



Master Thesis

“Trust me, I’m an expert”

The expert and layman influence of online game reviews on consumer behaviour.

Koen Los
348979

Abstract

Nowadays more consumers turn to online resources for quality information when purchasing new products. The use of online product reviews is becoming more and more popular. Also it is not just the experts who review new products anymore. Every consumer is able to express his or her opinion about their newly purchased product online and may use this opportunity to do so. This so-called online Word-of-Mouth or e-WOM appears to be an important factor of modern day product sales.

Existing research mainly focuses on effects of online reviews on product sales. Very little studies controlled for difference in expert/laymen effects or measured online review effects on willingness to recommend, one of the most important measures of a company's success today.

This thesis tries to give more insights in the influence of online reviews on consumer behaviour. It studies the effects of negative/positive expert and layman reviews on consumers' (pre-purchase) perceived product quality, willingness to buy and willingness to recommend. We chose video games as our empirical setting. Video games are experience goods for which quality is hard to observe before purchase. Therefore video games appeared to be the perfect setting for this research.

To test above-mentioned effects an experimental approach was used in which 171 respondents participated. The respondents were asked to read a positive or negative review that was labelled to come from an expert or layman. After reading the review they were exposed to a gameplay video of a video game that had not yet been released and asked to give their opinion on that video game.

Results show that the influence of online reviews on consumers' perceived product quality, willingness to buy and willingness to recommend is highly significant. Respondents that were exposed to a positive review evaluated the video game higher than respondents that were exposed to a negative review. Furthermore the results show that experts are more influential on a consumers' willingness to buy a video game than laymen. Finally this study also shows that respondents who are less familiar with a video game are more likely to be influenced by an online review in their willingness to recommend the video game to others.

This study shows how online reviews influence consumers' perceived product quality, willingness to buy and willingness to recommend and therefore shows the importance for companies to manage online reviews like any other marketing communication tool. Even though this study is conducted in the video game industry, the author believes that the results hold for any other experience good as well.

Table of Contents

Abstract	2
List of Tables and Figures	6
Definitions	7
1. Introduction	8
1.1 Background and context	8
1.2 Aims and relevance	8
1.3 Research objectives and methodology	9
2. Literature review and hypotheses	10
2.1 Experience goods	10
2.2 Perceived product quality, WTB and WTR	11
2.2.1 <i>Perceived product quality</i>	11
2.2.2 <i>Willingness to buy</i>	11
2.2.3 <i>Willingness to recommend</i>	12
2.3 The valence of reviews	12
2.4 Expert and laymen effects.....	14
2.5 Product familiarity.....	16
2.6 Review familiarity.....	17
3. Methodology	18
3.1 Experimental setting	18
3.2 Sample.....	18
3.3 Experiment overview	19
3.4 Experiment description	19
3.5 Measures.....	21
3.6 Manipulation checks	22
3.7 Statistical methodology.....	23
4. Results	23
4.1 Data cleaning.....	23
4.2 Demographics, Descriptive Statistics and Correlations.....	24
4.3 Hypotheses testing.....	26
4.3.1 <i>Consumers' perceived product quality</i>	26
4.3.2 <i>Willingness to buy</i>	28
4.3.3 <i>Willingness to recommend</i>	29
4.3.4 <i>Product familiarity</i>	30
4.4 Robustness checks	34
4.4.1 <i>Reviewer</i>	34
4.4.2 <i>Familiarity</i>	35
4.4.3 <i>Review familiarity</i>	36
4.4.4 <i>Trust in Reviewer</i>	36
4.5 Summary of the results	38
5. Discussion, limitations and suggestions for future research	41
6. References	45
8. Appendices	48
Appendix A: Fictional reviews	48
Appendix B: Questionnaire	49
Appendix C: Test of parallel lines and checks on multicollinearity	55

Appendix D: Descriptive Statistics.....	58
Appendix E: Review Familiarity and Reviewer Trustworthiness	66

List of Tables and Figures

Table 1: Games Used for Experiment.....	20
Table 2: Variables	22
Table 3: Pooled Respondent Count.....	24
Table 4: Descriptive Statistics and Correlations	25
Table 5: Rating of the Video Game	26
Table 6: ANOVA Consumers' Perceived Product Quality	27
Table 7: Ordinal Regression Willingness to Buy	28
Table 8: Ordinal Regression Willingness to Recommend	30
Table 9: ANOVA Valence x Familiarity.....	32
Table 10: Ordinal Regression Familiarity x Valence WTB.....	33
Table 11: Ordinal Regression Familiarity x Valence WTR.....	34
Table 12: ANOVA Valence (positive) x Reviewer.....	35
Table 13: Parameter Estimates ANOVA Valence x Familiarity	35
Table 14: ANOVA Valence x Familiarity x Reviewer x Review Familiarity.....	36
Table 15: ANOVA Valence x Familiarity x Reviewer x Reviewer Trustworthiness	37
Table 16: Summary of the results.....	38
Figure 1: Experiment Scenarios	19
Figure 2: Plotted Means for Rating of the Video Game.....	27
Figure 3: Plotted Means Rating x Familiarity	31

Definitions

DV: Dependent Variable

E-WOM: Electronic Word-of-Mouth, any statement consumers share via the Internet (e.g., websites, social networks, instant messages, news feeds) about a product, service, brand, or company.

Experience goods: Experience goods are products or services where product characteristics, such as quality or price, are difficult to observe in advance, but these characteristics can be ascertained upon consumption (Nelson, 1970).

Expert review: An expert review refers to a review written by someone who has tested several peer products or services to identify which one offers the best value for money or the best set of features. In this study experts are reviewers whom get paid to review video games.

IV: Independent Variable

Layman review: A layman review refers to a review written by the owner of a product or the user of a service who has sufficient experience to comment on reliability and whether or not the product or service delivers on its promises, otherwise known as product reviews.

Perceived product quality: The perceived product quality can be defined as the consumers' perception of the products' overall quality relative to alternatives.

Valence of a review: The valence of the reviews used in this study is either positive or negative.

WTB: Willingness to buy, the desire of a consumer to own the product.

WTR: Willingness to recommend, the intention consumers have to recommend the product to others.

1. Introduction

1.1 Background and context

In a lot of economic situations we are influenced by what others around us are doing. We often buy products that are defined as popular or that others tell us to buy, for example by advertising or word-of-mouth. This phenomenon does not limit itself to purchase decisions alone. The number of children we have is commonly affected by what people in the same area are doing (Cotts Watkins 1990), voters are influenced by opinion polls to vote in the direction that the polls will predict to win (Cukierman 1989) and academic researchers often choose to work on research topics that are currently considered “hot” (Banerjee 1992).

The use of online product reviews is growing to be more and more popular. ComScore (2007) found that 24% of the Internet users access online reviews before paying for a product. That number is expected to be even higher when considering only online purchases. Furthermore Senecal and Nantel (2004) showed that especially experience goods like movies, books, games, etc. are very popular “products” when it comes to online reviews

Also it is not just the experts who review new products anymore. Every consumer is able to express his or her opinion about their newly purchased product online and may use this opportunity to evaluate their product. This so called e-WOM appears to be an important factor of product sales. Senecal and Nantel (2004) found that subjects who consulted online product recommendations selected recommended products twice as often as subjects who did not consider these recommendations. In addition to that Godes and Mayzlin (2004) showed that online laymen reviews could be a good proxy for WOM by finding a positive relationship between online WOM and television show viewership.

1.2 Aims and relevance

The market of online reviews is an emerging market that plays an increasingly important role in consumers’ purchase decisions. Chen and Xie (2008) found that online laymen reviews can serve as a new element in the marketing communications mix and work as free “sales assistants”. These free “sales assistants” will help consumers identify their needs with the reviewed products and will have a big influence on their purchase decisions. Reichheld (2003) claims that a customers’ willingness to recommend a product to others is the most important measurement of a company’s success in business today. He states that this “referral value” may even be a better predictor of firm performance than traditional

measures like customer satisfaction (Reichheld, 2003). Therefore, online reviews can be used as a strategic marketing tool for customer retention and acquisition.

Most of the research so far considering online reviews made no clear distinction between expert reviews and laymen reviews. For that reason the main interest of this study will be the differences in expert and layman review effect on consumer behaviour.

Jindal and Liu (2008) showed that a great part of online reviews are not trustworthy and are written by firms themselves (or by third-party services) to hype their own products. Furthermore “experts” get paid to review products and express their opinion as well. Firms can easily manipulate these online evaluations of experts by sponsoring or another form of promotional incentives. A recent example showed that former Gamespot editorial director Jeff Gerstmann was supposedly terminated from the company after giving a negative review on the video game *Kane & Lynch: Dead Man*, whilst *Eidos Interactive*, the publisher of that game, was one of the biggest advertisers on Gamespot (Phil Hornshaw, 2012). While these examples show the crookedness of the review industry it also shows how reviews are used as a tool to increase sales.

This research will elaborate on the effects of online product evaluations. More specifically it will focus on the effect that experts and laymen have on the consumer behaviour. The video game industry with it’s many online reviews by experts as well as by laymen is a perfect setting for this research. Being a single-purchase product it is more likely that consumers make use of online reviews since the product characteristics are hard to evaluate before purchase (Zhu and Zhang, 2010). Zhu and Zhang (2006) also found that on average a one-point increase in average online rating for a video game is associated with a 4% increase in video game sales. With a worldwide video game marketplace that reached \$93 billion US in sales in 2013 and an expected growth to \$111 billion in 2015 (Gartner, 2013) these 4% can mean huge increases in sales.

1.3 Research objectives and methodology

The essence of this study is to provide better insight into the effects of and the relationship between expert and laymen reviews. The focus is on the influence of expert and laymen reviews on consumer behaviour. Consumer behaviour is split up into the following variables:

- Perceived product quality
- Willingness to buy

- Willingness to recommend

With the video game industry as the perfect setting this study will answer the following research question:

“Does the difference in valence and reviewer in online reviews for video games influence consumers perceived product quality, willingness to buy and willingness to recommend?”

To answer the aforementioned research question this study contains 3 main parts. In the first part all current relevant literature is reviewed. This literature review is used to state the hypotheses that are tested in the second part. To test the hypotheses a 2 x 2 between subjects factorial design was used. Two dimensions were created for this study, reviewer expertise (expert vs. laymen) and valence of the review (positive vs. negative). An online experimental questionnaire was designed to expose respondents to one out of four conditions. The data obtained from the questionnaire was analysed using SPSS by using various ANOVA and Ordinal Regression analyses. The third part of this study will discuss the results, give a conclusion of this study in general, state the managerial implications and give suggestions for future research.

2. Literature review and hypotheses

As mentioned before consumer behaviour is split up into three aspects, perceived product quality, willingness to buy and willingness to recommend. These three aspects of consumer behaviour are used as the dependent variables in this research. First this literature review explains how video games are an experience good. Next, it gives a more in depth analysis of the three dependent variables and finally it describes the factors that are expected to influence the three dependent variables and links them to hypotheses.

2.1 Experience goods

Experience goods are products or services where product characteristics, such as quality or price, are difficult to observe in advance, but these characteristics can be ascertained upon consumption (Nelson, 1970). Where restaurants, bars, hotels are probably the first that come to mind, products like movies and video games are also considered experience goods. Furthermore, Nelson (1970) found that WOM is an important driver of the consumer demand for experience goods. Where conventional WOM was always limited by a

social/geographical circle and timespan, the upcoming of the Internet made it possible for consumers to share their opinions with anyone anywhere in the world. Reichheld (2003) claims that WOM, or the willingness to recommend a product to others, is the most important measure of success for a company today. Data from Forrester Research shows that half of the young Internet users rely on e-WOM when purchasing experience goods as DVD's, CD's and video games (Godes and Mayzlin 2004; Walsh, 2000).

2.2 Perceived product quality, WTB and WTR

2.2.1 Perceived product quality

The first hypotheses (H1a, H2a, and H3a) concern the influence of reviews on consumers' **perceived product quality** of a video game. The perceived product quality can be defined as the consumers' perception of the products' overall quality relative to alternatives. Because perceived product quality is merely a perception it cannot be objectively determined. Monroe and Krishnan (1985) described the objective quality as the actual technical excellence of the product, which can be verified and measured, where the perceived product quality says more about the consumers judgement of a products overall excellence or superiority (Zeithaml, 1988). Where perceived quality was always argued to be a post-purchase process it was Rust and Oliver (1994) that found perceived product quality to be just as much a pre-purchase process as well. They argued that it is not necessary that previous product experience is needed for assessing quality.

It does appear that perceived product quality has become an important factor in marketing and business today. Aaker (1991) showed in his brand equity model that perceived product quality does not solely influence the purchase intention but also affects market share, brand profitability, brand power and brand equity.

2.2.2 Willingness to buy

The "b" hypothesis tests the influence of reviews on consumers' **willingness to buy** the video game. As stated before perceived product quality does influence a consumers' willingness to buy, however it is not quite the same. Where a consumers' perceived product quality is the consumers' judgement on quality of the product, a consumers' willingness to buy says more about the desire of the consumer to own the product. Furthermore with willingness to buy the price-quality ratio will play a bigger part in the decision making process of the consumer. Lastly the willingness to buy differs from perceived product quality in the way that willingness to buy is a predictor of actual purchasing behaviour where the

perceived product quality says nothing about a consumers intention to buy a product (Ajzen and Fishbein, 1970).

2.2.3 Willingness to recommend

The “c” hypothesis will test the influence of reviews on consumers’ **willingness to recommend**. With video games being an experience good, this might be the hardest variable to observe pre-purchase as consumers might find it hard to recommend a video game they have not played themselves. Where personal preference plays a great role in the decision to buy a video game, if the video game that will be tested does not fit the respondents’ personal preference they still might want to recommend the video game to someone who could in their opinion have interest in the video game.

Furthermore the willingness to recommend also complements the willingness to buy. A consumer that buys a product and is willing to recommend the product is in that case more valuable than a consumer that only buys the product.

2.3 The valence of reviews

The first variable that is expected to influence above-mentioned DV’s is the valence of the review. Most research that studied the differences in the valence of reviews was conducted in the movie industry. Therefore a great part of literature in this study comes from the movie industry.

For this movie industry Basuroy et al (2003) found that the negative impact of bad reviews is significantly greater than the positive impact of good reviews. However this finding only holds for the opening week, probably due to the fact that studios did not yet have the time to counter negative reviews and market positive reviews.

In addition to this, Reinstein and Snyder (2005) found that expert reviews for movies in opening weekends can influence box office revenue for the remainder of that weekend. In addition they showed that a positive review increases the number of consumers attending a movie rather than making people watch the movie in an earlier stage. Therefore the effect they found can be split in an influence effect and a prediction effect. Where the prediction effect says more about the quality of the movie rather than the merit of the review, the influence effect directly influences consumers’ pre-based opinions on the movie.

After accounting for the prediction effect, Reinstein and Snyder (2005) found that for positive reviews there is still an influence on opening box office revenue. Therefore they directly influence consumers to go see a movie. This influence effect was however only valid for narrowly released and drama movies. Box office revenue in the opening weekend for the widely-released movies was not influenced by positive reviews.

Basuroj, Chatterjee, Ravid (2003) found that for the movie industry both negative and positive critic reviews are correlated and can predict box office revenue. The negative reviews hurt more than positive reviews help. However the authors find the impact of negative or bad reviews (but not positive reviews) to diminish over time, a pattern that is more consistent with critics' role as influencers.

Negative WOM is known to be more influential than positive WOM. Anderson (1998) found that dissatisfied customers engage in greater word of mouth than satisfied customers. In addition to that Chevalier and Mayzlin (2006) found that an online one-star rating has a far greater negative impact on sales than a five-star rating has a positive impact on sales. This is due to the fact that authors or other interested parties can easily submit a few five-star rankings to hype their own product, however they cannot control for the submission of a single one-star rating.

Chevalier and Mayzlin (2006) showed that an improvement in a book's online review leads to an increase in relative sales at that website. This shows the direct effect online reviews have on consumers' willingness to buy of an experience good. In this study we expect that this effect also hold for the willingness to recommend and the perceived product quality of a video game.

H1a: Positive online reviews increase consumers' perceived product quality of a video game

H1b: Positive online reviews increase consumers' willingness to buy a video game

H1c: Positive online reviews increase consumers' willingness to recommend a video game

2.4 Expert and laymen effects

The second variable that we expect to influence the DV's is the expertise of the reviewer. In this study expertise is divided in either experts or laymen. Just like the valence of the review, a lot of literature and research that specifically target the influence of expert reviews on consumers has also been conducted in the movie industry. Since movies are experience goods just like video games, we will assume the literature for the movie industry makes a good fundament for this research.

The Internet is a great way for consumers and experts to share their opinion about products. However with the ease of sharing these opinions with the world there is also the risk of bad credibility of the reviewer, a characteristic that sometimes is hard to observe. In addition to this what one might think is a credible source, another person may think is not credible at all. Especially when considering reviews about experience products, credibility may be hard to define.

An expert can have 2 roles, the role of predictor and the role of influencer. Eliashberg and Shugan (1997) were the first to define these two roles. For the movie industry they found critics can predict box office performance but cannot influence it. However, continuing on that study Basuroy et al. (2003) came up with somewhat different results. They found that positive and negative reviews are correlated with box office revenue over an eight-week period. Therefore critic reviews can also influence box office performance. Furthermore they found the impact of negative reviews to diminish over time, which is consistent with critics' role as influencers.

In addition to this Boatwright et al. (2007) also found critics to be more influencers than predictors. Thus critics will get people watching the movie in the opening weeks, however when the movie is out and quality is more observable the influence of the critics will die down. The study of Boatwright et al. (2007) was however the first to control for movie quality, something the studies of Eliashberg and Shugan (1997) and Basuroy et al. (2003) did not do. If we assume the previous studies in the movie industry are a reliable foundation for the video game industry, than expert reviews should have an influence on consumer opinions, especially for upcoming games and games that are in their opening weeks.

Hu et al. (2008) found that the review market is more responsive to a review written by someone with a better reputation and more exposure. As far as laymen reviews, they argue that review scores are based more on reviewers' own experiences rather than on the underlying characteristics of the product. Therefore laymen reviews should have limited influence on consumers' perceived product quality, WTB and WTR and consumers may selectively pay more attention to reviews from reviewers whom they perceive as more expert.

This condition however is only valid considering a single layman review. Flanagin & Metzger (2013) found that experts are seen as more credible than lay users at a low volume of ratings, meaning that people are more willing to rely on experts when the volume of laymen reviews is low. However when the volume of reviews increases people will be more in favour of laymen reviews.

Meshi et al (2012) showed in their study that participants value expert advice more than novice advice. Even before receiving the actual advice, participants displayed greater changes in BOLD (Blood-oxygen-level dependent) signal in the ventral striatum (part of the brain that is associated with reward) when they discovered the advice would be from an expert. Petty and Cacioppo (1986) showed with their elaboration likelihood model that the credibility of a source, in this case a reviewer, operates as a peripheral cue. Consumers expect experts to be usually correct, simply because they are experts. Klucharev, Schmidts and Fernandez (2008) used actor Bill Cosby as an example to underline the difference. Because of Bill Cosby's role as a perfect father in the sitcom Dr. Huxtable, making him an expert in raising children's, a commercial where he endorsed children oriented food was very successful. On the other hand he was very unsuccessful endorsing a brokerage firm simple because of the lack of perceived expertise.

Furthermore, Klucharev, Schmidts and Fernandez (2008) showed a significant correlation between the anterior cingulate cortex (part of the brain that is associated with rational cognitive functions like reward anticipation and decision-making) and the perceived degree of expertise a celebrity has regarding a product. It was shown that the greater the perceived expertise of the celebrity was, the greater the intention to purchase the product and the greater the memory for the product was. They showed that experts made the attitude towards a product more favourable by 12%. Furthermore the probability of recognizing the

object increased by 10%. Overall the risk of purchasing an unknown product can be decreased by expert advice.

Based on these previous studies we expect that an expert review has a larger effect on perceived product quality of video games, willingness to buy and willingness to recommend than a layman review.

H2a: Expert reviews have a greater influence than laymen reviews on consumers' perceived product quality of video games.

H2b: Expert reviews have a greater influence than laymen reviews on consumers' willingness to buy.

H2c: Expert reviews have a greater influence than laymen reviews on consumers' willingness to recommend.

2.5 Product familiarity

The third variable that is expected to have an influence on the three DV's mentioned before is product familiarity. Chatterjee (2001) found for Internet retailers that negative laymen reviews could have an impact on the perceived reliability of the retailer and willingness to buy of the consumer. The effect appeared to be stronger when there was less familiarity with the retailer.

Li and Hitt (2008) argue that consumer-generated product reviews may not be an unbiased indication of unobserved quality. For early purchasers, the likelihood of satisfaction and the urge to purchase early tend to be correlated. They found that in the early periods of product release reviews can be systematically biased. This can be positive as well as negative and therefore these biased reviews in the early stages need to be managed by firms.

Online laymen reviews can influence product sales through awareness effects and persuasive effects. Awareness effects will bring the product of the review under the attention of the consumer, where persuasive effects will influence the attitude of the consumer towards the product. For box offices revenues Duan et al. (2008) found that consumers are not influenced by the persuasive effects of a review, however they are influenced by the awareness effects of a review. This means laymen reviews do not as much

change the consumers' opinions about the product however it can increase sales by simply bringing the product under attention.

Hu, Liu and Zhang (2008) studied online sales of experience goods on amazon.com. They stated that a consumers' reaction to a review is stronger for items that have less product coverage. Also new online reviews tend to be more informative when items have fewer pre-existing reviewers.

Zhu and Zhang (2010) showed that laymen reviews are more effective for less popular games. Therefore it is likely that this effect also is valid for the influence that experts have on consumers. As Duan et al. (2008) argue online laymen reviews can cause awareness effects and simply bring less familiar products under the attention of consumers. Consumers with less product familiarity should therefore be more influenced by online reviews than consumers with higher product familiarity. Hypothesized is the following:

H3a: Online reviews have a greater influence on consumers' perceived product quality if consumers are not familiar with the game

H3b: Online reviews have a greater influence on consumers' willingness to buy if consumers are not familiar with the game

H3c: Online reviews have a greater influence on consumers' willingness to recommend if consumers are not familiar with the game

2.6 Review familiarity

It is safe to assume that consumer characteristics will play a role in the perception of a review. Therefore these characteristics need to be controlled for. Flanagin & Metzger (2013) showed that participants who are more familiar with online information provision tend to perceive a smaller gap between expert- and user-generated information. Also they are less influenced by online ratings than participants who are less familiar with online information provision. Therefore the effect of a review will be less for consumers more familiar with online reviews. Since review familiarity is hard to quantify for respondents it will solely be used as a robustness check in this study.

3. Methodology

3.1 Experimental setting

The video game industry is used as an empirical setting for this research. With a total \$93 billion in sales in the year 2013 the video game industry is by number of sales the largest entertainment industry and is still rapidly increasing each year (Gartner, 2013). Where playing video games used to be a one-person activity, nowadays it is becoming a social experience more and more. Video games are focussing on building a community where gamers can easily share their gameplay and live stream their gameplay across different social media websites and platforms.

With video games being an experience product it is hard to evaluate product quality before purchase. Therefore consumers have to rely on online footage, previews and reviews of experts and other consumers. Various gaming websites have their own experts reviewing video games but also have forums where consumers can express their opinion about the video game.

3.2 Sample

An experimental approach was used in order to test the aforementioned hypotheses. A sample of 171 subjects participated in the experiment via an online questionnaire that was posted on the following video game forums:

- IGN.com
- PU.nl
- GameSpot.com
- GameFront.com
- GameTrailers.com
- Games.Fok.nl

The text posted on the forums requested help for research being done about consumers' opinions on upcoming video games. To participate subjects had to click on a link to get to the questionnaire. To stimulate response, all participants had the chance of winning a gift card worth €50 for Game Mania, the biggest video game store in the Netherlands. The questionnaire was hosted by enquetecompagnie.nl; this Dutch site uses the template from thesistools.com and was well suited for integrating gameplay videos into the questionnaire. Respondents were assured that all data they entered was treated strictly confidential and

would not be used for anything other than this research. Furthermore, the questionnaire contained disclaimers for the fact that the gameplay videos were for mature audience only because some of these videos contained violence. Respondents were therefore asked to verify that they were at least 18 years of age (at the beginning of the questionnaire) and were informed that the reviews were fictional and for research purposes only (at the end of the questionnaire).

3.3 Experiment overview

Subjects were exposed to fictional reviews that came either from an expert or a layman. Expert reviews in this study are defined as reviews that come from an “expert” reviewer who works for a video game website and therefore makes an income reviewing video games. A layman review in this study is defined as a review that comes from a consumer who played the video game and shares his or her opinion about the video game on the Internet. The review that the subjects got to see was either positive or negative. Therefore for this study a 2 x 2 between-subjects factorial experimental design was used. The first between-subject factor was expertise of the reviewer (expert vs. laymen). The second between-subject factor was the type of review (negative vs. positive). Subjects were randomly assigned to one of these four scenarios, as stated in Figure 1.

Figure 1: Experiment Scenarios

Reviewer expertise	Type of review	
	Positive expert	Negative expert
Positive laymen	Negative laymen	

3.4 Experiment description

Subjects were shown gameplay videos of 3 video games that had not yet been released. The video games used in the experiment were:

Table 1: Games Used for Experiment

	Tom Clancy's The Division	The Order 1886	Enemy Front
Release date	2015 TBA	February 20, 2015	June 10, 2014
Developer	Massive entertainment	Ready At Dawn Studios & SCE Santa Monica Studios	CI Games
Publisher	Ubisoft	Sony Computer Entertainment	Bandai Namco Games
Platform	Xbox One, Playstation 4 and PC	Playstation 4	Xbox 360, Playstation 3 and PC

The main criteria for selecting the gameplay videos for these games was that it had to show actual gameplay (opposed to most cinematic gameplay trailers) and it had to be approximately 2-3 minutes long. This timeslot was enough to give a good impression of the video game and not too long that respondents would start to lose concentration or even quit the experiment. The total time of participating in the experiment was between 10 and 15 minutes.

Prior to watching the gameplay videos, the subjects were randomly exposed to a fictional review from one of the four scenarios mentioned above. The fictional reviews were generated by adapting existing reviews for existing video games. The reviews were manipulated as little as possible but enough for it to look like they were actual reviews for the upcoming three games used in the experiment. Because there were three video games used in the experiment and the reviews were either positive or negative, each video game had 2 reviews, making it 6 reviews in total. For measuring the expertise of the reviewer (expert vs. layman) the same review was used, only it was labelled either coming from an expert or from a consumer. Expert reviews were randomly stated to come from gaming websites IGN.com, Gamespot.com or Gamefront.com. Laymen reviews were stated to be an online review from a consumer. The adjusted reviews can be found in Appendix A.

All original reviews that were used came from IGN.com, this was done to keep consistency in the judging of a video game. The original reviews from IGN were concluded by a rating for the corresponding game (on a scale of 0 – 100). In the experiment subjects did not get to see this rating, they only got to see the verbal description. The rating was not shown to make sure that respondents did not simply copy the rating in their evaluation. The underlying rating was used to define the review as positive or negative. Based on the study of Binken and Stremersch (2009) defining superstar software all positive reviews used for this research had to have a rating of 90 on a scale of 100, or higher. The negative reviews had to be significantly lower than 90 to lack the “superstar” effect that the positive reviews did have. Therefore the negative reviews used in this study did not have a higher rating than 74 out of 100.

Subjects were asked to first carefully read the review before watching the entire gameplay video. After watching the gameplay video, subjects were first asked about their familiarity with the video game they had just seen. Then subjects were asked to rate the video game on a scale of 0 – 100. Finally the subjects were asked how willing they were to buy the game and how willing they were to recommend the game. These measurements were repeated for the 3 video games mentioned before. When all the gameplay videos were watched and the corresponding questions were answered, the subjects then had to state their usage frequency of online reviews and their beliefs on trustworthiness of experts and laymen reviewers. Finally the questionnaire was concluded by some demographic questions. The complete questionnaire can be found in Appendix B.

3.5 Measures

The first dependent variable is the rating that subjects give to the video game of which they watch the gameplay. This rating is used to measure their perceived product quality. The rating is measured with a scaled variable (0 – 100). The other two dependent variables are the willingness to buy and willingness to recommend. These are measured by an ordinal variable (5-point Likert-scale).

Furthermore the subjects’ familiarity with the game is measured by a nominal variable. Respondents are able to answer with “Yes, I have seen footage before”, “Yes I have heard of it” or “No”. However in testing the results the two “yes” categories were combined and a respondent was either familiar with the video game or not. The subjects’ opinion on trustworthiness of the reviewer as well as the subjects’ usage frequency of online reviews is

measured by an ordinal variable (5-point Likert-scale). Table 2 gives an overview of the relevant variables that are used in this study.

Table 2: Variables

Variables	Description	Measurement type	Measurement
Rating	Respondents had to rate a video game based on the footage they had just seen	Ratio	Scale (0 – 100)
Willingness to buy	Respondents were asked about their willingness to buy the video game	Ordinal	5 point likert-scale
Willingness to recommend	Respondents were asked about their willingness to recommend the video game	Ordinal	5 point likert-scale
Familiarity	Respondents were asked about their familiarity with the game before watching the gameplay video	Nominal	Yes, No
Trustworthiness expert	To what extend do the respondents think laymen are trustworthy	Ordinal	5 point likert-scale
Trustworthiness laymen	To what extend do the respondents think experts are trustworthy	Ordinal	5 point likert-scale
Use of expert reviews	How much do the respondents use expert reviews	Ordinal	5 point likert-scale
Use of laymen reviews	How much do the respondents use laymen reviews	Ordinal	5 point likert-scale

3.6 Manipulation checks

In order to check if all questions and manipulations of the questionnaire are valid and clear a pre-test with 6 subjects was conducted. The main purpose of the pre-test was to make sure that the manipulations of the reviews are not too obvious and misleading and that the questionnaire did not take too long. The participants of the pre-test took an average time of 14 minutes for filing out the questionnaire, which is considered acceptable for the questionnaire taking into account participants have to watch three gameplay videos. Furthermore the participants did not notice the reviews were reviews for other games so the manipulation effect holds. The participants that were used for the pre-test were excluded from the final sample.

3.7 Statistical methodology

The data obtained was analysed using SPSS software. To measure the influence of the independent variables on the dependent variables several two-way Analysis of Variances and Ordinal Regression Analyses were performed.

Two-way ANOVA

The “a” hypothesis that tests the dependent variable Rating (perceived product quality), was analysed with ANOVA. As most video game review websites use a grade between 0 - 100 to evaluate video games, we also measure perceived product quality on a scale from 0 – 100 in this study. Because the DV is measured on a scale from 0 – 100 and the IV’s are categorical variables an Analysis of Variance was used.

Ordinal Regression Analyses

An Ordinal Regression Analyses was performed on the “b” and “c” hypotheses that test the dependent variables WTB and WTR. Since the WTB and WTR are based on the attitude of the respondent where the perceived product quality is a more quantifiable opinion, they were measured on a 5-point Likert scale. Because the DV’s are ordinal and the IV’s are categorical, the hypotheses were tested by performing Ordinal Regression Analyses.

The data was checked for multicollinearity using the collinearity diagnostics in SPSS. This showed no high correlation between the predictor variables and therefore no variables were excluded from the models (Laerd, 2013). Also the test of parallel lines showed that the slope coefficients in the models are the same across response categories because the null hypotheses were supported. Therefore the assumption of proportional odds holds (Laerd, 2013). The test for multicollinearity and parallel lines can be found in Appendix C.

4. Results

4.1 Data cleaning

A total of 324 subjects filled out the questionnaire during the period 29-05-2014 until 22-06-2014. 149 questionnaires were not completely filled out and were therefore excluded from further analysis. 4 subjects rated every game with a “0” and were excluded from further analysis on the belief that these answers were not serious. The results are not sensitive to this exclusion. The final sample used for analysis contained 171 subjects. Because every

respondent was exposed to three gameplay videos and therefore was exposed to the experimental condition three times, the pooled respondent count for each condition is as shown in Table 3.

Table 3: Pooled Respondent Count

		Review		
		Positive	Negative	Total
Reviewer	Expert	n=125	n=123	n=248
	Laymen	n=149	n=116	n=265
Total		n=274	n=239	n=513

4.2 Demographics, Descriptive Statistics and Correlations

The questionnaire was concluded by three demographic questions about the subjects' age, gender and educational level. Among the 171 respondents, 156 were male (91.2%) and 15 were female (8.8%). The age range was from 18 – 43 years old with an average age of 22.73. The majority of the respondents were between 18 and 28 years old (86% of the sample). The majority of the subjects were either Bachelor students/graduates (37,4%) or Master students/graduates (26,4%). The majority of the subjects played video games between 6 and 20 hours per week (70.8%). Furthermore on average the subjects bought 9 video games each year. More descriptive statistics can be found in Appendix D.

Table 4 shows the descriptive statistics of the variables used in this study and their corresponding correlations. Judging from the correlation table we can see that valence and familiarity are highly correlated with the dependent variables perceived product quality, willingness to buy and willingness to recommend. Furthermore reviewer does not seem to be correlated with the dependent variables. Upcoming statistical tests will study these effects.

The correlation table also shows that the trust in laymen reviews and the use of laymen reviews are both significant negatively correlated with familiarity. This could be explained by the fact that consumers who are more informed about upcoming video games put less trust in online laymen reviews and make less use of them.

Table 4: Descriptive Statistics and Correlations

	WTR	WTB	Rating	Familiarity	Valence	Reviewer	Use Consum	Use Expert R	Trust Consum	Trust Expert
Mean	3,17	3,11	72,51	1,83	1,47	1,52	2,86	3,18	3,03	3,09
Std. Deviaton	0,06	0,06	0,77	0,04	0,22	0,22	0,05	0,05	0,04	0,04
Variance	1,27	1,34	17,4	0,9	0,499	0,5	1,08	1,09	0,96	0,96
	1,61	1,79	302,75	0,81	0,249	0,25	1,18	1,18	0,92	0,92
WTB										
Pearson Correlation	,824**									
Sig. (2-tailed)	0									
N	513									
Rating										
Pearson Correlation	,725**	,719**								
Sig. (2-tailed)	0	0								
N	513	513								
Familiarity										
Pearson Correlation	,407**	,414**	,320**							
Sig. (2-tailed)	0	0	0							
N	513	513	513							
Valence										
Pearson Correlation	,159**	,199**	,193**	0,024						
Sig. (2-tailed)	0	0	0	0,592						
N	513	513	513	513						
Reviewer										
Pearson Correlation	0,006	0,078	0,042	-0,015	-0,058					
Sig. (2-tailed)	0,891	0,076	0,337	0,73	0,187					
N	513	513	513	513	513					
Use Consumers										
Pearson Correlation	-,106*	-0,038	-0,034	-,100*	0,067	0,003				
Sig. (2-tailed)	0,016	0,387	0,437	0,024	0,132	0,948				
N	513	513	513	513	513	513				
Use Experts										
Pearson Correlation	0,072	,097*	,093*	0,069	,095*	0,022	,415**			
Sig. (2-tailed)	0,102	0,028	0,034	0,118	0,032	0,624	0			
N	513	513	513	513	513	513	513			
Trust Consumers										
Pearson Correlation	0,017	-0,012	0,05	-,116**	0,069	0,023	,528**	0,085		
Sig. (2-tailed)	0,706	0,794	0,262	0,008	0,117	0,597	0	0,055		
N	513	513	513	513	513	513	513	513		
Trust Experts										
Pearson Correlation	,154**	,112*	,146**	,102*	,087*	0,019	,121**	,534**	,227**	
Sig. (2-tailed)	0	0,011	0,001	0,02	0,049	0,66	0,006	0	0	
N	513	513	513	513	513	513	513	513	513	513

** . Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.3 Hypotheses testing

In this chapter the hypotheses are tested using the data collected from the questionnaire. To measure the impact of the independent variables on the consumers' perceived product quality of the video game several two-way Analysis of Variances (ANOVA) were performed. The effects of the independent variables on the WTB and WTR were measured by performing Ordinal Regression Analyses.

4.3.1 Consumers' perceived product quality

H1a suggested that positive online reviews increase consumers' perceived product quality of video games. In addition to that, H2a suggested that this effect is greater for expert reviews compared to laymen reviews. Table 5 shows the means of the rating for the video game for the four review scenarios.

Table 5: Rating of the Video Game

Reviewer	Review	Mean	Std. Deviation	N
Expert	Positive	77.6480	17.31038	125
	Negative	68.8049	19.29608	123
	Total	73.2621	18.81402	248
Laymen	Positive	73.9866	16.14838	149
	Negative	69.0086	15.35068	116
	Total	71.8075	15.96744	265
Total	Positive	75.6569	16.75745	274
	Negative	68.9038	17.45664	239
	Total	72.5107	17.39984	513

The hypotheses mentioned above were tested with the same two-way ANOVA model. Because not all respondents participated in every condition, the collected data does not match all conditions to perform a repeated measures analysis of variances. Accordingly, a two-way ANOVA was used with the reviewer and the valence of the review as the independent variables and the consumers perceived product quality of the video game as dependent variable. Therefore the assumption must be made that there are no carry over effects between measurement conditions. Respondents are hence expected to be unbiased by the previous condition that they were exposed to when filling out every new condition. Figure 2 shows the plotted means of the different groups and Table 6 shows the results of the performed ANOVA.

Figure 2: Plotted Means for Rating of the Video Game

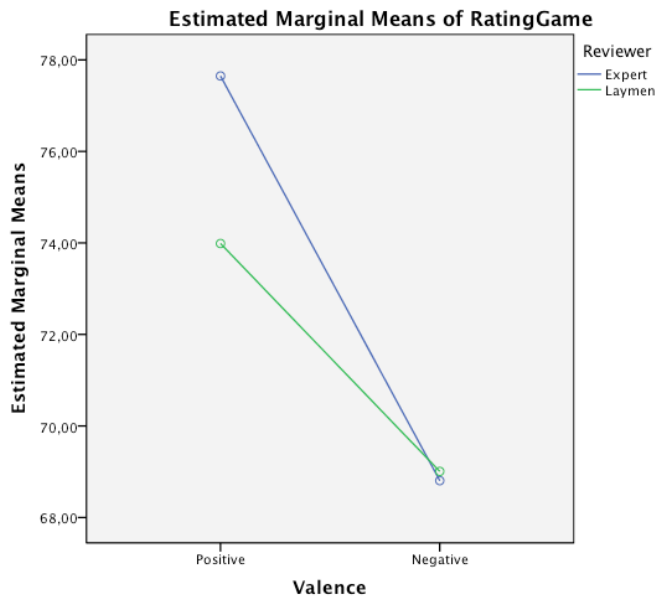


Table 6: ANOVA Consumers' Perceived Product Quality

	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected model	2	3130.732	10.732	.000	.040
Intercept	1	2667395.60	9145.379	.000	.947
Valence	1	5989.515	20.536	.000	.037
Reviewer	1	438.905	1.505	.220	.003
Error	510				

R Squared = .040 (Adjusted R Squared = .037)

Pairwise Comparisons

Review		Mean Diff.	Std. Error	Sig.	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
Negative	Positive	-6.841*	1.514	.000	-9.816	-3.866
Positive	Negative	6.841*	1.514	.000	3.866	9.816

Based on estimated marginal means

*. The mean difference is significant at the a. Adjustment for multiple comparisons: Bonferroni.

The results for the ANOVA show that there is a significant difference in the valence of the review $F(1,510) = 20.536, p < 0.001$. Therefore H1a can be accepted, there is a significant direct effect of online reviews on consumers' perceived product quality of video games. A pairwise comparison was run where reported a 95% confidence interval and p-values are Bonferroni-adjusted. The unweighted marginal means of "rating of the video game" for positive and negative reviews were 72.5 ± 3.42 . Respondents that were exposed to a positive review had a significantly higher mean in their rating of the video game than respondents that were exposed to a negative review. However, we do not find a significant

difference between the two reviewer groups $F(1,510) = 1.505, p = 0.220$. H2a must therefore be rejected, there is no significant difference in consumers' perceived product quality found for expert and layman effects. It does however show, from the plot in figure 3, that the difference in expert vs. layman effect is much greater for positive reviews than for negative reviews.

The Partial Eta Squared measures the effect size of the variables in ANOVA. The Partial Eta Squared for valence is .038. Almost 4% of the consumers' perceived product quality is therefore influenced by the valence of the review. The Partial Eta Squared for reviewer has a value of .003 and thus explains a smaller part of the model, if at all since it appeared to be non significant.

4.3.2 Willingness to buy

H1b suggested that positive online reviews increase a consumers' willingness to buy a video game. In addition to that H2b suggested that a consumers' willingness to buy a video game is likely to be more influenced by expert than laymen opinions. To test these hypotheses an ordinal regression analysis was performed with the reviewer and the valence of the review as the independent variables and the willingness to buy a video game as the dependent variable. Table 7 shows the results of the ordinal regression:

Table 7: Ordinal Regression Willingness to Buy

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)		
			Lower	Upper	Wald X ²	df	Sig.		Lower	Upper	
Threshold	WTB = 1	-1.272	.1639	-1.593	-.951	60.256	1	.000	.280	.203	.386
	WTB = 2	-.082	.1466	-.370	.205	.315	1	.574	.921	.691	1.228
	WTB = 3	1.027	.1538	.726	1.328	44.606	1	.000	2.793	2.066	3.775
	WTB = 4	1.940	.1705	1.606	2.274	129.466	1	.000	6.957	4.981	9.717
Valence (positive)	.744	.1601	.431	1.058	21.616	1	.000	2.105	1.538	2.881	
Reviewer (expert)	.336	.1578	.026	.645	4.525	1	.033	1.399	1.027	1.906	

The results from the ordinal regression show that the valence of the review is significant, $Wald X^2(1) = 21.616, p < .001$. Therefore H1b can be accepted, an online review does directly influence a consumers' willingness to buy. Consumers are more likely to buy a video game if they are exposed to a positive review. The odds of consumers that were exposed to a positive review considering their willingness to buy are 2.105 (95% CI, 1.538 to 2.881) times

that of consumers that were exposed to a negative review. We can therefore conclude that a consumer is more than twice as willing to buy a video game if he or she is exposed to a positive review.

Furthermore the Ordinal Regression results show that the reviewer effect is also significant, $Wald \chi^2(1) = 4.525, p = 0.033$. This means we can accept H2b, consumers' willingness to buy a video game is more influenced by experts' than laymen opinions. The odds of consumers that were exposed to an expert review considering their willingness to buy are 1.399 (95% CI, 1.027 to 1.906) times that of consumers that were exposed to a layman review. Therefore we can conclude that consumers that are exposed to an expert review are about 1.4 times more willing to buy a video game than consumers exposed to a negative review.

The combined Pseudo R Squared (Nagelkerke) shows a value of 0.05 where it shows 0.042 for the valence and 0.006 for the reviewer. Therefore a consumers' willingness to buy a video game is for more than 4% explained by the valence of the review and for 0.6% by the reviewer.

4.3.3 Willingness to recommend

H1c suggested that positive online reviews increase a consumers' willingness to recommend a video game. In addition to that H2c suggested that a consumers' willingness to recommend a video game is likely to be more influenced by expert than laymen opinions. To test these hypotheses an ordinal regression analysis was done with the reviewer and the valence of the review as the independent variables and the willingness to recommend a video game as the dependent variable. Table 8 shows the results of the ordinal regression:

Table 8: Ordinal Regression Willingness to Recommend

Parameter		95% Wald Confidence				Hypothesis Test			Exp(B)	95% Wald Confidence	
		B	Std. Error	Lower	Upper	Wald X ²	df	Sig.		Lower	Upper
Threshold	WTR = 1	-1.611	.1724	-1.949	-1.273	87.333	1	.000	.200	.142	.280
	WTR = 2	-.545	.1498	-.839	-.251	13.233	1	.000	.580	.432	.778
	WTR = 3	.731	.1517	.434	1.028	23.212	1	.000	2.077	1.543	2.796
	WTR = 4	1.871	.1715	1.535	2.207	119.014	1	.000	6.495	4.641	9.090
Valence (positive)		.569	.1601	.255	.883	12.619	1	.000	1.766	1.290	2.417
Reviewer (expert)		.086	.1581	-.223	.396	.298	1	.585	1.090	.800	1.486

The results from the ordinal regression show that the valence of the review for willingness to recommend is significant, $Wald X^2(1) = 12.619, p < 0.001$. H1c can therefore be accepted, an online review does directly influence a consumers' willingness to recommend. The odds of consumers that were exposed to a positive review considering their willingness to recommend are 1.766 (95% CI, 1.290 to 2.417) times that of consumers that were exposed to a negative review. We can therefore conclude that a consumer is 1.766 as willing to recommend the video game if he or she is exposed to a positive review.

Consumers are more likely to recommend a video game if they have been exposed to a positive review. In contradict with willingness to buy, the reviewer is not a significant variable for willingness to recommend $Wald X^2(1) = 0.298, p = 0.585$. Therefore we have to reject H2c, consumers' willingness to recommend is not influenced by the type of reviewer.

The combined Pseudo R Squared (Nagelkerke) shows a value of 0.026 where it shows 0.025 for the valence. Therefore a consumers' willingness to recommend is for more than 2.5% explained by the valence of the review. The effect size of the reviewer was small and not significant and therefore does not explain a significant proportion of the variance in the data.

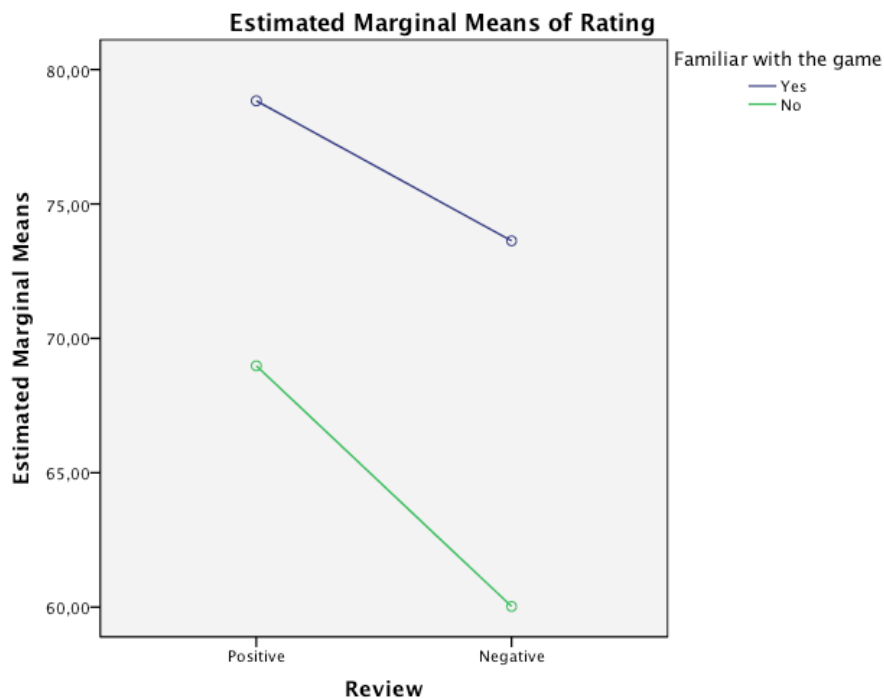
4.3.4 Product familiarity

Consumers' perceived product quality

A consumers' reaction to a review is expected to be stronger when consumers do not know the product yet. H3a stated that consumers' perceived product quality is more likely to be influenced by an online review if consumers are not familiar with the video game. To test this hypothesis, an ANOVA was performed with the valence of the review and product

familiarity as the independent variables and the rating of the video game as dependent variable. The reviewer was excluded from this model since it showed that it had no significant effect on the rating of the video game. When tested there was also no significant interaction effect found between reviewer and familiarity.

Figure 3: Plotted Means Rating x Familiarity



The plot in figure 3 shows that participants who already knew the video game prior to watching the gameplay video rated the video game higher than participants who were not familiar with the game, this seems logical since their interest in the video game. Furthermore, it shows that the two lines are not parallel which might suggest an interaction effect is present. To test this an ANOVA was performed with familiarity of the video game and valence as the independent variables and rating of the video game as the dependent variable. Furthermore an interaction effect between familiarity and valence was added to the model. Table 9 shows the results of the ANOVA.

Table 9: ANOVA Valence x Familiarity

	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected model	3	7217.591	27.549	.000	.140
Intercept	1	2257107.62	8615.336	.000	.944
Familiarity * Valence	1	399.319	1.524	.218	.003
Familiarity	1	15686.095	59.874	.000	.105
Valence	1	261.987	21.814	.000	.041
Error	509				

R Squared = .140 (Adjusted R Squared = .135)

Pairwise Comparisons

Familiarity		Mean Difference	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
No	Yes	-11.732*	1.516	.000	-14.711	-8.753
Yes	No	11.732*	1.516	.000	8.753	14.711

Based on estimated marginal means

*. The mean difference is significant at the a. Adjustment for multiple comparisons: Bonferroni.

The results for the ANOVA show that valence, $F(1,509) = 21.814, p < 0.001$ and familiarity, $F(1,509) = 59.874, p < 0.001$ are highly significant. A pairwise comparison was run where reported a 95% confidence interval and p-values are Bonferroni-adjusted. The unweighted marginal means of “rating of the video game” for familiar and not familiar with the video game were 70.367 ± 5.866 . The effect of familiarity is positive, consumers who are familiar with the game rate the game higher. However the interaction term between both independent variables is insignificant $F(1,509) = 1.524, p = 0.218$. This implies that the effect of valence is the same regardless of familiarity. Based on these findings h3a must be rejected. Consumers’ perceived product quality is not more likely to be influenced by an online review if consumers are unfamiliar with the video game.

Willingness to buy

H3b stated that consumers are more likely to be influenced by an online review if they are not familiar with the video game when it comes to their willingness to buy. To test for this effect an Ordinal Regression was performed with the willingness to buy as the dependent variable and valence and familiarity as the independent variables. Table 10 shows the results of the ordinal regression.

Table 10: Ordinal Regression Familiarity x Valence WTB

Parameter		95% Wald Confidence				Hypothesis Test			Exp(B)	95% Wald Confidence	
		B	Std. Error	Lower	Upper	Wald X ²	df	Sig.		Lower	Upper
Threshold	WTB = 1	-2.332	.1921	-2.708	-1.955	147.310	1	.000	.097	.067	.142
	WTB = 2	-.977	.1585	-1.288	-.666	37.998	1	.000	.376	.276	.514
	WTB = 3	.297	.1514	.001	.594	3.859	1	.049	1.346	1.001	1.812
	WTB = 4	1.301	.1645	.978	1.623	62.545	1	.000	3.672	2.660	5.068
Valence (positive)		.628	.1984	.239	1.017	10.027	1	.002	1.874	1.270	2.765
Familiarity (no)		-1.952	.2582	-2.458	-1.446	57.171	1	.000	.142	.086	.236
Familiarity (no) *		.469	.3370	-.191	1.130	1.938	1	.164	1.599	.826	3.095
Valence (positive)											

The results of the ordinal regression analysis show that the interaction effect between valence and familiarity is not significant, $Wald X^2(1) = 1.938, p = 0.164$. The correlation for Valence and Familiarity in Table 4 showed no strong correlation between the two variables (Pearson Correlation = 0.024). This means the two variables are unrelated, which also confirms the findings in the Ordinal Regression Results above of no significant interaction effect. Because there is no significant interaction effect found between familiarity and valence we have to reject H3b. Consumers not yet familiar with the video game are not differently influenced by reviews than consumers that already were familiar with the video game.

The direct effect of Familiarity, $Wald X^2(1) = 57.171, p < 0.001$ and Valence, $Wald X^2(1) = 10.027, p = 0.002$, are significant. The odds of consumers that were not familiar with the video game before taking part in the experiment for their willingness to buy were .142 (95% CI, .086 to .236) times that of consumers that were familiar with the video game before the experiment. We can therefore conclude that a consumer is 7.04 times as willing to buy the video game if he or she is already familiar with the video game.

Willingness to recommend

H3c stated that consumers are more likely to be influenced by an online review if they are not familiar with the video game when it comes to their willingness to recommend a video game. To test for this effect an ordinal regression was performed with the valence and familiarity as the independent variables and the willingness to recommend as dependent variable. Table 11 shows the results.

Table 11: Ordinal Regression Familiarity x Valence WTR

Parameter		95% Wald Confidence				Hypothesis Test			Exp(B)	95% Wald Confidence	
		B	Std. Error	Lower	Upper	Wald X ²	df	Sig.		Lower	Upper
Threshold	WTR = 1	-2.565	.1996	-2.956	-2.174	165.086	1	.000	.077	.052	.114
	WTR = 2	-1.356	.1665	-1.682	-1.030	66.318	1	.000	.258	.186	.357
	WTR = 3	.091	.1533	-.209	.392	.353	1	.552	1.095	.811	1.479
	WTR = 4	1.322	.1669	.995	1.649	62.776	1	.000	3.752	2.705	5.204
Valence (positive)		.348	.1968	-.038	.733	3.121	1	.077	1.416	.963	2.082
Familiarity (no)		-1.978	.2596	-2.487	-1.469	58.036	1	.000	.138	.083	.230
Familiarity (no) *		.653	.3399	-.013	1.319	3.688	1	.055	1.921	.987	3.739
Valence (positive)											

Unlike the ordinal regression analysis for WTB, the ordinal regression analysis for WTR does show a marginally significant interaction effect between familiarity and valence, $Wald X^2(1) = 3.688, p = 0.055$. Based on the significance of the effects in the Ordinal Regression model we find marginal support for H3c. Consumers who are not familiar with the video game are more likely to be influenced by an online review than consumers who are familiar with the video game when it comes to their willingness to recommend a video game to others.

Furthermore the results also shows that the direct effect for familiarity is significant, $Wald X^2(1) = 58.036, p < 0.001$. The odds of consumers that were not familiar with the video game before taking part in the experiment for their willingness to recommend were .138 (95% CI, .083 to .230) times that of consumers that were familiar with the video game before the experiment. We can therefore conclude that a consumer is 7.25 times as willing to recommend the video game if he or she already is already familiar with the video game. The direct effect for valence will also considered to be marginally significant since it is close to being actual significant, $Wald X^2(1) = 3.121, p = 0.077$.

4.4 Robustness checks

4.4.1 Reviewer

The ANOVA results in paragraph 4.3.1. show that the influence from type of reviewer (expert vs. layman) on the perceived product quality is far from significant, $F(1,510) = 1.505, p = 0.220$. However, when the ANOVA is performed with only positive reviews selected the expert/layman difference becomes closer to being significant, $F(1,272) = 3.344, p = 0.069$. Perhaps respondents pay less attention to the source of the review (expert vs. laymen)

when considering negative reviews due to the fact that negative word of mouth is far more influential than positive word of mouth. The respondents just see the negative review and automatically inherit this mind state. However, when the review is positive, it is possible that respondents are more sceptical about the source of the review. This is in line with the findings of Flanagin and Metzger (2013) who showed that experts are seen as more credible than lay users at a low volume of ratings. Table 12 shows the results of the ANOVA with only positive reviews included.

Table 12: ANOVA Valence (positive) x Reviewer

	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected model	1	931.421	3.344	.069	.012
Intercept	1	1562109.64	5608.265	.000	.954
Valence	0
Reviewer	1	931.421	3.344	.069	.012
Valence * Reviewer	0
Error	272				

R Squared = .021 (Adjusted R Squared = .009)

4.4.2 Familiarity

The ANOVA results in 4.3.4 show that the effect of valence is the same on consumers perceived product quality regardless of their familiarity with the video game. Consumers do not differ in their perceived product quality whether they are or are not familiar with the video game. Although the interaction effect in 4.3.4 is insignificant, the parameter estimates in Table 13 show that there is a bigger difference in rating for consumers who were not familiar with video game ($-18.814 + 9.860 = -8.954$) compared to consumers who were familiar with the video game (-5.210). This implies that consumers who were not familiar with the video game were influenced by the negative review for about -9 points in their perceived product quality, where consumers that were familiar with the video game were influenced for about -5 points by the negative review. Future research could therefore test these assumptions since we believe there is a significant effect.

Table 13: Parameter Estimates ANOVA Valence x Familiarity

Parameter	B	Std. Error	t	Sig.	95% confidence interval	
					Lower Bound	Upper Bound
Intercept	78.838	1.190	66.249	.000	76.500	81.176
Valence (negative) * Familiarity (no)	-18.814	2.138	-8.798	.000	-23.015	-14.613
Valence (negative) * Familiarity (yes)	-5.210	1.759	-2.961	.003	-8.666	-1.753
Valence (positive) * Familiarity (no)	-9.860	2.088	-4.722	.000	-13.963	-5.758

4.4.3 Review familiarity

As described in the literature review, the consumers' familiarity with online reviews is used as a robustness check to further underline the results of this study. An ANOVA was performed with Perceived Product Quality as the DV and the previously used IV's Valence, Familiarity and Reviewer. The IV's Use of Expert Reviews and Use of Laymen Reviews were added to the model. Table 14 shows the results for this ANOVA.

Table 14: ANOVA Valence x Familiarity x Reviewer x Review Familiarity

Source	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	11	2434.741	9.513	.000	.173
Intercept	1	1472689.402	5754.214	.000	.920
Valence	1	4313.042	16.852	.000	.033
Reviewer	1	422.641	1.651	.199	.003
Familiarity	1	14721.980	57.523	.000	.103
Use of Expert of Review	4	516.330	2.017	.091	.016
Use of Laymen Reviews	4	722.234	2.822	.025	.022
Error	501	255.932			

The results above confirm previous findings, Valence, $F(1,501) = 16.852, p < 0.001$ and Familiarity, $F(1,501) = 57.523, p < 0.001$ are still highly significant in this model. Furthermore it shows that the Use of Laymen Reviews also has a significant effect on consumers Perceived Product Quality, $F(4,501) = 2.822, p = 0.025$. There was however no significant interaction effect found between the Use of Laymen Reviews and Reviewer, $F(1,493) = 2.013, p = 0.092$. The frequency of using laymen reviews does not affect consumers to be more influenced by a layman review in their perceived product quality of a video game. A multiple comparisons test showed that for the Use of Laymen Reviews there was only a significant difference found in perceived product quality between the "Rarely" and the "Occasionally/Sometimes" groups. The results for the model including the interaction effect and the multiple comparisons test can be found in Appendix E.

4.4.4 Trust in Reviewer

Finally an ANOVA was performed with the trust in the experts and laymen included as variables. The DV is the Perceived Product Quality and Valence, Familiarity, Reviewer, Trust in Laymen and Trust in Experts are used as the IV's. The results for the ANOVA are shown in Table 15.

Table 15: ANOVA Valence x Familiarity x Reviewer x Reviewer Trustworthiness

Source	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	11	2300.019	8.884	.000	.163
Intercept	1	325649.258	1257.866	.000	.715
Reviewer	1	453.293	1.751	.186	.003
Valence	1	4667.764	18.030	.000	.035
Familiarity	1	14577.417	56.307	.000	.101
Trustworthiness Experts	4	560.404	2.165	.072	.017
Trustworthiness Laymen	4	150.002	.579	.678	.005
Error	501	258,890			

The results above confirm previous findings, Valence, $F(1,501) = 18.030$, $p < 0.001$ and Familiarity, $F(1,501) = 56.307$, $p < 0.001$ are still highly significant in this model. Furthermore it shows that the Trustworthiness in Experts, $F(4,501) = 2.165$, $p = 0.072$ and Trustworthiness in Laymen, $F(4,501) = 0.579$, $p = 0.678$ do not have a significant influence on consumers' perceived product quality. There were also no significant interaction effects found between trustworthiness in a reviewer and the type of reviewer for consumers' perceived product quality. Therefore consumers are not influenced differently in their perceived product quality if they have more trust in an expert or laymen reviewer. The model with interaction effects included can be found in Appendix E.

4.5 Summary of the results

Table 16: Summary of the results

Hypothesis	Accepted/Rejected
H1a: Online reviews have a direct effect on consumers' perceived product quality of a video game	Accepted
H1b: Online reviews have a direct effect on consumers' willingness to buy a video game	Accepted
H1c: Online reviews have a direct effect on consumers' willingness to recommend a video game	Accepted
H2a: Consumers' perceived product quality of video games is more likely to be influenced by an expert than by a layman opinion.	Rejected
H2b: Consumers' willingness to buy of video games is more likely to be influenced by an expert than by a layman opinion.	Accepted
H2c: Consumers' willingness to recommend of video games is more likely to be influenced by an expert than by a laymen opinion.	Rejected
H3a: Consumers' perceived product quality is more likely to be influenced by an online review if they are not familiar with the video game	Rejected
H3b: Consumers' willingness to buy a video game is more likely to be influenced by an online review if they are not familiar with the video game	Rejected
H3c: Consumers' willingness to recommend a video game is more likely to be influenced by an online review if they are not familiar with the video game	Accepted (marginally)

Consumers' perceived product quality

Hypothesis 1a and 2a suggested that positive reviews increase a consumers' perceived product quality of a video game and that expert reviews have a greater influence than laymen reviews on this perceived product quality. A two-way ANOVA model was used to test these hypotheses. H1a was accepted, the results from the ANOVA showed that the valence was highly significant ($p < 0.001$). We can therefore conclude that the valence of the review has a significant effect on a consumers' perceived product quality. Consumers that are exposed to a positive video game review tend to think that the video game is of higher quality than consumers that are exposed to a negative video game review, even when both of the groups got to see the same gameplay of the video game. The results of the same two-way ANOVA however showed no significant effect for H2a ($p = 0.220$). Therefore H2a was rejected, expert reviews do not have a greater influence on a consumers' perceived product quality than laymen reviews.

Hypothesis 3a, tested the effect of product familiarity on consumers' perceived product quality. Hypothesized was that consumers unfamiliar with the video game were more influenced by the opinion of the reviewer. To measure the effect on perceived product quality a two-way ANOVA was performed. The results for the ANOVA showed that the effect of product familiarity on valence was the same across all measurement conditions. Therefore, H3a had to be rejected, unfamiliar consumers were not influenced more by reviews than familiar consumers in their perceived product quality ($p = 0.218$). Results did show that familiarity does have a significant influence on consumers perceived product quality ($p < 0.001$). Consumers that were already familiar with the video on pre hand rated the video game higher than consumers that were not already familiar with the video game.

Consumers' willingness to buy

Hypothesis 1b and 2b suggested that positive reviews increase a consumers' willingness to buy a video game and that expert reviews have a greater influence than laymen reviews on the willingness to buy the video game. An Ordinal Regression Analysis was performed to test these hypotheses. Just like the first hypothesis the valence of the review also had a significant effect on a consumers' willingness to buy a video game ($p < 0.001$). Consumers exposed to a positive video game review had an increase in their willingness to buy a video game compared to consumers exposed to a negative video game review, even though both groups watched the same gameplay video of the video game. The results from the Ordinal

Regression also showed that the reviewer had a significant effect on a consumers' willingness to buy a video game ($p=0.033$) and that therefore H2b was also accepted. An expert review has a greater influence on consumers' willingness to buy a video game than a layman review.

Hypothesis 3b tested the effect of product familiarity on willingness to buy. Hypothesized was that consumers unfamiliar with the video game were more influenced by the opinion of the reviewer. The effect on willingness to buy was measured by performing an Ordinal Regression Analysis. The results for the Ordinal Regression for willingness to buy showed that there was no significant interaction effect between familiarity and willingness to buy ($p=0.164$). Unfamiliar consumers were not influenced more by reviews than familiar consumers in their willingness to buy. Just as the results for perceived product quality, it did show that familiarity does have a significant influence on consumers' willingness to buy a video game ($p<0.001$).

Consumers' willingness to recommend

Hypothesis 1c and 2c suggested that positive reviews increase a consumers' willingness to recommend a video game and that expert reviews have a greater influence than laymen reviews on this willingness to recommend. An Ordinal Regression Analysis was used to test the hypotheses. The results showed that H1c can be accepted, positive reviews had a significant positive effect on consumers' willingness to recommend a video game ($p<0.001$). Consumers that were exposed to a positive review were more likely to recommend a video game to others than consumers that were exposed to a negative review, even though both groups watched the same gameplay video. On the other hand the results of the Ordinal Regression did not show significant results for the type of reviewer ($p=0.585$). Therefore we must conclude that expert reviews have the same influence on the willingness to recommend a video game as laymen reviews.

Hypothesis 3c tested the effect of product familiarity on willingness to recommend. Hypothesized was that consumers unfamiliar with the video game were more influenced by the opinion of the reviewer. The effect on willingness to recommend was measured by performing an Ordinal Regression Analysis. The Ordinal Regression results for willingness to recommend showed that there was a marginally significant interaction effect of familiarity and valence ($p=0.055$). Therefore H3c was accepted, consumers who are not familiar with

the video game are more likely to be influenced in their willingness to recommend a video game by an online review than consumers who already are familiar with the video game.

5. Discussion, limitations and suggestions for future research

Influence of an online review

The valence of the review proved to be an important factor in the participants perceived product quality, willingness to buy and willingness to recommend a video game. As predicted, an online review influences the participants opinion even though participants had an opportunity to evaluate the video game themselves when they were exposed to the gameplay video. Consumers that were exposed to a positive expert review rated the video game on average almost 10 points higher than consumers being exposed to a negative expert review. For the positive and negative laymen reviews this difference was 5 points on average. Even though there was almost a 5-point difference between expert and laymen reviews the results showed that this difference was not significant enough. Remarkably the difference between experts and laymen for positive reviews was far closer to being significant than the difference between negative expert and laymen reviews. This might be because positive expert reviews could be perceived as more trustworthy, as positive laymen reviews are easier and more often manipulated by producers (or third-party services) themselves. Negative reviews lack this risk of producers hyping their own products.

While there was no significant difference found between expert and laymen reviews for the perceived product quality and willingness to recommend, there was a significant difference for willingness to buy. Consumers' willingness to buy a video game is more influenced by expert reviews than by laymen reviews. As stated before the perceived product quality is a respondent's perception of the video game's overall quality relative to alternatives. The willingness to buy says more about the desire to own a product. A consumer might think the quality of the game is not exceptional, although he/she might still buy the game simply because they like the genre or they expect friends will buy the game and they have a preference for online gaming with their friends. Furthermore consumers could be more influenced by experts because they think that if an expert recommends a video game it will probably be a success and everyone will buy it. The insignificant results in the expert/laymen difference for willingness to recommend is perhaps due to the fact respondents find it harder to recommend something to friends/family which they have not played yet rather

then go and buy it for themselves. This could mean they rather take the risk of buying an unsatisfactory game and be disappointed themselves than giving bad advice to friends/family and disappoint them.

Product familiarity

We expected that respondents that were not yet familiar with the video game would be more influenced by the review they were exposed to. This expectation only holds for the willingness to recommend the video game. With a marginally significance of $p=0.054$, the hypothesis was accepted. Consumers that are not familiar with the video game perhaps tend to follow the direction of the review more in their willingness to recommend because the willingness to recommend does not specifically say they will like the product themselves. Therefore they will be more persuaded by what other people think and less by their personal preference. For willingness to buy and perceived product quality this will not hold because those variables only focus on what the respondent thinks of the video game and not what the respondents think others will think of the video game. Furthermore, willingness to recommend is out of the three dependent variables probably the hardest to measure prior to purchase and therefore respondents unfamiliar with the video game are more influenced by opinions of others.

Although the results showed that there was no significant effect found that non-familiar consumers are more influenced by a review in their willingness to buy and perceived product quality, we do believe that this effect is present. Perhaps the sample size was too small for the two groups ($n=341$ for familiar, $n=172$ for not familiar). The parameter estimates in 4.4.2 show that non-familiar consumers are influenced more by the review than familiar consumers in their perceived product quality.

On the other hand, results showed that respondents that were familiar with the video game gave a significantly higher rating in quality and were more likely to buy and recommend the video game. This effect is probably because these respondents already had an interest in the video game before taking part in the experiment.

Conclusion

This study showed the effects of online reviews on video games that were not on the market yet. Positive reviews significantly increased consumers' perceived product quality, willingness to buy and willingness to recommend a video game. Consumers that are exposed to a positive review tend to think the video game is of higher quality and are more willing to buy and recommend the video game.

Furthermore experts appeared to be more influential on consumers' willingness to buy than laymen. Consumers are more willing to buy a video game if an expert recommends it instead of a layman. This effect did not hold for the perceived product quality and willingness to recommend the video game.

Results in this research also showed that consumers who are not familiar with a video game are influenced more in their willingness to recommend by an online review. Reviews are more influential on consumers who are unfamiliar with the video game. These consumers tend to be more willing to recommend the game if they are exposed to a positive review.

As Chen and Zie (2008) claimed before, online reviews can serve as an element in the marketing communications mix and work as free "sales assistants". It would therefore be wise for companies to manage reviews as they would with any other way of marketing communication. Results showed that an expert directly influences a consumers' willingness to buy a video game. Therefore companies should invite "friendly" reviewers to evaluate the product before it launches. Furthermore results showed how positive reviews influence the perceived product quality and the willingness to buy and recommend. Companies could therefore use positive expert reviews as well as positive laymen reviews as a promotion tool for their video game.

Limitations and suggestions for future research

Although more than half of the hypotheses were accepted, there are some limitations to this study. First of all it failed to prove the difference in expert- vs. layman effect on perceived product quality and willingness to recommend, an effect that is believed to be there. Perhaps the reviews that participants were exposed to were not clear enough in the type of reviewer that wrote the review. Although the writer of the review (expert or layman) was mentioned before each review, not every respondent may have taken this in

consideration. Future research should therefore make the distinction between experts and laymen more clear. A way of doing this might be to show the expert reviews in the layout of the video game website and laymen reviews in a forum type layout.

Furthermore this research compared an expert review to a single layman review. It is unlikely that consumers will base their opinion on a single layman review. Usually when consumers make use of laymen reviews they do not base their opinion on a single one. Therefore future research is suggested in comparing expert opinions to the opinion of a group of laymen opinions.

Reviewer trustworthiness and the usage frequency of reviews were both measured on a 5-point Likert scale. The dependent variables willingness to buy and willingness to recommend were also measured on a 5-point Likert scale. This made the effects of trustworthiness and usage frequency on the willingness to buy and recommend hard to analyse. Measuring willingness to buy and willingness to recommend on a scale variable would solve this issue.

Because not all respondents participated in every condition, the collected data did not match all conditions to perform a repeated measures analysis of variances. Accordingly, a two-way ANOVA was used with the reviewer and the valence of the review as the independent variables and the consumers perceived product quality of the video game as dependent variable. Therefore the assumption was made that there are no carry over effects between measurement conditions. Respondents in this study are hence expected to be unbiased by the previous condition that they were exposed to when filling out every new condition. However, for future research, an experimental setting which exposes every respondent to each condition would be more optimal.

Lastly, as mentioned before, willingness to recommend was measured only on the fact that participants had seen the gameplay video. Normally consumers do not recommend products they have not tried themselves. More ideally would be an experimental setting where participants are able to play a video game (or a demo) for a while and after be questioned on their opinions on the video game.

6. References

Aaker, D.A. (1991) Managing Brand Equity.

Ajzen, I., and Fishbein, M. (1970) The Prediction of behaviour from Attitudinal and Normative Variables. *Journal of Experimental Social Psychology*. Vol. 6, 466 – 487.

Anderson, E.W. (1998) Customer Satisfaction and Word of Mouth. *Journal of Service Research*. Vol. 1, No. 1. 5-17

Banerjee, A. (1992) A Simple Model of Herd Behavior. *The Quarterly Journal of Economics*. Vol. 107, No 3.

Basuroy, S., Chatterjee, S., and Ravid, S.A. (2003) How Critical Are Critical Reviews? The Box Office Effects of Film Critics, Star Power, and Budgets. *Journal of Marketing*. Vol. 67, No. 4, 103-117.

Binken, J.L.G., and Stremersch, S. (2009) The Effect of Superstar Software on Hardware Sales in System Markets. *Journal of Marketing*. Vol 73, 88 - 104

Boatwright, P., Basuroy, S., and Kamakura, W. (2007) Reviewing the Reviewers: The Impact of Individual Film Critics on Box Office Performance. *Quantitative Marketing Economics*. 401-425.

Chatterjee, P. (2001) Online Reviews: Do Consumers Use Them? *Advances in Consumer Research*. Vol. 28.

Chen, Y., and Xie, J. (2008) Online Consumer Review: Word-of-Mouth as a New Element of Marketing Communication Mix. *Management Science*. Vol. 54, No. 3, 477-491

Chen, Y., and Xie, J. (2005) Third-Party Product Review and Firm Marketing Strategy. *Marketing Science*. Vol. 24, No. 2, 218-240.

Chevalier, J.A., and Mayzlin, D. (2006) The Effect of Word of Mouth on Sales: Online Book Reviews. *Journal of Marketing Research*. Vol. 43, 345 – 354.

ComScore (2007). Online Consumer-Generated Reviews Have Significant Impact on Offline Purchase Behavior. Press Release November 29.

Duan, W., Gu, B., and Whinston, A.B. (2008) Do Online Reviews Matter? An Empirical Investigation of Panel Data. *Decision Support Systems*. Vol. 45. 1007-1016

Eliashberg, J., and Shugan, S.M. (1997) Film Critics: Influencers or Predictors? *Journal of Marketing*. Vol 61, 68 - 78

Flanagin, A.J., and Metzger, M.J. (2013) Trusting Expert- Versus User-Generated Ratings Online: The Role of Information Volume, Valence, and Consumer Characteristics. *Computers in Human Behavior*. Vol. 29, 1626-1634

Gartner, (2013) Retrieved from: <http://www.gartner.com/newsroom/id/2614915>

Godes, D., and Mayzlin, D. (2004) Using Online Conversations to Study Word-of-Mouth Communication. *Marketing Science*. Vol 23, issue 4.

Phil Hornshaw, (2012) Retrieved from: www.gamefront.com/jeff-gerstmann-finally-talks-about-gamespot-firing

Hu, N., Liu, L., and Zhang, J.J. (2008) Do Online Reviews Affect Product Sales? The Role of Reviewer Characteristics and Temporal Effects. *Springer Science and Business Media*.

Jindal, N., and Liu, Y. (2008) Word of Mouth for Movies: Its Dynamics and Impact on Box Office Revenue. *Journal of Marketing*. Vol. 70, 74 – 89.

Klucharev, V., Schmidts, A., and Fernandez, A. (2008) Brain Mechanisms of Persuasion: How “Expert” Power Modulates Memory and Attitudes. *Social Cognitive and Affective Neuroscience* 3. 353 – 366.

Laerd, (2013) Retrieved from: <https://statistics.laerd.com/premium/olr/ordinal-logistic-regression-in-spss-5.php> and <https://statistics.laerd.com/premium/mr/multiple-regression-in-spss-4.php>

Li, X., and Hitt, L.M. (2008) Self-Selection and Information Role of Online Product Reviews. *Information Systems Research*. Vol. 19, No. 4.

Meshi, D., Biele, G., Korn, C.W., and Heekeren, H.R. (2012) How Expert Advice Influences Decision Making. *Pols One*. Vol 7, Issue 11.

Monroe, K.B., and Krishnan, R. The Effect of Price on Subjective Product Evaluations, Perceived Quality: How Consumers View Stores and Merchandise.

Nelson, P. (1970) Information and Consumer Behavior. *Journal of Political Economy*. Vol 78. 311 – 329.

Petty, R.E., and Cacioppo, J.T. (1986) From Communication and Persuasion: Central and Peripheral Routes to Attitude Change. New York: Springer-Verlag.

Reichheld, F. (2003) One Number You Need to Grow. *Harvard Business Review*. December 2003

Reinstein, D.A., and Snyder, C. (2005) The Influence of Expert Reviews on Consumer Demand for Experience Goods: A Case of Movie Critics. Vol. 53, No. 1.

Rust, R.T., and Oliver, R.W. (1994) The Death of Advertising. *Journal of Advertising*, 1994.

Senecal, S., and Nantel, J. (2004) The Influence of Online Product Recommendations on Consumers’ Online Choices. *Journal of Retailing*. Vol. 80, 159-169.

Walsh, D. (2000). The Challenge of the Evolving Media Environment. *Journal of Adolescent Health*. August, 2000. 69 – 72.

Zeithaml, V.A. (1988) Consumers Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence. *Journal of Marketing*. Vol. 52, 2 - 22

Zhu, F., and Zhang, M. (2010) Impact of Online Consumer Reviews on Sales: The Moderating Role of Product and Consumer Characteristics. *Journal of Marketing*. Vol. 74, 133-148

Zhu, F., and Zhang, M. (2006) The Influence of Online Consumers Reviews on the Demand for Experience Goods: The Case of Video Games. *International Conference on Information Sysytems*.

8. Appendices

Appendix A: Fictional reviews

Positive	Negative
<p>As it stands, Enemy Front is best described as a full-on assault on your senses, from the ferocity of the gameplay to the chest-rattling sound (you really do need to play it through surround sound to get the most from the game) plus, of course, the superb presentation. Let's not mix words here; Enemy Front is as much of a joy to watch as it is to play, because technically its visuals are peerless and also because so much attention to detail has been lavished on almost every aspect of the game. The lighting, gritty textures and dynamic effects pull together to create one of the most believable, viciously hostile environments we've had the pleasure of fighting in. It doesn't just look like you've been dropped into the middle of a war zone, it feels like it too, with the landscape scarred from the ongoing fighting and every bullet fired and grenade thrown leaving its mark. Sound, too, has been used to great effect, with the thud of mortar fire providing a suitably ominous background while the crack of gunfire and the resulting screams of downed enemies proving enough to satiate the blood lust of even the most gung-ho shooter fan.</p>	<p>Enemy Front just about achieves its objective - an engaging halfway house between soldier simulation and improbable heroics, and a slick, smart co-op warfare experience. If only it had trimmed down the flabby downtime and the reams of prattling fratboy dialogue which dominate its campaign, and instead pursued more tactical variety, we'd perhaps be looking at something exceptional. As it is it's merely capable, with occasional flashpoints of brilliance.</p>
<p>It's very, very good. It's easily one of the best games on the system, blending fantastic presentation and visuals with gameplay that is practically second to none. No, The Order: 1886 is not perfect, but it's closer than pretty much any other game out there these days. As for the gameplay itself, The Order: 1886 tasks you with gunfights, environmental navigation or puzzle solving. More than any other game to date, The Order: 1886 seems to define the PlayStation 4. With stunning visuals (that still rank amongst the best in gaming today), a fantastically told story, great puzzles and high-octane gunplay, it's easily one of the best titles of this console generation.</p>	<p>The Order:1886 has all of the makings of a great game. It has a vibrant, open world with a multitude of environments to explore. There are a huge number of side quests to keep you occupied along with a slew of vehicles and weapons to aid you in your quest. The trouble is that the deeper you delve into the game, the more shallow everything gets and the more prevalent the bugs and faults in the game become. The graphics are, for the most part, quite good looking and there is a lot of fun to be had while playing through the storyline, performing crazy stunts, and trying your hand at a few of the side quests. The lack of depth really comes through once you get more than about 10 hours into the game and the monotony of doing the same side quests over and over takes its toll. After that, it comes down to how much fun you can create by yourself. The Order:1886 works well as a rental or as a game to pick up and play for a short while, but if you want something to keep you entertained for a long time then you should look elsewhere.</p>
<p>Tom Clancy's: The division returns to form as an excellent tactical shooter, but is much more accessible for the average shooter fan with streamlined controls and a simple health system. The sprawling map of New York City lightens up the Tom Clancy game like it's never been before, and the result is a balanced shooter that is as much close-quarter combat as long-range head shots. The new gameplay mechanics, notably the intuitive cover system and inverted rappelling, are simply outstanding. While the visuals are solid, the textures and colors are muted and appear washed out. The sound, on the other hand, fuses a pulsing anti-terrorist soundtrack with gritty dialogue -- "I will f***ing shoot you!" -- and even some humor -- "Hey man, you play videogames?" The multiplayer options feature huge, well-designed maps, a variety of modes and four-player co-op. In total, Tom Clancy's: The division is the best first-person shooter on the PlayStation 4.</p>	<p>Fans/I have been waiting years for Tom Clancy's: The division and now that it's finally here they/I expect a lot from the first party shooter. With a complete campaign and the promise of multiplayer poised to appease old and new fans alike, The division sounds sweet. It is a good game, though it just never becomes a great one. Tom Clancy has always been one of the more polarizing franchises. Some people just can't get into it, and that's fine. The multiplayer for The division is solid, and I'm having a lot of fun with it. I wish there were more game modes and maps to make my purchase feel worthwhile. The story mode has interesting squad command gameplay, though I found myself enjoying the co-op missions more because I could actually yell at my sniper to kill the dude with a rocket launcher. If the single player were longer, and the story was worth following there'd be a great game here, instead of just the good one that might get ignored.</p>

Appendix B: Questionnaire

Thank you for helping me by taking part in this study. I value your opinion very much. Please be open and honest in your responding. Your responses are anonymous and strictly confidential.

The questions are about your opinions on video games. This questionnaire contains some questions and 3 short gameplay videos. For each game please read the information about the game and watch the gameplay video before continuing to the questions about the game. The total questionnaire will take about 15 minutes of your time.

Please take the following definitions in consideration when answering the questions:

A consumer review refers to a review written by the owner of a product or the user of a service who has sufficient experience to comment on reliability and whether or not the product or service delivers on its promises, otherwise known as product reviews.

An expert review usually refers to a review written by someone who has tested several peer products or services to identify which offers the best value for money or the best set of features.

Some of the gameplay you are about to see is for a mature audience only, please continue to the questionnaire if you are 18 or older.

To thank you for your participation I will give away a Game Mania giftcard of 50 euros to one of the respondents. Please do not forget to leave your e-mailadres at the end of this questionnaire to have a chance at winning the giftcard.

(Random review)

Please watch the gameplay video of The Order:1886 before continuing to the questions on the next page



Did you know this game before watching the video?

- Yes, I have seen footage/trailers
- Yes, I have heard of it
- No

Based on your knowledge of the game, if you had to rate the game on a scale of 0-100 what kind of score would you give? (0 being worst and 100 being best)

Rating

0 - 100

Would you buy this game?

No Probably not Maybe Probably Yes

Would you recommend this game to a friend?

No Probably not Maybe Probably Yes

Please indicate why you would or would not buy the game or recommend the game

(open question)

(Random review)

Please watch the gameplay video of Enemy Front before continuing to the questions on the next page



Did you know this game before watching the video?

- Yes, I have seen footage/trailers
- Yes, I have heard of it
- No

Based on your knowledge of the game, if you had to rate the game on a scale of 0-100 what kind of score would you give? (0 being worst and 100 being best)

Rating

0 - 100

Would you buy this game?

No Probably not Maybe Probably Yes

Would you recommend this game to a friend?

No Probably not Maybe Probably Yes

Please indicate why you would or would not buy the game or recommend the game

(open question)

New page

(Radom review)

New page

Please watch the gameplay video of Tom Clancy's: The Division before continuing to the questions on the next page



New page

Did you know this game before watching the video?

- Yes, I have seen footage/trailers
- Yes, I have heard of it
- No

Based on your knowledge of the game, if you had to rate the game on a scale of 0-100 what kind of score would you give? (0 being worst and 100 being best)

Rating

0 - 100

Would you buy this game?

No Probably not Maybe Probably Yes

Would you recommend this game to a friend?

No Probably not Maybe Probably Yes

Please indicate why you would or would not buy the game or recommend the game

(open question)

To conclude this questionnaire some general questions will follow.

Do you think online expert reviews of video games are trustworthy?

Not at all Slightly Somewhat Very Extremely

Do you think online consumer reviews of video games are trustworthy?

Not at all Slightly Somewhat Very Extremely

Do you use online expert reviews before purchasing a video game?

Never Rarely Occasionally/sometimes Almost always Always

Do you use online consumer reviews before purchasing a video game?

Never Rarely Occasionally/sometimes Almost always Always

How many hours per week do you play video games?

- 0
- 1 – 5
- 6 – 10
- 11 – 15
- 16 – 20
- 21 - 25
- 26 or more

How many video games do you buy each year?

- 0
- 1 – 5
- 6 – 10
- 11 – 15
- 16 or more

How old are you?

--

What is your gender?

- Male
- Female

What is the highest level of education you have completed or are completing?

- Grammar school
- High school
- College (MBO in Dutch)
- Bachelor's degree
- Master's degree
- Doctoral degree
- Professional degree (MD, JD, etc.)
- Other,.....

New page

To have a chance at the 50 euro giftcard for Game Mania and/or for the results of this research please fill in your e-mailadress below. Your e-mailadres will not be used for anything else.

Please select your preferences

- Chance at winning the Game Mania giftcard
- Results of this research

New page

All reviews you have seen in this questionnaire were fictional and intended for research purposes only. Any resemblance to actual reviews, is purely coincidental.

Thank you for your participation!

Appendix C: Test of parallel lines and checks on multicollinearity

The data was checked for multicollinearity using the collinearity diagnostics in SPSS. This test showed no high correlation between the predictor variables and therefore no variables were excluded from the models. Also the test of parallel lines showed that the slope coefficients in the models are the same across response categories because the null hypotheses were supported. Therefore the assumption of proportional odds holds. Underneath are the results of the multicollinearity check and the test on parallel lines for each hypothesis.

Hypotheses 1a and 2a

H1a: Positive online reviews increase consumers' perceived product quality of a video game

H2a: Expert reviews have a greater influence than laymen reviews on consumers' perceived product quality of video games.

DV: Consumers' perceived product quality

IV's: Valence and Reviewer

Coefficients _a			
Model		Collinearity Statistics	
		Tolerance	VIF
1	Reviewer	,997	1,003
	Valence	,997	1,003

a. Dependent Variable: Rating Game

The collinearity diagnostics show that the Variance Inflation Factor (VIF) is 1.003 for the Reviewer and for Valence. Therefore we can conclude that there is no multicollinearity between the two independent variables.

Hypothesis 1b and 2b

H1b: Positive online reviews increase consumers' willingness to buy a video game

H2b: Expert reviews have a greater influence than laymen reviews on consumers' willingness to buy

DV: Consumers' willingness to buy

IV's: Valence and Reviewer

Test of Parallel Lines ^a				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	82,665			
General	81,100	1,565	6	,955

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
a. Link function: Logit.

The test of parallel lines above shows that the null hypothesis cannot be rejected (0.955 > 0.05) thus the slope coefficients in the models are the same across response categories.

Hypothesis 1c and 2c

H1c: Positive online reviews increase consumers' willingness to recommend a video game

H2c: Expert reviews have a greater influence than laymen reviews on consumers' willingness to recommend

DV: Consumers' willingness to recommend

IV's: Valence and Reviewer

Test of Parallel Lines ^a				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	92,638			
General	82,676	9,962	6	,126

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
a. Link function: Logit.

The test of parallel lines above shows that the null hypothesis cannot be rejected (0.126 > 0.05) thus the slope coefficients in the models are the same across response categories.

Hypothesis 3a

H3a: Online reviews have a greater influence on consumers' perceived product quality if consumers are not familiar with the game

DV: Consumers' perceived product quality

IV's: Valence and Familiarity

Coefficients ^a			
Model		Collinearity Statistics	
		Tolerance	VIF
1	Valence	,999	1,001
	Familiarity	,999	1,001

a. Dependent Variable: Rating Game

The collinearity diagnostics show that the Variance Inflation Factor (VIF) is 1.001 for Familiarity and for Valence. Therefore we can conclude that there is no multicollinearity between the two independent variables.

Hypothesis 3b

H3b: Online reviews have a greater influence on consumers' willingness to buy if consumers are not familiar with the game

DV: Consumers' willingness to buy

IV's: Valence and Familiarity

Test of Parallel Lines ^a				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	78,342			
General	73,235	5,108	6	,530

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
a. Link function: Logit.

The test of parallel lines above shows that the null hypothesis cannot be rejected (0.530 > 0.05) thus the slope coefficients in the models are the same across response categories.

Hypothesis 3c

H3c: Online reviews have a greater influence on consumers' willingness to recommend if consumers are not familiar with the game

DV: Consumers' willingness to recommend

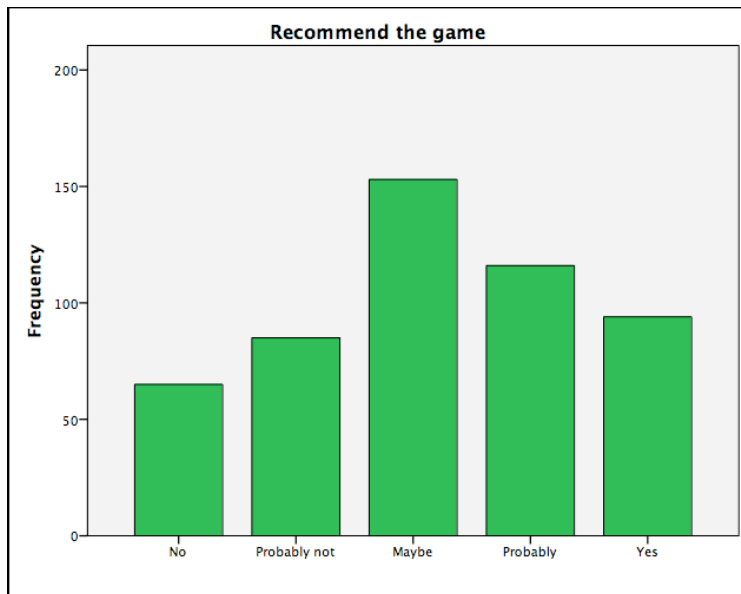
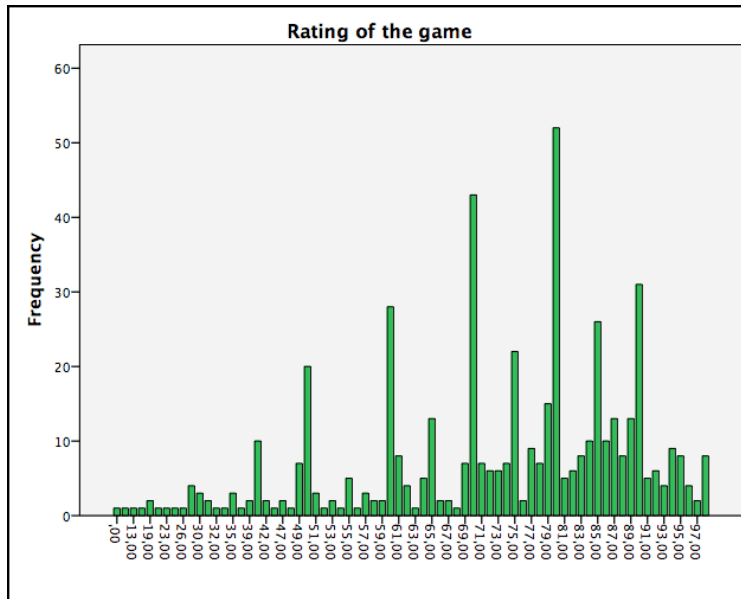
IV's: Valence and Familiarity

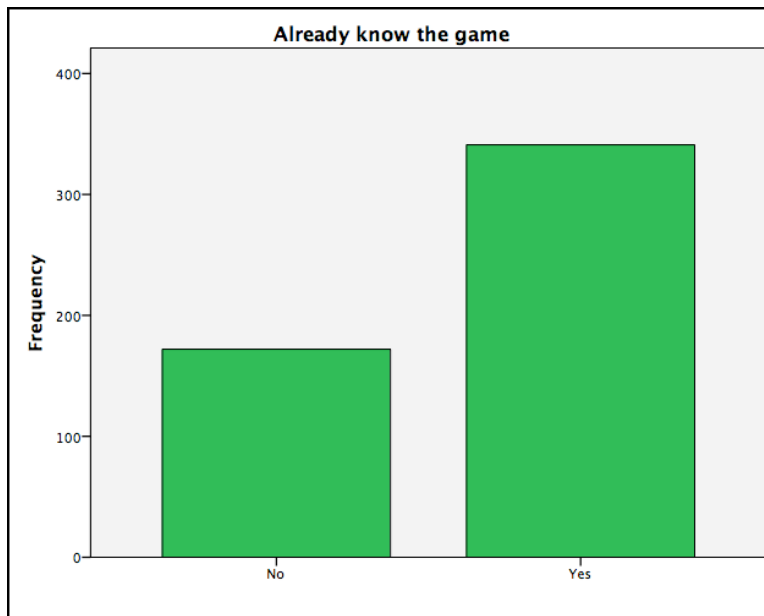
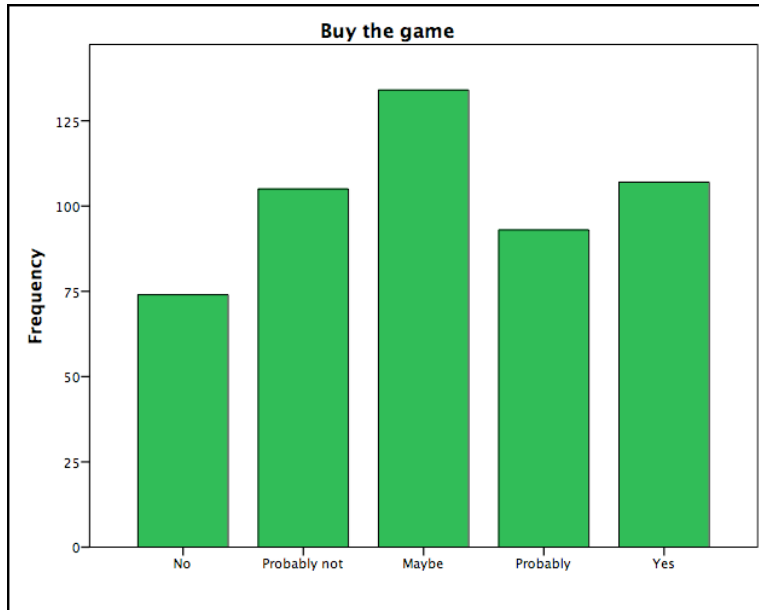
Test of Parallel Lines ^a				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	83,399			
General	74,119	9,279	6	,158

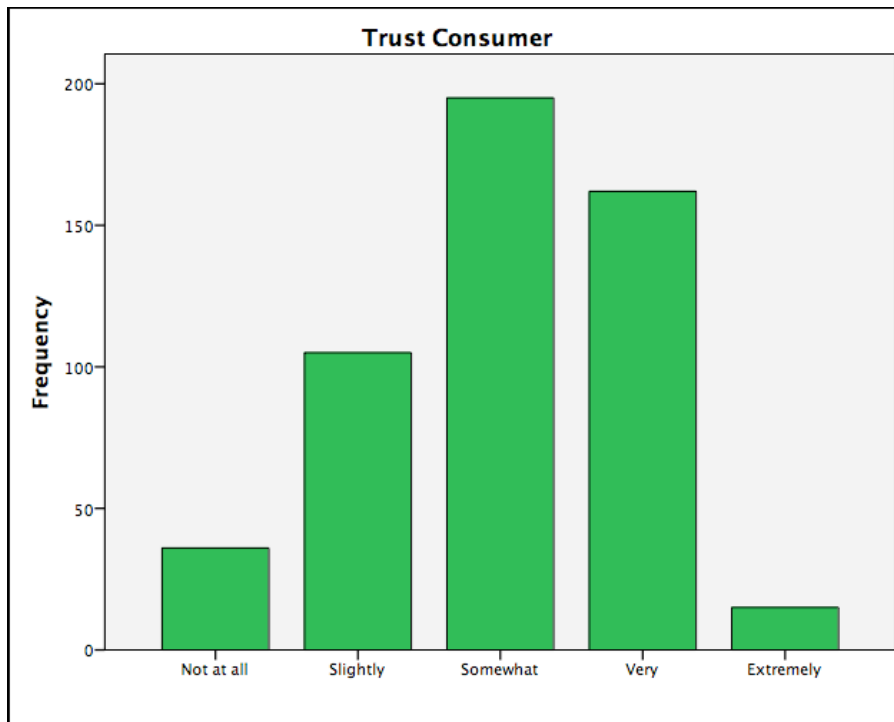
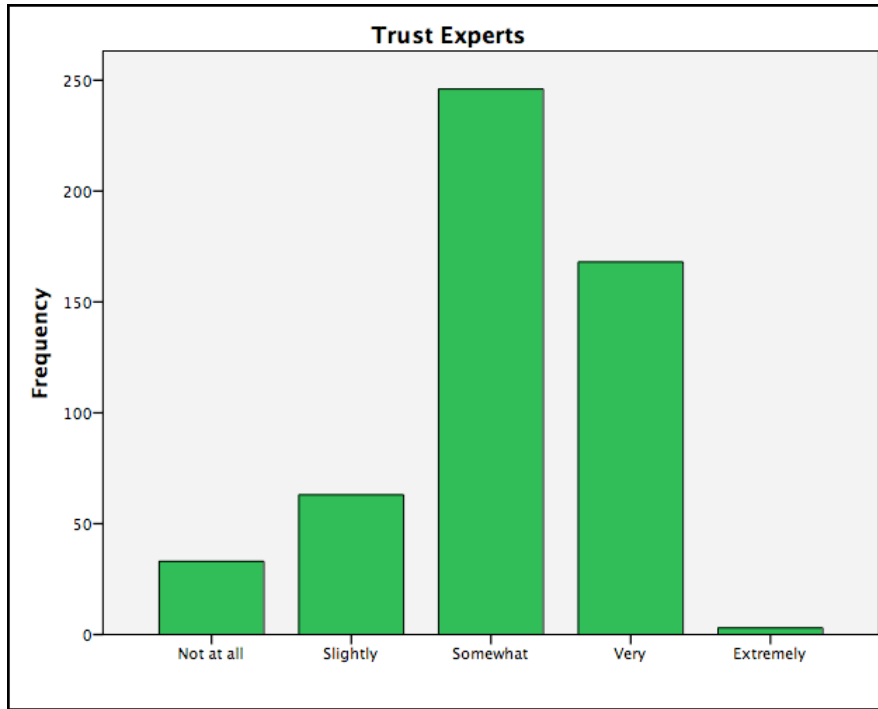
The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
a. Link function: Logit.

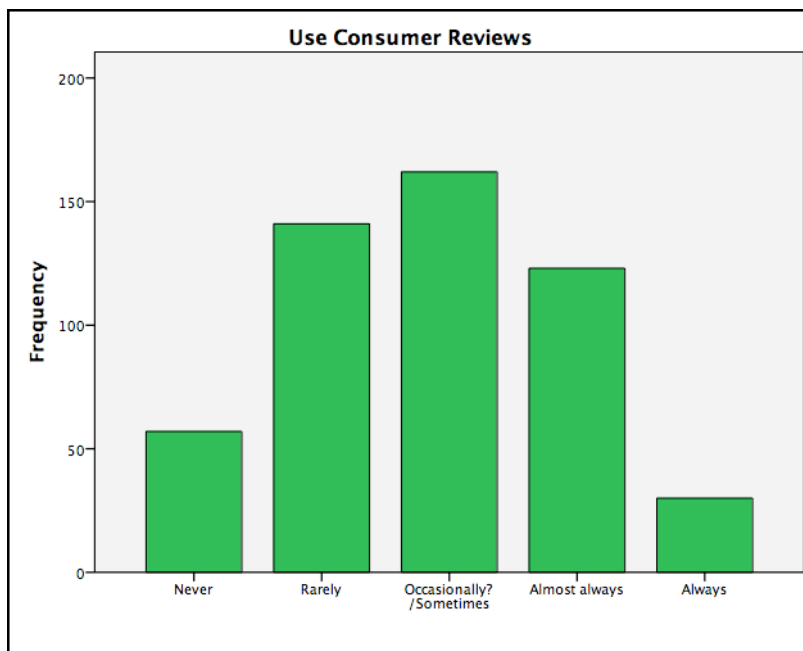
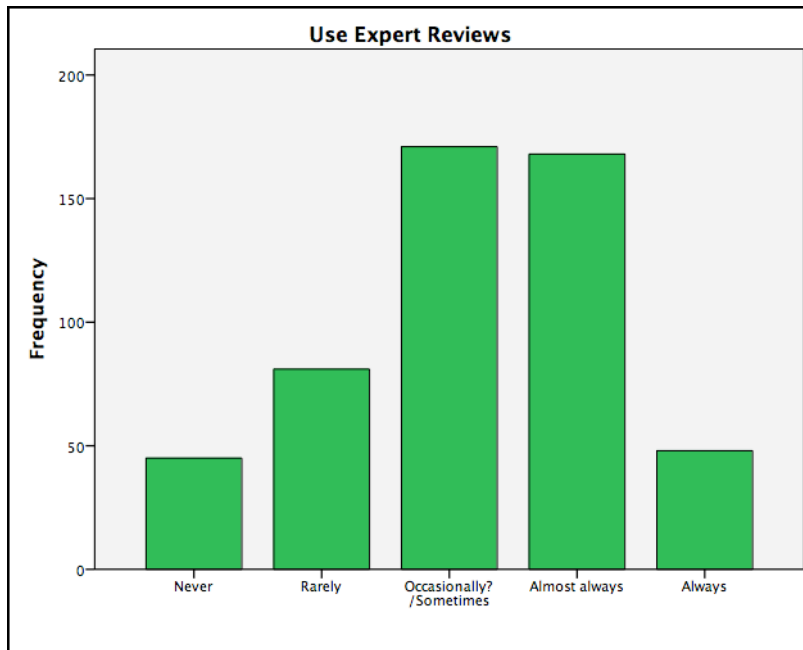
The test of parallel lines above shows that the null hypothesis cannot be rejected (0.158 > 0.05) thus the slope coefficients in the models are the same across response categories.

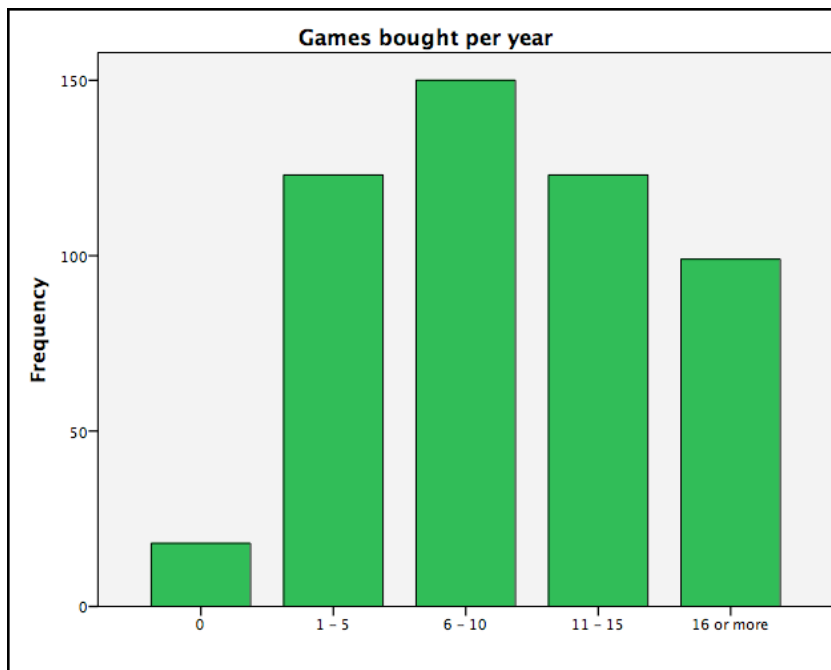
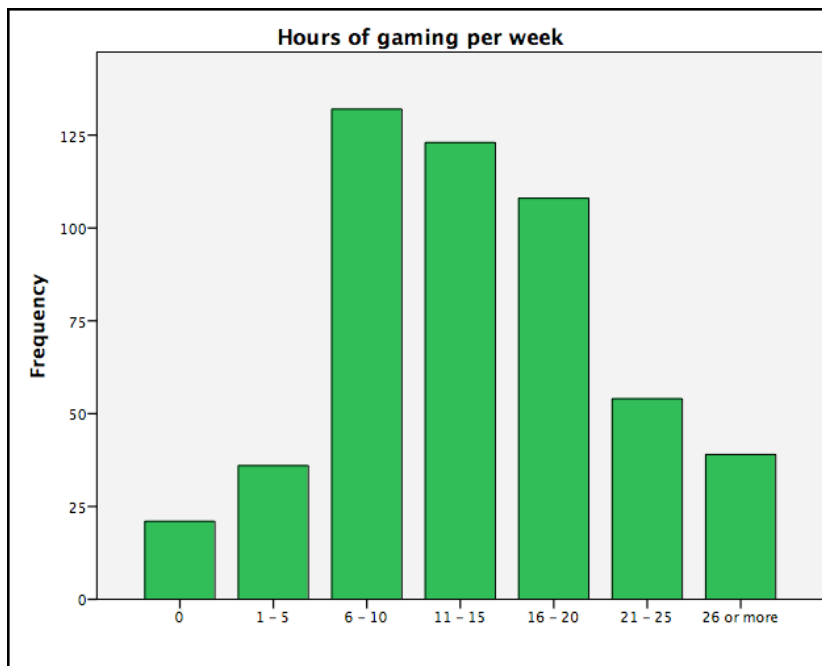
Appendix D: Descriptive Statistics

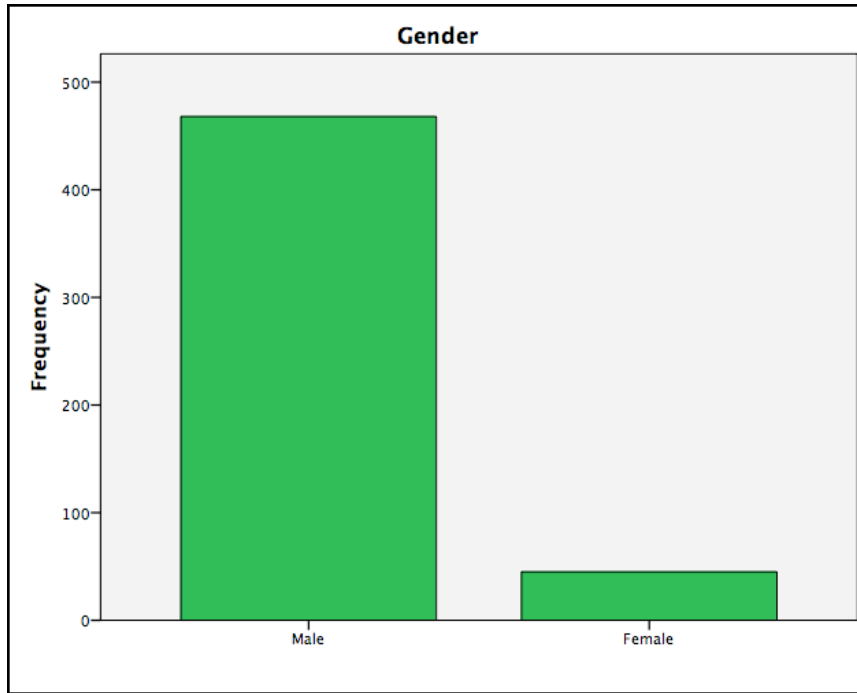


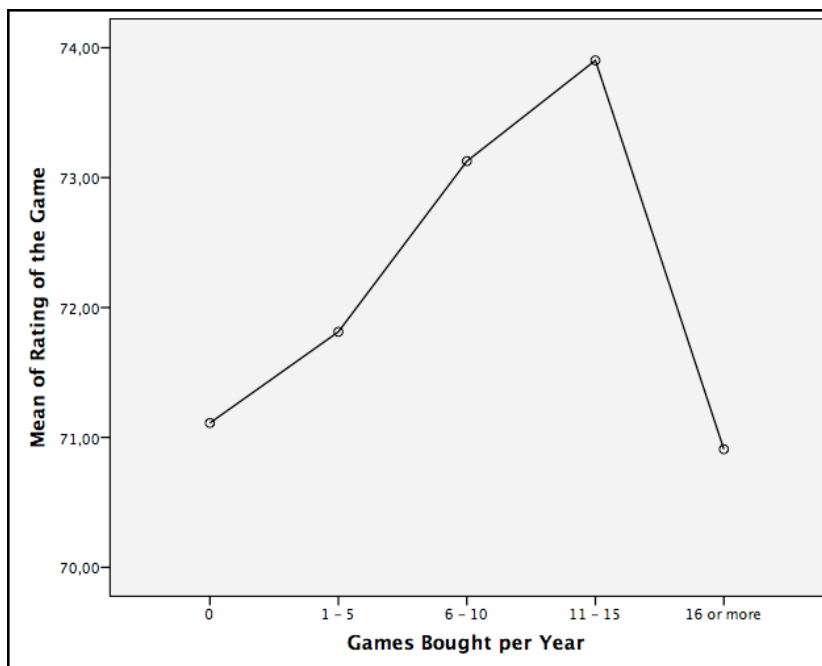
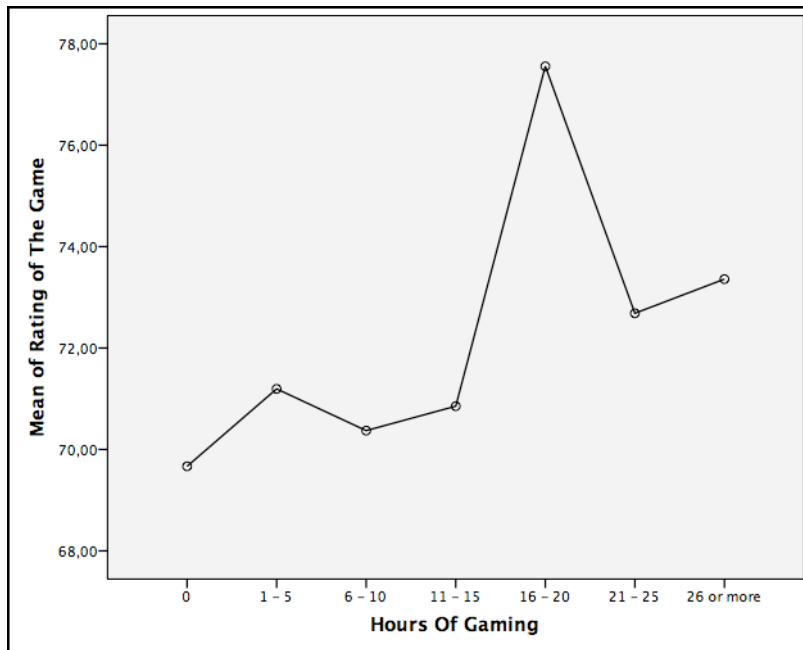


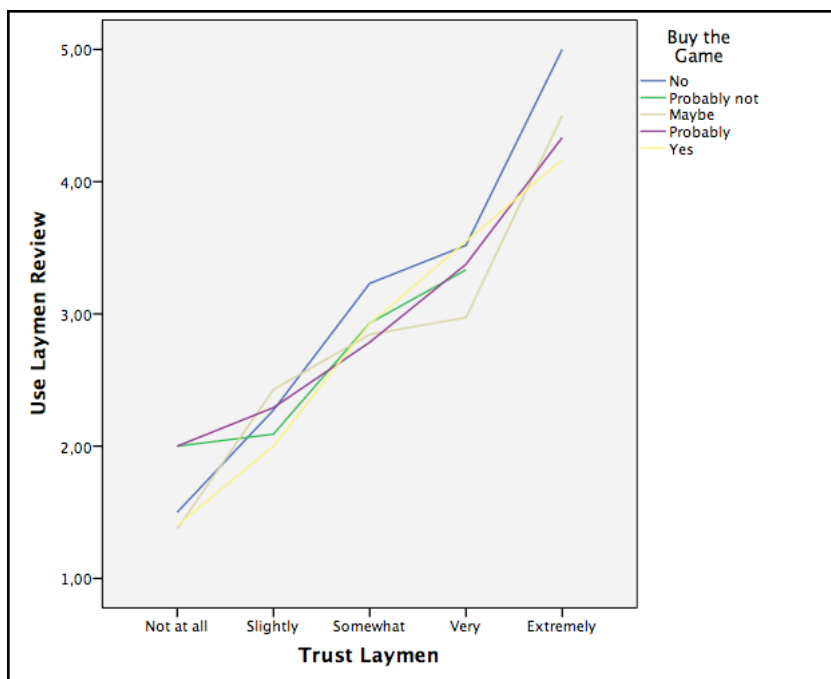
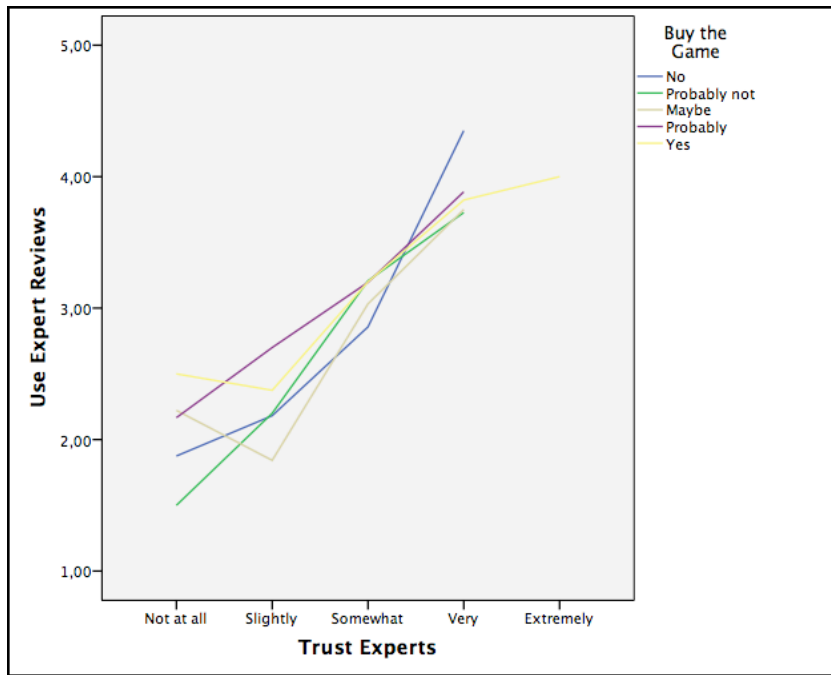












Appendix E: Review Familiarity and Reviewer Trustworthiness

Source	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	19	1536.911	6.023	.000	.188
Intercept	1	1436219.176	5628.295	.000	.919
Reviewer * Use of Laymen Reviews	4	513.578	2.013	.092	.016
Reviewer * Use of Expert Reviews	4	195.250	.765	.548	.006
Reviewer	1	1097.344	4.300	.039	.009
Valence	1	4357.317	17.076	.000	.033
Familiarity	1	14096.000	55.240	.000	.101
Use of Expert Reviews	4	593.541	2.326	.055	.019
Use of Laymen Reviews	4	766.312	3.003	.018	.024
Error	493	255.178			

		Mean		95% Confidence Interval		
Use Laymen Review	Use Laymen Review	Difference	Std. Error	Sig.	Lower Bound	Upper Bound
Never	Rarely	4.1657	2.50731	.973	-2.9042	11.2357
	Occasionally/Sometimes	-1.2703	2.46008	1.000	-8.2071	5.6664
	Almost always	3.4780	2.55958	1.000	-3.7393	10.6953
	Always	5.8877	3.60316	1.000	-4.2722	16.0476
Rarely	Never	-4.1657	2.50731	.973	-11.2357	2.9042
	Occasionally/Sometimes	-5.4360*	1.83982	.033	-10.6238	-.2482
	Almost always	-.6878	1.97089	1.000	-6.2451	4.8696
	Always	1.7220	3.21181	1.000	-7.3344	10.7784
Occasionally/Sometimes	Never	1.2703	2.46008	1.000	-5.6664	8.2071
	Rarely	5.4360*	1.83982	.033	.2482	10.6238
	Almost always	4.7483	1.91044	.133	-.6387	10.1352
	Always	7.1580	3.17508	.246	-1.7948	16.1109
Almost always	Never	-3.4780	2.55958	1.000	-10.6953	3.7393
	Rarely	.6878	1.97089	1.000	-4.8696	6.2451
	Occasionally/Sometimes	-4.7483	1.91044	.133	-10.1352	.6387
	Always	2.4098	3.25278	1.000	-6.7622	11.5817
Always	Never	-5.8877	3.60316	1.000	-16.0476	4.2722
	Rarely	-1.7220	3.21181	1.000	-10.7784	7.3344
	Occasionally/Sometimes	-7.1580	3.17508	.246	-16.1109	1.7948
	Almost always	-2.4098	3.25278	1.000	-11.5817	6.7622

Source	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	19	1425.987	5.496	.000	.175
Intercept	1	295598.451	1139.313	.000	.698
Reviewer	1	101.478	.391	.532	.001
Valence	1	4361.633	16.811	.000	.033
Familiarity	1	13884.835	53.516	.000	.098
Trustworthiness Experts	4	528.127	2.036	.088	.016
Trustworthiness Laymen	4	185.870	.716	.581	.006
Reviewer * Trustworthiness Experts	4	216.565	.835	.504	.007
Reviewer * Trustworthiness Laymen	4	165.743	.639	.635	.005
Error	493	259,453			