

## ORIGINAL ARTICLE

**Media Enjoyment as Need Satisfaction:  
The Contribution of Hedonic and Nonhedonic  
Needs**

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*Most early research on entertainment defines media enjoyment in functional terms as the satisfaction of hedonic needs. Two studies demonstrate the value of including nonhedonic and hedonic need satisfaction in defining enjoyment. Both studies find support for a need-satisfaction model showing that hedonic (arousal and affect) and nonhedonic (competence and autonomy) need satisfaction account for unique variance in enjoyment experienced during video game play. Study 2 extends the findings of Study 1 to account for noninteractive media entertainment enjoyment. Results show hedonic and nonhedonic need satisfaction to be distinct but complementary components of media enjoyment. Discussion focuses on the advantage of a needs-based approach for understanding positive valuations of media and offers a new perspective on the enjoyment–appreciation distinction.*

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Enjoyment is a focal concept in entertainment theory. It is therefore surprising that past entertainment research has made few attempts to establish a comprehensive definition of enjoyment. Although there have been efforts to explicate the component parts of enjoyment as both an attitude (Nabi & Krcmar, 2004) and an experiential state (Vorderer, Klimmt, & Ritterfeld, 2004), the majority of entertainment research has overlooked the complexity of the enjoyment concept. Recent work in this area suggests that past research has generally relied on a tautological understanding of enjoyment defined vaguely as pleasure, where the component parts of enjoyment are never recognized or explicated (cf. Tamborini, Bowman, Eden, Grizzard, & Organ, 2010). A result of this ambiguity is that most enjoyment research has largely addressed

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only the hedonic functions of media, such as arousal regulation and pleasure seeking, and has ignored other motivating functions.

Tamborini *et al.* (2010) argued that enjoyment can be defined in functional terms as the satisfaction of both hedonic and nonhedonic intrinsic needs, and that our understanding of the construct should not be limited to simple pleasure seeking.<sup>1</sup> They noted that although previous research defining enjoyment solely as the satisfaction of hedonic needs had been successful in predicting responses to media entertainment, understanding of enjoyment could be improved by broadening the concept to include the satisfaction of nonhedonic needs. In their initial attempt to show that nonhedonic needs are an important component of enjoyment, they demonstrated that the satisfaction of three such needs (autonomy, competence, and relatedness) identified by self-determination theory (SDT; Deci & Ryan, 2000) accounted for 51% of variance in self-reported enjoyment. Because the goal of their research was to demonstrate the importance of a need-satisfaction approach in general—and the inclusion of nonhedonic needs in particular—this initial study did not simultaneously consider both hedonic and nonhedonic need satisfaction. Thus, the question of whether hedonic and nonhedonic needs account for a unique variance in enjoyment was left unanswered.

The current investigation addresses this issue by testing a model of enjoyment that includes the satisfaction of both hedonic and nonhedonic needs. The paper begins by discussing the limited explication found in previous definitions of enjoyment, and the value of understanding enjoyment in functional terms. Next, in order to address problems inherent in past definitions, we introduce a recent model by Vorderer (2009) suggesting a theoretical framework that outlines enjoyment's hedonic and nonhedonic need-satisfaction components. Following this, we report the results from two studies designed to test Tamborini *et al.*'s (2010) proposed definition of enjoyment as the satisfaction of both hedonic and nonhedonic intrinsic needs.

### **Defining enjoyment in functional terms: The satisfaction of intrinsic needs**

The functional role of entertainment has been implicitly defined in past research as the satisfaction of hedonic needs. For example, the need for arousal regulation is a central component in mood management theory (Zillmann & Bryant, 1985) and the need for retributive justice is an important consideration for disposition theory (Raney & Bryant, 2002). Although the notion of enjoyment as need satisfaction is implicit in such work, other research has been more explicit in describing enjoyment as the satisfaction of needs, including needs not specifically tied to pleasure seeking (*i.e.*, nonhedonic needs).<sup>2</sup>

Two recent studies (Ryan, Rigby, & Przybylski, 2006; Tamborini *et al.*, 2010), based on SDT (Deci & Ryan, 2000), have applied an understanding of nonhedonic needs to the study of entertainment. SDT is a theory of human motivation based in positive psychology. The theory posits that humans possess three basic, intrinsic needs—autonomy, competence, and relatedness—and argues that psychological

well-being is derived from the satisfaction of these needs (Deci & Ryan, 2000). Autonomy needs are associated with the desire to feel that behaviors are internally derived and independent of outside influence. Competence refers to the need to feel that one is capable and effective. Relatedness needs are understood as the desire to feel connected to important others.

SDT has been applied to numerous areas of research including education, interpersonal relationships, organizations, and sports and exercise (cf. Ryan & Deci, 2000). Ryan *et al.* (2006) demonstrated a link between SDT and the enjoyment of media entertainment. Tamborini *et al.* (2010) extended this work to establish the validity of defining entertainment enjoyment as the satisfaction of intrinsic needs, and drew attention to the value of including needs associated with psychological well-being in an attempt to understand the functional role of enjoyment. Although this approach improved on prior need-based models by identifying a set of theoretically linked components relevant to the experience of enjoyment, Tamborini *et al.* (2010) pointed out that their assessment of enjoyment was incomplete, as it examined only some of the essential qualities of the construct. That is, their focus on need satisfaction related to well-being did not account for the role of hedonic needs featured in past literature (e.g., arousal or affect). This shortcoming was apparent by the fact that although SDT need satisfaction explained 51% of variance in enjoyment, the other 49% was left unexplained. Based on this, they argued that any complete definition of enjoyment as need satisfaction must not focus just on nonhedonic needs but should also include hedonic needs.

One particular model that accounts for hedonic and nonhedonic needs is Vorderer's (2009) two-factor model of media enjoyment. In Vorderer's model, the concept of enjoyment consists of a lower-order factor labeled enjoyment, and a higher order factor labeled appreciation. The enjoyment factor focuses primarily on hedonic needs, such as hedonic pleasure, and the appreciation factor centers on the satisfaction of needs explicated by SDT. In addition, Vorderer associated the satisfaction of the higher- and lower-order needs with distinct systems of cognitive and emotional processing, respectively. Satisfaction of either lower- or higher-order needs (or a combination of both) leads to positive valuations of entertainment.

The previous research by Tamborini *et al.* (2010) conceptually defined hedonic and nonhedonic needs in a manner similar to Vorderer's two-factor model. Vorderer conceptualized appreciation and enjoyment as two qualitatively distinct positive valuations of entertainment based on which needs were satisfied. Tamborini *et al.*, however, conceptualized all positive valuations of entertainment as enjoyment, and did not distinguish between enjoyment and appreciation in terms of a needs hierarchy. Whereas we agree that appreciation and enjoyment may be distinct processes, we do not believe that one is tied to the satisfaction of hedonic needs and the other is tied to the satisfaction of nonhedonic needs. Instead, this research began with the assumption that all positive valuations of need satisfaction can be experienced as enjoyment. The relevance of this assumption and how it diverges from Vorderer's model will become apparent in later discussion.

Two experiments were conducted to examine the combined importance of hedonic and nonhedonic need satisfaction for enjoyment of entertainment media. Although both studies use video games as stimulus material for testing proposed theoretical models, our understanding of enjoyment is not limited to interactive media. Our use of video games as stimulus materials stems in part from the simple fact that both prior studies examining SDT and enjoyment used video games as stimulus materials (Ryan *et al.*, 2006; Tamborini *et al.*, 2010). Perhaps more important to our goal of extending the research beyond interactive media, using video games as stimulus materials allows for the induction of different levels of interactivity (a feature of media likely relevant to the hedonic and nonhedonic needs under examination in this study). In the current study, this is accomplished by manipulating the amount of input required from the user to play the same video game without introducing content differences that arise when using two different forms of media.

Study 1 builds on Ryan *et al.* (2006) and Tamborini *et al.* (2010), which examined SDT-based needs as predictors of enjoyment. We extend that research to test Tamborini *et al.*'s hypothesis regarding the added value of including hedonic needs (specifically, arousal and absorption) for explaining additional variance in enjoyment. These needs were identified by Vorderer (2009) as lower order needs. Study 1 examines whether hedonic (arousal and absorption) and nonhedonic (competence, autonomy, and relatedness) need satisfaction explains unique variance in enjoyment. Study 2 uses game technology to vary interactivity and its subsequent influence on affect (as a hedonic need) along with other hedonic and nonhedonic needs from Study 1. Study 2 replicates and extends Study 1 to include the hedonic need of affect. It also extends the scope of the model to include both interactive and noninteractive media experiences.

## Study 1

As stated above, previous research (Tamborini *et al.*, 2010) demonstrated that whereas the satisfaction of SDT-based needs accounted for a great deal of variance in enjoyment, almost half of the variance remained unexplained. This led Tamborini *et al.* to call for research examining the combined influence of hedonic needs more traditionally studied in relation to media entertainment (such as those found in mood management theory) along with the SDT-based needs included in their previous research. If hedonic and nonhedonic need satisfactions are complementary components of media enjoyment, then each should account for unique variance in enjoyment. The current study seeks to examine this proposition.

Previous work has found that nonhedonic needs associated with SDT are positively associated with self-reported feelings of enjoyment. This research found that the satisfaction of competence and autonomy needs was associated with enjoyment in a variety of videogame-play settings. However, the satisfaction of relatedness needs was associated only with multiplayer video game settings (Ryan *et al.*, 2006;

Tamborini et al., 2010). Because the current research utilizes a single player game, we do not expect a significant association between relatedness need satisfaction and enjoyment. Thus, relatedness is not examined further in this study.<sup>3</sup> Therefore, our first hypothesis is as follows:

**H1:** The satisfaction of nonhedonic needs (competence and autonomy) will be positively associated with the self-reported experience of enjoyment.

In order to examine the broader conceptualization of enjoyment as an experience that includes the satisfaction of hedonic needs, we included absorption and arousal as examples of these needs. The inclusion of absorption was based on Vorderer and Ritterfeld's (2009) discussion of hedonic needs related to immediate, transient responses, such as being absorbed in a media experience. Arousal was included due to previous research in mood management theory showing its association with enjoyment (Zillmann & Bryant, 1985). Based on Tamborini et al.'s (2010) conceptualization of enjoyment as an experience that includes the satisfaction of hedonic needs, we predict the following hypothesis:

**H2:** The satisfaction of hedonic needs (absorption and arousal) will be positively associated with the self-reported experience of enjoyment.

Finally, consistent with Tamborini et al.'s (2010) assertion that the inclusion of hedonic needs should account for variance left unexplained by the satisfaction of SDT-based needs, we propose the final hypothesis.

**H3:** Hedonic and nonhedonic need satisfaction will account for unique variance in enjoyment.

## Methods

Participants played a boxing video game under one of two (high vs. low) avatar similarity conditions. The similarity manipulation was done as part of an unrelated study, and the level of avatar similarity was uncorrelated with any outcome measure used in this study; thus, all data analysis is collapsed across these two conditions. Immediately after play, measures were taken of (a) nonhedonic need satisfaction (competence and autonomy), (b) hedonic need satisfaction (arousal and absorption), and (c) feelings of enjoyment. Participants ( $N = 95$ ) were recruited from a large university in the Midwestern United States and offered course credit for participating in the study. Twelve participants were removed due to missing data, leaving 83 participants (22 males) in the analyses ( $M_{\text{age}} = 20.36$ ,  $SD_{\text{age}} = 1.01$ ). Participants were randomly assigned to the two conditions of avatar similarity ( $n_{\text{low}} = 37$ ,  $n_{\text{high}} = 46$ ).

## Stimulus/materials

The video game used in the study was Facebreaker, an animated boxing game released by EA Sports. The game was played on an Xbox 360 using a standard controller.

### Measures

The satisfaction of autonomy and competence needs were measured using the proprietary video game Player Experience of Need Satisfaction (PENS) scale (Ryan et al., 2006). Each SDT need was measured using three-item Likert-type subscales from the complete PENS scale. A sample item for autonomy need satisfaction was: "I did things in the game because they interested me."<sup>4</sup> Reliabilities for the dimensions of SDT-based need satisfaction were as follows: autonomy ( $\alpha = .86$ ) and competence ( $\alpha = .93$ ). The satisfaction of arousal and absorption needs were each measured using three-item Likert-type scales. The items for arousal were "This game was. . ." "arousing," "exciting," and "stimulating." The items for absorption were "This game was. . ." "interesting," "absorbing," and "engaging." The reliabilities for each hedonic need were as follows: arousal ( $\alpha = .89$ ) and absorption ( $\alpha = .82$ ). Enjoyment was measured using a three-item Likert-type scale adapted from Ryan et al. (2006). The items for enjoyment were "This game was. . ." "enjoyable," "entertaining," and "appealing," and their reliability was  $\alpha = .93$ .

### Experimental procedure

After signing a consent form, participants were trained on the video game's controls. Participants then played four 3-minute rounds of the game. All rounds were played in training mode, which guaranteed that the round would be completed. The training mode was selected to maximize feelings of competence and autonomy in a short amount of time. Finally, participants completed a survey packet containing the dependent measures. After completing these measures, participants were fully debriefed as to the purpose of the study and dismissed.

### Results

Regression techniques were implemented to test the hypotheses. Enjoyment scores were regressed onto the hedonic needs of arousal and absorption and the nonhedonic needs of competence and autonomy. As predicted in Hypothesis 1, competence ( $M = 3.79$ ,  $SD = 1.50$ ,  $\beta = .31$ ,  $p < .001$ , one tailed) and autonomy need satisfaction ( $M = 3.89$ ,  $SD = 1.42$ ,  $\beta = .22$ ,  $p < .05$ , one tailed) were significant predictors of enjoyment. As predicted in Hypothesis 2, both arousal ( $M = 4.48$ ,  $SD = 1.10$ ,  $\beta = .33$ ,  $p < .05$ , one tailed) and absorption ( $M = 4.88$ ,  $SD = 1.17$ ,  $\beta = .27$ ,  $p < .05$ , one tailed) were associated positively with enjoyment. To determine whether both types of needs (hedonic and nonhedonic SDT needs) were positively associated with enjoyment and whether each accounted for unique variance in enjoyment, we used hierarchical techniques to regress enjoyment on both hedonic and nonhedonic needs. In the first level, the hedonic needs of absorption and arousal were entered into the model, while the second level included the nonhedonic needs of competence and autonomy. The satisfaction of hedonic needs explained a significant portion of the variance in enjoyment (adjusted  $R^2 = .54$ ,  $p < .001$ ). Confirming Hypothesis 3, adding the nonhedonic, SDT needs (competence and autonomy) to the model accounted for additional variance ( $\Delta R^2 = .13$ ,  $p < .001$ ). Overall, the inclusion of both hedonic and

nonhedonic needs in the model explained approximately two-thirds of the variance in enjoyment ( $M = 4.35$ ,  $SD = 1.44$ ,  $R^2 = .68$ ; adjusted  $R^2 = .66$ ,  $p < .001$ ).

### Discussion

The results of this study show that hedonic, arousal-based needs and nonhedonic, SDT-based needs indeed account for unique variance in enjoyment, which suggests that both sets of needs are important factors in media enjoyment. Given that hedonic needs have been studied extensively in relation to media enjoyment and that they account for a significant portion of media entertainment enjoyment, a comprehensive definition of enjoyment as need satisfaction must take into account these hedonic needs. At the same time, nonhedonic needs must also be included, as their usefulness in explaining unique aspects of enjoyment has been demonstrated here as well as in Tamborini *et al.* (2010). The results of the study provide evidence that hedonic and nonhedonic needs are distinct yet complementary components of media enjoyment.

### Study 2

Study 2 replicates and extends Study 1, which showed the distinct contributions of hedonic and nonhedonic need satisfaction in the enjoyment of an interactive video game. First, it extends Study 1 by replacing absorption with affect as another hedonic need along with arousal. Affect is included in this study because, like arousal regulation, affect regulation has often been considered a basic motivating factor for using entertainment media (Zillmann & Bryant, 1985). Second, it broadens the model to include noninteractive as well as interactive media experiences. Although this line of research has focused on need satisfaction and enjoyment in video game play (e.g., Ryan *et al.*, 2006; Tamborini *et al.*, 2010), there is no reason to believe that this model cannot be applied to other types of entertainment. Study 2 was conducted with both goals in mind.

As our first goal is to replicate and extend Study 1 using a different hedonic need, Hypothesis 1 simply replicates Hypotheses 1 and 2 from Study 1 as follows:

H1: The satisfaction of all hedonic and nonhedonic needs will be positively associated with the self-reported experience of enjoyment.

Our second goal is to broaden the scope of the model to include other forms of noninteractive media, such as television and film.<sup>5</sup> To accomplish this, we include a noninteractive viewing experience in our experiment. Notably, interactive and noninteractive media should be expected to differentially influence need satisfaction and enjoyment. For example, increased control should heighten feelings of autonomy and competence by affording the user with agency (Tamborini *et al.*, 2010; Tamborini & Skalski, 2006). As such, the sense of control provided by increased interactivity is expected to predict the satisfaction of autonomy and competence needs. We hypothesize that levels of interactivity in media environments will moderate the extent to which nonhedonic need satisfaction accounts for enjoyment:

H2: At higher levels of interactivity, the satisfaction of nonhedonic needs (competence and autonomy) will account for greater variance in self-reported enjoyment.

The effect of interactivity on hedonic needs is less clear. Some researchers have argued that increased interactivity should lead to greater levels of arousal (e.g., Bryant & Miron, 2003), but these claims have not been examined thoroughly in experimental research. By contrast, mood management theory has been used to argue that interactivity can reduce noxious arousal and affect through its greater intervention potential (Bryant & Davies, 2006). Therefore, although we anticipate that the level of interactivity in media environments may moderate the extent to which hedonic need satisfaction accounts for enjoyment, we cannot offer a formal hypothesis about the direction of this effect. We instead offer the following research question:

RQ1: At higher levels of interactivity, will the satisfaction of hedonic needs (arousal and affect) account for greater or lesser variance in self-reported enjoyment?

## Methods

In Study 2, participants were assigned to one of three interactivity conditions (low, medium, or high) by exposure to a flight simulator video game programmed to vary user control of the game environment. The satisfaction of nonhedonic needs (competence and autonomy), hedonic needs (arousal and affect), and enjoyment were measured immediately after game play. Participants ( $N = 132$ , 62 males,  $M_{\text{age}} = 21.00$ ,  $SD_{\text{age}} = 1.79$ ) recruited from a large university in the Midwestern United States and offered course credit for participating in the study, were randomly assigned to the three conditions of interactivity ( $n_{\text{low}} = 42$ ,  $n_{\text{medium}} = 41$ ,  $n_{\text{high}} = 49$ ).

## Stimulus/materials

The video game played was *Lock-On: Modern Air Combat*, a flight simulator released by Ubisoft. The game was played using a flight stick and throttle in tandem with a standard keyboard and mouse. *Lock-On* was chosen because its fully programmable controls allowed us to vary conditions of low, medium, and high interactivity. In each condition, participants were asked to take control of a jet en route to a landing strip and land it on the ground. All participants began playing the game with the aircraft configured for a final approach toward the landing strip. For the high-interactivity condition, participants were in control of all controls, with no assistance from the computer. For the medium-interactivity condition, participants were in command of only those controls used to adjust the speed and direction of the plane (the joystick, throttle, and rudder), while the computer automatically controlled all other avionics (landing gears, landing flaps, airbrakes, wheel brakes, and drogue chute). For the low interactivity condition, participants played the game with full autopilot engaged and all user controls turned off. Akin to other less interactive media, the game required no input from the user in order to progress from beginning to end.<sup>6</sup> In all conditions, game play was limited to 5 minutes.



### Measures

As in Study 1, satisfaction of autonomy and competence need satisfaction was measured using the PENS scale (Ryan et al., 2006), with acceptable levels of Cronbach's  $\alpha$  for autonomy = .67 and competence = .78.<sup>7</sup> Arousal and affect were measured using an adapted version of the Affect Grid (Russell, Weiss, & Mendelsohn, 1989). The scale asks participants to visually map their current state in the semantic space between positive and negative affect (the  $x$ -axis) and high and low arousal (the  $y$ -axis) using a  $9 \times 9$  grid, with the center of the grid representing a "neutral, average, everyday feeling" (Russell et al., 1989, p. 501). The Affect Grid has been validated in prior research (Russell et al., 1989; Swindells, MacLean, Booth, & Meitner, 2007). Enjoyment was measured using the interest/enjoyment subset of the Intrinsic Motivation Inventory (Ryan, 1982). The seven items showed a reliability of  $\alpha = .89$ .

### Procedure

After reviewing and signing the informed consent document, participants were asked to play the flight simulator for 5 minutes to learn the controls. Following this practice session, participants were randomly assigned to one of the three interactivity conditions (low, medium, or high) described above. Once game play was completed, measures were taken of hedonic (arousal and affect) and nonhedonic need satisfaction (competence and autonomy), as well as enjoyment. Subsequently, participants were fully debriefed as to the purpose of the study.

### Results

In order to test the first hypothesis, a multiple regression analysis was conducted with all three conditions combined. Self-reported enjoyment was regressed onto the hedonic (arousal and affect) and nonhedonic needs (competence and arousal). The model explained a significant portion of variance (adjusted  $R^2 = .53, p < .001$ ), and, confirming Hypothesis 1, all hedonic and nonhedonic needs were positively associated with self-reported enjoyment (Table 1). The hierarchical techniques used in Study 1 were replicated here to determine the extent to which hedonic versus nonhedonic needs explained unique variance in enjoyment. The hedonic needs of arousal and affect explained a significant portion of variance in enjoyment (adjusted  $R^2 = .20, p < .001$ ). Adding the nonhedonic needs of competence and autonomy to the model accounted for additional variance ( $\Delta R^2 = .34, p < .001$ ).

To test whether nonhedonic needs account for greater variance in enjoyment at higher levels of interactivity (Hypothesis 2) and whether hedonic needs account for greater or lesser enjoyment at higher levels of interactivity (Research Question 1), separate multiple regression analyses were conducted on scores from respondents in each condition. Once again, hierarchical techniques were implemented to examine the unique contributions of hedonic and nonhedonic needs (Table 2). Overall, results indicate that as interactivity increased we observed (a) a linear decrease in the amount of variance in enjoyment accounted for by hedonic needs and (b) a linear increase in the amount of variance in enjoyment accounted for by adding nonhedonic needs

**Table 1** Regression Analysis Summary for Study 2

	Interactivity Condition			
	All Conditions	Low	Medium	High
Hedonic needs				
Arousal	$\beta = .16^{**}$	$\beta = -.03, ns$	$\beta = .27^*$	$\beta = .18, ns$
Affect	$\beta = .22^{**}$	$\beta = .48^{**}$	$\beta = .18, ns$	$\beta = .15, ns$
Variance explained	Adj. $R^2 = .20^{**}$	Adj. $R^2 = .32^{**}$	Adj. $R^2 = .12^*$	Adj. $R^2 = .05$
Nonhedonic needs				
Competence	$\beta = .24^{**}$	$\beta = .23, ns$	$\beta = .35^*$	$\beta = .31^{**}$
Autonomy	$\beta = .48^{**}$	$\beta = .31^*$	$\beta = .42^{**}$	$\beta = .56^{**}$
Variance explained	$\Delta R^2 = .34^{**}$	$\Delta R^2 = .20^{**}$	$\Delta R^2 = .38^{**}$	$\Delta R^2 = .48^{**}$

Note:  $\beta$  values are standardized.

\* $p < .05$ , \*\* $p < .01$ .

**Table 2** Means and Standard Deviations for Study 2 Separated by Condition

	Interactivity Condition		
	Low	Medium	High
Competence need satisfaction	2.92 (1.10)	3.14 (1.21)	3.56 (1.63)
Autonomy need satisfaction	2.69 (1.20)	3.65 (1.29)	3.38 (1.32)
Arousal need satisfaction	4.60 (1.80)	6.04 (1.97)	6.49 (1.82)
Affect need satisfaction	4.40 (1.75)	5.50 (2.00)	4.91 (2.05)
Enjoyment	3.14 (1.27)	3.96 (1.23)	3.73 (1.27)

(Table 1). Although this pattern occurred when hedonic and nonhedonic needs were combined, when examining the needs individually, nonlinear trends occurred, specifically for competence needs.

For participants in the low-interactivity condition ( $n = 42$ ), the satisfaction of hedonic needs (affect and arousal) explained a significant portion of the variance in enjoyment (adjusted  $R^2 = .32, p < .001$ ), and the inclusion of nonhedonic need satisfaction (competence and autonomy) led to a significant increase in explained variance ( $\Delta R^2 = .20, p < .01$ ). Overall, the complete regression model accounted for a significant portion of the variance in enjoyment (adjusted  $R^2 = .50, p < .001$ ; Table 1). In the complete regression model, affect was a significant and positive predictor of enjoyment ( $\beta = .48, p < .001$ ), but arousal did not significantly predict enjoyment ( $\beta = -.06, ns$ ). Similarly, the satisfaction of autonomy needs ( $\beta = .31, p < .05$ ) was a significant positive predictor of enjoyment, but the satisfaction of competence needs ( $\beta = .23, ns$ ) did not predict enjoyment significantly.

For participants in the medium-interactivity condition ( $n = 41$ ), the satisfaction of hedonic needs explained a significant portion of the variance in enjoyment (adjusted  $R^2 = .12, p < .05$ ), and the inclusion of nonhedonic need satisfaction led to

a significant increase in explained variance ( $\Delta R^2 = .38, p < .001$ ). Overall, the complete regression model accounted for 49.2% of the variance in enjoyment (adjusted  $R^2 = .49, p < .001$ ) in the medium interactivity condition (Table 1). In the complete regression model, affect did not significantly predict enjoyment ( $\beta = .18, ns$ ), but arousal was a significant positive predictor of enjoyment ( $\beta = .27, p < .05$ ). This is in contrast to the low interactivity condition. Also in contrast to the low interactivity condition, the satisfaction of both competence needs ( $\beta = .35, p < .05$ ) and autonomy needs ( $\beta = .42, p < .01$ ) were significant positive predictors of enjoyment.

For participants in the high interactivity condition ( $n = 49$ ), the satisfaction of hedonic needs did not explain a significant amount of the variance in enjoyment (adjusted  $R^2 = .05, ns$ ). However, the inclusion of nonhedonic needs (competence and autonomy) led to a significant increase in the amount of explained variance ( $\Delta R^2 = .48, p < .001$ ). Overall, the model accounted for 53% of the variance in enjoyment (adjusted  $R^2 = .53, p < .001$ ) in the high interactivity condition (Table 1). In contrast to the low- and medium-interactivity conditions, neither arousal ( $\beta = .18, ns$ ) nor affect ( $\beta = .15, ns$ ) was a significant predictor of enjoyment. Similar to the medium-interactivity condition, competence need satisfaction ( $\beta = .31, p < .01$ ) and autonomy need satisfaction ( $\beta = .56, p < .001$ ) were both significant positive predictors of enjoyment.

## Discussion

Study 2 replicates Study 1 by showing that hedonic and nonhedonic needs contribute unique variance to enjoyment and extends its findings in two areas. First, showing that the contribution of hedonic need satisfaction to enjoyment is not limited to arousal needs and second, demonstrating that the contribution of different hedonic or nonhedonic needs to enjoyment can vary predictably as a function of a medium's interactivity. With regard to hedonic needs, when interactivity was low, arousal was unrelated to enjoyment, whereas affect was significantly and strongly associated with enjoyment.<sup>8</sup> By contrast, in the medium- and high-interactivity conditions, arousal accounted for more variance in enjoyment than affect, with arousal accounting for significant variance in enjoyment at moderate levels of interactivity. This pattern reversal suggests that arousal and affect become less salient to the viewer as demand increases, and that demand differences vary the extent to which arousal and affect contribute to enjoyment. As interactivity increases user demand, its excitatory potential should increase the satisfaction of arousal needs, which in turn should account for greater variance in enjoyment. It is not surprising that the role of arousal need satisfaction for the experience of enjoyment would increase under the higher-interactivity conditions in the current study. Unlike the low-interactivity condition, both the medium- and high-interactivity conditions required participation by the player. Simple body movement and involvement with the controls could be expected to increase the ability of game play to fulfill the hedonic arousal needs associated with enjoyment.<sup>8</sup>

With regard to nonhedonic needs, only modest levels of variance in enjoyment were accounted for by competence and autonomy needs when interactivity was

low. The amount of variance in enjoyment accounted for by these needs increased differentially at higher levels of interactivity. The variance in enjoyment accounted for by competence increased from the low- to the medium-interactivity conditions, and remained stable from the medium and high conditions. This pattern differed for autonomy where the amount of variance accounted for increased linearly with the level of interactivity. This suggests that interactivity is directly related to the extent that experienced autonomy contributes to enjoyment. This is consistent with expectations that the satisfaction of autonomy needs would play a greater role in the experience of enjoyment as interactivity increases. As the importance of autonomy seems to increase parallel to the decrease of hedonic needs with regard to enjoyment, the control offered at higher levels of interactivity may increase the salience of nonhedonic needs. This may indicate qualitative differences between the experience of highly interactive media, such as playing a video game, and less interactive media, such as television and film. However, this is speculative, and should be tested. Whether there is a consistent pattern for all highly interactive media remains to be seen. As the data suggest, the competence to enjoyment link may not be linear. It is not hard to imagine that the influence of competence on enjoyment may be moderated by variables, such as successful resolution, feedback, or difficulty of the media experience.

## General discussion

The primary goal of this research was to provide empirical support for a definition of enjoyment as the satisfaction of both hedonic and nonhedonic needs. The two studies reported extend the findings of Tamborini *et al.* (2010), which demonstrated that the satisfaction of nonhedonic, intrinsic needs associated with SDT accounted for substantial variance in self-reported enjoyment. In addition to replicating the findings of Tamborini *et al.*, this paper is the first to examine the contributions of both hedonic and nonhedonic need satisfaction to enjoyment. We would note that our work does not explicate all of the complexities associated with this conceptualization of enjoyment or the mechanisms that underlie it. Our efforts begin to address these challenges by explicating in part the hedonic and nonhedonic functions satisfied by media. Study 1 showed that the inclusion of hedonic needs associated with arousal accounted for increased and unique variance in self-reported enjoyment. Study 2 replicated those findings with the addition of another hedonic need (affect) and broadened the scope of this definition of enjoyment by demonstrating its applicability to both noninteractive and interactive media.

## Future research directions

We began this research aware of the controversy regarding the conceptualization and labeling of needs as hedonic versus nonhedonic or lower- versus higher-order (cf. Deci & Ryan, 2008; Wahba & Bridgewell, 1976). Based on Tamborini *et al.*'s (2010) model, our research defined enjoyment as the satisfaction of both hedonic and

nonhedonic needs, a dichotomy partly in line with the two-factor model suggested by Vorderer (Vorderer, 2009; Vorderer & Ritterfeld, 2009). Reconsideration of the two-factor model led us to formulate a new understanding, where the hierarchical organization of needs is immaterial. We will discuss this understanding after detailing Vorderer's model.

Vorderer identified two dimensions of entertainment motivations associated with "rather immediate, lower order functions" of homeostatic regulation and "less immediate, higher-order goals, such as autonomy, competence, and relatedness" (Vorderer, 2009, p. 6; see also Vorderer & Ritterfeld, 2009). Vorderer and Ritterfeld (2009) characterized these two factors as lower- and higher-order needs, which they referred to as the needs for enjoyment and appreciation, respectively, and argued that these needs could be satisfied differentially by exposure to various forms of media entertainment. Vorderer (2009) associated enjoyment and appreciation with distinct "emotional" and "rational" processing systems. He argued that all thoughts and experience resulted from an interaction between these systems, which happens mostly without our awareness. A notable exception occurs when the two systems produce conflicting outcomes, described by Vorderer as the conscious experience of a conflict "between the heart and the head" (Epstein, 2003, p. 176).

Rather than distinguishing enjoyment and appreciation as forms of lower- versus higher-order needs (satisfied through emotional vs. rational processing), Tamborini (2011) said enjoyment and appreciation were both positive valuations distinguished by the processes leading to need satisfaction. He offered a dual-process model, in which fast, holistic intuitive processing accounted for most evaluative responses, and rational processing accounted for situations that required deliberate thought to resolve conflict between salient needs. Although not designed specifically to distinguish enjoyment from appreciation, the model defines enjoyment as a positive valuation stemming from unconscious processes in which all intrinsic needs are satisfied (or at least those needs that are dominantly *salient*) through intuitive response, with no unsatisfied need impeding the evaluation of the experience as positive. By contrast, appreciation could be thought of as a positive valuation stemming from reflective processes (conscious or unconscious). Here, one or more intrinsic needs are satisfied while other needs go unsatisfied, and rational thought leads the respondent to sublimate the drive to have the unsatisfied needs fulfilled in order to gratify the other need(s). Left unanswered by the present research are questions regarding need conflict. For example, if needs do come in conflict with each other, what is the result, and how does the conflict impact the evaluation of the media experience?

We believe that this dual-process model improves our understanding of enjoyment in functional terms. As suggested by Tamborini (2011), attempts to distinguish enjoyment and appreciation by compiling a list of higher and lower order needs satisfied by entertainment can be misleading; this is particularly true if the essence of each "concept is not fully described by the compilation of its components, but instead requires an understanding of the functional associations among its components." In these situations, definitions that are based on a theory or model and focus attention

on the functional processes at work can increase predictive utility.<sup>9</sup> For example, Tamborini showed how using a dual-process model for distinguishing enjoyment and appreciation might help clarify areas of ambiguity in definitions based on lists of higher and lower order needs. If enjoyment is conceptualized this way, issues associated with the debate over whether needs exist in a hierarchy (cf. Wahba & Bridgewell, 1976) are immaterial.

This approach can be seen as somewhat consistent with attempts to distinguish enjoyment from appreciation that appear in recent works of Vorderer (Vorderer, 2009; Vorderer & Ritterfeld, 2009) and Oliver (Oliver, 2008; Oliver & Bartsch, 2011). Oliver and Bartsch (2011) distinguished the two experiences by suggesting that enjoyment is the form of positive affect that results from hedonic pleasure, whereas appreciation results from the extent to which the experience “encourages grappling with questions of life’s purpose in a way that is guided by wisdom and insight.” Further, they asserted that “appreciation is a conceptually distinct experience from enjoyment, and that the experience of appreciation is associated with unique cognitive *and* affective elements” (emphasis added). Although Tamborini (2011) does not distinguish higher- and lower-order needs, his distinction based on intuitive versus rational processes is similar to Vorderer’s rational and emotional systems.<sup>10</sup> Whereas these needs have been discussed as existing along a hierarchy, Vorderer distinguished them less as a hierarchy and more in terms of different processing systems that might lead to their satisfaction. In this manner, Tamborini’s model offers a conceptualization that reconciles conflicting outcomes in previous research that differentiated enjoyment from appreciation without identifying a common mechanism distinguishing the two evaluation processes. Tamborini identified the mechanism that distinguishes these evaluations as intuitive versus rational processing.

A dual-process framework for defining enjoyment and appreciation can help clarify conceptual confusion regarding audience response to entertainment. Dual-process models that distinguish rational versus intuitive processes are common in psychology and have been applied to media settings, specifically with regard to persuasive and educational media. Tamborini (2011) applies these models to media entertainment settings by showing their use in explaining reactions driven by moral considerations. Our work provides a framework for extending these models to a need-based understanding of the distinction between enjoyment and appreciation. The importance of this framework can be seen in responses to various media entertainment settings. Consider how it can be used to explain responses to a live sporting event versus a tragic film. In the case of sports, previous research (Bryant & Raney, 2000) argues that positive evaluations are driven almost entirely by dispositional considerations (i.e., wanting a liked team to win). These dispositional considerations can be understood within a need-based perspective. Seeing one’s favorite team win should satisfy the only salient need and produce a wholly positive, immediate response. Within the framework of Tamborini’s model, there will be an intuitive, positive response, which we would label enjoyment. Unlike evaluations of

sports, positive evaluations of tragic films are likely driven by many needs (Oliver & Bartsch, 2011). While tragedy may elicit sadness, many people evaluate these films positively and report that they liked them. For example, individuals who watch a tragic film, such as *Life is Beautiful*, would not have a wholly positive immediate response, but would still report that they liked the film. Our framework distinguishes this type of conflicted response, not in phenomenological terms (e.g., creating a typology of responses distinguished by attributes), but by explicating the mechanisms responsible (i.e., the resolution of various conflicted needs) for evaluative response.

The current framework also explains the distinction between negative and positive responses to a tragic film in terms of need satisfaction. For the individual who experiences a negative response to tragedy, the framework would hold that the experience (a) did not satisfy any needs of the individual or (b) satisfied some needs, but not *salient* needs. By contrast, for the individual who experienced a positive response to the tragedy, it would hold that the experience satisfied *salient* needs, even if it left other needs unsatisfied. Going back to the *Life is Beautiful* example, although some dispositional needs are thwarted (i.e., seeing a liked character and central protagonist die tragically), other needs may be satisfied (e.g., relatedness needs associated with the love between a father and a son; Ahn, 2010). In this case, even though the viewer is experiencing sadness, he/she would label the experience as positive if the reward experienced from the satisfied need overrides the negative affect arising from the thwarted need. The positive resolution of conflicted needs is an experience we would label as appreciation.

The current paper demonstrates the importance of defining enjoyment within a need-based perspective, and offers a perspective for understanding positive responses to media entertainment. Enjoyment and appreciation, which have been proposed to be two separate responses, may both be understood as the satisfaction of similar needs distinguished by intuitive versus rational processing. Enjoyment can be thought of as a positive valuation stemming from unconscious processes in which all intrinsic needs are satisfied (or at least those needs that are dominantly salient) through intuitive response, and there is no unsatisfied need to impede the positively valued experience. By contrast, appreciation can be thought of as a positive valuation stemming from rational processes (conscious or unconscious) in which one or more intrinsic needs are satisfied while other needs go unsatisfied. This paper provides a foundation for future research examining a definition of enjoyment as a positive valuation resulting from a set of intrinsic needs that can be distinguished in terms of response processes, and suggests that differences between enjoyment and appreciation can be informed by a need-based approach.

## Notes

- 1 Tamborini (2010) used “lower” and “higher order” needs instead of “hedonic” and “nonhedonic” needs. Debate in psychology exists on the conceptualization of these

needs. With regard to entertainment, debate centers on needs related to positive experiences, often discussed in terms of hedonic and nonhedonic needs. Research has focused on hedonic needs, but recent theorizing has examined how “nonhedonic” needs may predict positive experiences. Hedonic needs have been defined in terms of the pleasure principle (i.e., maximizing positive affect and minimizing negative affect). An example is found in mood management theory’s research on physiological homeostasis (Zillmann & Bryant, 1985). The term nonhedonic is not as clearly defined in the literature. What might be considered nonhedonic needs has been alternatively conceptualized as eudaimonic needs, and sometimes as higher order needs. Nonhedonic needs may be generally thought of as needs that go beyond simple pleasure seeking. One theoretical framework that explicates nonhedonic needs is self-determination theory (SDT: Deci & Ryan, 2000), which focuses on the satisfaction of competence, autonomy, and relatedness needs. Throughout the front-end of this paper, we use the terms “hedonic” and “nonhedonic” instead of the terms “lower-” and “higher-order” needs. We use the term hedonic to refer to traditional lower-order needs such as arousal and affect, and the term nonhedonic to refer to the SDT-based needs. We do this understanding that there is continued debate on whether these three needs should be considered hedonic or nonhedonic (Deci & Ryan, 2008). In the discussion we return to issues related to debate regarding the conceptualization and labeling of needs related to positive entertainment experiences.

- 2 Sensitivity theory (Reiss & Wiltz, 2004) and uses and gratifications theory (Katz, Gurevitch, & Haas, 1973) have both defined enjoyment more explicitly as the satisfaction of needs. However, this research fails to provide an organizing structure among the different needs.
- 3 All analyses reported in this paper were also conducted with the inclusion of relatedness needs scores. Consistent with expectations, relatedness scores were nonsignificant predictors in all cases. Moreover, no findings associated with other predictors and outcomes were changed by the presence or absence of relatedness in analysis.
- 4 Sample items were not included for competence as the scale is proprietary. We included a sample item for autonomy as it already appears in publication.
- 5 We are aware that “interactivity” represents a variety of constructs. We use the term interactivity to reference the amount of user control over a mediated environment and the demand placed on the user to enact that control. We use “noninteractive” as a heuristic to simplify comparisons between media high and low on interactivity defined by both the amount of control afforded to and demand placed on the user.
- 6 This experimental manipulation has proven to affect user demand. Bowman and Tamborini (2010) found differences among all three conditions in reaction times in an audio distracter task. Furthermore, the high- and medium-interactivity conditions led to significantly higher levels of subjective user demand.
- 7 As observed in previous research by Ryan *et al.* (2006) and again here in Study 1, relatedness needs are not associated with enjoyment in single-player games. As such, relatedness needs were not included in Study 2.
- 8 Beyond lacking interactivity, the low-demand condition contained content low in affective and visual stimulation. Although the medium and high conditions were similar in affective and visual stimulation, opportunities to experience arousal/affect in the low condition were limited by lack of body movement and by the stimulus content.



- 9 The components of enjoyment are a case in point. Our model's distinction of hedonic vs. nonhedonic needs makes heuristic sense, and our data show its predictive value. However, the conceptual distinction among these needs is unlikely to be fully captured by this hedonic versus nonhedonic characterization. Theory-guided knowledge of the structural or functional manner in which different components of need satisfaction are related to each other (in processes that determine positive evaluations of media experience) could improve understandings of enjoyment.
- 10 Tamborini's (2011) distinction of intuitive versus rational processing is akin to Vorderer's notions of differential speeds of response for both systems.

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## 욕구-만족으로서의 미디어 즐기기: 쾌락설과 비쾌락설 욕구의 공헌

### 요약

오락에 대한 대부분의 기존연구들은 미디어 즐기기를 쾌락적 욕구를 만족시키기 위한 기능적인 측면에서 정의하였다. 두가지 연구들이 즐거움을 정의하는데 있어 비쾌락적 그리고 쾌락적 욕구 만족 가치를 보여주었다. 두가지 연구들은 모두 비디어 게임을 하는데 있어 욕구 충족 모델을 지지하고 있다. 두번째 연구는 첫번째 연구의 발견을 확대한 것으로 결과들은 쾌락적 그리고 비쾌락적 욕구 충족들이 미디어 만족도의 독특하지만 보완적인 구성요소들이라는 것을 보여주고 있다. 토론은 미디어의 긍정적인 평가를 이해하기 위한 욕구근거 접근의 장점에 두고 있으며, 즐기기과 감상의 차이에 대한 새로운 전망을 제공하였다.

El Placer de los Medios como Satisfacción de una Necesidad: La Contribución de las  
Necesidades Hedonistas y las No Hedonistas

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Resumen

La mayoría de la investigación previa sobre el entretenimiento define al placer de los medios en términos funcionales como la satisfacción de necesidades hedonistas. Dos estudios importantes demuestran el valor de incluir la satisfacción de necesidades no hedonistas y hedonistas en la definición de este placer. Ambos estados encuentran apoyo para un modelo de satisfacción de necesidad mostrando que la satisfacción de necesidades hedonistas (estímulo y afecto) y no hedonistas (competencia y autonomía) representan una varianza única en la experiencia del placer durante un video juego. El estudio 2 extiende los hallazgos del estudio 1 para representar al placer del entretenimiento de los medios. Los resultados muestran que la satisfacción de necesidades hedonistas y no hedonistas es distintiva pero complementaria de los componentes del placer de los medios. La discusión se enfoca en la ventaja de una aproximación basada en las necesidades para comprender las valoraciones positivas y ofrecer una perspectiva nueva sobre la distinción entre el placer-apreciación.

*Palabras claves:* Entretenimiento de los medios, placer, apreciación, teoría de la auto-determinación, video juegos, satisfacer una necesidad, interactividad

Le plaisir tiré des médias et la satisfaction des besoins : la contribution des besoins hédonistes et non hédonistes

Ron Tamborini, Matthew Grizzard, Nicholas David Bowman, Leonard Reinecke, Robert J. Lewis et Allison Eden

La plupart des premières études sur le divertissement définissent le plaisir tiré des médias en des termes fonctionnels, c'est-à-dire comme la satisfaction de besoins hédonistes. Deux études démontrent l'utilité d'inclure la satisfaction de besoins hédonistes et non hédonistes dans la définition du plaisir. Les deux études appuient un modèle de satisfaction des besoins qui montre que la satisfaction de besoins hédonistes (excitation et affect) et non hédonistes (compétence et autonomie) explique la variation unique du plaisir vécu pendant l'usage de jeux vidéo. La deuxième étude développe les résultats de la première pour expliquer le plaisir tiré des divertissements médiatiques non interactifs. Les résultats montrent que la satisfaction des besoins hédonistes et la satisfaction des besoins non hédonistes sont des éléments distincts mais complémentaires du plaisir tiré des médias. La discussion porte sur l'avantage d'une approche fondée sur les besoins pour comprendre les évaluations positives des médias. Cette approche offre une nouvelle perspective sur la distinction entre plaisir et appréciation.

Mots clés : divertissements médiatiques, plaisir, appréciation, théorie de l'autodétermination, jeux vidéo, satisfaction des besoins, interactivité

## 作为满足需求的媒体娱乐：享乐和非享乐需求的作用

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### 【摘要】

早期的娱乐研究大多都将媒体享受从功能方面定义为对享乐需求的满足。本文的两项研究表明在定义媒体享受时需将非享乐和享乐需求同时包含在内。这两项研究都支持了需求满足模型，即对享乐（兴奋和情感）和非享乐（能力和自主性）需求的满足解释了人们在玩电子游戏时的享受所发生的独特变化。研究 2 扩展研究 1 的结论以解释非交互式的媒体娱乐享受。结果表明享乐和非享乐需求的满足虽有所不同，但都是媒体享受相辅相成的组成部分。本文讨论了一个用以需求为基础的方法来理解媒体正面作用的优势，并提供一个新视角来区分享受和欣赏。

## **Medien-Enjoyment als Bedürfnisbefriedigung: Zur Rolle von hedonischen und nicht-hedonischen Bedürfnissen**

**In früheren Forschungsarbeiten zum Unterhaltungserleben wird Medien-Enjoyment in einem funktionalen Sinn als die Befriedigung von hedonischen Bedürfnissen definiert. In zwei Studien zeigen wir den Nutzen, sowohl nicht-hedonische als auch hedonische Bedürfnisbefriedigung in einer Definition von Enjoyment zu berücksichtigen. Beide Studien bestätigen das Modell der Bedürfnisbefriedigung und zeigen auf, dass die hedonische (Erregung und Affekt) und nicht-hedonische (Kompetenz und Autonomie) Bedürfnisbefriedigung jeweils einen eigenen Anteil an der Varianz von Enjoyment beim Videospiele erklären. Eine zweite Studie erweitert die Ergebnisse von Studie 1 um nicht-interaktives Medien-Enjoyment. Hier verdeutlichen die Ergebnisse, dass hedonische und nicht-hedonische Bedürfnisbefriedigung eigenständige, wenn auch komplementäre Komponenten von Medien-Enjoyment sind. Im Diskussionsteil befassen wir uns mit den Vorteilen dieses bedürfnisbasierten Ansatz, nämlich zum einen positive Bewertungen von Medien besser verstehen zu können und zum anderen eine neue Perspektive auf die Unterscheidung von Enjoyment und Wertschätzung zu eröffnen.**

**Schlüsselbegriffe: Medienunterhaltung, Enjoyment, Wertschätzung, Theorie der Selbstbestimmung, Videospiele, Bedürfnisbefriedigung, Interaktivität**

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