Microtransactions
A Study of Consumer Behavior and Virtual
Goods/Services Among Students at Linköping
University in Sweden

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ABSTRACT

Within the realm of applications, a relatively new payment form has emerged: called Microtransactions. These small one-time payments (less than 10 Euros) offer an addendum to an existing app, service, or game. Microtransactions have generated a revenue stream largely due to the tech savvy segment of young adults aged 18 to 24, but there hasn’t been significant research from an academic perspective which sheds light on this trend. This issue prompted the research question: Which quantifiable elements of a Microtransaction contribute to a university student’s purchase decision? The phenomenon of Microtransactions has not previously been studied under traditional theories of consumer behavior, which is what the scope of this research provided. The consumer behavior theories selected include: Ego Depletion Theory, Extended Self, and Perceived Value Theory. The selected methodology was a quantitative survey and content analysis. The data collected partially supported Perceived Value Theory, but was unable to validate Ego Depletion and Extended Self as significant influences on purchasing behaviors of Microtransactions among university students. Although the theories were unable to support all our hypotheses, we still concluded with two major findings. First, pricing and functionality are the primary elements of a Microtransaction which university students will consider before purchasing. Second, the Perceived Value Theory’s consumption values of Emotion and Finance are, indeed, consumption values shared among university students.

Keywords: Microtransaction, Consumer behavior, Ego Depletion Theory, Extended Self, Perceived Value Theory, Pricing, Functionality
ACKNOWLEDGEMENTS

We would like to thank our thesis tutor Donna Wiencek, her understanding and helpfulness throughout the process of writing our first academic thesis has not gone unnoticed. In addition, we’d like to thank our Atlantis program advisors Gunilla Söderberg and Olga Yttermyr for their coordination of this program which enabled us to complete our work. Their dedication to this thesis process was unparalleled. Finally, we would also like to thank all of our family and friends who have supported us through this process and offered their insightful feedback on our work. The appreciation we have gained, as researchers, for academic research during this process will be regarded with the utmost respect.
TERMS AND DEFINITIONS

For the purpose of this study **Microtransactions** are small one-time payments not to exceed 10 Euros (or about $12 USD), which offers an extension to an existing app or service. This form of payment most commonly takes place when transacting virtual goods available online. **Virtual Goods** can be defined here as intangible, non-physical items which are purchased in online communities or online games and exist solely in the context of the online platform for which they were created. An **In-app purchase** is a type of transaction within an application where a user pays real money for a virtual product. The **Freemium Model** is a financing method that requires no upfront cost from the user, but offers them the opportunity to purchase peripheral upgrades and services at a cost. The **Aggregate Extended Self** is the collection of personal characteristics and traits that a person forms through their experiences in the physical world in addition to the persona one assumes in the digital realm (Belk, 2013). The **online persona** is often an extension to one’s physical image, but may be enhanced to be more closely aligned with the individual’s ideal self. (Belk, 2013).

**Psycho Physiological**, within the context of this research, is defined as the creative process an individual takes in creating a digital representation of their self whereby the end result leads the individual to identify with that digital representation (Belk, 2013). **MMOGs** are defined as Massively Multiplayer Online Games. An MMOG is an online game which is capable of supporting large numbers of players simultaneously in the same instance (or world). MMOGs usually feature a huge, persistent open world. This type of game commonly incorporates Microtransactions.
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## Abbreviations

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<th>Description</th>
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<tr>
<td>CPHS</td>
<td>Committee for Protection of Human Subjects</td>
</tr>
<tr>
<td>H0</td>
<td>Null Hypothesis</td>
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<tr>
<td>H1</td>
<td>Hypothesis 1</td>
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<tr>
<td>H2</td>
<td>Hypothesis 2</td>
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<td>H3</td>
<td>Hypothesis 3</td>
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<td>PVT</td>
<td>Perceived Value Theory</td>
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INTRODUCTION

The Internet is quickly becoming the de facto platform for commerce in the digital era, with this development has come a new class of services, entertainment, and transactions. Historically digital transactions had been carried out under a subscription based or “pay-for-product” model where customers would pay up front, receive the product and then consume it. Increasingly web based companies are offering their products or services as “free to download” or “free to use” models while retaining certain functionality for paying users. In most cases these premium features are purely aesthetic or peripheral. However, these premium features can offer users significant advantages within video games utilizing this model. These company business models are based around drawing users in with free services, then converting them into paying customers. This practice has come to be known as “Freemium” and is facilitated with a new type of payment referred to as a Microtransaction.

For the purposes of this study we will define Microtransactions as a small one-time payment not to exceed 10 Euros (or about $12 USD), which offers an extension to an existing app or service. This form of payment most commonly takes place when transacting virtual goods online. Virtual goods can be defined here as intangible, non-physical items, which are purchased in online communities or online games and exist solely in the context of the online platform for which they were created. Virtual goods should not be confused with digital goods as digital goods cover a significantly more extensive range of products including movies, music, games (Techcrunch, 2007). Despite the differences in the nature of the deliverable, both types of goods share the same problems in the implementation of their respective systems.

One fundamental issue faced by any e-commerce service is the issue of trust. The burden of maintaining the customer's privacy is especially pertinent for transactions over the
Internet. In particular, customers must be reassured that their credit card and billing information will not be intercepted or misused by the merchant. People will be less likely to spend money on a product if they perceive threats to their personal information (Stanford, 2011). Within the realm of Microtransactions, this has been addressed by having reputable third parties as orchestrators of all transactions.

Secondary to security concerns, many systems utilizing Microtransactions are guilty of badgering their users to buy “premium” content. Mobile game designs will often disguise content as essential to the user experience. However, in practice, features the users purchase are trivial or only accessory to the continuation of the game. Microtransactions, if implemented poorly, have the potential to completely kill the user experience of an application. Game designers, not unlike their marketing or human resource counterparts, must take into account the delicate nature of the user experience. If the developers goal is to retain customers and continue making money off of the same users, then they must present the user opportunities to spend more of their money in a unique way.

However, there is little research as to how these facets of the Microtransaction experience affects the end users willingness to spend. It is unclear as to what extent issues relating to trust, security, and harassment affect users spending habits.

1.1 PURPOSE AND RESEARCH QUESTION

Microtransactions are at the forefront of spending and research in the digital age, but what is it about the deceptively innocent nature of Microtransactions that persuade people to spend their money? Trends towards Microtransactions indicate that existing models of e-commerce are in a state of flux. Revenue from in-app purchases within the iTunes App Store is expected to reach $28.9 Billion (USD) by 2017. The “In-app purchase” share of the total app revenue is also projected to reach nearly 50% by 2017 (Business of Apps,
The rise of in-app purchases has been dramatic and the research for uncovering why this trend exists is minimal. According to the 2015 US Mobile App Report, users between the ages of 18-24 spend about 90 hours per month interacting with mobile applications, this is more than one hour longer than other age demographics (comScore Mobile Metrix, 2015). The younger generation is the primary consumer of Microtransactions. Pertinent data regarding their motivations is yet to be uncovered.

The overarching aim of this study was to explore the perspectives of: (1) college students and their relationship with Microtransactions, and (2) the theoretical limits of a Microtransaction. As such, the principle question this thesis aims to answer is:

**RQ1: Which quantifiable elements of a Microtransaction contribute to a university student’s purchase decision?**

A quantitative methodology, consisting of a survey and content analysis, was used to explore the perceptions of university students and gain insights into their experience with Microtransactions and purchase behavior. This research is imperative to the overall development of the behavioral framework behind college Microtransaction application users and their purchasing habits. In addition, this research will help bring the academic study of Microtransactions to fruition.

**1.2 DELIMITATIONS**

In order for the thesis to be as concise and concentrated as possible, two delimitations have been made: First, only Microtransactions within video games and video game applications have been examined. This decision was made based on the fact that there are several different platforms in which Microtransactions are available, and the assumption that people participating in our survey would be even less likely to provide thoughtful and serious responses if they had to analyze their behavior in several different contexts.
Second, this research was delimited to university students located at Linköping University in Sweden. At one point, there existed the possibility for reaching out to university students in other countries, more specifically within the United States, however this idea became an inconvenience due to time differences.

1.3 DISPOSITION

In the introductory chapter the concept of a Microtransaction is presented and the elements which determine its attractiveness to the most profitable age demographic is problematized. These initial findings led into the formulation of the research question (RQ1). The second chapter presented the frame of reference where the consumer behavior theories of Ego Depletion, Extended Self, and Perceived Value were assessed and provided a theoretical body for both digital consumption by university students and Microtransactions as virtual goods. Thereafter, the third chapter presented, evaluated, and explained the methodological choices made and the hypotheses created to conduct the study. The empirical findings were presented in chapter four. Chapter five presented a thorough analysis of the findings in relation to the hypotheses and research question intended to support the theoretical body. The sixth and final chapter presented conclusive evidence to either support or reject the hypotheses and their respective basis in theory. In addition, chapter six discussed the contributions this research has made to the wealth of knowledge and proposes several potential areas of future research.
THEORETICAL FRAME OF REFERENCE

2.1 CYCLIC SPENDING

Microtransactions occur when a small amount of money (not to exceed 10 Euro or 12 USD) is transacted through an online service or application in exchange for an extension to that existing product or service. Essential to an analysis of Microtransactions are the consumer theories and frameworks that have thus far been the basis of existing scholarly work on the subject. In particular, the theories governing Cyclic Spending (Ego Depletion, Impulse Buying, Extended Self) and Perceived Value are at the forefront of quantifying Microtransaction behaviors.

Ego Depletion showcases consumer inability to complete repetitive tasks. Due to Ego Depletion, consumers are more likely to utilize Microtransactions to avoid these tasks in applications. Additionally, while in a state of Ego Depletion, consumers are more inclined to engage in impulse buying. Due to this fact, their decision making energy or ego becomes exhausted.

A consumer’s sense of self guides their decision making and spending behavior. In the digital age, the sense of self has been expanded to include several new dimensions outside the physical realm. Online consumers exhibited a re-embodied version of their physical bodies which lead them to engage in different spending habits including Microtransactions as a means for improving their image.

2.1.1 EGO DEPLETION AND IMPULSE BUYING

Ego Depletion, coined by Roy Baumeister, is a theory which suggests humans have a limited pool of mental energy (ego) for making decisions. Baumeister’s famous
experiment, in which participants were forced to eat radishes instead of cookies then asked to complete a word puzzle, was the seminal example of Ego Depletion. After abstaining from the cookies, the participant’s mental energy was depleted and they were less equipped to complete a word puzzle, than those who were allowed to eat the cookies. Applying this thinking to In-App-Purchases Jacek Mackiewicz found that, “[Being] outlined with boring and monotonous tasks such as repeating the same activity over and over again…makes us more likely to simply purchase the boost or the helper instead of patiently waiting (Mackiewicz, 2013, 6).” In essence, our ego is depleted when we exert self-control, thus making us more likely to make impulse purchases after the reserves have been exhausted. Impulse buying refers to the response by consumers to a sudden urge to purchase something immediately (Chuang, 2015). This type of purchase is often reactionary, and as such, consumers are less likely to weigh consequences beforehand (Chuang, 1, 2015, cited in Amos, Holmes, & Keneson, 2014). A survey of Canadian adults revealed that, “[they] engage in impulse buying to cheer themselves up, and goods that are bought on impulse include clothes, shoes, and technology products,” (Mackiewicz, 2, 2013, cited in Pornpitakpan & Han, 2013). Throughout those surveyed, a majority had no prior intention to purchase the given product before being subject to the stimuli. This phenomena has been described as Impulse Buying Intention (Chuang, 2015). Impulse Buying Intention operates in conjunction with the two other factors of Impulsive Buying; the Certainty Effect and Social Influence. The Certainty Effect hypothesizes that when an individual is presented with two options, they choose the one with a certain outcome (Chuang, 2015). Social Influence is the notion that presence of our peers has a positive correlation on our buying habits (Chuang, 2015). Social elements have been a core element in mobile gaming from its inception. Feelings of rivalry and competition are catalysts for socially motivated impulse buying in games.
2.1.2 EXTENDED SELF

The current digital age has shifted the way in which people identify with their sense of self in addition to the way in which they identify with the relationships they have with the world around them. This includes relationships with other people (friends, family, peers, colleagues, etc.), their possessions (clothing, devices, virtual property, etc.), and their online persona (public profiles on social media, video game avatars). Belk (1988, p.141) described the major categories of the extended self as “our body, internal processes, ideas, and experiences, and those persons, places, and things to which one feels attached.” It is the latter three categories, “those persons, places and things to which one feels attached”, which are seemingly the most extended in this digital world. The extended self, according to Belk (1988), was viewed as embodied and was made up of material things. Now, the extended self has a plethora of external stimuli which affects one’s interpretation of self and causes the self to be in a perpetual state of reform. Belk’s diagram (Figure 1), illustrates the modified dimensions of the Extended Self in relation to the attachments and possessions a person will gain in each dimension respectively. The relationship between online and offline personas is integral to further an understanding of the self in the digital age, which will ultimately be used to describe the relationship consumers have with Microtransactions. Belk (2013) modified and updated several components of the original conception of the extended self in order to place the self in the digital age. The key components of the updated extended self which are relevant to this research of Microtransactions and consumer behavior are the dematerialization of possessions, the re-embodiment of the self, and sharing in the digital world (Belk, 2013, pp 477 - 494).
SUMMARY OF DIGITAL MODIFICATIONS OF THE EXTENDED SELF

<table>
<thead>
<tr>
<th>Digital dimension</th>
<th>Self</th>
<th>Possessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dematerialization</td>
<td>Avatars affect offline self; multiplicity of selves</td>
<td>Attachment to and singularization of virtual possessions; almost, but not quite the same</td>
</tr>
<tr>
<td>Reembodiment</td>
<td>Self revelation; loss of control</td>
<td>Attachment to avatars</td>
</tr>
<tr>
<td>Sharing</td>
<td>Affirmation of self; building aggregate extended self; “Attachment to Virtual Possessions in Videogames”</td>
<td>Aggregate possessions; sense of shared place online</td>
</tr>
<tr>
<td>Co-construction of self</td>
<td>Narratives of self</td>
<td>Digital clutter; digital cues to sense of past</td>
</tr>
</tbody>
</table>

Figure 1. Notice the dimensions of Co-construction of Self & Distributed Memory were not included in the analysis above. They are not necessarily relevant for this consumer behavior study, but are necessary for creating a coherent understanding of the extended self in the digital age. (Belk, 2013, p. 478).

2.1.3 DEMATERIALIZATION

The Dematerialization of people’s possessions has invented a new form of collecting items and sharing with others. The ease or convenience of online acquisition has created an intimacy with these digital items which has become intertwined with our aggregate extended-selves (Belk, 2013). Digital collections of photos, music, conversations, movies, and gifts, all elicit an emotional attachment to these collections, as well as the material devices on which they are stored and accessed. The question Belk (2013) raises is one that seeks to determine whether virtual possessions can enhance the sense of self and increase status. If that were to be the case, then it is prudent to ask whether or not virtual possessions can diminish the sense of self when they are lost. Following this logic, it is entirely possible that a consumer’s desire to construct an online identity (e.g. an avatar in a videogame) is linked to their willingness to engage in virtual transactions. Lehdonvirta (2012, p. 20) argues “virtual goods are no less real or able to satisfy desires than material goods, but rather their use is restricted to certain situations just as garden and kitchen tools are used in different situations.”. The attachment people have for their virtual possessions...
is directly related to the amount of work involved in acquiring them. In addition, “the motivations for acquiring these objects, often with real money, are similar to those for acquiring material consumer goods: gaining status and prestige as seen by others, solving real or imagined problems, expressing identity, increasing attractiveness to others and marking group identity.” (Belk 2013, p. 480 cited in Wang, Zhao, and Bamossy 2009; Bryant and Akerman 2009; Martin 2008).

2.1.4 RE-EMBODIMENT

The embodiment of the self has transformed much in the same way possessions have become dematerialized in the digital world. “In a more visual Internet environment of social media, virtual worlds, online games … , we are disembodied and re-embodied as avatars, photos and videos” (Belk, 2013, p. 481). The idea here is that creating a virtual identity with the intention of mirroring or even improving physical characteristics and traits leads the creator to identify with that identity on a psycho-physiological level. “Together with designing our [avatar], giving it a name, learning to operate it and becoming comfortable with it, we gradually not only become re-embodied but increasingly identify as our avatar” (Belk 2013, p. 481 cited in Binark and Sutcu 2009; Robinson 2007; Taylor 2002). Engaging in this process of virtual identity creation can be an important factor in the consumer decision making process while online and in virtual communities. Through the multiplicity of oneself, an individual is able to make decisions, purchase virtual goods and focus their efforts towards an ideal state of being. “A persona is a player, in a virtual world ... Any separate distinction of character is gone - the player is the character. You’re not role-playing a being, you are that being; you’re not assuming an identity, you are that identity; you’re not projecting a self, you are that self.” (Belk 2013, p. 482 cited in Bartle 2004).
2.1.5 SHARING

Digital devices have opened channels of communication that enable people to share with one another on an unprecedented level. Concerns over privacy and anonymity have become ubiquitous, but at the same time the audiences for every member of the online community have increased by orders of magnitude. As a result, people feel obligated to manage their social identities and present themselves in a way that satisfies both their audience and individual conceptions of their self. “There is not only an inward turn in self-consciously crafting our autobiographies, there is also an outward turn in terms of presenting these self-displays for all the world to see.” (Belk 2013, p. 485 cited in Zhao 2005). The act of sharing enhances a user’s sense of community within the constructs of the environment they choose to share. This facilitates a phenomenon known as “re-worlding” which takes members outside the boundaries of the physical world and enables people to build on to the aggregate extended self. “The ability to remodel the virtual environment extends the identity project far beyond the body… Therefore, places in virtual worlds can also be considered to be vivid markers of virtual identity.” (Kozinets and Kedzior, 2009 p. 12).

Online community members who frequently interact and participate with the surrounding community and its environment engage in a form of digital aestheticization. Digital aestheticization is akin to what Oldenburg (1999) refers to as “third places”. “A third place is a place that is neither the first place of home nor the second place of work, but at which people hang out, enjoy themselves and feel accepted,” (Belk 2013 p. 486 cited in Oldenburg 1999). This kind of relaxed atmosphere encourages people to spend their money freely while simply browsing or window shopping. Types of third places include pubs, coffee shops, and the brick-and-mortar shops lining city streets. Now, in the digital world there exists a new dimension of third places from the Massively Multiplayer Online Games (MMOG) to the online auction houses of Ebay. Building onto the concepts of a digital third place and re-worlding, where members can feel accepted, uninhibited and are
encouraged to be themselves (or to be as closely realized as their re-embodied self), is the motivation to further construct the online aggregate self. Wherein video game communities, this aggregate self would be the collection of virtual goods the avatar displays in the environment they play, and other online communities where members have a unique identifier and set of behaviors produced specific to that environment. Applying this kind of thinking towards in-app or in-game purchases, the people who seek to fully realize their aggregate self would be more likely to engage in a Microtransaction with the support of their online peers.

2.2 PERCEIVED VALUE THEORY

Perceived Value Theory is an important benchmark within the world of Microtransactions (Yoo 2015). This model breaks down consumer behavior into a function of multiple consumption values such as: emotional, social, and financial. Additionally, the dimensions of consumers perceived value of in-game Microtransactions are formally outlined. It is important to note that all game items (virtual goods) transacted through a Microtransaction offer a hedonic value to players, meaning the players are provided with “benefits involving emotional enjoyment” after the transaction takes place (Lehdonvirta, 2009 p. 110). Lehdonvirta defines several hedonic values (Figure 2 shown below) which are factors for consumers when making purchase decisions in virtual environments.
Figure 2 lists the attributes of virtual items that impact digital consumers purchase decisions (Lehdonvirta, 2009, p. 110).

<table>
<thead>
<tr>
<th>Functional attributes</th>
<th>Performance</th>
<th>Functionality</th>
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<tbody>
<tr>
<td>Hedonic attributes</td>
<td>Visual appearance and sounds</td>
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<td></td>
<td>Background fiction</td>
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<td></td>
<td>Provenance</td>
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<td>Customisability</td>
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<td>Cultural references</td>
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<td></td>
<td>Branding</td>
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<td>Social attributes</td>
<td>Rarity</td>
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Functional items are those which may give a virtual player an advantage over other players in-game. According to Yoo, Gamers place a high importance towards “being more competent against other characters” (Yoo, 2015 p. 2). The competency of players over others is an important factor in the social landscape of online gaming. Game items also hold a social value for Gamers. Yoo’s dimension of emotion proposes that a Gamer’s enjoyment from a game can be increased through purchasing game items. Additionally, “Gamers with items feel high [levels] of control then they will be motivated to play more. The more reward gamers receive, the more time they will spend on the game. Gamers using items compete or cooperate with other players and feel high level of belonging, which leads to stay longer and to be more satisfied with the game. Users who gained a positive experience will increase their loyalty to the game” (Yoo, 2015 p. 3). The final dimension of consumer’s perceived value identifies their value for money or monetary value. A Gamer’s willingness to purchase game items depends on the perceived cost effectiveness of the item(s) in question. To be considered for purchase, an item(s) must be able to save time and money. An item which can potentially make the gamer complete tasks more quickly, and does not exceed their price points will rank high on the cost effectiveness scale (Yoo, 2015). The actual value of a Microtransaction holds as much importance as a Gamers perceived value of an item. A “user’s experiences of pleasure,
interaction with others, and feelings of wise consumption through gaining items can be important factors in purchasing decisions" (Yoo, 2015 p. 16).

2.3 LINKS BETWEEN THEORIES

2.3.1 SOCIAL INFLUENCE (IMPULSE BUYING) AND RE-WORLDING

Section 2.1.4 and the concept of “re-worlding”, whereby users enter virtual communities and share their virtual conception of their self, touches upon the desire of a user to satisfy their audience. The digital age has afforded individuals the opportunity to share their social identities with very broad and far-reaching audiences. The management of these social identities has uncovered a pressure: the feelings of rivalry and competition between users, in addition to the personal aspirations an individual has constructed. These feelings and aspirations, when taken seriously by the individual within the context of the virtual community all relate to the motivations and impulses that drive a user towards Microtransactions.

2.3.2 DEMATERIALIZATION AND IMPULSE BUYING

Building onto the relationship between social influences and sharing is the attachment to the virtual items users create during this process. The socially motivated users, who wish to express their identity and gain status or prestige, obtain items as a reaction to how they perceive this item’s beneficial value. This reaction also pertains to how cognizant members of the virtual community will be to the individual’s appearance before and after the virtual items have been acquired.
2.3.3 PERCEIVED VALUE AND RE-EMBODIMENT

The process of virtual identity creation refers to an exercise of emotion in which the consumer or user defines traits and characteristics for their online presence. Since Microtransactions are hedonic by nature, they are meant to provide an emotional enjoyment for the user who has created a virtual identity. The hedonic values attributed to the emotional exercise of virtual identity creation (visual appearance, customisability, cultural references, background fiction, rarity) are very much in tune with the process of aggregating virtual items (by means of purchase) to reaffirm one’s previous identity-creation decisions.

METHODOLOGY

3.1 METHODOLOGICAL APPROACH

Given the research question and purpose, a quantitative method was suitable to study the relationship between university students in Sweden and their use of Microtransactions. The research detailed below provides insight into the background motives that consumers experience when faced with Microtransactions. According to Bryman & Bell (2011) quantitative research is deductive in nature, allowing the theories presented in the literature review to be examined within the context of university students. To address our research question, the survey was structured with an emphasis for inquisition. A survey was developed in line with Bryman & Bell’s (2011) guidelines for self completion surveys. This form of research was selected due to its ease to administer and convenience for respondents, (Bryman & Bell, 2011).
3.2 DATA COLLECTION AND SURVEY DESIGN

The surveys were distributed in person over the course of two weeks to students at the Linköping Campus. Researchers approached students working in common spaces then asked if the students were able to participate in a survey relating to Microtransactions. There was no additional selection criteria for the surveyed students, other than limiting the distribution to one geographic location. The survey and dialogue with students was conducted in English. The survey contained twenty-seven questions, with five pre-qualification question, seven short response, and fifteen multiple choice questions. Due to the flow logic of the survey, some sections could be skipped if the respondent did not possess pertinent information to that section. If, for instance, a student had never purchased a Microtransaction they would be directed to the last section of the survey and served with questions relating to future purchases. Additionally, students who engaged in MMOGs were directed to a question tree that had questions specific to Microtransactions within MMOG style games. The rationale behind this flow logic was to minimize the number of questions for respondents, thus avoiding respondent fatigue. Experience-specific question trees also attempted to maximize question salience, noted as, “when a research issue is salient to the respondent, a high response rate is feasible.” (Bryman & Bell, 2011 p 233).

3.3 QUALITY OF RESEARCH DESIGN

While the use of a survey was the most suitable for cross analysis of theories presented in the Literature Review, there are a number of risks intrinsic to this method. The first of which, was outlined by Bryman & Bell (2011), “Respondents are able to read the whole survey before answering the first question. When this occurs, none of the questions asked is truly independent of the others. It also means that you cannot be sure that questions have been answered in the correct order.” (Bryman and Bell, 2011 p. 233) This issue is of particular concern because the survey was heavily based on flow logic. Another risk
associated with self-completed surveys is the risk of missing data, “Partially answered surveys are more likely, because of a lack of prompting or supervision, than is possible in interviews. It is also easier for respondents actively to decide not to answer a question when on their own,” (Bryman & Bell, 2011, p. 234). Opinions relating to Microtransactions were gauged with free response questions, thus contributing to respondent fatigue and increasing the risk of incomplete or skipped questions. With respect to reliability, Bryman & Bell (2011) outline this as ability for the study to be repeated. Using this survey as guide, independent researchers would be able to repeat this study with relative ease.

3.4 ETHICAL ASPECTS

With consideration to the Ethical Aspects encompassed in this thesis, two major concerns arose. First, was the issue of “Incomplete Disclosure”, noted by CPHS (2014) as the instance “when an investigator withholds information about the specific purpose, nature, or other aspect of the research. Withholding information may or may not be considered deception.” Due to the nature of this thesis’s survey; it was not feasible to fully inform participants of the theoretical implications laid by the framework of our research. Second, was the issue of anonymity. While those surveyed were not asked for their personal information, it was never mentioned that their identities would be kept anonymous.

3.5 HYPOTHESES

The hypotheses that follow were formulated around the prior research contained in the theoretical body and provided insight into the proposed research question: Which quantifiable elements of a Microtransaction contribute to a university student’s purchase decision? Validation of the presented hypotheses would confirm its role as a quantifiable element of Microtransactions which contribute to a student’s purchase decision.
H1: If university students’ egos are depleted from repetitive Microtransaction solicitation, then they will be more likely to purchase one in the future.

Baumeister’s Ego Depletion Theory states that when consumers are in a state of depleted ego, they will be more likely to make purchases without considering them. The ego can be depleted by monotonous tasks. Often games utilizing Microtransactions will have repetitive tasks designed into the game with the hopes that players will opt to avoid them by purchasing a Microtransaction. H1 was designed to identify an association between the way a Microtransaction is presented to a student and the student’s inclination to buy a Microtransaction.

H2: If an in-game item has a high perceived (functional, hedonic, social) value to university students then they will be more willing to spend money on a Microtransaction for that particular item.

Yoo’s Perceived Value Theory states the three consumption values consumer’s manage while evaluating their purchasing decision as emotional, social and financial. The emotional consumption value includes both an item’s function and the benefit a user stands to gain from it. The social consumption value is based on a user’s desire to be more “competent” against others. Finally, the financial consumption value emphasizes the perceived cost effectiveness of an item. Items must be considered to save time and money in order to be cost effective. The goal of H2 is to target the three consumption values of PVT as a test to see if these values correlate with a Microtransaction purchase.

H3: University students in competitive community based games will be more likely to utilize Microtransactions as a means of gaining an advantage in game.
As stated by Belk (2013) in the Extended Self, the motivations which drive people to acquire virtual items are indistinguishable from the motivations which drive people to purchase material goods. Gaining status and prestige as seen by others is an especially significant motivator in community based games. The goal of H3 was to examine the extent to which Belk’s Extended Self played a role in the purchase of Microtransactions within competitive community based games.

EMPIRICAL RESULTS

4.1 RESULTS
The empirical findings from the quantitative survey are outlined in detail below. The data have been recorded as close to their original unadulterated form. This decision was made for the sake of readability. With the exception of coding free response questions for readability, all higher level analyses were included within the Analysis chapter.

4.1.1 DEMOGRAPHIC AND GEOGRAPHICAL RESULTS
Due to the Delimitations set by this thesis, all 200 participants (100%) in this study currently reside within Linkoping, are university students, and are over the age of 18. One-hundred seventy-nine (90%) of all respondents were ranged between the ages of 18-25. Twenty (10%) of respondents were aged between 26-35, and 1 (1%) respondent was over the age of 35. One-hundred six respondents (53%) identified as Male while the remaining 94 respondents (47%) identified as Female.

4.1.2 GAMEPLAY DEVICES AND TIME SPENT PLAYING

Ninety-seven respondents (49%) identified their mobile device (either smartphone or tablet) as their primary means of playing video games, 70 respondents (36%) said they
primarily use their personal computer for playing video games, and 31 respondents (16%) indicated their dedicated video gaming console as their primary gaming device (Figure 9, Appendix B).

One-hundred seventy respondents (85%) spend 0-3 hours per week on their mobile device for playing games. Nineteen respondents (10%) spend 4-6 hours per week playing games on their mobile device, 8 respondents (4%) spend 7-10 hours per week on their mobile device playing games, and 3 respondents (2%) spend 10 or more hours per week gaming on their smartphone or tablet.

4.1.3 PRESENCE OF MICROTRANSACTIONS

One-hundred one respondents (51%) indicated that the presence of Microtransactions in mobile gaming applications does not deter them from playing those games, while 98 respondents (50%) said the presence of Microtransactions in a mobile gaming application does discourage them from playing these types of games.

When asked, “Why does the presence of a Microtransaction deter you from playing a mobile game application?”, the majority of respondents (74%) cited issues with Price as their main concern. Nine percent of respondents said their Lack of Interest contributed to their dissatisfaction with a game containing Microtransactions. Nine percent of respondents generally disliked any game containing Microtransactions. Five percent associated Microtransactions with the “Pay to Win” model, which was not viewed favorably. The remaining 5% disagreed with Microtransactions in mobile gaming applications on a Conceptual level (Figure 10, Appendix B).
4.1.4 EXPERIENCE WITH MICROTRANSACTIONS

One-hundred thirty-four (67%) respondents have not ever purchased a Microtransaction within a video game, while 66 respondents (33%) have purchased a Microtransaction at least once in the past. The results that follow are reporting the experiences of the 66 individuals who have purchased a Microtransaction at least once in the past.

Those who have purchased a Microtransaction were asked, “How did you purchase a Microtransaction?”, 45 respondents (68%) said they simply entered their credit card information to make the transaction; 13 respondents (20%) used Apple’s digital wallet service, Apple Pay to make the transaction; 8 respondents (12%) used Google’s digital wallet service, Google Wallet to make the transaction; and 1 respondent (2%) indicated they used virtual currency (awarded in the game itself) to make the transaction.

4.1.5 POST-PURCHASE FEEDBACK

Forty-five respondents (69%) who indicated they have purchased a Microtransaction in the past claimed the Microtransaction purchase increased the level of enjoyment they experienced from playing the game, while the remaining 21 respondents (32%) claimed the purchase did not increase their level of enjoyment from the game.

When asked why the purchase increased or didn’t increase their enjoyment of the game, respondents provided a plethora of free responses, including positive experiences such as with their ability to Progress further into the game, “It enabled me to reach another level”, “Because I could continue to play more”; their Emotional Enjoyment from upgrading their character’s appearance or gear, “It was a character skin that I liked”, “I’ve purchased [Microtransactions] for both cosmetic and aesthetic uses, and for powers/feature upgrades. The cosmetic items are just silly, but fun if you like to play a game and ‘show off’ your character while the feature upgrades actually made me perform better”, “I liked the
(DOTA) skin I purchased and liked that I supported the game developer”; contrasted with more negative experiences with feelings of *Buyer’s Remorse*, “After paying I realized the game didn’t get more fun -> not much changed in the game”, “Totally worthless purchase. The item didn’t help one bit.”, “I felt bad because it was not a fulfilling decision. Was not a wise use of my money.”, “Just tried it for the experience. Hated it”. It should be noted that 9 respondents, who previously answered they had purchased a Microtransaction in the past, did not include their responses for this section.

### 4.1.6 FACTORS THAT DETERMINE PURCHASE BEHAVIOR

Respondents were given the opportunity to identify, in their own opinions, the factors or elements of Microtransactions which influence their purchase decision at the point of sale. Forty-six percent of respondents noted the *Price Point* of a Microtransaction as the primary factor in the determination of their purchase decision. Seventeen percent of respondents pointed to the *Functionality* the Microtransaction offers as the primary factor. Fifteen percent of respondents indicated their *Enjoyment* of the game impacts their purchase decision when faced with Microtransaction. Thirteen percent of respondents said the *Presentation* of the sale itself determines their purchasing behavior. Eight percent of the respondents were simply *Uncertain* of which factors determine their purchase behavior, and the final 4% of respondents claimed that the *Social* dynamic a Microtransaction offers is the primary factor in their purchase decision. Eleven respondents, who previously answered they had purchased a Microtransaction in the past, did not include their responses for this section *(Figure 11, Appendix B)*.

Sixteen respondents (25%) claimed they would consider purchasing a Microtransaction in the face of repetitive tasks within a game if it meant they could save time and progress faster, while the remaining 59 respondents (76%) indicated they would not consider purchasing a Microtransaction in this scenario. One respondent, who previously answered
they had purchased a Microtransaction in the past, did not include their response for this section.

Forty-six respondents (70%) declared they would not purchase a Microtransaction if it meant they could enhance their level of competitiveness within the game, while the remaining 20 respondents (31%) claimed they would purchase a Microtransaction to enhance their level of competitiveness.

Thirty-nine respondents (60%) answered they would be less likely to spend their money on Microtransactions if the game containing the Microtransaction required an upfront payment for the initial download or acquisition of the game itself. The remaining 27 respondents (41%) indicated this payment system is not agreeable and they would not be as likely to purchase a Microtransaction if the game requires an upfront payment.

Following this line of questioning, respondents were asked to further judge games that require upfront payments based on whether or not they felt a paid game can justify offering additional features, items as Microtransactions. Thirty-eight respondents (58%) declared they do feel it’s unjustified for a paid game to offer additional features/items as Microtransactions. The remaining 28 respondents (43%) did not feel this was unjustified.

When asked why they felt paid games could or could not justify their Microtransactions as additional features or items, respondents provided several differing free responses that could be coded into three major camps: Support of the Game Developers, Unfairness, and Neutral Stance. Fourteen respondents (27%) feel that purchasing Microtransactions in a game they’ve already paid for is a good use of their money because it supports the game developers, “The game developers should be able to make an income”. Twenty-nine respondents (55%) felt paid games are not able to justify their use of Microtransactions simply because they view it as an unfair practice, “If I’ve paid for a game already, it feels like the company is ‘milking’ money out of me. It’s dishonest.” The remaining 10 respondents (19%) took a neutral stance on the topic, neither explicitly for nor explicitly
against Microtransactions in pay to play video games. Thirteen respondents, who previously answered they had purchased a Microtransaction in the past, did not include their responses for this section (Figure 12, Appendix B).

Respondents were asked to gauge the amount of influence the actual price tag of a Microtransaction has on their purchase decision. Answers were collected as a free responses, however, most responses indicated one of two extremes (i.e. “Very much”, “Not very much”). Forty respondents (67%) declared the price tag of a Microtransaction as a highly influential factor into their purchase decision and the remaining 20 (34%) respondents claimed the price of the Microtransaction does not have much of an influence on their purchase decision. Six respondents, who previously answered they had purchased a Microtransaction in the past, did not include their response for this section.

Thirty-seven respondents (57%) noted that the purchase of a Microtransaction would influence the amount of time they spend playing a game, while the remaining 29 respondents (44%) indicated the purchase of a Microtransaction would not necessarily influence their play time.

4.1.7 MASSIVELY MULTIPLAYER ONLINE GAMES (MMOGs)

Forty-two respondents (64%) of which have previously purchased a Microtransaction indicated they do not or have not played an MMOG. The remaining 24 respondents (37%) have played or do regularly play an MMOG. The following results are based on the 24 individuals who have purchased Microtransactions and have experience in an MMOG.

Thirteen respondents (55%) declared they have spent 100 or more total hours into the development of their virtual avatar in their preferred MMOG. Five respondents (21%) declared they’ve spent very little time (0-10 hours) on the development of their avatar. Three respondents said they have spent between 31 and 60 hours on the development of
their avatar. Two respondents (9%) marked they spent between 61 and 99 hours on their avatar development, and one final respondent (5%) reported they have spent between 11 and 30 hours in the avatar development process.

Thirteen respondents (57%) revealed they are not more willing to spend money in an MMOG, even if the virtual community is active and engaging. The remaining 10 respondents (44%) indicated the opposite, that an active and engaging virtual community would make them more willing to spend money on an MMOG. One respondent, who previously reported they had purchased a Microtransaction in addition to playing MMOGs, did not include their response to this section.

4.1.8 NO EXPERIENCES WITH MICROTRANSACTIONS

The final section of the survey was dedicated to the respondents who have never purchased a Microtransaction. When asked, “Why haven’t you purchased a Microtransaction in the past?”, responses were coded into three major categories: Lack of Interest, Pricing Concerns, and Conceptual Issues. Sixty-eight respondents (52%) simply stated their lack of interest in video games and in the Microtransactions they were offered, “I don’t get too invested in playing and I don’t care enough to pay for a game” ; “I don’t play that often and think it’s unnecessary to buy things in a game”. Fifty-one respondents (39%) cited issues with the pricing of Microtransactions in video games as the main reason for not purchasing in the past i.e. “Because I don’t want to spend money on games”, “It’s a waste of money.”. The remaining 14 respondents (11%) were conceptually opposed to Microtransactions due to feelings of unfair advantages, “It’s cheating… You can still beat the game without any transactional item.”, due to their own patterns of destructive behavior, “There is no natural stopping point. Once you’ve paid once, when do you stop? I am prone to addiction, and [Microtransactions] would probably ruin me if I ever purchased
even one.” One respondent, who previously stated they had not purchased a Microtransaction in the past, did not include their response for this section.

One hundred sixteen respondents (80%) would not consider purchasing a Microtransaction in the future, while the remaining 30 respondents (21%) would consider purchasing a Microtransaction in the future.

Respondents were then led to a question that prompted a selection of responses indicating which factors of a Microtransaction would ultimately impact their purchasing decision. The respondents were given 3 primary factors to select with the option to include any additional factors not specified in the inquiry. Functionality, which describes the Microtransaction as the medium for saving time and/or increasing the player’s effectiveness within the game; Pricing, which specifies the perceived benefit value the player would receive exceeds the actual value or price tag of the Microtransaction; Social Capital, which would provide the player the opportunity to stand out from the other players. Two respondents (6%) selected all three available options, *Functionality, Pricing, and Social Capital* as being impactful elements of Microtransactions on their purchase decision. It should be noted that one of these two respondents also indicated their interest in the game as being an important factor for making Microtransaction purchase decisions.

Nine respondents (27%) selected *both Functionality and Pricing* as the most impactful elements of a Microtransaction. One respondent (3%) selected *both Functionality and Social Capital* as being the most impactful elements of a Microtransaction. Eight respondents (24%) selected *only Functionality* as the most impactful element of a Microtransaction. Seven respondents (21%) selected *only Pricing* as the most impactful element of a Microtransaction. One of these seven respondents also mentioned their favorability for any particular game developer is taken into account when making a Microtransaction purchase decision. Two respondents (6%) selected *only Social Capital* as the most impactful element of a Microtransaction. The remaining 5 respondents (15%) opted out of the 3 primary factors and listed only other elements they felt impacted their
Microtransaction purchase decisions. These responses have been coded into 2 subgroups: Improvement of Experience (12%), and Indie Game Support (3%). Improvement of Experience included any reported feelings of satisfaction or enhancements not directly related to Functionality; Indie Game Support included a player’s desire to help smaller game developers secure better financial support.

Finally, the 30 respondents who indicated they would consider purchasing a Microtransaction in the future were prompted to list any “significant advantages” a Microtransaction would have to offer them as a player. Responses were organized into groupings of: Appealing Upgrades, None, and Cost Effectiveness. It should be noted that 10 respondents did not include their responses for this section. Ten respondents (50%) noted they would appreciate a Microtransaction if it could offer them “powerups” or “cool features”. Six respondents (30%) disagreed with the notion of a Microtransaction offering a significant advantage to their gameplay experience, citing concerns over the pay to win model, “I would never play a pay to win game”; in addition to more heedless answers such as, “I don’t know!” Four respondents (20%) emphasized the value of their time and money when considering significant advantages of Microtransactions i.e., “Save me time to continue playing the game.”, and, “It has to give me some real value”. In accordance with the segmentation outlined in the introductory section of the Results Chapter, we will now move to a comprehensive analysis of the presented results.

**Analysis**

The purpose of this chapter is to better elucidate trends within the recorded survey responses. Statistical tests were performed on selected survey questions that are of particular importance to RQ1: Which quantifiable elements of a Microtransaction contribute to a university student’s purchase decision? The respective hypotheses were
split into two group: those which meet prerequisites for a Chi-Square (H1,H3) and those that did not (H2). H2 was not considered because many of the responses could be coded into more than one category, a Chi-Square test requires binary outcomes. For reference the symbolic version of this formula is shown in Figure 3. In the context of these tests, the Confidence Interval was set to 95%. Additionally, the Expected Result in each was 51% or a simple majority. The rationale behind this decision was that a Chi Square test is traditionally applied on problems of simple probability. As this implementation of a Chi Square is being used to test a theory not originally rooted in mathematics, the decision was made to use this variable in a conceptually simpler form.

$$\chi^2 = \frac{(Observed\ Result-Expected\ Result)^2}{Expected}$$

It’s clear from the results of our survey that most university students are familiar with and have experiences with Microtransactions in video games. The aim of this study dictated that a heuristic approach, one of discovery by means of interaction, was taken in order to identify the quantifiable elements of a Microtransaction that cause a reaction in university students. While the results cannot be shown to be an extensive representation of all university students across the world, perhaps not even throughout all university students in Sweden, they should be considered as broad enough in depth to cover many of the patterns and behaviors of university students as digital consumers.

5.1 DISCUSSION OF HYPOTHESES

A chi-squared test was deemed appropriate for testing the statistical significance of our results for specific questions in the survey. The rationale behind testing for statistical significance was defined in part by the limitations set in the thesis. The results account for 200 students at Linkoping University.
The chi-squared test performed on, **H1**: If university students’ egos are depleted from repetitive Microtransaction solicitation, then they will be more likely to purchase one in the future, can be used to see the disparity among university students’ exposure to Microtransactions and their willingness to purchase.

Baumeister’s Ego Depletion is a phenomenon which sets a limit to an individual’s mental reserves and corresponds to their ability to make (purchase) decisions. When this mental reserve is depleted from a recurring task or decision, the individual should be more inclined to opt for a shortcut (Chuang, 2015). Microtransactions offer this kind of shortcut to players who must complete routine tasks. It is often the case that players are bombarded with purchasing opportunities at every corner or intersection of the game where a decision must be made.

In conjunction with the theoretical implications of Ego Depletion, the null hypothesis (**H0**) states: Ego depletion does contribute to university students’ likelihood of purchasing a Microtransaction. The alternative hypothesis must then, of course, be the logical opposite of the null hypothesis; **Ha**: Ego depletion does not contribute to university students’ likelihood of purchasing a Microtransaction. Question 14 of the distributed survey (**Appendix A**), “Faced with a repetitive task (or quest) in a game, would you consider purchasing a Microtransaction to save time and progress faster within the game?” resulted with 76% of respondents claiming they would not purchase a Microtransaction in this scenario. The initial consensus here appears to support the alternative hypothesis (**Ha**), but the chi-squared test shown below was performed to officiate the significance of this response.

\[
\chi^2 = \frac{(49-33.15)^2}{33.15} = 7.578
\]

\[
7.578 \quad > \quad 3.841
\]
Figure 5. Critical value table provided by NIST (2013).

As shown above the critical value obtained from the chi-squared test is well above the critical value for a 95% confidence interval, meaning these results are not statistically significant and the null hypothesis must be rejected. H1 is, therefore, unable to be validated. According to these results, Ego Depletion does not contribute to university students’ likelihood of purchasing a Microtransaction.

The chi-squared test performed on, H3: University students in competitive community based games will be more likely to utilize Microtransactions as a means of gaining an advantage in game, can be used to identify the motivations which drive people to purchase virtual goods. The concept of gaining an advantage within a game is seen as an extension of the concept laid down by Belk (2013) in the Extended Self. Gaining status and prestige as seen by others in a competitive community based game is very much alike people in the physical realm taking measures to differentiate the perception of themselves and their accomplishments. The theoretical implication of the Extended Self, which does not distinguish the motivations of acquiring virtual items from the motivations of acquiring material goods, led to the establishment of the null hypothesis: H0: University students in competitive community based games are more likely to utilize Microtransactions as a means of gaining an advantage in game. The logical opposite of this hypothesis, and the hypothesis examined in the chi-squared test, is: Ha: University students in competitive community based games are not more likely to utilize Microtransactions as a means
of gaining an advantage in game. Question 15 of the distributed survey (Appendix A), “Would you purchase a Microtransaction if the game would enhance your level of competitiveness” resulted in 70% of the respondents indicating they would not purchase a Microtransaction to enhance their level of competitiveness. Similarly to H1, the responses for H3 appear to invalidate its proposal. However, the chi-squared test performed below measures the true significance of these findings.

Figure 6 \( \chi^2 = \frac{(46 - 33.66)^2}{33.66} = 4.524 \)

\[ 4.524 > 3.841 \]

Refer to Figure 7 to see the appropriate critical value used for the chi-squared test. (NIST, 2013).

As shown above, the critical value obtained from the chi-squared test is well above the critical value for a 95% confidence interval, meaning these results are not statistically significant and the null hypothesis must be rejected. H3 is, therefore, unable to be validated. According to these results, university students are not more likely to utilize Microtransactions as a means of gaining an advantage in game.

5.1.1 CONTENT ANALYSIS OF H2

Question 13 of the distributed survey, “Which factors determine your purchase behavior when using Microtransactions?”, in addition to Question 26, “Which factors would impact your purchase decision?” (Appendix A) were designed to target the Perceived Value
Theory within section 2.2. **H2** postulated that: **If an in-game item has a high perceived value to university students then they will be more willing to spend money on a Microtransaction for that particular item.** Yoo’s Perceived Value Theory outlined three major consumption values that consumers must evaluate when presented with an opportunity to purchase an item. They were: Emotional, the general feeling a user has for an item with regards to how they will use it and how it would improve their experiences; Social, when considered within the context of a video game feeds a player’s desire to perform better than others and Financial, the cost effectiveness of an item which must be able to save the player time and conserve money (Yoo, 2015). The deliberation over these consumption values would indicate their importance, however, to estimate the likelihood of a Microtransaction purchase an analysis of the collected responses is necessary.

Question 13 (**Appendix A**) showed 46% of respondents consider the price point of a Microtransaction as the most important factor in the determination of their purchase decision, and an additional 13% of respondents indicated the Presentation of a Microtransaction as a primary factor in their purchase decision. This totals to 59% of responses which emphasized their willingness to purchase a Microtransaction as a direct relation to the price point and the display of that particular Microtransaction. These results agree with the results obtained from Question 18 of the survey (**Appendix A**), where 67% of all respondents indicated the price of a Microtransaction as a highly influential element of the item transacted. The Financial consumption value, in this case, is the most appreciated value of consumption that university students take into account. The other ranked factors of purchase behavior included Functionality (17%), Game Enjoyment (15%), Social (8%), and those who asserted their uncertainty (4%). Functionality was described in the survey (Question 26) as the element of a Microtransaction which has the potential to save time and increase a player’s influence or power within a game, thus increasing a player’s enjoyment of the game. When compared to the PVT, the functionality of an item fits into the Emotional consumption value, as does a player’s enjoyment of the game they’re playing. Together, Functionality and Game Enjoyment make up 32% of
respondents which are considered to be the second largest segment of the sampled population. Finally, the Social factor was described in the survey (Question 26) as the element of a Microtransaction which makes [the player] standout when compared to other players in the game. Unfortunately, this was not a significant motivation among university students due to the fact that only 8% of respondents stated this was a primary factor in their purchase decision, and so a reasonable conclusion surrounding social motivations could not be made.

The results from Question 13 were further established in Question 26 (denoted below by Figure 8), where respondents had to select all factors of a Microtransaction that impact their purchase decision. Functionality and Pricing, again, are the two most impactful elements of a Microtransaction to university students. It is the Financial and Emotional consumption values of PVT which can be validated, however, the Social consumption value is still ambiguous. The Social element, again, was the least impactful element of a Microtransaction to university students. Students do not consistently appear to consider their competency as players when evaluating a Microtransaction. These results do not fully support PVT, and are therefore unable to validate H2. The results do appear to have significance, however. While we cannot confirm this theory in its entirety, we can at the very least identify two major elements (Pricing and Functionality) of a Microtransaction that determine university students’ purchase decisions.
Figure 8. The figure above illustrates the responses collected from Question 26 of the distributed survey (Appendix A). It should be noted that respondents were able to select multiple options, and the numbers shown above are the raw count of individuals who selected each respective option.

5.2 CONTENT ANALYSIS OF RQ1

This section aims to best utilize questions not directly linked to the aforementioned hypotheses in order to provide overall support of RQ1. Question 11 (Appendix A), “Did the purchase [of a Microtransaction] increase your level of enjoyment you experienced while playing the game?”, resulted in 69% of respondents claiming their previous purchase of a Microtransaction did enhance their experiences. This question was based on the assumption that the respondent had already purchased a Microtransaction, and can be used to identify an element of Microtransactions that influenced university students’ purchase decisions. Though enjoyment of a game is understood as an intangible aspect of the experience of playing a game, it has been observed in this study to influence university students’ evaluation of Microtransactions on both ends of the spectrum. Students who did not enjoy games did not purchase Microtransactions, and those who purchased Microtransactions but were unsatisfied with their purchase (and ultimately unsatisfied with the game) were not likely to purchase another in the future.

Question 23 (Appendix A), “Does an active and engaging virtual community (such as in an MMOG) make you more willing to spend money on that game?”, resulted in 57% of respondents claiming an active and engaging virtual community does not influence their desire to purchase Microtransactions. This result is consistent with the attitudes previously stated by university students concerning Microtransactions in games with up-front payments, wherein 60% of respondents indicated they do not support Microtransactions in games that require a payment for initial access to play, which is commonly the case for many MMOGs. The results from Question 23 are, however, inconsistent with the observation that 53% of MMOG players have spent 100 or more hours with the development and play time with their avatar. The incorporation of this statistic with the
observation that 57% of respondents claimed the purchase of a Microtransaction would influence the amount of time they spend playing a game perfectly illustrates the inconsistency. This inconsistency among respondents for these inquiries complicates the task of identifying specific elements of Microtransactions which influence university students’ purchase behavior.

There are, of course, many MMOGs that do not require a subscription or pay-to-download fee, but the differences among Microtransaction purchase behaviors between this business model and the Freemium model was not thoroughly examined in this research. There now exists a potential for any future studies looking to observe the difference among purchase behaviors within the differing business models of MMOGs.

Question 24 (Appendix A), “Why haven’t you purchased a Microtransaction in the past?”, was designed with the specific intention of discovering which elements a Microtransaction would have to offer university students who have never purchased a Microtransaction before. The results were varied, but the majority of respondents (52%) claimed the main factor was their lack of interest. The significance of this result does not aid in the process of identifying quantifiable elements of a Microtransaction which influence purchase decisions among university students. However, the resurgence of pricing concerns as the second most significant factor among students who did not purchase a Microtransaction (39%) further supports earlier hypotheses which identified Pricing and Functionality as the two most important factors in their purchase decisions. Because lack of interest in video games was the greatest concern among respondents who have never purchased a Microtransaction, the best route for future studies in this case would be to simply target university students or digital consumers who do play video games on a regular basis.
CONCLUSION

6.1 SUMMARY

The aim of this study was twofold: First, to gain a greater understanding of Swedish University Students’ perceptions of Microtransactions in light of their growing prevalence within applications. Second, to discover the Theoretical Limit of a Microtransaction through application of consumer behavior theories. In order to approach these goals, the RQ1 sought to answer: “Which quantifiable elements of a Microtransaction contribute to a university student’s purchase decision?” was developed. Within this framework the hypotheses served to divide the subject of Microtransactions conceptually for further analysis.

H1: If university students’ egos are depleted from repetitive Microtransaction solicitation, then they will be more likely to purchase one in the future.

H2: If an in-game item has a high perceived value to university students then they will be more willing to spend money on a Microtransaction for that particular item.

H3: University students in competitive community based games will be more likely to utilize Microtransactions as a means of gaining an advantage in game.

Following the results and analysis of our survey, we cannot support our first or third hypotheses. The chi-squared test performed on H1 supported the alternative scenario whereby university students did not purchase Microtransactions to bypass repetitive tasks in video games. University students’ ability to overlook the repeated solicitation of Microtransactions in coordination with their conservative attitudes towards spending money in video games led us to reject H1. Ego Depletion, while perhaps an applicable
behavioral theory on a more generalized population of consumers, does not significantly contribute to university students’ likelihood of purchasing a Microtransaction. The results of our survey also compelled our analysis to reject H3. The chi-squared test performed on H3 supported the alternative scenario which claimed university students are not interested in utilizing Microtransactions as a way to gain an advantage over other players in competitive community based games. In conclusion, the theoretical implications laid down by the Extended Self Theory, which emphasized the acquisition of items to gain status or prestige, were not able to be fully realized among university students. The rejection of frivolous spending in video games by university students in addition to their general attitudes surrounding the “pay to win” strategy guided our analysis to this conclusion.

There is at least one beacon of light in our final conclusions. The results of our survey, coordinated with the framework of theory set by PVT, led us to declare partial support of H2. PVT touched upon three major consumption values which are used by consumers to evaluate an item before making a purchase. The Financial consumption value, which was denoted by the combination of the actual price point of a Microtransaction and the way it was presented to the consumer, was observed to be the most influential value and factor into a university student’s purchase decision. In addition, the Emotional consumption value which was denoted by the functionality of an in-game item and the degree to which the player enjoys a game, was observed to be of particular importance as well. The final consumption value, Social, could not be supported by the results obtained in our study and is the sole reason for refusing to wholly accept H2. The Social consumption value was intended to be rooted in a player’s desire to stand out from the others. This value was not found to be of significant importance, and is consistent with the observations made regarding university students’ attitudes towards Microtransactions which grant them significant advantages over others. In accordance with these observations and results, university students’ willingness to purchase a Microtransaction are tied to their perceptions of pricing and functionality but not to their perceptions of themselves in a social context.
The two most quantifiable elements of RQ1 that manifested themselves throughout the context of this thesis were: pricing of Microtransactions, and the functionality of the in game item offered. The pricing of Microtransactions was predominantly a deterrent to purchase for those respondents who were not avid gamers. For those who identified as gamers, the pricing of Microtransactions acted as an enabler of their purchase. With respect to Functionality, the study found that it was an enabler of purchase for Gamers. Those who had not purchased a Microtransaction also cited that Functionality of an in game item is a trait that they would look for in a future potential purchase.

6.2 CONTRIBUTIONS

This thesis has, in part, succeeded to identify the elements of a Microtransaction which determine university students’ purchase behavior. Two elements, Pricing and Functionality, of a Microtransaction have been validated within the context of the research parameters. These findings, in accordance with the statistical relevance of university-aged students as primary consumers of Microtransactions, directly benefit any company seeking to target this segment of the market. In addition, our research has broken the mold for research in Microtransactions in that our application of consumer behavior theories have not been applied in this context before. Our interpretation should aid future researchers hoping to uncover more of the underlying factors digital consumers consider when faced with Microtransactions.

6.3 FUTURE RESEARCH

This thesis has established a precedent in the field of Microtransactions by using consumer behavior theories as the primary framework for researching university students digital consumption. With respect to this precedent, there is great potential for furthering the
academic knowledge within this field. One area would be to conduct a micro-level study of the differing business models employed by MMOGs. Our research did not make the differentiation between the Freemium and Subscription based business game models. It’s possible the purchase behaviors among players with regards to the Microtransactions offered could identify a fundamental difference in the factors that affect players’ purchase determinations.

Second, the major limitation to the significance of this study was the size in which it was conducted. We felt, as researchers, this study should be replicated on a macro-level in order to simply obtain more insight on the topic of Microtransactions. In addition, the study should aim to focus on exclusively gamers. We found that a significant portion of our sample did not have any interest in playing video games, therefore a higher concentration of gamers would illustrate a more comprehensible representation of Microtransaction consumers.

Lastly, the Perceived Value Theory was considered to have great potential. Our research was able to support two of the three pillars set by PVT, however the Social consumption value fell short. We feel the Social consumption value should not be disregarded simply because our study was not able to support it. Therefore, we recommend future research should be conducted to test the PVT on a more concentrated sample of digital consumers.


This survey is being conducted to gain insights on your experiences with Microtransactions. We would like to obtain your comments. Your insight is valuable and will assist with our study.

1) Are you a student?
   A.) Yes
   B.) No (End survey)

2) What is your age?
   A.) 13-17 (End survey)
   B.) 18-25
   C.) 26-35
   D.) 35+

3) What is your gender?
   A.) Male
   B.) Female

4) Where do you currently live?
   A.) Sweden
   B.) US
   C.) Other __________

5) Which device do you use most often to play games?
   A.) Computer (Mac, Windows, Linux)
   B.) Console (Xbox, PlayStation, Wii, PS Vita, Nintendo DS)
   C.) Mobile (Smartphone, Tablet)

6) How many hours per week would you say you spend on mobile gaming applications (e.g. Candy Crush Saga, Clash of Clans, Hearthstone Heroes of Warcraft)? The number of hours per week should not include time spent on social media applications such as Facebook, Twitter, Instagram, Snapchat, etc…
   A.) 0-3
   B.) 4-6
   C.) 7-10
   D.) 10+
A **Microtransaction** is a small one-time payment in a mobile application or game that does not exceed 10 Euro (12 USD).

7) Does the presence of a Microtransaction in a mobile gaming application deter you from playing?
   A.) Yes
   B.) No (Skip to Question 9)

8) Why does the presence of a Microtransaction deter you from playing a mobile game application?

9) Have you ever purchased a Microtransaction?
   A.) Yes
   B.) No (Skip to Question 24)

10) How did you purchase a Microtransaction?
    A.) Apple Pay
    B.) Credit Card
    C.) Google Wallet
    D.) Virtual Currency (In-game)

11) Did the purchase increase your level of enjoyment you experienced while playing the game?
    A.) Yes
    B.) No

12) Why or why not?

13) Which factors determine your purchase behavior when using Microtransactions?

14) Faced with a repetitive task (or quest) in a game necessary to continue gameplay, would you consider purchasing a Microtransaction to save time and progress faster within the game?
    A.) Yes
    B.) No

15) Would you purchase a Microtransaction if the game would enhance your level of competitiveness with others?
    A.) Yes
    B.) No

16) Are you less likely to spend money on a microtransaction if the game requires an upfront payment?
    A.) Yes
B.) No

17) Does purchasing a Microtransaction influence the amount of time you spend playing a game?
   A.) Yes
   B.) No

18) In your opinion, how much of an influence does the pricing (the price tag) of a Microtransaction have on your purchase decision?

19)

20) Do you feel it’s unjustified for a paid game to offer additional features/items as Microtransactions?
   A.) Yes
   B.) No

21) Why do you feel this way?

22)

Massively Multiplayer Online Games

An MMOG is an online game which is capable of supporting large numbers of players simultaneously in the same instance (or world). MMOGs usually feature a huge, persistent open world.

23) Do you play Massively Multiplayer Online Games (MMOG)?
   A.) Yes
   B.) No (end survey)

24) How much time (in hours) have you put into developing your avatar for the MMOG (creation and play-time development included)?
   A.) 0 - 10
   B.) 11 - 30
   C.) 31 - 60
   D.) 61 - 99
   E.) 100+

25) When playing in an active and engaging virtual community, does that make you more willing to spend money on a Microtransaction in that game?
   A.) Yes
   B.) No
24) Why haven’t you purchase a Microtransaction in the past? (Please be as specific as possible in your explanation)

25) Would you consider purchasing a Microtransaction in the future?
   A.) Yes
   B.) No (End survey)

26) Which factors would impact your purchase decision? (Select all that apply)
   A.) Functionality - The Microtransaction has the potential to save you time, and increase your character's power
   B.) Pricing - The benefit value of the Microtransaction exceeds the actual value (price)
   C.) Social Capital - The Microtransaction makes you standout when compared to other players in the game
   D.) Other:

27) Which significant advantages would a Microtransaction have to provide to you as a player?

Thank you for your time in completing our survey.
APPENDIX B. FIGURES

**Figure 9.** The figure below shows the most commonly used devices among participants. Of those surveyed, 198 responded to this question.

![Pie Chart showing device usage](image1)

**Figure 10.** The figure below shows the factors that influence the respondents purchase of a Microtransaction.

![Pie Chart showing factors](image2)
**Figure 11.** The figure below represents the factors that respondents who had not purchased a Microtransaction in the future would look for in a potential future purchase.

![Pie Chart 1](image)

- Uncertain: 7.3%
- Price Point: 45.5%
- Game Enjoyment: 16.4%
- Functionality: 14.5%
- Presentation
- Social

**Figure 12.** The figure below represents the respondent's opinion as to how they perceive Microtransaction in gaming applications that require an upfront payment.

![Pie Chart 2](image)

- Supporting the Developer: 18.9%
- Unfair Practice: 54.7%
- Neutral: 26.4%