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Social Influence and Willingness to Pay for Massively Multiplayer Online Games: An Empirical Examination of Social Identity Theory

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Abstract:

The development and sale of massively multiplayer online games has emerged as a significant part of the 21st century entertainment industry. Yet, firms competing in this sector of the videogame industry vary in their ability to generate revenue from their products. We contend that social influence constitutes one primary factor that determines which massively multiplayer online game individuals consume. Using social identity theory for our theoretical underpinning, we argue that the identity that membership in important social groups provides influences individuals. We investigate the effects that two identity-related constructs, consumer-brand identification and social identity complexity, have on satisfaction and willingness to pay a subscription fee for a massively multiplayer online game. Our results suggest that social influence has a complex relationship with an individual's willingness to pay. Consumer-brand identification and social identity complexity had significant direct relationships with willingness to pay, while consumer-brand identification had a significant indirect relationship with willingness to pay through satisfaction. Additionally, social identity complexity significantly moderated the relationship between consumer-brand identification and willingness to pay. Overall, our results support social identity theory's ability to explain how social influence occurs for individuals that play massively multiplayer online games.

Keywords: Social Influence, Social Identity Theory, Individual Behavior, Massively Multiplayer Online Games, Survey Research.

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1 Introduction

The development and sale of videogames has grown from a niche market in the 1970s to one of the fastest-growing sectors in the entertainment industry. Globally, the videogame industry generated an estimated US\$116 billion in revenue during 2017, a figure expected to increase to US\$143.5 billion by 2020 (Newzoo, 2017). Market research indicates that online videogames (i.e., videogames played through the Internet or other computing network) constitute one of the biggest drivers for the videogame industry (Chelen, 2016).

In particular, in this research, we focus on massively multiplayer online games (MMOGs), which earned an estimated US\$25.0 billion in 2017 (Newzoo, 2017). A MMOG refers to a large multiplayer online videogame that can support hundreds of thousands or even millions of individual players at the same time. To create revenue, large commercial MMOGs have traditionally charged a subscription fee. World of Warcraft represents a particularly conspicuous example: at its peak, it boasted US\$2.15 billion in subscription revenue annually (Leack, 2017). Given their rise in popularity, MMOGs have received growing interest in the information systems (IS) literature (e.g., Goh & Wasko, 2012; Putzke, Fischbach, Schoder, & Gloor, 2010).

Although revenue generated from MMOGs continues to grow, firms vary in their ability to successfully compete in this industry. Indeed, some recent MMOG product failures have come as a surprise because they belonged to a strong brand, their developers invested hundreds of millions of dollars into them, or their developers had a long history of developing successful offline videogames (see Messner, 2016). Thus, these failures suggest that firms and their products lack certain attributes that they required to attain success in the MMOG sector of the videogame industry.

Playing an MMOG is a social activity. By their nature, MMOGs allow individuals that enjoy playing videogames to interact with each other, provide a meeting place on the Internet for real-life friends, and often foster real-life friendships in people who first met while playing them (Cole & Griffiths, 2007). Moreover, research suggests that social interaction represents a primary motivation for why individuals play online videogames in general (Possler, Klimmt, Schlütz, & Walkenbach, 2017; Sherry, Lucas, Greenberg, & Lachen, 2006; Yee, Ducheneaut, & Nelson, 2012). Given the intrinsic social nature of MMOGs, we believe that social influence provides a key explanation as to why success in the MMOG sector of the online videogame industry has been unpredictable.

Social influence receives widespread examination across various academic disciplines such as social psychology, consumer behavior, marketing, and information systems because, among other reasons, the social world in which people reside profoundly affects their individual values, attitudes, and behaviors (Cialdini & Goldstein, 2004). This influence can occur both directly, such as through a direct request from one individual to another, but most commonly occurs indirectly and in subtle ways. As Forgas and Williams (2001, p. 3) observe, “all interpersonal behavior involves mutual influence processes, and coordinated interaction by larger social units, such as groups, and even whole societies, is only possible because our behavior is guided by pervasive and shared forms of social influence”.

In examining social influence, we adopt social identity theory, which argues that individuals tend to classify themselves and others into social groups, such as friendship groups or social class. Membership in a group provides an individual with a sense of self and mutual belonging with respect to the group. Due to the importance of the group as a source of self-esteem and social identity, an individual will be motivated to conform to the norms of the group in order to sustain status among other group members. In this way, the social identity that group membership affords provides an individual with guidance on how to feel and behave.

Without question, many studies in the IS discipline have examined complex relationships, such as those that involve mediation and moderation. Yet, studies on social influence in particular often have various issues. Researchers frequently focus on “highly plausible” direct relationships (Albers, 2010) and ignore the complex nature of an individual’s social world, which their tendency to adopt poor conceptualizations of social influence exacerbates. To illustrate, researchers have prominently used subjective norms as a social influence construct in the IS literature and defined it as the perceived expectations of important others. However, this definition conceives norms as “being additive across significant others rather than being linked to a specific behaviorally relevant group” (Terry & Hogg, 2001, p. 255). First, social identity theory argues that individuals match their behavior to adhere to the norms of a specific social group; all persons an individual considers important may not belong to the same social group. Second, norms are

context specific; they prescribe the appropriate response to a particular social situation. If norms are not applicable to a situation, they provide no guidance for behavior.

Given that firms that develop MMOGs do so to generate revenue and that a given MMOG's success or failure results from its profitability, we consider the following research question (RQ):

RQ: What role does social influence play in determining an individual's willingness to pay for MMOGs?

In this study, we address the deficiencies in prior research that has examined social influence and more completely explain how individuals' social environment can affect their consumption behavior.

Our approach departs from most research in the IS area. As a result, academics should find interest in it for several reasons. First, we introduce the concepts consumer-brand identification (CBI) and social identity complexity (SIC), which the IS literature has not previously considered. Second, for research that examines online videogames in particular, we more comprehensively examine social influence than previous studies typically have. To do so, we investigate the possibility that an individual can be a member of multiple social groups behaviorally relevant to playing MMOGs and that these group memberships simultaneously influence that individual's MMOG consumption behavior. We also examine the assertion that membership in behaviorally relevant social groups indirectly affects willingness to pay for MMOGs through the influence of individual attitudes. Finally, we test the hypothesis that influence that results from membership in multiple behaviorally relevant social groups can create an interaction effect such that their influence on consumption decisions is greater than the sum of their parts. For practitioners, research has focused almost exclusively on factors that motivate individuals to play MMOGs and ignored the revenue aspect of the industry. Our research helps fill the gap by examining antecedents related to paying for MMOG products.

This paper proceeds as follows: in Section 2, we review social identity theory and introduce the constructs on interest in our study. In Section 3, we present a research model and our hypotheses. In Section 4, we discuss the methodology we used in our research. In Section 5, we summarize our results and describe our sample's characteristics. In Section 6, we provide conclusions based on our results, briefly discuss our study's limitations, and make suggestions for further research.

2 Literature Review and Theory

2.1 The Social Identity Perspective

Social identity theory (SIT) explains intra-group processes and how groups interact with each other in general. Of interest to our research, the theory describes how membership in social groups helps define an individual's self-concept and, in turn, how self-concept influences the formation of individual attitudes. Researchers in various academic disciplines have studied SIT, which includes IS (e.g., Xu, Wang, Li, & Chau, 2007). In particular, the theory has grown to represent one of the preeminent theoretical perspectives in the social psychology discipline (Brown, 2000).

First articulated by Tajfel and Turner (1979), SIT posits that social interaction between individuals occurs on a spectrum. On one end of the spectrum (i.e., interpersonal interactions), individual characteristics and the interpersonal relationship that exists between two people define social interactions; on the other (i.e., intergroup interaction), individuals perceive themselves as representations of their social groups, and their relating to others solely based on social group membership characterizes social interactions. Tajfel and Turner (1979) assert that one can expect social interaction to occur somewhere between these two points because interactions at the polar extremes are highly improbable in realistic social situations.

Further, SIT explains that moving from the interpersonal end of the spectrum to the intergroup end affects the way individuals perceive themselves and others. In creating a sense of self, individuals usually extend beyond their personal identity to develop a social identity. In this way, individuals partly derive their self-concept from membership in important social groups. Social groups represent groupings of individuals based on similarities, and membership in any given social group suggests characteristics about a member. Consequently, individuals categorize other people into social groups to help interpret social situations, and, because individuals also carry out self-categorization processes, they use social groups as labels to describe themselves. Individuals have memberships to a multitude of social groups, such as peer groups or social class, and the importance of membership in any given social group depends on a variety of situational factors.

While SIT originally focused on describing intergroup behavior, it also explains how social influence occurs. When a given social group becomes particularly important, members use “available, and usually shared, social comparative information to construct a context-specific group norm—a group prototype” (Terry & Hogg, 2001, p. 255). Group members use this group prototype to accentuate the similarities in the social group and the differences between opposing social groups. In a process called depersonalization, individuals internalize group norms that the group prototype defines and use them to guide their own attitudes and behaviors. As a result, individuals tend to perceive themselves as interchangeable with other members of the social group.

2.1.1 Friendship Groups

A friendship group is a small social group that comprises a focal individual and friends with whom the focal individual frequently associates. Friendship groups are among the most important social groups to which an individual can have membership. Friendships commonly feature positive engagement and mutual affection (Hartup & Stephens, 1997; Newcomb & Bagwell, 1995). Research has long recognized that people rank friendship as one of the most important things in their lives (Klinger, 1977), while individuals typically spend more time interacting with friends than with others (Newcomb & Bagwell, 1995). Due to the significant role that friendship groups play in individuals’ lives, researchers consider friendship groups to be a “primary group” (Litwak & Szelenyi, 1969).

According to SIT, for a social group to exert influence, it must behaviorally pertain to a given social situation. We argue that an individual’s friends (in real life and MMOGs) who hold opinions about MMOGs are among the people that the individual will most likely interact with and, thus, that these individuals represent one of the most behaviorally relevant groups to our study context. Research suggests that individuals identify strongly with groups when they have an emotional attachment to its other members (Hogg & Hains, 1998). Due to friendships’ intrinsic importance to group members, individuals tend to identify more strongly with their friendship groups than other social groups (Hartup & Stephens, 1997). Friendship group identification tends to result in group members with highly similar characteristics (Veenstra & Dijkstra, 2011) due to the depersonalization process that social identity theory describes. In our study’s context, this process suggests that individuals that play MMOGs will likely have friends that also play MMOGs as friendship group members will likely behave similarly.

2.1.2 Consumption and Social Identity

While research examining SIT has largely focused on social groups whose members directly interact with each other, the principles underlying SIT do not apply exclusively to face-to-face situations; individuals can identify with broader social groups, such as political parties or social classes (Brewer, 1991). As SIT contends, self-categorization is a psychological process that individuals perform based on the belief that they share characteristics with other social group members. In the same way individuals conform to norms of small social groups, broad social groups provide prototypes that guide behavior. Conceptualizing expansive social structures as social groups has been critical in understanding socialization processes in many broad contexts, such as organizations (Ashforth & Mael, 1989).

SIT has received considerable attention in the marketing and consumer research disciplines (Belk, 1988; Bhattacharya & Sen, 2003; Escalas, 2004; Escalas & Bettman, 2003; Stokburger-Sauer, Ratneshwar, & Sen, 2012) due to its ability to explain how social identities influence consumer behavior. This school of thought posits that some companies possess social identities (values and characteristics) that consumers find appealing. The company itself is merely a social structure, so it does not directly interact with individuals. Rather, a company communicates its identity via its products, advertising, and various other means. Identification with a company occurs without a formal relationship. Instead, consumers possess a symbolic membership through consuming a firm’s products. In this way, individuals consume products to meet their psychological needs of creating and reinforcing a self-concept and to express their self-identity to others (Bhattacharya & Sen, 2003). Given this point of view, it follows that a product’s utilitarian characteristics only partially explain the value derived from its consumption and that a company’s value proposition in part, relates to company identity.

Consumer-brand identification (CBI), a social identity-related concept from the marketing literature, concerns consumers’ perceptions about a brand’s similarity to themselves (Stokburger-Sauer et al., 2012). A brand refers to the name, term, logo, or other marketing message that a firm uses to identify its product offerings, and research suggests brands have the ability to inform and communicate identities for consumers (Bhattacharya & Sen, 2003; Escalas, 2004; Escalas & Bettman, 2003). In this research, we

define CBI as the degree to which individuals have integrated the brand that relates to a given MMOG into their self-concept; as such, it reflects the extent that an individual identifies as a member of the population that plays a given MMOG.

2.1.3 Multiple Social Identities

Typically, individuals identify with a multitude of different social groups (see Deaux, 1996). Further, the idea that multiple social groups can be important to a particular social situation, and, thus simultaneously influence individual behavior is not new. In this research, we pay particular attention to social identity complexity (SIC) (Roccas & Brewer, 2002), which refers to the perceived degree that important social groups converge to provide a single social identity.

Researchers have argued two dimensions to contribute to a social identity's complexity: overlapping and similarity. Overlapping concerns the degree to which two social groups share the same members. When social categories highly overlap, an individual possesses a relatively simple social identity. Similarly concerns the degree to which an individual perceives two social groups to share characteristics. Studies that have examined SIC have typically focused on the overlapping dimension (Brewer, Gonsalkorale, & van Dommelen, 2013). Therefore, we define SIC as the degree to which an individual perceives a degree of overlap to exist between the individual's friendship group and the population of individuals that play a given MMOG.

Norms relating to membership in two or more important social groups can influence consumption, particularly when conflict exists among the norms that inform purchase decisions. Orth and Kahle (2008) argue that, as an individual's social identity becomes increasingly complex and, thus, as the individual becomes subject to divergent and potentially opposing norms from various important social groups, the individual's susceptibility to normative influences will decrease because a complex identity provides weak guidance for attitude formation. Alternatively, a social identity with a high degree of overlap between social groups should provide a more compelling source of guidance because the focal group member will perceive a unified source as furnishing social norms.

2.2 Willingness to Pay

One can describe willingness to pay (WTP), which Ciriacy-Wantrup (1947) first proposed, as the maximum monetary amount a consumer would spend to obtain a given product or service. WTP captures what a consumer is willing to pay in excess over the price paid for the good and not simply what the consumer actually pays. In the same way that researchers have posited intentions to be a cognitive antecedent to actual behavior (see Ajzen & Fishbein 2005), we argue that WTP is a cognitive antecedent to purchasing behavior. Researchers have previously used WTP in the IS literature to determine the monetary value consumers attribute to a good (e.g., Lopes & Galletta, 2006; Marett, Pearson, & Moore, 2012). In our research, we define WTP as the monetary expression of the sum of gains that an individual anticipates experiencing from playing a given MMOG.

2.3 Satisfaction

Satisfaction plays an important role in affecting customers' decisions about purchasing goods and services (see Yi, 1990), and researchers have argued it to represent the most central concept in consumer research (Oliver, 2010). As expectation-confirmation theory (Oliver, 1980) explains, customers have expectations of a good prior to consuming it. Customers develop their satisfaction level after consuming a good based on comparing their expectation with how well they perceived the good to perform. Either positive or negative disconfirmation mediates this relationship. Satisfaction results if the good outperforms expectations. Therefore, we define satisfaction as an attitude that individuals form via mentally comparing the quality they expected a given MMOG to have with the quality they perceived it to have after actually using it.

3 Hypotheses Development

As we discuss above, social identity theory posits that, for a social identity to exert influence, it must refer to a specific social group relevant to a given situation's context. We argue that two social groups pertain to the context of our study: the population of individuals that play a given MMOG and an individual's friendship group. Figure 1 summarizes our research model.

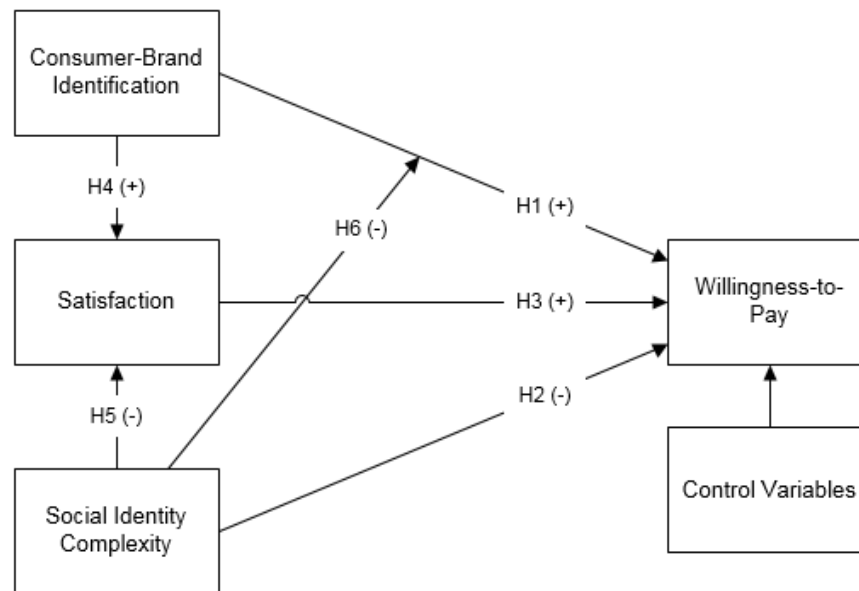


Figure 1. Research Model

3.1 Direct Effects on Willingness to Pay

3.1.1 Consumer-brand Identification

Brands have the ability to express and enhance desirable identities (Bhattacharya & Sen, 2003; Escalas & Bettman, 2005; Stokburger-Sauer et al., 2012), which suggests that the identity that brands can provide forms part of the potential value that individuals derive from consuming their products. Thus, it follows that the greater individuals have integrated a brand into their self-concept, the greater the amount of value they derive from consuming that brand's products. Research has generally supported this line of reasoning; for instance, it has shown CBI to be positively related to perceived value (He, Li, & Harris, 2012), willingness to pay a price premium (Rio, Vazquez, & Iglesias, 2001), higher levels of product usage (Ahearne, Bhattacharya, & Gruen, 2005), and increased probability of brand repurchase (Kuenzel & Halliday, 2008). In our research, these findings suggest that, as individuals play a particular MMOG, they may begin to identify themselves as part of the population that plays MMOGs related to that brand. Once identified with the social group of brand users, they may use the fact that they consume that MMOG symbolically in part to add to or reinforce the way they think about themselves. In this way, the utility that individuals derive from playing a MMOG does not depend solely on the product's hedonistic characteristics but also on the social value it provides. We assert that, the greater individuals have integrated the brand of a firm that provides MMOGs into their self-concept, the more value they derive from that firm's products. Consequently, an individual will be willing to pay a higher subscription fee for that MMOG since WTP constitutes a monetary expression of value.

H1: Consumer-brand identification has a positive relationship with willingness to pay a subscription fee for a given massively multiplayer online game.

3.1.2 Social Identity Complexity

Friendship group members use shared, social comparative information to construct group norms. Group members internalize and use these norms to guide behavior in a variety of situations, which includes whether to consume a brand's products (Batra, Homer, & Kahle, 2001; Orth & Kahle, 2008). Thus, in our research, as friendship group members play a particular MMOG, they transmit cues to other group members. Due to frequent communication and interaction, group member preferences about MMOGs converge over time to become more homogeneous. When a relatively high number of group members play the same MMOG, it signals that they have established playing this particular MMOG as a behavior of the group prototype. Consequently, playing that MMOG confers status to group members; specifically,

consumption helps individuals maintain a coherent self-evaluation as a member of the friendship group and helps them to maintain positive relations with other group members.

When an individual plays a given MMOG, the individual becomes a member of the population that consumes that product. Thus, we can expect that, over time as consumption continues, the individual will begin to identify with the MMOG and the firm that provides it. This identification creates the potential for a complex social identity as it relates to consuming MMOGs: the MMOG that an individual regularly plays and has integrated into the individual's self-concept may differ from the MMOG associated with the individual's friendship group. If a relatively low number of friendship group members play the same MMOG that the individual has identified with, the individual experiences conflicting norms about which MMOG to play. Due to an increasingly complex social identity, playing an MMOG that few or no members of the individual's friendship group play provides less value to the individual in terms of affirming the individual's social identity as it concerns membership in the friendship group. Thus, we anticipate an individual's willingness to pay a subscription fee to access the MMOG will decrease. While this assertion has not previously been tested, consumer research supports the assertion that purchase decisions are often motivated, in part, for social benefits they confer (Sweeney & Soutar, 2001).

H2: Social identity complexity has a negative relationship with willingness to pay a subscription fee for a given massively multiplayer online game.

3.1.3 Satisfaction

We anticipate that satisfaction will significantly relate to an individual's WTP for a MMOG. An individual has expectations about the outcomes from playing a given MMOG. When an individual experiences a high degree of satisfaction, the benefits that the individual gains from that MMOG exceed the individual's expectations. Because WTP monetarily expresses value and perceived value refers to a "customer's overall assessment of the utility of a product based on perceptions of what is received and what was given" (Zeithaml, 1988, p. 14), we argue that higher levels of satisfaction (a result of perceived benefits) will be associated with higher levels of perceived value (expressed as WTP). Studies that have examined purchase decisions in the context of the Internet have generally supported the theorized satisfaction-purchase relationship (see Darley, Blankson, & Luethge, 2010).

H3: Satisfaction has a positive relationship with willingness to pay a subscription fee for a given massively multiplayer online game.

We included satisfaction as a variable in our research model for two reasons. First, we wanted to determine if our identity-related constructs additively explain the variance of WTP beyond the extent to which individuals' attitudes do so. Second, to ensure that we fully explored the role social that influence has on purchase decisions, we wanted to determine whether our identity-related constructs have indirect effects on WTP through the influence of individual attitudes that act as antecedents to consumption decisions.

3.2 Indirect Effects on Willingness to Pay

3.2.1 Consumer-brand Identification

When individuals identify with a company, they become psychologically attached to it (Bergami & Bagozzi, 2000; Bhattacharya & Sen, 2003) due to its importance in providing a means for them to form and express their self-identity. When individuals perceive an integrated identity related to a company as attractive, it enhances their self-identity and, thus, results in a more positive self-evaluation. Consequently, individuals will be motivated to alter their perceptions about products associated with an identified brand in order to improve their own identity. Individuals' de-emphasizing negative information that they may receive about the company (especially when they perceive it as minor) exemplifies this behavior (Alsop, 2002). Therefore, as the degree to which an individual identifies with a firm increases, that individual's motivation to possess a favorable assessment of that firm increases accordingly. In our research, the consequences of psychological attachment to a brand would mean that, as individuals play a particular MMOG, they may begin to identify themselves as part of the population of individuals that play MMOGs related to that brand. If they identify strongly with the brand in the form of a high CBI, they will possess more favorable beliefs relating to the product in the form of increased satisfaction because they ignore minor negative information about the brand and its products while emphasizing positive information about it in an effort to

increase its prestige. Research supports the assertion that satisfaction and CBI positively relate to each other (He, Li, & Harris, 2012; Nam, Ekinci, & Whyatt, 2011).

H4: Consumer-brand identification has a positive relationship with satisfaction for a given massively multiplayer online game.

3.2.2 Social Identity Complexity

Social groups can be associated with a given brand and vice versa (Escalas & Bettman, 2003). As a result, individuals who consume certain brands can connect with important social others (Stokburger-Sauer, Ratneshwar, & Sen, 2012). In the case where a social group highly identifies with a brand, one can expect that group members will possess psychological attachments to that brand due to the brand's importance in providing identity to the social group and its members. Thus, when group members perceive a brand associated with a social group as attractive, it enhances the status of the group. Due to this group-brand association, group members are motivated to favorably assess that brand's products, which causes them to ignore minor negative information and emphasize positive information relating to the brand. Due to group members' converging attitudes, we can expect that, over time, a group norm to favorably assess the brand will emerge. In this research, we argue that individuals who play MMOGs have membership in both their friendship groups and the population of individuals that play the MMOG. An individual who possesses a low degree of SIC indicates that the individual's friendship group has reached the consensus that playing the same MMOG the individual has identified with represents a norm for the group. In this situation, group members will be motivated to more favorably assess the brand that relates to that MMOG, and higher levels of satisfaction with that brand's products will emerge as a group norm. While researchers have not previously examined the relationship between SIC and satisfaction, some work suggests that identity importance and satisfaction significantly relate to each other (Laverie & Arnett, 2000).

H5: Social identity complexity has a negative relationship with satisfaction for a given massively multiplayer online game.

3.3 Interaction Effects between SIC and CBI

Researchers have proposed that social influences that emanate from multiple sources interact in such a way that their effect on individuals' behaviors represents "more than the sum of their parts" (Pratkanis, 2007, p. 8). SIT provides one possible explanation for why such an effect would occur. In Section 2.1.2, we discuss how the value an individual derives from consuming a product depends in part on that product's ability to allow individuals to create and express their self-identity. We argue that the potential exists for an individual to possess a high level of norm congruity across behaviorally relevant social groups. In the case where social groups find consuming a particular brand as important to expressing their identity, group members will derive a greater social value from consuming that brand due its ability to allow them to more clearly define their self-identity. In other words, a consensus in norms across multiple important social groups about consuming a particular brand will provide a simplified, more convincing self-identity than disparate norms can provide. In this way, the consensus about which brand to consume provides value. In our research, this rationale suggests that, if an individual identifies with the population that plays a given MMOG and playing that same MMOG represents a norm for the individual's friendship group, these two social identities reach a consensus in norms. As a result, the MMOG's usefulness in allowing the individual to create a desirable social identity increases, which results in the individual's attributing greater value to that brand/product. Specifically, as SIC decreases, the strength that CBI has on WTP will increase. To our knowledge, researchers have not previously examined the moderating effects of SIC in any context.

H6: Social identity complexity moderates the relationship between consumer-brand identification and willingness to pay a subscription fee for a given massively multiplayer online game such that, as social identity complexity increases, the strength of the relationship between consumer brand identification and willingness to pay decreases.

3.4 Control Variables

To rule out alternative explanations for the relationships in our research model, we included control variables in our statistical analysis. We assert that individuals with greater financial means have a greater ability to pay for leisure activities such as playing MMOGs and, thus, will possess a higher WTP

(Whitehead, Blomquist, Hoban, & Clifford, 1995). We also argue that, the more an individual plays a given MMOG, the greater value they derive from using it (Whitehead et al., 1995). Lastly, we argue that game designers typically design MMOGs (i.e., their rules and structures) in a way that appeals more to males than to females. Consequently, males will receive greater enjoyment from playing MMOGs, which, in turn, will lead to greater levels of WTP (Greenberg, Sherry, Lachlan, Lucas, & Holmstrom, 2010). Given these arguments, we controlled for the effect of gender, income, and hours of gameplay per week on WTP. In addition to including variables to control for characteristics of our respondents, we also controlled for the MMOG that the respondents played. Theorists suggest individuals experience price anchoring effects: the last price an individual paid for a good determines in part the extent to which an individual perceives it as having a “fair price” (Helson, 1964). Given that subscription prices for MMOGs vary depending on the particular MMOG, we included variables to capture the MMOG our respondents played in order to help control for potential price anchoring effects.

4 Research Methodology

4.1 Data-collection Strategy

Academics argue that, to completely understand how social influence affects behavior, one needs to study a social actor's attitudes, beliefs, and motivations (i.e., the social actor's “mental world”) in addition to analyzing their actual interpersonal interactions (Forgas & Williams, 2001) since the psychological processes that lead to behaviors occur in individuals' minds. Therefore, while we examine influence that others exert in this study, we gathered data from individuals. We believe this approach suits our study because individuals act based on how they perceive their social environment and not on an objective reality; that is, while individuals might incorrectly perceive others' behaviors according to an objective standpoint, their actions nonetheless respond to those perceptions. This view concurs with SIT

To test our research model, we used a survey methodology. We targeted individuals that play MMOGs as our respondents. To distribute our questionnaire, we posted a link to the study on message boards for popular MMOGs. As an incentive to complete the survey, we entered all participants into a raffle for gift certificates from a videogame retailer. This approach to gathering data has several advantages. First, all our target respondents for this study could access to the Internet and complete the study at their convenience. Additionally, the Internet allows one to efficiently administer surveys to a large and diverse sample and provides anonymity, which reduces potential bias that a perceived pressure to give socially desirable answers may cause.

In total, we created three different versions of the survey instrument. We specifically tailored each one to inquire about the WTP for a specific MMOG depending on the message board we posted the link on. Specifically, we investigated World of Warcraft, Guild Wars 2, and Final Fantasy XIV, which we chose for two main reasons. First, each game was popular among MMOG players during the time of our study. Second, given the primary dependent variable (WTP) we wanted to select a set of MMOGs that represented a variety of revenue models. As such, we selected two games that required a monthly subscription fee to play (World of Warcraft and Final Fantasy XIV) and one game that people could play for free (Guild Wars 2).

4.2 Data Pooling

Once we collected data, we pooled it to test our hypotheses. We decided to pool the data for several reasons. From a statistical standpoint, collecting data from multiple sources allows for a larger sample size, which increases the degrees of freedom available for model estimation and, consequently, enhances the stability of parameter estimates. Additionally, using pooled data for analysis provides a richer space of variation for parameter estimation; while we believe the relationships between hypothesized constructs in our research model are homogenous across all the MMOGs we sampled, scores that respondents provided would vary due to differences in the MMOGs. This increased variance has the benefit of reducing multicollinearity that might otherwise exist (Brobst & Gates, 1977). From a theoretical standpoint, while the specific MMOGs we surveyed respondents about varied, they had comparable overall characteristics (e.g., used for hedonistic purposes). We note that, prior to analyzing the data, we performed pooling tests to ensure data homogeneity.

4.3 Common-method Bias

Common-method bias also represents another concern for this research. Common-method bias occurs when one collects measures for all constructs in a study from an individual respondent and can potentially result in subjects correlating their responses to questions to avoid cognitive dissonance. We attempted to control this issue through procedural remedies (Podsakoff, MacKenzie, & Podsakoff, 2003). Specifically, we carefully constructed our instrument items to be simple, concise, specific, and avoid double-barreled questions. We also used different question formats for our exogenous constructs and primary endogenous construct (WTP) to reduce the bias that occurs due to anchoring effects and commonalities in scale end points. In addition, we did not use bipolar numerical scale values (e.g., -5 to 5) and provided verbal labels for midpoints in our scales. Lastly, we specified the survey-administration software to randomize the order that it presented questions to respondents.

4.4 Instrument Development

To test our hypotheses, we first developed our survey instrument. We conducted an electronic search for papers published in the last 15 years to identify previously validated measurements for our satisfaction and CBI constructs. We identified items from the marketing literature to measure CBI (Escalas & Bettman, 2003; Stokburger-Sauer et al., 2012; Tuskej, Golob, & Podnar, 2013) and items from the information systems literature to measure satisfaction (Chang & Chen, 2009; Cyr, 2008; Flavián, Guinaliu, & Gurrea, 2006). We modified items that related to these constructs to reflect the context of MMOGs and measured them using a seven-point Likert scale.

Drawing from Roccas and Brewer's (2002) seminal work, we adopted the most commonly used method of measuring SIC by asking respondents two questions about the degree of overlap between a pair of important social groups. They reported answers using a 10-point scale (i.e., 1 = "none" to 10 = "all") and then we reversed them such that higher numbers represented a higher degree of SIC.

To measure our dependent variable (WTP), we used a contingent valuation method. Researchers suggest that contingent valuation allows one to gauge an individual's WTP, particularly in the context of hypothetical goods (Ajzen & Driver, 1992). We chose to use a standard sealed-bid second-price auction because it encourages bidders to submit a bid equal to their own valuation (Vickery, 1961). A standard sealed-bid second-price auction uses an open-ended elicitation, which works well when a respondent is familiar with paying for the product of interest (Boyle et al., 1996) and also eliminates starting point bias (Walsh, Loomis, & Gillman, 1984). Further, an open-ended question should help mitigate potential common-method bias by providing an alternative response format to the other constructs we examined in our research (Podsakoff et al., 2012). We adapted a previously validated standard sealed-bid second-price auction instrument from the IS literature (Lopes & Galletta, 2006) that asks two questions about the respondent's WTP. We used a two-question approach so that we could account for measurement error and conduct validity and reliability analyses.

We used dummy variables to control for the MMOG associated with each case and gender. We recorded household income and hours spent each week playing the MMOG associated with each case using ordinal, categorical responses. However, we treated these variables as interval variables when analyzing their relationship to WTP. We argue this treatment suits our study multiple reasons. First, increases in category values represented higher levels for the control variables. Thus, we sufficiently captured the information we wanted to control for. Second, researchers have commonly handled categorical ordinal demographic variables in this way (e.g., Moschis & Nguyen, 2008). See Appendix A for the survey instrument.

4.5 Data Analysis

We adopted a two-stage procedure in that we first used the data we gathered to assess our measurement model's validity before we tested our hypotheses. We used SmartPLS 3 to conduct these analyses and a path-weighting scheme for model estimation. We argue that PLS was the most appropriate statistical technique for our research because we used dummy variables for some of our control variables, because a large number of predictor variables concerned WTP, and because our model examines moderating effects, which creates the potential for multicollinearity among independent variables.

5 Results

5.1 Data Collection and Screening

We collected data over a 24-hour period in June, 2015. At the end of the collection period, a total of 1,277 respondents had started the survey but 455 cases were incomplete (97 percent of participant dropouts occurred in the first section (demographics) of the survey). Prior to analysis, we screened the data for duplicate and invalid responses and outliers. Using IP addresses that the survey administration software recorded and email addresses that the respondents provided, we found no apparent duplications. Twenty-six cases appeared to have extreme responses, so we removed them from the sample. Next, we screened the data for univariate outliers on the WTP variable and multivariate outliers using the Mahalanobis distance measure. We identified 22 cases as outliers and removed them from further analysis. After screening the data, we retained a total sample of 774 cases to test our hypotheses.

We note that our respondents' characteristics compare well to those in previous research. For example, Griffiths, Davies, and Chappell (2004) examined basic demographic characteristics for individuals that play online videogames and found that individuals who play online videogames are typically male (81%), between 18 to 30 years old (59%), have attended some college or obtained a college degree (52.8%), and play between 11-20 hours (36%) or 21-30 (24%) of online videogames per week. In comparison, the typical respondent in our research was male (87.9%), between 18 to 34 years old (87.4%), had attended some college or obtained a college degree (71.6%), and played the MMOG they provided responses about between 11-20 hours (39%) or 21-30 (18.3%) per week. Table 1 provides details about individual characteristics for our study's respondents.

5.2 Instrument Validation and Latent Variable Statistics

After screening the data, we conducted statistical analyses in PLS to ensure pooling responses from different MMOGs was appropriate. We began by statistically establishing that all items used to measure our study's constructs of interest load in the same pattern (significance and direction) across all subsamples (MMOGs) of data collected in order to ensure we measured constructs in a consistent manner. First, we assessed the measurement model separately for each data subsample and removed items that did not load significantly across any of the samples we collected. Initial results showed that two items from the CBI construct loaded below the suggested .70 level (Hair, Hult, Ringle, & Sarstedt, 2017). After dropping these items from the study, all measurement models satisfied the minimal requirements for validity and reliability. Given that we found the measurement models for each subsample of data to be acceptable, we pooled data from across all three MMOGs and specified dummy variables for each subsample as predictors for each of the study's endogenous variables. We then created interaction terms for all combinations of dummy variables and hypothesized relationships in the research model (Venkatesh & Morris, 2000). All interaction terms had non-significant relationships, which suggests that models were statistically equivalent across subsamples (Pindyck & Rubinfeld, 1981). Consequently, we pooled all data for our remaining analyses.

Next, we assessed the measurement model using PLS (Gefen & Straub, 2005). To confirm convergent validity, we used a bootstrap resampling technique using a resample size of 5,000 to calculate t-values for indicator loadings. From examining the item loadings, we found that all retained items loaded significantly on their respective constructs. Furthermore, correlations between item scores and latent variable scores produced during model estimation all exceeded the suggested .70 level, while the average variance extracted (AVE) statistics for all constructs exceeded the minimum suggested value of .50. To assess discriminant validity, we examined correlations between item scores and latent variable scores and found no substantial cross-loadings. Additionally, all AVE statistics were greater than the squared correlations between constructs (Fornell & Larcker, 1981). To assess reliability of our instrument, we examined the composite reliability and Cronbach's alpha statistics for our theoretical constructs. The reliability statistics for each of our constructs exceeded the recommended minimum of .70 (Nunnally, 1978) for both measures of reliability. Table 1 provides latent variable statistics that resulted from the final measurement model assessment. Appendix B shows the item loading statistics.

Table 1. Respondent Characteristics

Gender			Years playing online videogames		
Male	680	87.9%	0 to 1	5	0.6%
Female	94	12.1%	2 to 3	29	3.7%
Age			4 to 5	54	7.0%
17 or under	74	9.6%	6 to 7	101	13.0%
18-24	496	64.1%	8 to 9	136	17.6%
25-34	180	23.3%	10 to 11	205	26.5%
35-44	21	2.7%	12 to 13	110	14.2%
45-54	3	0.4%	14 to 15	71	9.2%
55 or older	0	0.0%	16+	63	8.1%
Education			Gameplay hours per week		
Some high school or less	63	8.1%	0 to 5	60	7.8%
High school/GED	112	14.5%	6 to 10	147	19.0%
Some college	290	37.5%	11 to 15	151	19.5%
2-year college degree	58	7.5%	16 to 20	151	19.5%
4-year college degree	206	26.6%	21 to 25	91	11.8%
Graduate/prof. degree	42	5.4%	26 to 30	50	6.5%
Doctoral degree	3	0.4%	31-35	40	5.2%
Household income (US\$)			36 to 40	40	5.2%
Under \$25,000	237	30.5%	41 to 45	10	1.3%
\$25,000-\$49,999	178	23.0%	46 to 50	8	1.0%
\$50,000-\$74,999	123	15.9%	51+	26	3.4%
\$75,000-\$99,999	93	12.0%	MMOG of interest		
\$100,000-\$124,999	67	8.7%	Final Fantasy XIV	158	20.4%
\$125,000-\$149,999	26	3.4%	World of Warcraft	340	43.9%
Over \$150,000	51	6.6%	Guild Wars 2	276	35.7%

Table 1. Latent Variable Statistics

	CA	CR	AVE	1	2	3	4	5	6	7	8	9
Satisfaction	.877	.914	.726	1								
CBI	.870	.905	.656	.359** p < .001	1							
SIC	.707	.872	.773	-.121** p < .001	-.204** p < .001	1						
WTP	.813	.914	.842	.100* p = .005	.261** p < .001	-.275** p < .001	1					
Gender	1	1	1	-.014 p = .697	-.090* p = .012	.003 p = .934	-.141** p < .001	1				
Household income	1	1	1	.025 p = .487	-.058 p = .107	.046 p = .201	.042 p = .243	-.034 p = .345	1			
Hours of Play	1	1	1	.199** p < .001	.191** p < .001	-.233** p < .001	.179** p < .001	-.022 p = .541	.036 p = .317	1		
World of Warcraft	1	1	1	-.226** p < .001	.102* p = .006	-.005 p = .890	.392** p < .001	-.071* p = .048	.038 p = .291	-.072* p = .045	1	
Final Fantasy XIV	1	1	1	.052 p = .148	.002 p = .956	-.047 p = .191	.218** p < .001	.034 p = .345	-.032 p = .374	.177** p < .001	-.448** p < .001	1

As we mention above, we implemented several procedural remedies prior to collecting data to help control for common-method bias. We also carried out an ex post statistical analysis to determine the severity of common-method bias in the study. Specifically, Harman's single factor test indicated a single factor explained only 32.335 percent of the variance—below the suggested 50 percent threshold that indicates a problem with common-method bias (Podsakoff & Organ, 1986).

To test for nonresponse bias, we compared the responses of early respondents (first 5%) to late respondents (last 5%) (Armstrong & Overton, 1977). MANOVA analyses revealed no statistically significant differences between our constructs of interest (Wilks' $\lambda = 0.830$; $p = 0.801$) or the demographic variables for our respondents (Wilks' $\lambda = 0.871$; $p = 0.223$).

Table 2 and Table 3 provide latent variable score statistics for the aggregate sample and subsamples of data collected for our study. We note that the mean WTP latent variable scores for Final Fantasy XIV ($t = 6.948$, $p < .001$), World of Warcraft ($t = 9.875$, $p < .001$), and Guild Wars 2 ($t = 23.167$, $p < .001$) were all significantly greater than their base subscription fees at the time we collected data, which were US\$14.99, US\$14.99, and nothing, respectively. At the same time, the WTP latent variable scores for the two subscription-based MMOGs Final Fantasy XIV ($t = 14.659$, $p < .001$) and World of Warcraft ($t = 18.392$, $p < .001$) were significantly higher than the WTP for the free-to-play MMOG Guild Wars 2 but not significantly different from each other ($t = .098$, $p = .922$).

Table 2. Latent Variable Score Statistics

Construct	Aggregate sample (n = 774)				Final Fantasy XIV (n = 158)			
	Mean LV score	SD	Max	Min	Mean LV score	SD	Max	Min
CBI	4.360	1.318	7.000	1.000	4.367	1.372	7.000	1.000
Satisfaction	5.916	0.925	7.000	1.206	6.011	0.865	7.000	1.211
SIC	2.825	2.482	10.000	1.000	3.040	2.526	10.000	1.000
WTP	14.767	7.237	50.000	0.000	17.935	5.328	35.000	9.974
Gender	0.121	0.327	1.000	0.000	0.184	0.388	1.000	0.000
Household income	2.818	1.801	7.000	1.000	2.703	1.717	7.000	1.000
Hours of play	4.163	2.375	11.000	1.000	4.994	2.507	11.000	1.000

Table 3. Latent Variable Score Statistics

Construct	World of Warcraft (n = 340)				Guild Wars 2 (n = 276)			
	Mean LV score	SD	Max	Min	Mean LV Score	SD	Max	Min
CBI	4.501	1.255	7.000	1.211	4.179	1.343	7.000	1.000
Satisfaction	5.664	0.991	7.000	1.275	6.164	0.788	7.000	2.642
SIC	2.860	2.418	10.000	1.000	2.674	2.543	10.000	1.000
WTP	17.987	5.596	50.000	9.833	9.035	6.479	30.043	0.000
Gender	0.100	0.300	1.000	0.000	0.112	0.316	1.000	0.000
Household income	2.894	1.840	7.000	1.000	2.790	1.801	7.000	1.000
Hours of play	3.971	2.234	11.000	1.000	3.924	2.371	11.000	1.000

5.3 Hypotheses Testing

To test our hypotheses, we created multiple models in PLS: a control variable model, a main effects model that included our theoretical constructs of interest, and an interaction model that included a moderating variable. We used an incremental F test to determine if a significant change in R^2 occurred (Chin, 2010). We conducted the analysis in this way to disentangle the effects that the control variables had on WTP from the effects that our constructs of interest had on it.

5.3.1 Control Variables Model

We began by specifying the control variable model. The results indicated that the World of Warcraft ($\beta = .604$; $t = 24.511$; $p < .001$) and Final Fantasy XIV ($\beta = .470$; $t = 14.527$; $p < .001$) control variables had significant positive relationships with WTP. With regard to respondents' individual characteristics, the analysis indicated that the hours of play variable was positively related to WTP ($\beta = .136$; $t = 4.036$; $p < .001$), while gender (females) was negatively related to WTP ($\beta = -.110$; $t = 4.022$; $p < .001$). Household income did not significantly predict WTP ($\beta = .026$; $t = 0.928$; $p = .177$).

We next examined the effect size for the control variables model. The R^2 for WTP was .381 ($F = 94.542$; $p < .001$). To interpret the effect size, we calculated Cohen's f^2 effect size statistic, which was equal to .616. Cohen (1988) suggests the f^2 statistics of .02, .15, and .35 to represent small, medium, and large effects sizes, respectively. Thus, we conclude that our study's control variables had a large effect on WTP.

5.3.2 Main Effects Model

Next, we specified the main effects model by adding our constructs of interest. From examining the t -statistics, we found that the hours of play control variable ($t = 1.483$; $p = .069$) became non-significant in its relationship with WTP. All remaining control variables exhibited no change in statistical significance or direction.

Direct effects on WTP: with respect to the direct predictors of WTP, the relationship between CBI and WTP was significant with a path coefficient of .085 ($t = 2.921$; $p < .001$), which supports H1. The relationship between SIC and WTP was significant with a path coefficient of -.206 ($t = 6.829$; $p < .001$), which supports H2. Lastly, the relationship between satisfaction and WTP was significant with a standardized path estimate of .150 ($t = 5.693$; $p < .001$), which supports H3.

We next analyzed the effect size on WTP. The overall R^2 for WTP was .467 ($F = 83.784$; $p < .001$). Using this statistic, we calculated the f^2 to be .841, which represents a very large effect size. According to Cohen (1988), large effects are "characterized by the study of potent variables or the presence of good experimental control or both" (p. 13). We conclude that our control and predictor variables provide a strong explanation for the decision to pay a subscription fee for a MMOG. The change in R^2 was .086—a significant improvement over the control variables model ($\Delta F = 41.144$; $p < .001$). The calculated f^2 for this change in R^2 was .161. We conclude that, after controlling for the MMOG played and characteristics of the respondents, the constructs of theoretical interest in our research model produced a medium sized effect on WTP.

Effects on satisfaction: with respect to our predictors of satisfaction, the relationship between CBI and satisfaction was significant with a path coefficient of .349 ($t = 10.978$; $p < .001$), which supports H4. The relationship between SIC and satisfaction was not significant ($\beta = -.049$; $t = 1.387$; $p = .082$), which does not support H5.

Our study's failure to support H5 warrants some discussion. First, the result could indicate that the relationship between SIC and satisfaction involves more complexity than our research hypothesis suggests. For instance, situational factors may have affected our respondents' levels of satisfaction. LeBoeuf, Shafir, and Bayuk (2010) found that an individual's evaluation of post-consumption satisfaction for goods was strongly related to the norms of important social groups. Interestingly, they found satisfaction to decrease when the prominent social identity that an individual held during the consumption decision making process differed from the prominent social identity the individual held during the post-choice evaluation. Second, given our overall results, the result could also indicate that factors we did not account for mediate or moderate the SIC-satisfaction relationship.

The overall R^2 for satisfaction was .131 ($F = 58.113$; $p < .001$). Using this statistic, we calculated the f^2 to be .151, which represents a medium effect size.

Indirect and total effects: to better understand the relationship between our identity-related variables and WTP, we examined the indirect and total effects in our research model. To assess the indirect, or mediated, effects we employed a bootstrap analysis to compute bias corrected confidence intervals (see Hair et al., 2017). From conducting the analysis with a bootstrapping sample of 5,000, we found that SIC had a direct-only non-mediated relationship with WTP (95% CI: -.018, .003; $p = .173$). On the other hand, CBI had a significant indirect effect on WTP equal to .052 (95% CI: .033, .144; $p < .001$), which suggests that complementary mediation exists via the satisfaction variable. Total effects represent the sum of total direct and indirect effects that a predictor construct has on a criterion construct. To assess the total

effects, we again used the bias corrected confidence intervals calculated from a bootstrap analysis. The results indicated that satisfaction had a significant total effect size of .150 on WTP (95% CI: .099, .202; $p < .001$), CBI had a significant total effect size of .137 on WTP (95% CI: .084, .192; $p < .001$), and SIC had a significant total effect size of -.213 on WTP (95% CI: -.270, -.152; $p < .001$).

5.3.3 Interaction Effects Model

To test H6, we analyzed the data for interaction effects. To do so, we followed the two-stage approach because researchers have demonstrated this method to test for interaction effects in PLS to have higher levels of statistical power than other approaches (Henseler & Chin, 2010). After adding the interaction term and estimating our model, we examined the t-statistics and found that all relationships remained the same in both significance and direction as those in the main effects model. The relationship between the interaction term and WTP was significant with a path coefficient equal to -.115 ($t = 4.033$; $p < .001$), which supports H6.

The overall R^2 for WTP for the interaction effects model was .481 ($F = 78.673$; $p < .001$). Using this statistic, we calculated the f^2 to be .927, which represents a large effect size. The change in R^2 from including our interaction term was .014—a significant improvement over the main effects model ($\Delta F = 20.609$, $p < .001$). The calculated f^2 was .027. Given that moderating effect sizes tend to be small, Kenny (2016) suggests that .005, .01, and .025 to represent small, medium, and large effects sizes, respectively. Thus, we conclude that our moderating variable had a large effect size on WTP. Figure 2 presents the results of our interaction effects model.

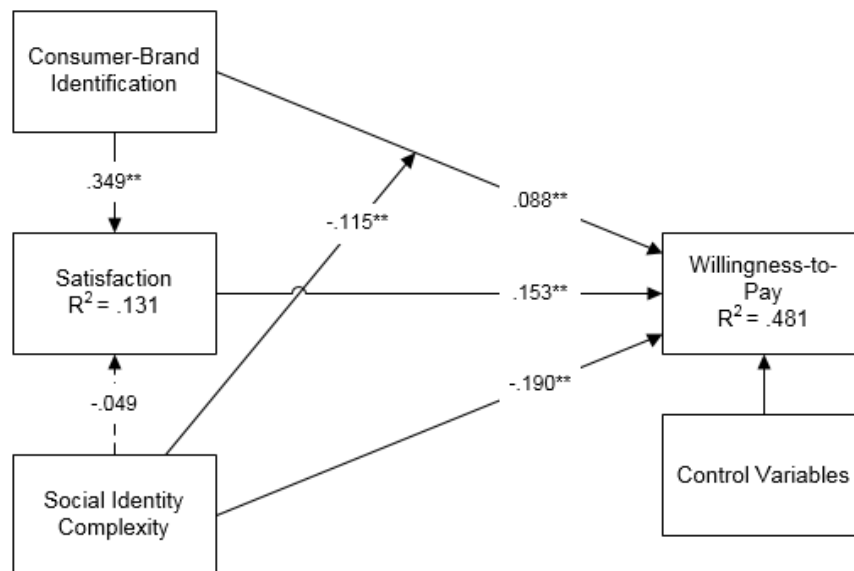


Figure 2. Research Results

6 Discussion

Social influence has received widespread interest across academic disciplines. As a research topic, researchers have used social influence to explain a broad range of phenomena, such as technology adoption decisions, motivations to play online videogames, and consumption decisions. We believe the manner in which researchers commonly conceptualize social influence in information systems research may not accurately reflect the complex nature of an individual's social world and that such conceptualizations hinder the advancement of theory. Therefore, in this study, we address these deficiencies and provide new insight as to how individuals might influence one another. To do so, we investigated the role that social influence has in determining an individual's willingness to pay a subscription fee for a MMOG. Using social identity theory for our theoretical underpinning, we conceptualize an individual's social environment as comprising multiple social groups. Overall, our study

supports social identity theory's ability to explain how social influence occurs for individuals that play MMOGs.

6.1 Researchers

We hypothesized that two social groups, friendship groups and the population of individuals that play a given MMOG, would be relevant to an individual's WTP for a MMOG. We found support for both hypothesized relationships, which indicates that membership in each social group uniquely explained the variance in our study's primary dependent variable. This finding suggests that specific, behaviorally relevant social groups exert influence on individuals and that, in any given situation, multiple important social identities might exert influence independently of each other, which has important implications for academics. Researchers often conceptualize social influence as a consequence of what "all significant others" expect, yet our results appear to contradict this idea. While adopting constructs such as subjective norms may provide a simple and easy approach to measuring social influence in academic research, we argue that it inaccurately represents an individual's social reality.

In the same vein, our research provides evidence that satisfaction mediates some of the effect that CBI has on WTP, which supports the idea that social influence can affect individual behavior in diffuse ways. This non-trivial result has important implications for academics. In the IS literature, research that has examined the relationship between social influence-related variables and behaviors has produced mixed results. For example, in empirical research used to confirm their formulation of the unified theory of acceptance and use of technology (UTAUT), Venkatesh, Morris, Davis, and Davis (2003) found a complex relationship between social norms and behavior intention: the relationship required moderators' presence to be significant. Yet, in examining the correlation matrix for their study, one can see that their social influence construct was significantly related to other predictor variables that their model used in addition to behavior intention, which suggests that their data might have contained a mediated relationship. One can find similar results in other IS research, which suggests that researchers at times ignore the indirect effects that social influence has on behavior. When one conducts a study that strictly focuses on developing predictive models (e.g., Venkatesh et al., 2003), one can justify the decision to not investigate the mediating effects of social influence variables through individual attitudes. However, academic research often focuses on understanding behavior, not simply predicting it. As our results demonstrate, one needs to identify indirect effects to explain explaining social influence's true relationship with behavior.

We also examined whether an interaction effect existed between our identity-related constructs such that their effect on WTP was larger than the sum of their individual parts. We found support that such an effect did exist, which suggests the membership in social groups influences individuals in a complicated way: in the case where multiple social groups behaviorally pertain to a situation, consensus among the norms of these groups appears to have an influence on behavior. With respect to the academic literature, this result appears to provide new insight into how social influence occurs. In a study examining consumer brand choices, Orth and Kahle (2008) found SIC to have a negative effect on an individual's susceptibility to normative influence, so researchers have found some evidence that a complex social identity has a significant effect on an individual's consumption decisions. From the psychology literature, the contingent-consistency hypothesis (Acock & Defleur, 1972) argues that perceived norms of the larger environment act to reinforce or inhibit the relationship between individual attitudes and behaviors. This research stream has provided some support for the moderating effect that norms have on attitudes (e.g., Terry, Hogg, & McKimmie, 2000). However, to our knowledge, no previous research has investigated the possibility of interaction effects between social identity-related constructs and how such a moderating effect could influence behavior. At least two reasons may explain why researchers have not previously detected this effect. First, researchers have typically not investigated the influence of multiple social groups in a single study: if researchers examined only a single social group or used a construct such as subjective norms to measure social influence, they would not have the necessary data to identify this effect. Second, the effect has a non-obvious nature. Though we found evidence for a large interaction effect, it is relatively small when compared the size of direct effects often found in IS research. The effect size we found for our interaction variable may in fact not be large enough to be "visible to the naked eye" (Cohen, 1988). Given the potential that interaction effects may not be large enough to directly observe, one may expect the lack of attention in the literature.

Our results suggest some interesting theoretical possibilities. Researchers theorize that an individual's social environment comprises layers and that social groups that reside on one layer have the ability to influence social groups that reside on another layer (Brewer, 1991; Pettigrew, 1996; Povey, Conner,

Sparks, James, & Shepherd, 2000). Conceptualizing an individual's social environment in this way is compatible with SIT, and our study provides an example of when this influence might occur: a friendship group can be part of the population of individuals that play a given MMOG and the population of individuals that play a given MMOG can, in part, comprise numerous friendship groups. In situations with hierarchically oriented groups, we believe that norms for social groups that exist at different layers would become homogenous over time as they continually influence each other. Social inertia could result from this phenomenon: changes in norms at one level ultimately cannot occur if the same changes do not occur in the entire hierarchy of the social structure since the unchanged norms for social groups that exist at other layers exert influence on the changed norms until they revert back to a more homogeneous state. If this theory holds true, it would have interesting implications on IS research. For example, researchers have long recognized that IT implementation projects often face cultural conflicts (see Leidner & Kayworth, 2006); if an organization's members reject a technology, the technology initiative will likely fail. Social inertia provides a possible explanation for why organizations cannot easily change their culture towards technology.

6.2 Practitioners

Our research provides some insights that may help practitioners better market their MMOG products. With respect to our respondents' general willingness to pay for a MMOG, our results suggest that the mean WTP score for all MMOGs examined in our research was significantly greater than the base subscription price at which companies offered these products during the time we collected data. While these results suggest that charging subscription fees represents a viable method for generating revenue from MMOG products, we observe that the WTP for both subscription-based MMOGs was approximately US\$3.00 greater than the base subscription price for those games, which we do not interpret as being substantial. At the same time, our results indicate the WTP for our MMOGs that charge subscription fees was significantly higher than for our free-to-play MMOG. Taken together, we interpret these results to evidence anchoring effects (Helson, 1964): respondents based their assessment of the maximum price they would pay to play a given MMOG based on the previous price paid for that product. Thus, when an individual's "reference price" is zero, their assessment of a fair price is anchored to that value.

This result has particular relevance for the free-to-play MMOG that we examine in this research because it raises the question about the viability of any strategies that employ a "free-to-fee" move. When individuals are accustomed to accessing a given MMOG for free, a company would find it more difficult to elicit fees from them than if the company initially offered the game for a subscription fee. As such, we caution practitioners about raising the price of their products. Alternatively, MMOG providers may find that going from "fee to free" will provide a viable business model. *Lord of the Rings Online* provides one example from the online videogame industry. This particular MMOG transitioned from generating revenue through subscription fees to providing the game for free and creating revenue by charging for extra game functionalities. As a result, its monthly revenue tripled in the three-month period after it transitioned to free to play (Orland, 2011).

With respect to our respondents' friendship groups, we found that the mean SIC LV score for our aggregate sample was 2.83. Given that our measures for SIC used a 1 to 10 scale where 5 represents "about half" an individual's friendship group plays a given MMOG, we interpret this score as indicating that the majority of our respondents' friendship group members played the same MMOG. This result highlights the importance of friendship groups in shaping individual preferences for MMOGs.

Considering our results as a whole, we advise firms that develop and sell MMOGs to consider employing socially related strategies when introducing their products into the marketplace. Recent research that has examined the relationship between individual identity and brand has suggested practitioners to create "brand communities" (Bagozzi et al., 2012; Stokburger-Sauer et al., 2012). In a brand community, firms nurture their relationship with their customers in such a way that might cause individuals to use the firms' brands to construct their identity. Scott and Lane (2000) have proposed that a firm may construct a desirable organizational identity through brand-related events, which would provide for interaction between firm marketers and its customers. A brand-related event would ideally provide the opportunity for the firm to create memorable moments for consumers that they associate with the firm's brand. This suggested approach to marketing consumers appears valid because research has shown that, when customers identify with a given brand, they are less likely to switch when a new brand/product appears in the market—even when the new product differs radically from the old one (Lam, Ahearne, Hu, & Schillewaert, 2010). We would recommend that firms take this approach one step further because our

results suggest that consumers can identify with a brand via social group membership and not merely on an individual basis. Therefore, practitioners should attempt to create opportunities for group-level experiences to help develop norms for relational social groups.

The complex relationships between our identity-related constructs and WTP that we found provide one possible explanation as for why success in the MMOG market sector of the online videogame industry has been unpredictable. We posit that practitioners cannot easily observe the effect that social influence has on consumption decisions that relate to their products because a portion of this effect occurs indirectly: consumers' attitudes and beliefs may mediate some effects, while other effects, such as those that occur due to the interaction between consumers' social identities, may be difficult to observe. Academics' tendency to focus on individual attitudes to predict consumer behavior and the poor conceptualizations of social influence that business research commonly uses may even perpetuate this general lack of awareness about the usefulness of social identities in predicting customer behavior. Consequently, research underestimates the total effect that social influence has on consumer outcomes in the MMOG market.

6.3 Limitations

This study has several limitations worth discussing. First, using the Internet to gather survey data raises some validity concerns because one cannot easily ensure that respondents report accurate information about themselves. Additionally, participant dropout and self-selection bias also potentially threaten the validity of our study's results. We note that self-selection bias does not exclusively affect data gathered via the Internet—it affects survey research in general. Moreover, research indicates that one can expect a significant number of participants to drop out almost immediately after starting any Internet-based survey (Hoerger, 2010). Given that participants voluntarily participated in our research and that 97 percent of the participants that dropped out did so while completing the first section of our survey, we do not believe that dropout indicates validity issues for this study.

Common-method bias also represents another concern for this research. We attempted to control this issue through both procedural and statistical remedies. In particular, we used Harman's single factor test to statistically determine if a substantial amount of common method variance existed in our data. While our analysis did not suggest that common-method bias was a problem for our research, some researchers have criticized Harman's single factor test for being unreliable (e.g., Podsakoff et al., 2003). Consequently, researchers do not consider Harman's single factor test a state-of-the-practice statistical remedy. Future research might better mitigate concerns about common-method bias by using an alternative statistical remedy, such as a "marker variable" technique (Lindell & Whitney, 2001).

Another limitation concerns our using SIC and CBI as our identity-related constructs. For example, we based the manner in which SIC measures complexity in our research on the relative quantity of friends that play a given MMOG. However, one could argue that friend quality represents a more important consideration. We decided to adopt these constructs based on theory, the context of the research, a review of previous studies, and our own discretion. While we argue that the way we operationalized these constructs provides a good correspondence to the social identity theory as we adopted in this research, it opens up the possibility for debate as to whether we might have used other constructs.

Lastly, while our research supports the assertion that relationships exist between our constructs of interest and WTP, we cannot conclude causality from our results since we gathered data from our respondents at a single point in time.

6.4 Future Research

Researchers could pursue several avenues that would provide additional insight to our results. We examined only social identities in the context of MMOGs. Yet, it would seem that the social identity theory would also pertain to other situations, particularly in the scenario where social interaction constitutes an intrinsic characteristic of a product. To replicate our study in the IS area, we suggest that researchers could determine if social influence as it we conceptualize it affects WTP for social media websites, such as Facebook. Research that examines these types of websites would need to consider price-anchoring effects. Alternatively, researchers could also operationalize social influence that results from membership in various social groups using different constructs than what we used in this research. As social identity theory would suggest, researchers who take this approach to replicating our study would need to ensure that any examined social identities behaviorally pertain to the context of their research question. A

different avenue of future research might involve adopting a different research methodology. Theory that relates to social identity theory suggests that membership in important social groups influences the attitudes and behaviors that individuals form. To address the inability of our research to conclude the directionality of influence between our constructs of interest, we suggest future research using a methodology with which they could infer causality (e.g., the use of longitudinal data). Lastly, in reviewing the literature, we failed to identify previous research that has examined interaction effects between social identity-related variables. The idea that converging norms from multiple social identities can create non-linear relationships is particularly interesting. Given our significant results, we believe this concept warrants additional examination.

7 Conclusion

Firms increasingly seem to adopt a MMOGs business model for their videogames. Yet, as the varying success of firms that have attempted to penetrate this market sector demonstrates, using the Internet as a media-distribution platform is not, in and of itself, a solution to product success. Subscription-based business models that use the Internet to distribute products remain in a state of infancy; academics and for-profit organizations alike continue to struggle with understanding the most critical factors in the consumer decision making process.

In this study, we examine the relationship between individuals' identification with important behaviorally relevant social groups and willingness to pay a subscription fee for a MMOG. Our results support the argument that social influence that results from membership in social groups is complex and that the manner in which researchers sometimes conceptualize social influence may not accurately reflect the complex nature of an individual's social world. Therefore, social influence should remain an important area on the research agenda for information systems academics and social scientists in general.

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Appendix A: Survey Instrument

Demographics/control variables:

- What is your gender?
- What is your age?
- What is your current level of education?
- What is your household income
- How many years have you been playing online games?
- Approximately how many hours do you spend playing [insert game] each week?

Satisfaction (customer satisfaction (Chang & Chen, 2009); **website user satisfaction** (Flavián et al., 2006); **website satisfaction** (Cyr, 2008)):

1. The experience that I have had with [insert game] has been satisfactory
2. [insert game] fulfills my expectations.
3. In general, I am satisfied with the experience I have received from [insert game].
4. Overall, I am satisfied with [insert game].

Consumer-brand identification (consumer-brand identification (Stokburger-Sauer et al., 2012); **self-brand connection** (Escalas & Bettman, 2003); **consumer's identification** (Tuskej, Golob, & Podnar, 2013)):

1. I feel a personal connection to [insert game].
2. [insert game] reflects who I am.
3. I am very interested in what others think about [insert game].*
4. I feel like I have a lot in common with other people that play [insert game].*
5. [insert game] has a great deal of personal meaning to me.
6. I consider [insert game] to be "me" (it reflects who I consider myself to be or the way that I want to present myself to others)
7. [insert game] is like a part of me.

Social identity complexity (adapted from Roccas & Brewer, 2002):

Sometimes members of one group also belong to other groups. I'd like you to rate how much the membership of the different groups overlaps on a scale from 1 to 10. If no members of the first group are also members of the second group, then rate the overlap as 1. If about half the members of the first group are also members of the second group, then rate the overlap as 5. And if all of the members of the first group are also members of the second group, then rate the overlap as 10. You can use any number from 1 to 10 to rate the amount of overlap between the two groups as you think about them.

1. Of persons that play [insert game], how many of them are also friends that you communicate with frequently (at least once a week)?
2. Of friends that you communicate with frequently (at least once a week), how many also play [insert game]?

Contingent valuation (adapted from Lopes & Galletta, 2006):

Suppose that the management of [Insert game provider] decided to conduct an auction of the monthly subscription fees among the participants of this study. This auction follows a second-price sealed-bid mechanism to encourage a single bid that reflects the true value from your own perspective. As in a "normal" auction, the winner of the subscription will be the person with the highest bid. However, the winner will only pay the amount of the second-highest bid! Each participant in the auction has only one chance to submit a sealed-bid.

Some examples with three bidders involving the auction of a car will clarify this mechanism:

- Person A evaluates that the car is worth \$1,000 and bids this amount. Person B bids \$600.00. Person C bids \$400. Consequently, Person A wins the auction and obtains the car paying \$600 (= value of second-highest bid).
- Person A evaluates that the car is worth \$1,000 but decides to offer a higher bid, let's say \$1,200. Person B bids \$1,150. Person C bids \$800. Consequently, Person A wins the auction and obtains the car paying \$1,150 (= value of second-highest bid), which is higher than what he or she thinks the car is worth.

With this mechanism in mind, please indicate what your maximum bid for the monthly subscription fee for [Insert game provider] (in U.S. dollars, please)

1. \$ _____ My bid for monthly subscription fees.

Following the same auction mechanism described above (second-price sealed-bid auction), what do you think the average bid will be for the monthly subscription fee for [Insert game provider] (in U.S. dollars, please)?

2. \$ _____ Average bid for monthly subscription fees.

Appendix B: Item Loading Statistics

Table 4. Item Loading Statistics

	Satisfaction	CBI	SIC	WTP	t-statistic
Satisfaction					
Item 1	0.833	0.331	-0.082	0.128	45.709
Item 2	0.835	0.235	-0.120	0.022	50.669
Item 3	0.871	0.368	-0.103	0.121	62.128
Item 4	0.878	0.251	-0.118	0.034	71.777
CBI					
Item 5	0.311	0.827	-0.117	0.246	56.828
Item 6	0.281	0.797	-0.183	0.153	41.091
Item 9	0.294	0.833	-0.165	0.273	61.153
Item 10	0.251	0.753	-0.179	0.116	33.365
Item 11	0.268	0.838	-0.198	0.231	61.214
SIC					
Item 12	-0.134	-0.157	0.885	-0.236	52.948
Item 13	-0.083	-.204	0.874	-0.247	44.175
WTP					
Item 14	0.269	0.082	-0.251	0.930	131.081
Item 15	0.205	.083	-0.254	0.905	72.694

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