of people's passion in their activities, in particular during IT use, its antecedents, and its various consequences.

As for practitioners, the findings of this research can provide further information for game designers to understand their customers. Systems developers, in general, can distinguish between harmoniously and obsessively passionate players and how they will react to their passionate activities. Moreover, by better understanding the role of passion on Flow, educators can identify directions for engaging students in the classrooms through game-based learning.

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