UNIVERSITY OF GOTHENBURG

THE ART OF CRUNCH

A quantitative study on the effects of a high-pressured period during video game production on organizational commitment

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Abstract

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The video gaming industry is one of the most lucrative markets in the world, yet surprisingly, little research is devoted to the industry. Most of the research that can be found about the video gaming industry is primarily focused on the gender issues that is prominent in the industry. However, crunch, a stressful period in the production process that comes with long overtimes, which are often uncompensated, is an issue that has been a part of the industry for decades. Overtime has also rarely been studied in relation to organizational commitment in labour science, therefore this thesis aims to bridge the gaps concerning lack of research on crunch and overtime's effect on organizational commitment by conducting a study on how overtime in the form of crunch affects organizational commitment among video game developers. The hypothesis claims he more the video game developer experiences "crunch time" in his/her organization, the more likely is he/she to exhibit lower levels of affective commitment.

The hypothesis was tested quantitatively by creating and distributing a survey to video game developers and analyzing the data by employing an OLS multivariate regression analysis. According to the results, the primary hypothesis had to be accepted, as the frequency of experiencing crunch is significantly correlated with lower values of affective commitment. This result is important, as it shows that crunch can have a negative impact on video game developer's affective commitment, even when controlling for several other factors.

Foreword

I would first like to thank my thesis supervisor Kristina Håkansson, of the department of Sociology and Work Science at Gothenburg University. Her knowledge and experience in researching organizational commitment has been a tremendous help to my thesis from day one and she was always there to help me whenever I ran into a problem or had a question regarding my research. My thesis would not be what it is without her guidance and support

I would also like to thank all of the respondents that have answered the questionnaire. This thesis could not have been completed without your help and support. I would also like to thank the IGDA for their support for allowing me to post my survey on their local FB group pages.

Furthermore, I would like to thank my fellow classmates and friends from the Strategic Human Resource Management program, who gave me valuable recommendations and critiques throughout the thesis-writing process. Working with all of you during the past two years has been a pleasure and an honor.

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Christoffer Larsson

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1 INTRODUCTION

Whether one has or has not ever held a controller in his or her hands, it is hard to imagine someone not ever hearing about iconic characters such as Mario, Zelda or other Nintendo staples. These names were and still are a part of today's pop culture, as much as any pop song and Hollywood produced movie. Ever since the explosion of popular gaming in 1972 with the release of Atari's Pong, video gaming became a part of our entertainment and it kept evolving ever since. Today, the video gaming industry not only rivals the film industry, but it surpasses it in terms of revenue. In 2017, the video game industry generated a total of $108.9 billion worldwide (43% of which comes from mobile games), while the global box office revenue for films released in 2017 was $41.2 billion (Batchelor 2018). The video gaming industry enjoys a steadily increasing growth rate, which was not impeded by the 2008 global recession. The growth rate is expected to continue with a compound annual growth rate of 8,2% from 2016 to 2020 (Wijman 2017). The reason for its booming success is in large part due to the quality of the games that were produced, which come from the creativity and ingenuity of video game developers.

Video game developers, when talking about them as individuals, often describe themselves as artists, and see the games they work on as a piece of art, no different from a painting or a novel It is easy to understand this point of view, since modern games often incorporate elements from novels and paintings, relying on visuals to transport the player from the "real" world to the virtual one, and using storytelling techniques to convince the players to care about their protagonists and their plight. While, video game developers do operate with programming, this is merely considered a tool for the creation of the game (Informant A 2018).

Despite the booming success of the video gaming industry, it still suffers from high employee turnover rate, which could possibly indicate low commitment of video game developers to their organizations. Furthermore, this issue could possibly have a connection to a phenomenon which is called "crunch time". While "crunch" or "crunch time" lacks a proper definition, it can be generally described as an unusual period of crisis in the production schedule. It comes with significant over time, with working hours varying between 65-80 hours a week or more (often uncompensated) (Informant B 2018).

Most video game industry professionals who defend crunch are managers and CEOs. Alex St. John, one of the co-creators of the DirectX software for Microsoft and the founder of the game

company WildTangent, wrote that “making games is not a job, it’s an art.”. He goes on to say that videogame developers should feel “lucky” to do what they do, and that they should not worry whether they are compensated for their work (Schreier 2016). This comment is the main reason the thesis opted for the title it did, as a parody to that statement.

While the thesis strives to shed more light on this phenomenon, its purpose is to analyze the relationship between crunch and affective commitment among video game developers. Many video game developers work long hours of overtime which are often not compensated, which leads to an increase of stress among developers and decreased job satisfaction (Woodcock 2016), both of which have shown correlation with organizational commitment in different studies (Allen and Meyer 1991).

This thesis will focus on the video game developers themselves and how their experience of crunch affects their commitment to the organization they work for. The method used for this research is an originally constructed survey, which was distributed among video game developers via the International Video Game Developers Association’s Facebook group pages. The survey contains 32 questions containing background questions and questions related to the phenomenon of crunch and the employee’s attitude towards the work they do (includes questions for affective commitment and work engagement). The thesis opts to measure the affective commitment aspect of organizational commitment which reflects the employee’s emotional attachment to the company.

The thesis consists of eight chapters and it is a quantitative study. In the background chapter, the thesis will give a short overview of the gaming industry and its market and present the issue of crunch which has a strong presence in the industry. In the literature review, previous scholarship is examined, and the gap is identified, justifying the need for further exploration of the phenomenon. Following the literature review, the theoretical approach examines organizational commitment developed by Allen and Meyer (1991) and also giving brief focus on other theoretical concepts such as work engagement and perceived organizational support. The methodology chapter discusses the methods used for gathering and analyzing the data and the operationalization of relevant variables. Furthermore, the limitations of the data and method are also explained in this chapter. The analysis chapter empirically examines the hypothesis and research questions and discusses the results. The final chapter, the conclusion revisits the discussion of the results and the

implications it might have for the scholarship discussed in the literature review and contributions to the field of labor sciences.

2 BACKGROUND

2.1 Overview of the gaming industry and the market

While videogames have existed for over four decades, with mainstream popularity starting around the 1970s, it truly rose to prominence in the end of the 90s. To begin to understand the scope of this industry, this sub-chapter will provide some information about the industry and how it operates.

The video gaming industry is very similar to other publishing industries, e.g. television, film and books, however, it comes with its own set of nuances and complexities. The participants within the industry are mainly publishers, distributors, developers, customers, consumers, retailers, IP-owners, hardware owners and platform owners. One of the most important actors in this value chain is the developer who makes the actual games. The game development process employs many persons from a wide variety of professions, who work together in a game studio to develop each part of the game (design, programming, sound, graphic etc.). Studios are mostly local consisting of staffs ranging from a handful of persons up to several hundred, depending on the type of games produced and the companies size (Zackariasson and Wilson 2012, 2-3).

While the industry is fairly young, game developers already have a reputation of being creative, primarily male and working in highly chaotic environments. Since, game developers usually lack financial capabilities to fund and promote their games, video game publishers are essential participants in bringing games to consumers. Currently, the most successful publishers are international companies, with their headquarters situated in North America (e.g. Activision/Blizzard, Electronic Arts, Take Two, Sony) and Japan (e.g. Sony, Nintendo, Konami). Only one publisher is headquartered in Europe, Ubisoft. Publishers are the actors in the industry who tend to take the financial risk in development. The budget for a AAA title (stands for triple-A), i.e. a game that is produced by a larger company or corporation such as Electronic Arts (henceforth EA) or Ubisoft as oppose to a smaller indie video game company, is estimated to be between US$15 to 20 million for most games (Zackariasson and Wilson 2012, 4). However, it is not uncommon to see games being developed with a budget ranging between $100 million to $300

million (notable examples are Star Wars: The Old Republic and Grand Theft Auto V). Those figures are very much comparable in scale to major blockbuster Hollywood films. The budget for AAA titles seem to be increasing, as games are becoming large in scale and graphics are constantly being improved. However, cost of development can be dwarfed by cost of marketing. To illustrate, Microsoft spent $40 million on promoting Halo 3, which reportedly cost $30 million to develop (Zackariasson and Wilson 2012, 4).

Although the video gaming sector is dominated by a small number of transnational companies such as Sony, Microsoft and Nintendo, it is primarily populated by small to medium-sized companies with a staff of 35-60 employees. For example, in the United Kingdom, these companies constitute 75% of the video game sector. Even though the video game industry came through relatively unscathed from the 2008 economic crisis and seeing an annual growth rate of over 10%, social research devotes little focus to this multibillion dollar industry. And it certainly deserves further research. It is a heavily gendered industry with women constituting only 6% of the industry's workforce in the UK (Shaw and Homan 2014). Furthermore, it is a heavily volatile labor market where job security is very low, due to companies laying off employees after completed projects.

2.2 Game development and the phenomenon of "crunch"

One of the issues that this thesis faced early on is explaining the phenomenon of crunch. The term is rarely (if ever) heard as such outside the video gaming industry or IT industry. Video game journals regularly report on severe crunch occurrences, yet they are described as something that everyone knows about and written for people interested in the industry. Even when searching for the term "crunch" on the International Game Developers Association (IGDA) website, there seems to be abundance of analysis on the phenomenon, but without providing a consistent definition of it. The IGDA's mission is supporting game developers around the world in achieving and sustainable careers and conducts many researches on the issue crunch, which is why it is surprising that they do not include an official definition of crunch on their site (IGDA 2018). There is a high chance, that different developers view crunch differently. Searching for a universal definition of crunch seems to be a fool's errand, yet an overall description of the occurrence should be provided for the purpose of this thesis. The effects of crunch are much more easily explainable and seem to show a trend in finding a definition. In their article, Witherford and de Peuter (2006) describe

crunch as the industry's term that indicated an unusual period of crisis in the production schedule. It comes with significant over time, which working hours varying between 65-80 hours a week, or even more so. Often, the overtime is not compensated. Petrillo et al. (2009) describe crunch time as a period of extreme work overload, which typically occurs in the weeks that precede the final deadline for the project delivery. These periods are characterized by a work load of more than 12 hours a day, from 6 to 7 days a week without intervals for rest. Although it is common for traditional software companies to undergo such cycles of work overload, Gershenfeld et al. (2003) argue that the video gaming industry undergoes such periods more frequently.

The "EA Spouse" comes as a textbook example of the effects of crunch. While one would normally avoid using blog posts as a reliable source for a master thesis, this blog is very important, as it signifies. in a way, a starting point when crunch was unveiled to the world as a legitimate problem. Furthermore, despite the lack of research conducted on this topic, the research that has been done so far seems to bring up this blog as an important source of data. In "EA Spouse", a wife of a videogame developer working for EA explains how his work for the said company affected his life and that of his family. The position at EA was promising, with an adequate salary and good benefits. Within a few weeks, production accelerated into a "mild" crunch with eight hour shifts six days a week, which according to the author of the blog was considered normal and not too stressful. This softer crunch lasted for several months, and it came with an expectation that a large crunch would be prevented with this. However, after a few more weeks, the company accelerated the crunch into twelve hours six days a week (9am to 10pm). After a few more weeks, the company accelerated the then current crunch into the "real" crunch which involved a twelve-hour working day for seven days a week with the occasional Saturday evening off for "good behavior". During all this time, no overtime wage, no compensation time (described as the equalization of time off for overtime, meaning hours spent during a crunch would accumulate into days off after the product has shipped) and no additional sick or vacation leave. In addition to the lack of monetary compensation, the author's husband also suffered from severe headaches and a chronically upset stomach. This blog post led to the filing of three class action lawsuits against EA and resulted in some changes throughout the industry at large, such as the reclassification of entry-level artists as hourly employees, which made them eligible for overtime under California law. The successful law suit awarded the plaintiffs $14,9 million for unpaid overtime (Jenkins 2006).

Crunch is a phenomenon that the videogame industry faces at a regular basis. According to the 2017 survey by the International Game Developers Association (IGDA), 51% of the polled developers had crunched at some point between in 2017. 53% the polled said that crunch was expected at their workplace. 37% reported working between 50 and 59 hours per week and 29% reported working between 60 and 69 hours per week. Furthermore, a sizeable minority of 14% reported working more than 70 hours a week in crunch (Weststar et al 2018).

Peter Molyneux, who held several positions in the video gaming industry from designer to CEO, is known in the industry for over-promising features when describing his projects, but he also shares a common "managerial" point of view regarding crunch. According to Molyneux, the gaming industry should not get rid of crunch, because it is the sense of impossible that brings the best out of the developers and that that is what they need to develop the best product (Kuchera 2016).

Most perceptions of crunch, however are severely negative, especially, of course, from the people who suffer most under it, the developers themselves. One of the video game developers likened crunch experience at the studio THQ as an exile in Siberia. This crunch, which was a result of severe lack of proper management resulted in the closure of the studio the same year (Zacny 2012).

Thus, crunch seems to be a very prominent issue in the video gaming industry. Because of this, it is an interesting phenomenon to analyze in relation to organizational commitment. From an HR perspective, crunch and its consequences need to be examined in detail, and that is what this thesis aims to achieve. In the next section, the literature review will sum up some of the most relevant researches about the video gaming industry, and organizational commitment and overtime.

3 LITERATURE REVIEW

3.1 Academic research on the video gaming industry

While academic research on the video game industry is relatively sparse, and research on crunch even more so, there are some scholarships that have to be mentioned. The first article that has to be mentioned is that of Dyer-Witheford and Peuter (2006). While it is over a decade old article, it still makes some key points that are critical for this research. Their research is a reaction to the blog post titled "EA spouse", which has been mentioned earlier in the background section. Their research on the exploitation part of the industry is of crucial importance for my research as it delves

heavily into the issue of “crunch time”. The authors through a series of interviews and document analyses uncover why “crunch time” occurs in the first place, and what are its consequences. Similarly, Woodcock (2016) analyzes how the workplace is organized in the video gaming industry, drawing heavily on the Marxist theory when examining the labor process. The author, through a series of interviews, uncovers how “crunch time” has evolved through the development of new technologies and how the companies effectively normalized “crunch time” over time. The author also makes several comments on the inability of unionization of video game developers and how they are effectively “frozen” in the situation they are placed in.

A research on crunch has also been conducted in Gothenburg by the Department of Computer Science and Engineering at Chalmers University in Gothenburg. In their study, Edholm et al. (2014) study the reasons and effects of unpaid overtime in the games industry. The study was a qualitative one, opting for relying on interviews as their main source of data by means of convenience sampling. They also rely on 78 postmortems. The article is explorative in its design, as it attempts to give detailed information about the issue of crunch. According to the interviews they conducted, crunch is common within the industry. Furthermore, the interviews also reveal that crunch is a “necessary evil”. Positive and negative elements of crunch are also identified, with examples of the former including more game features and meeting deadlines, while negative effects include health issues among developers and product quality. The authors find that crunches most commonly occur due to unrealistic schedules and “feature creep”. While, this could be avoided by employing agile best practices, companies that adopted this method still crunched according to the authors. The authors point out that the reason the adoption of agile methods failed, was because the methods were not implemented correctly, allowing the culture to dictate development pace and not accommodating for change. They compare this issue to the same problems that the software companies face outside the gaming industry. The article also comes with a fair share of recommendations. The authors recommend that the games industry introduce more realistic schedules when planning games, and if features have to be added, something of lesser importance should be removed from the final product. However, the authors note that if crunching is absolutely necessary, so called “mini crunches” could be used as a last resort and should not last for more than two weeks at a time.

3.2 Overtime/workload and organizational commitment

The next set of literature covers the topic of overtime/workload and organizational commitment. Since, crunch is a very specific term, the thesis had to compromise and review literature that is related to crunch, which is overtime and workload.

While Mathieu's and Zajac's research (1990) is not at all recent, it does provide a solid framework for analyzing organizational commitment, which was used by other researchers to this date. The authors analyzed through a detailed statistical analysis what factors can affect an individual's affective commitment (age, sex, salary, etc.). Similarly, Allen and Meyer (1990) also covers the antecedents of organizational commitment, but more importantly, it goes into greater detail to explain what organizational commitment is. In their questionnaire, they defined organizational commitment as composed of 8 statements that were evaluated by employees with a value from 1 to 7 ("I really feel as if this organization's problem are my own." and similar). Rhoades et al. (2001), and Emmerik and Sanders (2005) use this same template for analyzing affective commitment in their research. The latter article analyzed how the mismatch in working hours affected affective commitment among employees of a Dutch ministry. They find that there is no correlation between wanting to work less and affective commitment. However, despite these this, the results are not to be generalized, as the research focused entirely on one part of the Dutch public sector, which has more rules regarding overtime. The gaming industry does not have the luxury of those rules, and what is worse, overtime in the gaming industry is often not compensated.

Khatibi et al. (2009) analyzed how job stress could affect organizational commitment among employees of the National Olympic and Paralympic Academy (NOPA). By employing a survey distributed to all of the 59 employees, they found that job stress had a negative significant effect on affective and normative commitment. While the study was novel in the sense that organizational commitment was not studied in a sports organization before this article, it is somewhat hampered by the fact that it had quite a low sample of employees. It is also important to consider turnover intentions as a consequence of organizational commitment. A study conducted by Ahmad et al. (2010, p. 585) revealed that turnover intentions of call center personnel depended on the organizational commitment of the employees. They find that the demanding nature of the call center work may make employees more apathetic towards their work. Thus, the characteristics of a job could potentially affect the employee's willingness to remain in the organization. Similarly,

Hu and Schaufeli (2011) found that if individuals had the job resources to deal with the increased job demands, it would enhance their well-being and increase their commitment towards the organization.

A study researching job commitment's relationship with attrition comes from Agarwal (2015). The author tested the relationship between stress, job satisfaction and job commitment with attrition in the Indian IT sector. The study was conducted on software engineers situated around Delhi NCR, Bengaluru and Pune. The sample size consisted of 250 software engineers. The author's results show that there was no significant correlation between stress and job satisfaction and job commitment. Agarwal argues that this might be due to the fact that IT companies have world class infrastructure and facilities such as canteens, female restrooms, transportation facilities etc. which makes workplace life comfortable.

Another study that tackled how quality of work life (where overtime is a part of it) affects organizational commitment was done by Shariat et al. (2014). Their study aimed to examine the causal relationship between the quality of work life and organizational commitment in duty and overtime hours. Their research method was a descriptive survey and was conducted in Mellat Bank in Iran with 180 employees taken as a sample. Their findings suggest that there is a positive relationship between the quality of work life and organizational commitment. This also includes overtime, but the author does not explain what kind of overtime is implied in the research. Voluntary or involuntary? And there is also the question, whether the employees are compensated during overtime. If most of the employees wanted the overtime to begin with (since it is probably well compensated), then a positive correlation with organizational commitment is not surprising.

3.3 Summary and gap

While research on crunch is not unheard of, they have yet to be done using quantitative methods. Most of the research opted for a qualitative approach, which are less valuable in terms of generalizability. Research on overtime is also lacking, with only a few studies that could be found via Google Scholar.

Thus, the thesis identified two gaps. The first gap is a lack of an in depth of the organizational commitment among video game developers in relation to crunch-time. Several studies have been conducted about video game developers and several studies have focused on overtime's/work

demand's effect on organizational commitment. My thesis aims to bridge these two research topics into one research.

4 THEORETICAL FRAMEWORK

4.1 Organizational, affective and work commitment

Similarly, to the term crunch, commitment also escapes a universal definition, although Meyer and Allen (1991) have noted that the definitions reflect three broad themes. Thus, commitment can be viewed as reflecting an affective orientation toward the organization, a recognition of costs associated with leaving the organization, and a moral obligation to stay within the organization. An example of the first theme is given by Mowday, Porter, & Steers (1982, 27): "The relative strength of an individual's identification with and involvement in a particular organization". Hrebeniak & Alutto (1972, 556) identify cost-based commitment as a "structural phenomenon which occurs as a result of individual-organizational transactions and alterations in side bets or investments over time". An example of a definition for the latter theme is given by Wiener (192, 421): "The totality of internalized normative pressures to act in a way which meets organizational goals and interests".

All three sets of definitions represent a legitimate, but very different conceptualizations of the commitment construct (Meyer and Allen 1997, 11). For this reason, Meyer and Allen (1991) developed a three-component model of organizational commitment. According to the authors, these three components correspond to different psychological states. Meyer and Allen developed this concept further by conceptualizing commitment as three components: affective, continuance and normative commitment. An employee can experience all three forms of commitment to various degrees.

Affective commitment reflects employee's emotional attachment to the company. It reflects the "desire" component of organizational commitment. Thus, an employee that is affectively committed to the organization, desires to remain a part of the organization. Continuance commitment refers to the "need" component and it is an individual measure of gains versus losses of working in an organization. Normative commitment refers to the individual's personal feelings of obligation, which can for example come from the obligation an employee feels after receiving training at the present company and it feels obligated to stay further to repay the "debt".

So why is commitment important? According to Meyer and Allen (1997, 24), the three components of commitment have different consequences for other work-related behavior, such as performance of required duties, attendance, and willingness to go "above and beyond the call of duty". The basis for this argument rests upon the differences in the psychological nature of each component of commitment. An employee with strong affective commitment feels emotionally attached to the organization, meaning that he or she will have a greater motivation to contribute to the organization than would an employee with weak affective commitment.

The above is also corroborated by Allen and Meyer (1996). They report consistent negative correlation between organizational commitment and employee intention to leave the organization, as well as actual turnover. These correlations seem to be strongest with affective commitment, but there were also some significant correlations between the other two conceptualizations of commitment.

No theoretical framework comes without its own share of criticism, and in true scientific fashion, the theory has been challenged multiple times over the past few decades. One of the most important critiques comes from Solinger et al (2008) in which the authors state that continuance commitment generally correlates slightly negatively or not at all with affective commitment or work-related outcome variables (citizenship behaviors or job performance). This casts doubt on the convergent validity of continuance commitment. Conversely, normative commitment has been consistently found to correlate very strongly with affective commitment, indicating that it is generally hard to separate between the two.

Eagly and Chaiken (1993) argue that there is a more fundamental issue to this model related to its conceptual framework itself. The three components of organizational commitment measure different phenomenons. Affective commitment measures an attitude towards a target, while continuance and normative commitment represent anticipated outcomes of a behavior, namely the act of leaving. The three-component model was envisioned as a unitary concept, but thematically, the components are grouping target attitudes and behavioral attitudes under one general label, which the authors deemed as confusing and logically incorrect.

The criticisms leveled upon Allen and Meyer's theory are quite strong and compelling upon further examination. The strongest critique is against the continuance and normative commitment. When conducting the preliminary literature review, most of the articles that explored organizational

commitment, focused solely on the affective commitment aspect and it is easy to see why now. Affective commitment is easier to measure, and it more easily explains employee turnover in an organization. While the thesis acknowledges the criticisms against Allen and Meyer's model, the thesis opts for choosing affective commitment as the main dependent variable, due to its ease of measurement and its prominent usage in the literature. Most importantly however, the thesis seeks to explain whether video game developers have an emotional attachment to their organization as a result of crunch, which affects their choice of staying or leaving their place of employment. Affective commitment is best suited to explain this.

4.2 Perceived organizational support

One of the antecedents that have been linked to organizational commitment is the perceived organizational support (POS). Eisenberger and Huntington (1986, 501) argue that for the employees to be able to determine the organization's readiness to reward increased work effort and to meet needs for praise and approval, they develop global beliefs concerning the extent to which their workplace values their contributions and sincerely cares about their well-being. Furthermore, they write that POS would be influenced by the frequency of praise and approval. Additional measures of support could also entail the organization's likelihood of reacting to the employee's future illnesses, superior performance, mistakes, and the organization's willingness to pay a fair salary. Making the employee's work meaningful and interesting would also contribute to a higher POS. Thus, three general forms of perceived favorable treatment received from the organization can be considered as antecedents to POS: fairness, supervisor support, and organizational rewards and job conditions.

Fairness refers to the ways used to determine the distribution of resources among employees (Greenberg 1990). Cropazano and Greenberg (1997) distinguish fairness/procedural justice between structural and social aspects. Structural determinants refer to the formal rules and policies concerning the decisions that may affect employees (such as adequate notice before decisions are implemented, employee input in the decision process, etc.). Social determinants involve the quality of interpersonal treatment in resource allocations, which involves treating employees with dignity and respect while also providing employees with information regarding how outcomes are determined.

Employees tend to develop general views regarding the degree to which their supervisors value their contributions and care about their well-being. Since, supervisors act as agents for the organization the employee works for, employees tend to see the supervisor's favorable or unfavorable disposition towards them as an indication of general organizational support or lack thereof. Thus, a supervisor's support to the employee can be viewed as the organization's support as a whole.

Shore and Shore (1995) suggested that HR practices showing recognition of employee contributions should also be positively related to POS. They have studied a variety of job conditions and rewards in relation to POS, such as pay, recognition, job security, training and role stressors.

Rhoades and Eisenberg (2002) found that all three categories showed strong relationship with POS, with fairness showing the strongest correlation with POS. Since, POS has been determined in previous studies to be a statistically significant antecedent for organizational commitment, it would be prudent to include variables in the analysis that could act as a proxy for organizational support.

4.3 Additional explanations: Work engagement

As mentioned in the background section, the video gaming industry is often considered as a special sort of industry, and video game developers prefer to think of themselves more as artists instead of software developers (Zackariasson and Wilson 2012, 25). With this kind of thinking in mind, we need an alternative explanation for organizational commitment. Since the work video game developers do is often considered by them and the consumers as art, discussing the concept of work engagement seems appropriate.

This concept was introduced and studied in health psychology and it stresses the assumption of "optimal functioning" at work in terms of the employee's well-being (Csikszentmihalyi 1997). Maslach et al. (2001) consider work engagement as the positive antithesis of burnout. They argue that contrary to those who suffer from burnout, engaged employees have a sense of effective and energetic connection with their work, and instead of viewing it as stressful and demanding, they view at as challenging. The alternative view considers the term work engagement as an independent, but distinct concept that is negatively related to burnout. Thus, work engagement is defined and operationalized as "a positive, fulfilling, work-related state of mind which is

characterized by dedication, vigor and absorption" (Schaufeli et al 2002, p. 74). In this case, the authors still identify work engagement as being characterized by high level of energy and strong identification with one's work. However, they describe burnout as the opposite and is characterized by a low level of energy and poor identification with one's work. Thus, in engagement, fulfillment exists in contrast to the voids of life that leave employees feeling empty as in a burnout. Engagement is not a momentary, specific emotional state as it refers to a more pervasive and persistent affective-cognitive state. Vigor is described as high levels of energy and mental resilience while working, the willingness to put more effort into one's work and the persistence in the face of difficulties. Dedication is described as being strongly involved in one's work, and experiencing a sense of enthusiasm, significance, pride and inspiration. Last, but not least, absorption is characterized by having full concentration and happily engrossed in one's work, whereby time passes much more quickly, and one has difficulties detaching oneself from work.

Schaufeli & Bakker (2003) developed a three-dimensional questionnaire based on the definition of work engagement that includes vigor, absorption and dedication. The Utrecht Work Engagement Scale (UWES) is based on the authors' scale and includes questions related to all of the aforementioned three components of work engagement.

4.4 Research question and Hypothesis

The purpose of this thesis is to explain the impact crunch could have on employee's commitment to their organizations. Many video game developers work long hours of overtime which are often not compensated, which lead to an increase of stress among developers and decreased job satisfaction (Woodcock 2016). From this research purpose, the following research questions and hypotheses are formed:

Q1: ***Does "crunch time" affect a video game developer's affective commitment?***

Q2: ***Does the length of crunch impact the focal relationship between frequency of experiencing crunch and affective commitment?***

H1: *The more the video game developer experiences "crunch time" in his/her organization, the more likely is he/she to exhibit lower levels of affective commitment.*

H2: *The longer the crunch period, the more likely is it for the experience of crunch to result in lower levels of affective commitment.*

Q3: ***Does the scale/size (AAA or indie company) of the company impact the focal relationship between frequency of experiencing crunch and affective commitment?***

H3: *The effect of the experience of crunch on affective commitment will be lower in indie companies.*

Q4: Which factors mitigate the effects of the experience of crunch on affective commitment?

H4: *The effect of the experience of crunch on affective commitment will be lower where employees perceive support from the HR, managers and colleagues.*

H5: *The effect of the experience of crunch on affective commitment will be lower when employees receive compensation during the crunch period.*

H6: *The effect of the experience of crunch on affective commitment will be lower where employees show higher work engagement.*

4.5 Summary

In this chapter, the thesis explained the concepts on which the empirical analysis will be based on. Organizational commitment is the main focus of the thesis, but, only affective commitment will be analyzed due to its capacity to measure the emotional attachment of an employee to the organization and its reliability and validity in previous research. The concept of perceived organizational support is important for the understanding of how even during a lot of pressure to accomplish a task, it can still be complete with minimal to no negative side-effects if the employee has enough resources at his/her disposal. The final concept, work engagement, has been explained as an additional explanation because it could be that employees might not show commitment towards their organizations, but towards the work they do or the projects they work on.

In the next chapter, the method of this paper will be explained in detail, including the data collection process and variables.

5 METHODOLOGY AND DATA

This thesis aims to increase our understanding of how the phenomenon of "crunch time" affects the organizational commitment of video game developers. As mentioned previously, research on affective commitment is abundant, but I was unable to find any research that focused specifically

on video game developers and their affective commitment (in general, academic research on video game developers is scarce). My hypothesis, which is in line with the theory posited in the theoretical framework, is that video game developers who experience crunch at a more regular basis are less likely to show commitment to their respective organizations. This means that there is a negative correlation between the measure of occurrence of crunch and the affective commitment of the video game developer.

6.1 Data collection

6.1.1 Population sample

The main population of my study will be the video game developers themselves. To investigate whether "crunch time" has an effect on organizational commitment among video game developers, a questionnaire has been constructed. Instead of relying on employees of a single company for distributing questionnaire, the thesis opted for the distribution of the questionnaire to video game developers across multiple countries and organizations. The IGDA has members across the globe and they allowed me to distribute the questionnaire on their forums and Facebook Group pages. These forums are meant exclusively for professionals working in the video game industry, therefore, membership and posting anything on their pages needs approval of the IGDA administrators beforehand. I have established contact with several members of the IGDA, when asking them if I would be allowed to post the survey on their forums, which are meant exclusively for video game professionals. To put the forum's exclusivity into more tangible terms, this is what one of the administrators had to say when I asked for permission to join and post in their group: "*Normally, I wouldn't allow this, but I believe this is research into an area that is very close to the absolute core of the IGDA mission statement and the game development community in general*".

The reason why the thesis opted for distributing the survey via social media, was the intention to capture as many different sizes of companies (smaller/"indie", large/"AAA") from different countries working on different sorts of projects (mobile, console, pc) and size of company. This is important for the analysis, as "crunch time" could be less prominent in indie companies. Projects are considerably smaller in indie companies and require less resources to create. Furthermore, "indie" games are generally viewed as being more artistic than games coming from big gaming companies such as EA. The collected data will be analyzed using STATA. In the appendix the reader can see in which IGDA FB Groups the questionnaire has been posted.

130 video game developers responded to the survey, with most video game developers responding from US based IGDA chapters. It is common to measure a response rate when distributing survey, but this thesis opts for not doing it for several reasons. The survey links were distributed on FB groups of IGDA chapters with each group being comprised of anywhere between 100 to 5,000 members. While, measuring how many people have seen the survey posted on the group page is feasible, the data would not be particularly useful, especially since Google Forms does not offer any information regarding how many people clicked on the link without responding to the survey. While this is a limitation, the data obtained is no less valuable, as 130 respondents is more than sufficient to conduct an adequate statistical analysis.

6.1.2 The questionnaire

The questionnaire has been constructed specifically for video game developers. For this very reason, the questionnaire contains some question that are devised specifically for video game developers in mind. The questionnaire contains 33 questions/statements in total.

After a paragraph long introduction to the questionnaire, describing the aim of the research and the construction of the questionnaire, questions 1 through 11 deals with basic information about the respondent and their current employment status. This section provides the following information of the respondent: age, sex, current employment status, education, country of employment, size/scale of current company of employment, number of employees at their current company of employment, type of project they were working on, current role in company, type of employment contract and the approximate length of employment at the current company. These questions are mostly there for control purposes, as some of them will be used in the multivariate regression with that purpose in mind.

The second section deals with the issue of crunch and provides 13 statements, 11 of which are evaluated based on how much a respondent agrees with them. The statements are evaluated on a scale from 1 to 5 with 1 indicating strong disagreement, while 5 indicates strong agreement with the respective statement. The other three questions are answered by multiple choice. This section explores several dimensions of crunch, including whether the individual has experienced it at his workplace at all, how often he/she experiences it, whether the developer is compensated during crunch, and if the developer receives any support from the HR, managers and colleagues during crunch. The frequency of crunch will represent the main independent variable, while at least some

of them (such as support from others) will be used as additional explanations in the multivariate regression.

The third section explores commitment of video game developers. Questions are about the feelings the developer has towards the organization they are currently employed at and the project they are currently (or most recently) working on. Same as the second section, the statements are evaluated on a 1 to 5 scale with 1 indicating strong disagreement and 5 indicating strong agreement. This section contains seven questions, five of which explore facets of affective commitment and two of which explore commitment to the project/work the developer is currently working on.

6.2 Variables

6.2.1 Dependent variable: Affective commitment

The dependent variable should capture the level of affective commitment of an individual video game developer. As explained in the theoretical framework, affective commitment reflects employee's emotional attachment to the company ergo it reflects the "desire" component of organizational commitment (Meyer and Allen 1991).

As with other research, this thesis also opted to make the variable affective commitment a composite variable consisting of several different questions. The questions asked in the survey related to affective commitment were:

1. *I would be very happy to continue working at my current company of employment in the foreseeable future.*
2. *I feel emotionally attached to this organization.*
3. *I feel a strong sense of belonging to my organization.*
4. *I feel that the organization's problems are part of my own.*
5. *I think It would be very difficult for me to become as attached to another organization as I am to this one.*

Similarly constructed questions have been used in previous research measuring affective commitment, therefore the thesis stands by these questions as appropriate for the measurement of affective commitment. An appropriate scale is conducted by a factor analysis.

According to Bryman and Cramer (2011, 318-319), factor analysis assesses the degree to which variables are tapping into the same concept. In the case of this thesis, there are five variables that

have been used in previous research before this that are supposed to measure affective commitment. The factor analysis allows to see if the respondent view these variables similarly, or do they consider them completely unrelated to each other. This is called "factorial validity" and it enables us to assess whether the variables that make up the scale by measuring the extent to which they seem to be measuring the same concept.

Several factor analyses have to be conducted for this thesis. The first one relates to the measurement of affective commitment, which will be consisting of five variables/questions that have been used in previous research as appropriate variables for this concept. The second one relates to the measurement of work engagement, which will be consisting of two variables that have also been used in previous research.

Starting with the measurement of affective commitment, here are the results of the factor analysis.

Table 6.1. Component Matrix for Affective commitment

Variable	Component 1
strong sense of belonging	0,874
emotional attachment to the organization	0,862
happy to work at the current company in the future	0,780
very difficult to be attached to different organization	0,767
feeling that the organizations problems are my own	0,766

Table 6.2. Reliability statistics for Affective commitment

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.868	.870	5

Table 6.1 shows how the five variables are loaded into one component. Since the factor analysis has produced only one component components, only one composite variable for measuring affective commitment will be created out the five commitment variables. Table 6.2 shows the value of Cronbach's alpha, which is the most common measure of internal consistency. It is commonly used when creating a scale from different questions in a survey. The value of the Cronbach's alpha is 0,870 which indicates a high level of internal consistency of the scale. To sum up, the new scale for measuring affective commitment, which will be named *affective commitment*, has been tested with all the necessary steps and it is valid for further use in the empirical analysis (see Appendix B for more details on the recoding process).

A point of contention could be the use of Likert items to construct a new scale. However, I argue that a scale constructed of five Likert items is more than enough to transform the variable into a true interval variable. This has been done in multiple occasions for creating affective commitment scales and the thesis is far from original when it comes to creating an affective commitment scale in this manner (see Afsar 2014).

6.2.2 Independent variables

MAIN INDEPENDENT

As the main focus of this research lies on the issue of crunch, crunch will represent the thesis' main independent variable in the linear OLS regression. There are several questions that are related to the issue of crunch in the questionnaire. The main one is captured in question 15: "*I experience "crunch time" at my organization on a regular basis*". This statement is evaluated by respondents on a 1-5 scale with 1 indicating strong disagreement with the statement, while 5 indicates strong agreement. While, this is a text-book example of a Likert item, the thesis still opts to leave it in the thesis as is for several reasons. First, if one were to code this variable as a dichotomous one, vital data would essentially be lost due to converting a five-point variable into a two-point variable. Second, the thesis will rely on several pre-regression diagnostics to assure that the multivariate regression model is valid with the Likert items included. Third, a separate regression analysis will be done with a binary variable as part of the robustness test to see whether the focal relationship remains the same (see Appendix B for the coding). There are advantages and disadvantages to either approach, but the thesis puts pre-regression diagnostics in the forefront to validate the choice of using the main independent variable (and some additional explanatory variables) as is.

RIVAL VARIABLES

There are several additional explanations that will be analyzed in the thesis. The first one being work engagement. Work engagement was measured with two statements from the questionnaire. Question 26 being "*I feel emotionally attached to the project I work on"* and question 27 being *"I find the project(s) I work on meaning full and important to me"*. Just as in the crunch section, the statements are evaluated on 1-5 scale with 1 indicating strong disagreement with the statement, while 5 indicates strong agreement with the statements. Similarly, to crunch, a scale will be produced for work engagement by conducting a factor analysis.

Table 6.3. Component Matrix for Work Engagement

Variable	COMPONENT 1
Emotionally attached to the project.	0.927
Finding the work meaningful and important.	0.927

Table 6.4. Reliability statistics for Work Engagement

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.835	.835	2

Table 6.3 shows the component matrix of the work engagement scale, and both variables that would constitute the new scale were placed under the first and only component. Table 6.4 shows the reliability statistics for work engagement and the value of Cronbach's alpha is 0,835, meaning that the produced scale is reliable (see Appendix B for the coding).

Next is the measurement of perceived organizational support. The statements regarding support during crunch can be found in the crunch section under the questions 17, 18 and 19. They measure the perception of whether the employees feel the HR, manager(s) and colleagues are there to help them when/if they experience crunch, respectively. As with the main independent variable, the thesis opts to leave these Likert items as is. However, support from colleagues will not be used in the analysis, since it has not shown to have any significant correlation with the dependent variable in the bivariate analysis (see Appendix D). The two variables will be used as additional explanations in the multivariate regression as part of the exclusionary strategy.

As it is not unheard of that video game developers do not receive any compensation during crunch, it would be prudent to see how compensation can affect the focal relationship. That is why the variable *crunch compensation* will be added in the multivariate regression analysis, to see how it affects the variable *crunch experience.* Similarly, *length of crunch* will also be added to the analysis to see whether it has any effect on the focal relationship.

CONTROL VARIABLES

Control variables will also be required in order to conduct a standard multivariate regression analysis. Standard control variables that have been used in many social science research, including that of Allen and Meyer (1991), and which will also be used in this thesis are age, level of education, length of employment, sex, scale of company and type of contract. Some recoding was required, and the complete list of recodings can be found in Appendix B. Descriptive statistics of the control variables can be found in Appendix A2.

Sex is a dichotomous variable with the value 0 representing a male employee and the value 1 representing a female employee. The variable *Age* is a scaled variable that has been recoded into *age groups* only for the descriptive analysis, so it is much easier to present the data in the descriptive statistics sub-chapter. The nominal variable *education* captures the highest level of education achieved by the respondent. For the benefit of the regression analysis, the variable *education* has been transformed into a dichotomous variable, with the value 0 representing completed vocational/secondary degree and the value 1 representing completed university degree. *Type of contract* is a dichotomous measurement with the value 0 representing a temporary contract and the value 1 representing a permanent/open-ended type of employment contract. *Length of employment* was a closed choice question, and respondents could choose between the answers 1-3 months, 3-6 months, 1-2 years and 2+ years. This variable had to be recoded into a dichotomous measurement in order to appropriately analyze it in the multivariate regression. The thesis divided the responses into two groups – respondents that have worked in the current company of employment for less than two years (coded as 0) and respondents that have worked in the company for over two years (coded as 1).

Scale/size of the company that the video game developer works for could also prove important as commitment to the organization and work engagement might vary between game developers that work for a AAA or indie company. This is asked under question 6 in the questionnaire. The

developers can choose between two possible responses – smaller/indie developer or AAA video game studio/publisher. The variable *scaleCO1* captures this question and the thesis opted for a dichotomous variable with the value 0 indicating an indie company and the value 1 indicating a AAA company.

Several control variables specific to the video gaming industry have been added in the questionnaire. The thesis explores factors such as *type of game* being produced/worked on by the respondent at the time of answering the survey and how long was the last crunch he/she experienced. While there are several types of games that can be produced, the thesis opted for the most common ones which are mobile, console, PC, multi-platform and virtual reality/augmented reality.

6.3 Limitations and ethical considerations

When it comes to limitations, one issue comes from the research question regarding HR's role in mitigating the effects of crunch. Some smaller companies will not have any HR personnel employed, so that question is automatically not applicable in this case. To mitigate this limitation, I wrote in the question to answer only if it is applicable to the respondent.

Another limitation comes with the focus of the survey. Self-selection bias is often a problem and results when survey respondents are allowed to decide entirely for themselves whether or not they will participate in the survey (which was very much the case with this research). The respondents who answered the survey have a higher propensity to participate and that is why self-selection bias occurs in the resulting data. Often, self-selection can lead to biased data, as the respondents who choose to answer the survey will not effectively represent the entire target population. However, I argue that this limitation is not so important for the research, as the thesis explores crunch's relationship with affective commitment.

Since, the issue of crunch is very sensitive in the video game industry, I expect to hear very negative comments from video game developers about their places of employment. Identities of survey participants will remain anonymous, as will their company of employment.

6.4 Summary

An original survey was created for the purposes of this thesis and distributed among video game developers via IGDA Facebook chapter groups. By distributing the survey in such a manner, more

diverse information about nationality, education, age and scale/size of company is obtained as oppose to distributing a survey to one single company, which is usually the case in most labour science studies. However, response rate has not been obtained as a result of this method.

With 130 video game developers responding to the survey, the data was rich in detail with diverse responses. With over 30 questions in the survey, appropriate variables could be constructed, including a dependent variable, main independent, control and additional explanatory variables. All of the variables have been operationalized with proper coding and computing. In the next chapter, the variables will be put into use, by first describing them in the descriptive analysis, and later conducting a multivariate regression analysis to test the hypotheses formed in the theoretical framework.

7 RESULTS AND ANALYSIS

7.1 Descriptive statistics

7.1.1 Background data

It is important to begin with some descriptive statistics, to show some background information of the population that respondent to the survey. Starting with sex, age groups, highest level of obtained education, country, type of game the video game developer is currently working on, status of employment and scale of the company (whether it is AAA or indie). For a more detailed look at the descriptive data, see Appendix A.

Unsurprisingly, the majority of the respondents were male, contributing 78,5 % of the total sample size with 102 respondents, while female video game developers represent 20,8 % with 27 respondents. Since there are multiple respondents, it would be best to divide them into three different age groups. 43,1 % of the sample are aged between 17 and 30, 40 % are 31 to 40 years of age, while the rest of respondents are more than 41 years old. Most video game developers in the sample have finished their bachelor's degree as their highest achieved education and they represent 60 % of the sample. Second highest obtained degree was the master's degree with 16,2 % of the respondents reporting obtained degree. 39,2 % of the sample's respondents report to work in the USA, which is followed by Finland with 16,9 %. Mobile games are the most developed type of game according to the responses in this survey, with 39,2 % of all respondents reporting that this was the project they were working on at the time they were responding to this questionnaire.

This value was expected, due to the high focus on mobile video game development in the video gaming industry. PC was the second most worked on type of game, with 26,2 % of all respondents having worked on PC titles at the time of answering this questionnaire. This value is also expected, as most indie developers focus on creating PC games due to the availability of programming tools and accessibility of the PC gaming platforms, such as Steam. 83,3 % of the sample reported to have an open-ended/permanent contract, while 11,5 % reported that they currently have a temporary contract. Only 3 respondents reported to have been unemployed when answering the questionnaire. The values of the *scale of the company* is more equally distributed. 53,8 % of the respondents classify the company they work for as an indie company, while 42,3 % of the respondents classify it as AAA.

Length of employment is also important for the analysis, as it has been corroborated by other research that it can affect an employee's affective commitment. Over 75% of the respondents have reported to have worked at their current company of employment for over a year, with 50% of all the respondents having worked there for over two years. Only 22.5% of all respondents have reported to have worked in their current company of employment under six months.

7.1.2 Affective commitment

Fortunately for the analysis, all of the 130 respondents responded to all five questions about commitment, resulting in the scale variable *affective commitment* having none missing cases. The lowest value for *affective commitment* is 5 and the highest is 25 The mean value of the variable is 16.00 with a standard deviation of 5.42. The respondents are on average more committed than not committed. This is corroborated with also relatively high quartiles, with *affective commitment* scoring 12, 16 and 21 on all three percentiles respectively (see table below).

Table 7.1. Descriptive statistics for affective commitment variables

VARIABLE name	Survey question/item description	N	25	50	75	MEAN	SD
comWORKFUT	*25. I would be very happy to continue working at my current company of employment in the foreseeable future.*	130	3	4	5	3.68	1.295
comEMOTORG	*26. I feel emotionally attached to this organisation.*	130	3	4	5	3.54	1.307
comBELORG	*29. I feel a strong sense of belonging to my organisation.*	130	2	3.50	5	3.38	1.284
comORGPROB	*30. I feel that the organization's problems are part of my own.*	130	2	3	4	2.96	1.394
comDIFFATT	*31. I think It would be very difficult for me to become as attached to another organisation as I am to this one.*	130	1	2	3	2.44	1.414

7.1.3 Work and crunch statistics

Moving from background data, the thesis takes a closer look into the questions related to crunch (distribution of responses is in Appendix A3). According to the responses received from the video game developers, 110 respondents making up for 84.6 % of the entire sample have at some point experienced crunch, while 20 respondents have not experienced crunch in their workplace. Two of the survey questions dealt with the phenomenon of crunch in general and how the respondents

felt about this practice. When asked whether they believed crunch was a normal practice in the industry, more than 60% rated their response with a 4 or above, while 75% rated it above 3, indicating that a large majority of the respondents believe that crunch is a frequent occurrence in the industry. However, more than 75% respondents believe that the practice is entirely unnecessary, rating their response regarding the necessity of crunch below 2. When answering the question of whether the respondent experiences crunch on a regular basis, the mean value for this variable is 2.91 meaning that the respondents in average experience not too often, but also not too rarely. The mean value for crunch compensation is 2.51, meaning that the average value for whether game developers are compensated for their work during crunch is 2.51. The next section of crunch dealt with support during the crunch period. The mean value for support from HR, managers/supervisors and colleagues during crunch was 2.13, 2.96 and 3.54 respectively. The variable crunch future expectancy measured how likely is it that the respondents will experience crunch in the next three months. More than 60% responded with a value above 4, indicating that a majority of the sampled video game developers are very likely to experience crunch in the next three months. Regarding the length of crunch, 33% of all respondents answered that their last crunch lasted for over a month, while most respondents (59%) report that their crunch lasted several weeks.

A criticism that could be leveled against the definition of crunch would be that perhaps everyone perceives crunch differently, or rather, everyone could define it in a different way. For this reason, two additional variables/questions were constructed to see whether the respondents could differentiate crunch from other workload related occurrences. The variable *workload* measures whether the respondent thinks the *workload* is excessive for the salary he/she receives. The variable *time pressure* measures whether there is generally too much time pressure to complete a project/task. The mean values for these two variables are 3.30 and 3.52 respectively. When comparing to the mean value of *crunch experience* (2.91), the values are different enough and both time pressure and workload can therefore be considered distinct from crunch.

7.2 Regression validity tests

7.2.1 Bi-variate analysis

The first step in the bi-variate analyses is to test the focal relationship, that is the relationship between the main independent variable and dependent variable. In the case of this thesis, that is

between how frequent the respondent experiences crunch at his/her company of employment and his/her affective commitment to the company respectively.

The bivariate analysis appears to show a negative, but significant relationship between the two variables. The value of Pearson's r (Standardized Coefficient Beta) is –0.211 and is significant at $p<0.05$. This means that in average the more the respondent experiences crunch at his company of employment, the more likely he/she is to show a lower affective commitment to the organization of employment (see Appendix D).

7.3 Regression

With all the necessary tests concluded with the pre-regression diagnostics (see Appendix F), the regression model is ready for discussion. In this sub-chapter, the results of the multivariate regression will be presented and discussed in detail.

The thesis opted for an Ordinary Least Squares (OLS) multivariate regression in order to find out whether there is a correlation between the measure of occurrence of crunch in the workplace and affective commitment shown. Several control variables will be introduced in the thesis. The thesis employs cross-sectional data for the OLS multivariate regression analysis obtained via an original survey, distributed to video game developers. Using a five-point Likert scale in a regression has been used often, including in research with organizational commitment.

The goal of any theory-based data analysis is to evaluate whether an empirically observed association could legitimately be interpreted as a relationship. This is where multivariate statistical techniques come into play, such as multiple linear regressions, which will be employed in this thesis (Aneshensel 2002, 65). Moreover, the analysis will employ an exclusionary strategy, which rules out alternative explanations. The goal of the exclusionary strategy is accomplished when the focal relationship is not accounted for by other independent or control variables. (Aneschensel 2002, 64). In the context of the thesis, the analysis will go as described in this paragraph. In the first model, the bivariate correlation of the focal relationship will be shown, e.g. between the main independent variable crunch experience and the dependent variable affective commitment. The second model will add control variables to the multivariate regression, as part of the exclusionary strategy. The focal relationship should remain significantly correlated in Model 2 if the exclusionary strategy was successful. In the next five models, the rival variables will be added separately to the focal relationship as part of the exclusionary strategy. Scale of company will be

added in Model 3, crunch compensation will be used in the fourth model, crunch HR support and crunch manager support will be added in Model 5, length of crunch will be added in Model 6 and work engagement will be added in the seventh model. The final eighth model will add all of the significantly flagged variables from the first 6 models to see how the main independent variable behaves with additional explanations.

Table 7.2. Multivariate regression model (unstandardized b-values and standard deviations). Dependent variable: affective commitment.

VARIABLE	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
crunchEXP	-0.819*	-0.779*	-0.759*	-0.729*	-0.535	-0.820*	-0.682*	-0.613*
	-0.34	-0.33	-0.34	-0.33	-0.36	-0.34	-0.28	-0.28
Age		0.044						
		-0.07						
Sex of the employee		0.264						
		-1.12						
contract of employment		3.177*						2.694*
		-1.41						-1.12
education binary		-2.743*						-1.944*
		-1.11						-0.91
lenght of employment		1.015						
		-1						
scale of company			-0.419					
			-0.97					
crunchCOMP				0.752*				0.541
				-0.33				-0.27
crunchHR					0.84			
					-0.45			
crunchMANG					0.669			
					-0.44			
crunch lenght binary						-0.273		
						-0.94		
workENGA							1.214***	1.117***
							-0.16	-0.16
constant	18.318***	15.523***	18.426***	16.124***	13.476***	18.446***	9.577***	7.853***
	-1.08	-3.05	-1.21	-1.4	-1.72	-1.17	-1.5	-2.03
R-sqr	0.045	0.171	0.041	0.08	0.157	0.045	0.337	0.428
dfres	127	113	119	125	104	126	125	114
* p<0.05, ** p<0.01, *** p<0.001								

* p<0.05, ** p<0.01, *** p<0.001 (no stars, means that it is not significant)

The first model is a confirmation of the assumption that the more a respondent agrees that he/she experiences crunch at the workplace, the less he/she shows affective commitment to the company of employment. As explained in the bivariate table, the relationship is negative and significant at

a $p<0.05$. The value of -0,819 indicates that a one unit increase of agreeing that the respondent experiences crunch at the workplace leads to a decrease in 0.819 of affective commitment.

Adding the control variables age, sex, contract of employee, education and employment length slightly modifies the focal relationship. The unstandardized coefficient of the main independent variable crunch experience lowered from -0.819 to -0.779 but remained significant at $p<0.05$. Type of contract and education level (now coded dichotomously as 0 having a vocational/secondary degree and 1 having a university degree). Type of contract was significantly correlated with affective commitment. It has the value of 3.177 and is significant at $p<0.05$. The variable is dichotomously coded, which means that a shift from having a temporary contract to a permanent one increases the employee's affective commitment by 3.177. The education level variable has an unstandardized coefficient value of -2.743 and is significant at $p<0.05$. This means that a having a university degree instead of a secondary/vocational degree is negatively correlated with affective commitment and will lower the respondent's affective commitment level by 2.743. The model explains 17.1% of the total variance.

In the third model the thesis adds the first additional explanation to the analysis. Scale of company does not appear to be correlated with affective commitment at any way. The main independent variable still remains correlated with affective commitment at $p<0.05$.

In the fourth model, crunch compensation was added to the regression. The value of crunch experience is now -0.729 but remained significant at $p<0.05$. Crunch compensation holds a value of 0.752 and is significant at $p<0.05$, meaning that the more respondent is compensated during crunch, the more committed he/she is to the organization. The model also indicates that compensation during crunch can slightly mitigate the effects of crunch on the respondent's affective commitment. However, the total variance explained has lowered down to 8 %.

In the fifth model the thesis added two variables that would represent proxies for perceived social support. The variables added were crunch HR support and crunch manager support. This resulted in none of the independent variables being significantly correlated with affective commitment.

In the sixth model, the thesis opted for testing whether the length of crunch had any effect on the focal relationship. The variable *crunch length* was coded dichotomously, with the value 0 meaning the last crunch was less than a month long and the value 1 meaning the crunch was longer than

one month. The variable seemingly had no effect on the focal relationship whatsoever, as the main independent variable still retained almost the same unstandardized coefficient value from the first model at the same level of significance. The r-squared value also remains the same with a value of 0.045.

In the seventh model, the thesis added the variable *work engagement* to see whether work engagement had any effect on the focal relationship. Unsurprisingly, *work engagement* shows high correlation with affective commitment with an under standardized coefficient value of 1.214at a significance level of $p<0.001$. This means that for each single unit increase of work engagement increases the respondent's affective commitment by 1.214. What is surprising, however, is that despite *work engagement* being so significantly correlated with affective commitment, *crunch experience* is still significantly correlated with affective commitment. The unstandardized coefficient of the main independent variable increased from –0.819 to 0.682 and is still significant at $p<0.05$. The model explains that a respondent that shows higher engagement with his/her work can slightly mitigate his/her experience of crunch, and thus show a higher level of affective commitment as a result. Adding *work engagement* to the multivariate regression also bumps up the value of explained variance to 0.337, which is even more than the increase that resulted from adding six control variables.

The final model retains only the variables that were significantly correlated with the dependent variable in the previous models. The focal relationship is still significant with crunch experience holding the unstandardized coefficient value of -0.613. *contract of employee* and *education* are still significantly correlated with the dependent variable in the final model, albeit (expectedly) with lower unstandardized coefficient values than in the second model. *Crunch compensation* is no longer significantly correlated with the dependent variable when controlling for other factors. *Work engagement* is still significant at $p<0.001$. Education being significantly correlated is surprising, but what is more surprising is its direction. It appears that employees who have obtained a university degree show lower commitment than employees who have obtained a high school/vocational degree. This might be, because respondents hired right after graduating high school/vocational school have a higher motivation to prove themselves in the company, and the crunch will not affect their commitment as much as a result.

7.4 Discussion

According to the last multivariate regression model, we can accept H1 that the more the video game developer experiences "crunch time" in his/her organization, the more likely is he/she to exhibit lower levels of affective commitment. While *crunch compensation* has shown to be significantly correlated with affective commitment in the fourth regression model, it did not remain significant when controlling for other factors, therefore H5 is rejected. Same goes for H4, as *support from HR or the managers* did not show any significant correlations when present with *crunch experience*, despite showing strong correlation at $p<0.005$ in bivariate analyses. In the case of *HR and manager support*, even crunch experience became non-significant. However, this is somewhat in line with the perceived organizational support theory. In the case of this thesis, crunch simply "beats" any perceived support that the developers are receiving, meaning that the experience crunch is very high in comparison to the amount of support they receive and vice-versa. *Work engagement* unsurprisingly shows high significance at the final model and it explains for most of the variance in the model. Thus, we can confirm H6 that employees that show higher engagement to the work/projects they work on, will show higher affective commitment, as they perceive crunch to be less severe. Furthermore, to answer the research question Q3, scale/size of company did not seem to impact the regression model in any meaningful way, therefore H3 was also rejected. According to the results presented in this thesis, employees' levels of affective commitment do not vary between employees working for an indie company from those who work for a AAA company. This is surprising, as the assumption was that commitment would be higher in smaller companies, where developers are closer to their projects they work on. More research on this with a larger sample would be required in the future to investigate this question further. *Length of crunch binary* also does not show any correlation with affective commitment in the fifth model, therefore H2 also has to be rejected.

To further address the limitations of keeping the Likert items *crunch experience*, *crunch HR support*, *crunch manager support* and *crunch compensation* as is, the thesis opted for conducting a robustness check by conducting a separate multivariate regression analysis with the aforementioned variables now coded with 0 meaning the respondent does not agree with the statement and 1 indicating agreement with the statement. The coding was done towards the disagreeing spectrum, with the values 1 through 3 being recoded to 0 and 3-4 being recoded to 1. The robustness test is attached in Appendix C. The results differ a bit from the original multivariate

regression, but the experience of crunch is still significant in the final model of the regression. The only difference from the original model is that the level of education is missing from the final model, but support from the manager is now significant in the final model. Work engagement also remains equally significant in the final model of the robustness test. Therefore, if we took the robustness test as the main regression model, H1, H4 (albeit only support from the managers) and H6 would accepted, but the other hypotheses would be rejected. However, the thesis still argues that the main regression analysis is the right one, due to the amount of data that is lost due to coding the Likert items in a dichotomous fashion.

The main aim of this thesis was to investigate whether the respondents' experience of crunch affects their affective commitment towards their companies of employment. The results confirmed the first hypothesis that the experience of crunch does affect the affective commitment of video game developers, even when controlling for many other factors. Even when adding work engagement into the analysis as a rival variable, which is expectedly highly correlated with affective commitment, did not seem to make the focal relationship any less significant. This goes against most of the research reviewed in the literature review chapter, where there was no apparent correlation between overtime. Allen and Meyer (1990) who, for all intents and purposes, "wrote the book" on organizational commitment, did not even consider overtime or working hours as a possible antecedent to commitment at the time. Emmerik and Sanders' (2005) research showed no correlation between the desire to work less and affective commitment, yet context does matter. They do not give any information whether overtime was fairly compensated, which is could be important in the case when overtime is involuntary.

Agarwal's (2015) research (while dealing more specifically with attrition, as result of work stress and prolonged working hours) also goes against the results presented in this thesis. Agarwal's research is even more surprising in terms of results as it dealt with the IT sector, while distinct from the video gaming sector, still experiences mandatory overtimes on a regular basis. Agarwal found that there was no correlation between job satisfaction and job stress (occurred also by overtime), and affective commitment. There are several possibilities to why this might have occurred. One, is perhaps that the thesis researched overtime via crunch, which is often seen as an extreme form of overtime and job demands. Agarwal. on the other hand, went by researching stress and job satisfaction as consequence of overtime, which is a more indirect way. Second, Agarwal

collected data from a single geographical unit, while this thesis opted for collecting data around the world.

Most in line with the results of the thesis is the study by Shariat et al. (2014) where they found a positive relationship between the quality of work life and organizational commitment. While their study includes overtime in the quality of work life variable, a more detailed description of overtime is missing, such as whether it is voluntary or not and whether the employees are compensated or not.

Overtime/workload, in the form of crunch, does show a significant negative correlation with affective commitment based on the results of the thesis, which goes to show that more investigation on the relationship between overtime and affective commitment is necessary. From an HR perspective, there are several consequences of lower commitment, such as lower job satisfaction, higher turnover rate and, according to some studies, decreased performance of employees (Meyer et al. 1989). Since, the mean value of support from HR during crunch is 2.13 (based on a Likert scale of 1-5), a majority of respondents feel that the HR is not of much support during crunch period. It is the main task of a human resource manager to manage the well-being of employees and based on these results, this is something the video gaming industry needs to resolve.

More research regarding crunch and overtime in general is needed in future HR studies. Less committed employees mean a greater likelihood of them leaving the current company in search for one with better working competitions, which in turn means companies lose talented and creative individuals as a result.

8 CONCLUSION

Based on the results, crunch experience does have a negative impact on affective commitment at a significant level, even when controlling for other factors, such as work engagement, type of contract, education, compensation and compensation during crunch. While, support from managers/HR and compensation during crunch do not mitigate the effects of crunch on affective commitment, work engagement does have a strong mitigating effect on the focal relationship.

The thesis contributes to the previous scholarships in several different ways. First, it adds some much-needed information and research on how overtime affects affective commitment. While overtime has been researched quite often by psychologist and labour scientists in relation to stress and burnout, only few studies focused their attention on how overtime affects organizational commitment. This thesis bridged this gap by conducting a research on crunch, which is a special type of overtime, and how it affects a video game developer's affective commitment. Second, the thesis contributes to the very under-researched scholarship of the video game industry. Most of the studies have focused on the gender issues that are currently prominent in the industry, but little to no focus has been given on crunch, which according to the data and information available from testimonials, transcends age, nationality and gender.

The relationship between crunch and affective commitment should not be understated. The video gaming industry is suffering under a high turnover rate, which in the literature can often be contributed to lower levels of affective commitment. In the long-run, video game studios/publishers will have to find a way to increase the levels of affective commitment of their employees, if they will want to keep talented individuals creating the games that gamers enjoy playing.

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APPENDICES

Appendix A: Descriptive statistics

A1: Descriptive statistics of Likert items/scales

VARIABLE name	Survey question/item description	N	25	50	75	MEAN	SD
workload	*12. I think the workload is excessive for the salary I receive.*	130	2	3	4	3.30	1.243
timepressure	*13. I think there is generally too much time pressure to complete a project/task.*	130	3	4	5	3.52	1.196
crunchEXP	*15. I experience "crunch time" at my organisation on a regular basis.*	129	2	3	4	2.91	1.394
crunchCOMP	*16. I am often compensated during a period of "crunch time".*	129	1	2	4	2.51	1.420
crunchHR	*17. I feel that the HR department is there to help me when/if I experience "crunch time" or overbearing workload/working hours (answer only if applicable).*	109	1	1	3	2.13	1.355

crunchMANG	*18. I feel that the manager(s) is/are there to help me when/if I experience "crunch time" or overbearing workload/working hours.*	127	2	3	4	2.96	1.416
crunchCOL	*19. I feel that my colleagues is/are there to help me when/if I experience "crunch time" or overbearing workload/working hours.*	128	3	4	4	3.54	1.108
crunchNOR	*20. I think that "crunch time" is a normal part of the video gaming industry.*	130	3	4	5	3.62	1.366
crunchNEC	*21. I believe "crunch time" is a necessary part of the gaming industry.*	130	1	1	2	1.87	1.130
crunchFUT	*22. It is very likely that I will experience "crunch time" at some point within the next three months.*	128	3	4	5	3.80	1.416
comWORKFUT	*25. I would be very happy to continue working at my current company of*	130	3	4	5	3.68	1.295

	employment in the foreseeable future.						
comEMOTORG	*26. I feel emotionally attached to this organisation.*	130	3	4	5	3.54	1.307
comBELORG	*29. I feel a strong sense of belonging to my organisation.*	130	2	3.50	5	3.38	1.284
comORGPROB	*30. I feel that the organization's problems are part of my own.*	130	2	3	4	2.96	1.394
comDIFFATT	*31. I think It would be very difficult for me to become as attached to another organisation as I am to this one.*	130	1	2	3	2.44	1.414
engaEMOTPRO	*27. I feel emotionally attached to the project I work on.*	129	3	4	5	3.50	1.288
engaWORKMEAN	*28. I find the project(s) that I work on meaningful and important to me.*	130	2	4	5	3.43	1.288
affCOM	*Scale variable of questions 25,26,29,30 and 31.*	130	12	16	21	16.00	5.42
workENGA	*Scale variable of quesitons 27 and 28.*	129	5	7	9	6.92	2.39

A2: Descriptive statistics of nominal variables

Agegroups (*recoded from question 1. What is your age?***)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	17-30 years	56	43.1	43.1	43.1
	31-40 years	52	40.0	40.0	83.1
	41+ years	22	16.9	16.9	100.0
	Total	130	100.0	100.0	

Sex (*Question 2. What is your sex?***)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	102	78.5	79.1	79.1
	Female	27	20.8	20.9	100.0
	Total	129	99.2	100.0	
Missing	System	1	.8		
Total		130	100.0		

EmploymentSTATUS (*Question 3. What is your current employment situation?)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unemployed	3	2.3	2.4	2.4
	Employed	109	83.8	85.8	88.2
	Self-Employed	15	11.5	11.8	100.0
	Total	127	97.7	100.0	
Missing	System	3	2.3		
Total		130	100.0		

Education (*Question 4. What is the highest level of education you have obtained?)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Associat	2	1.5	1.6	1.6
	Bachelor	78	60.0	60.9	62.5
	Doctoral	1	.8	.8	63.3
	Master o	21	16.2	16.4	79.7
	Secondar	15	11.5	11.7	91.4
	Vocation	11	8.5	8.6	100.0
	Total	128	98.5	100.0	
Missing	7	2	1.5		
Total		130	100.0		

educationBin (*Question 4. What is the highest level of education you have obtained*? *CODED BINARY*)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	secondary/vocational	30	23.1	23.1	23.1
	university degree	100	76.9	76.9	100.0
	Total	130	100.0	100.0	

Country (*Question 5. In which country do you work in?)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Australi	16	12.3	12.6	12.6
	Canada	2	1.5	1.6	14.2
	England	1	.8	.8	15.0
	Estonia	2	1.5	1.6	16.5

	Finland	22	16.9	17.3	33.9
	Germany	3	2.3	2.4	36.2
	Italy	1	.8	.8	37.0
	New Zeal	5	3.8	3.9	40.9
	Norway	1	.8	.8	41.7
	Philippi	1	.8	.8	42.5
	Singapor	5	3.8	3.9	46.5
	Sweden	7	5.4	5.5	52.0
	Switzerl	1	.8	.8	52.8
	UK	9	6.9	7.1	59.8
	USA	51	39.2	40.2	100.0
	Total	127	97.7	100.0	
Missing	17	3	2.3		
Total		130	100.0		

ScaleCO1 *(Question 6. Size/scale of your most current company of employment.)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	AAA	55	42.3	44.0	44.0
	Smaller/indie	70	53.8	56.0	100.0
	Total	125	96.2	100.0	
Missing	System	5	3.8		
Total		130	100.0		

Gametype1 *(Question 8. What type of project are you currently working on (please state in other, if it is more than one)?)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Console	20	15.4	15.7	15.7
	Mobile game	51	39.2	40.2	55.9
	Multi	19	14.6	15.0	70.9

	PC	34	26.2	26.8	97.6
	VR/AR	3	2.3	2.4	100.0
	Total	127	97.7	100.0	
Missing	6	3	2.3		
Total		130	100.0		

Contract *(Question 10. Type of employment contract?)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unemployed	3	2.3	2.4	2.4
	Open-ended/permanent	109	83.8	85.8	88.2
	Temporary	15	11.5	11.8	100.0
	Total	127	97.7	100.0	
Missing	System	3	2.3		
Total		130	100.0		

Lenghtofempl1 *(Question 11. Approximate length of employment (in months or years) at the current (or recent if unemployed) company/position?)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 months	4	3.1	3.1	3.1
	3-6 months	11	8.5	8.5	11.6
	6 months- 1 year	14	10.8	10.9	22.5
	1-2 years	33	25.4	25.6	48.1
	2+ years	67	51.5	51.9	100.0
	Total	129	99.2	100.0	
Missing	System	1	.8		
Total		130	100.0		

lenghtofemploymentBin (*Question 11. Approximate length of employment (in months or years) at the current (or recent if unemployed) company/position? CODED BINARY*)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 2 years	62	47.7	48.1	48.1
	more than two years	67	51.5	51.9	100.0
	Total	129	99.2	100.0	
Missing	System	1	.8		
Total		130	100.0		

Crunchyesno *(Question 14. Have you ever experienced crunch at your place of employment?)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	20	15.4	15.4	15.4
	1	110	84.6	84.6	100.0
	Total	130	100.0	100.0	

crunchLENGHT1 *(Question 24. What was the approximate duration of the last "crunch" you have experienced?)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A couple of days	14	10.8	11.5	11.5
	A week	23	17.7	18.9	30.3
	Several weeks	35	26.9	28.7	59.0
	A month	6	4.6	4.9	63.9
	Over a month	44	33.8	36.1	100.0
	Total	122	93.8	100.0	
Missing	System	8	6.2		
Total		130	100.0		

crunchlenghtBin *(Question 24. What was the approximate duration of the last "crunch" you have experienced? CODED BINARY)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than a month	72	55.4	55.4	55.4
	more than a month	58	44.6	44.6	100.0
	Total	130	100.0	100.0	

crunchHRbin (*17. I feel that the HR department is there to help me when/if I experience "crunch time" or overbearing workload/working hours (answer only if applicable) CODED BINARY)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	107	82.3	82.3	82.3
	1	23	17.7	17.7	100.0
	Total	130	100.0	100.0	

crunchMANGbin (*18. I feel that the manager(s) is/are there to help me when/if I experience "crunch time" or overbearing workload/working hours. CODED BINARY)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	78	60.0	60.0	60.0
	1	52	40.0	40.0	100.0
	Total	130	100.0	100.0	

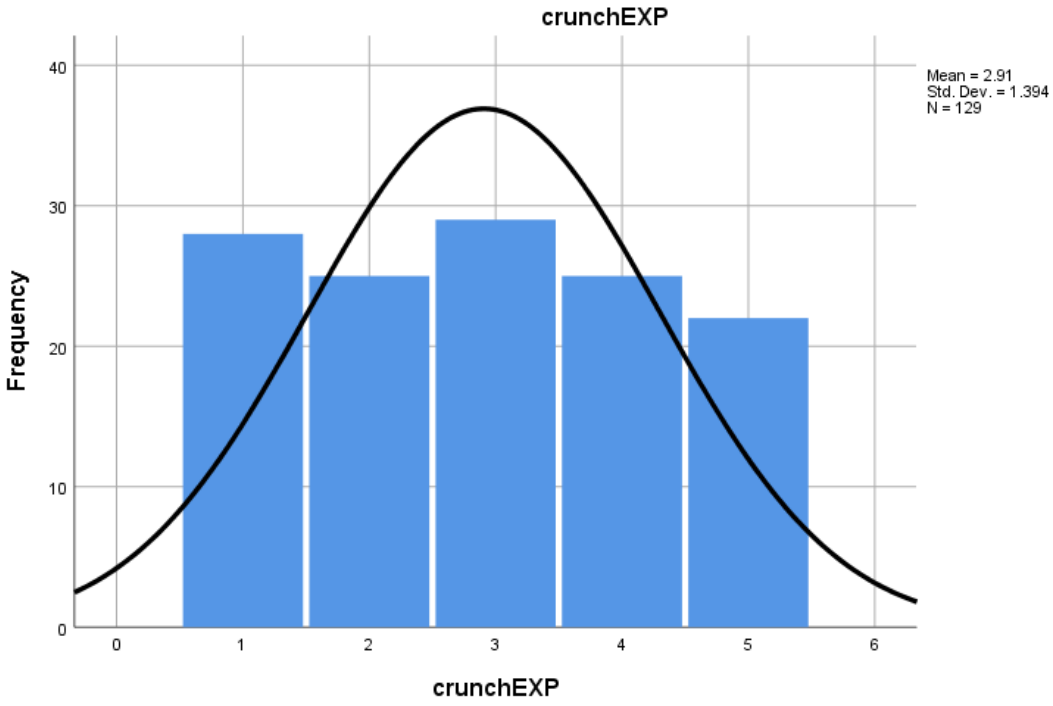
Crunchbinary1 (*15. I experience "crunch time" at my organisation on a regular basis. CODED BINARY)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	107	82.3	82.3	82.3
	1	23	17.7	17.7	100.0

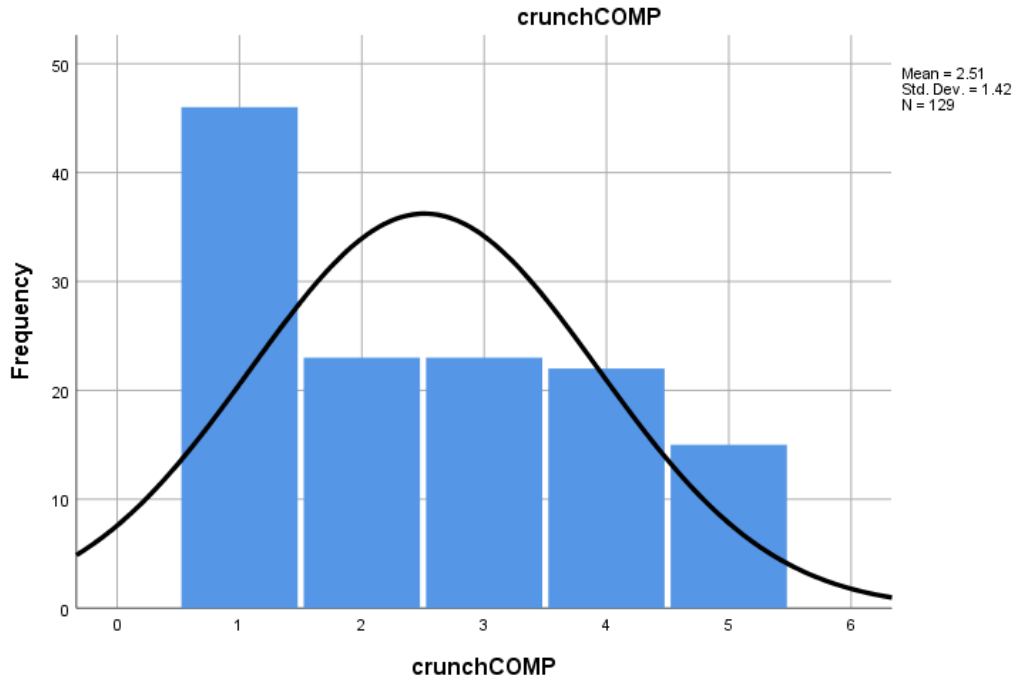
Total	130	100.0	100.0	

A3: Histograms of Likert items/scales used in the multivariate regression analysis

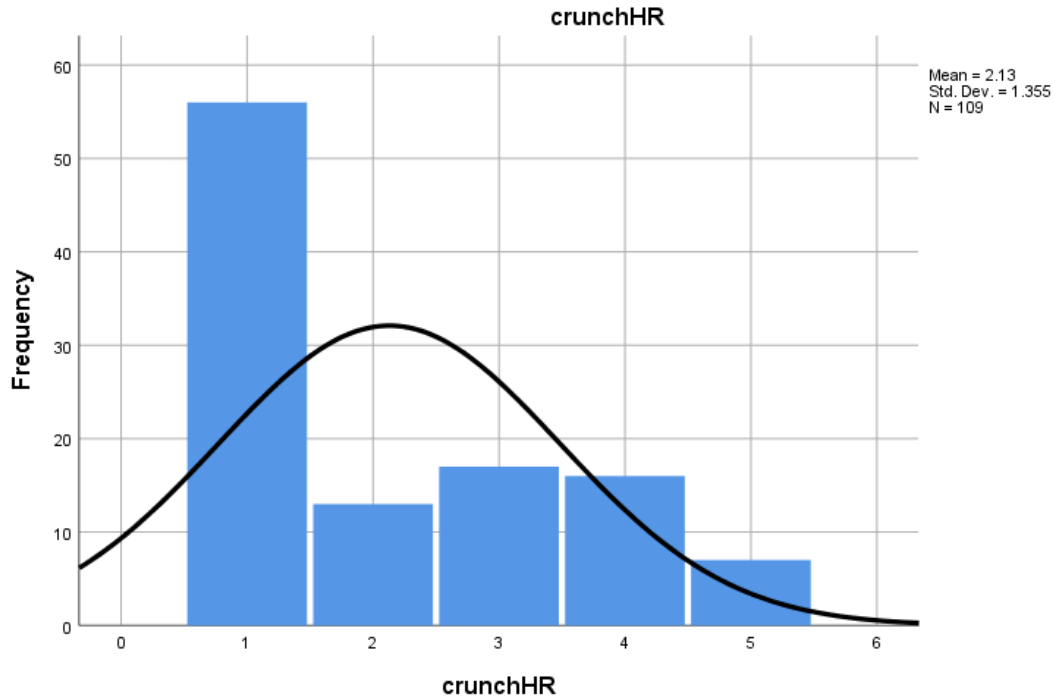
crunch experience



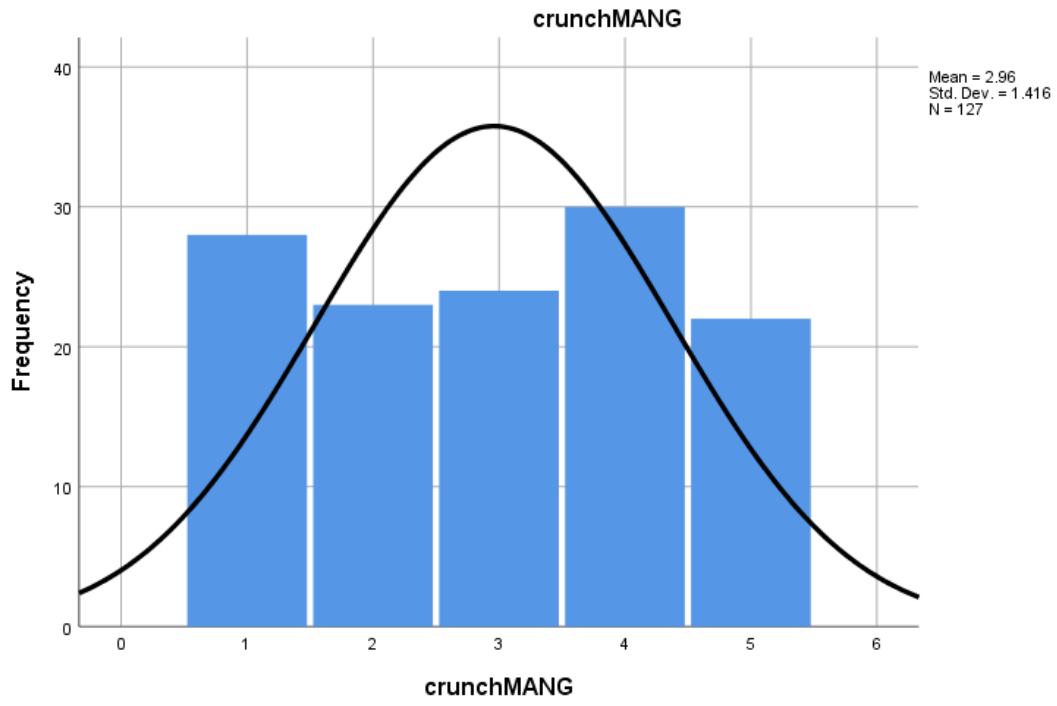
crunch compensation



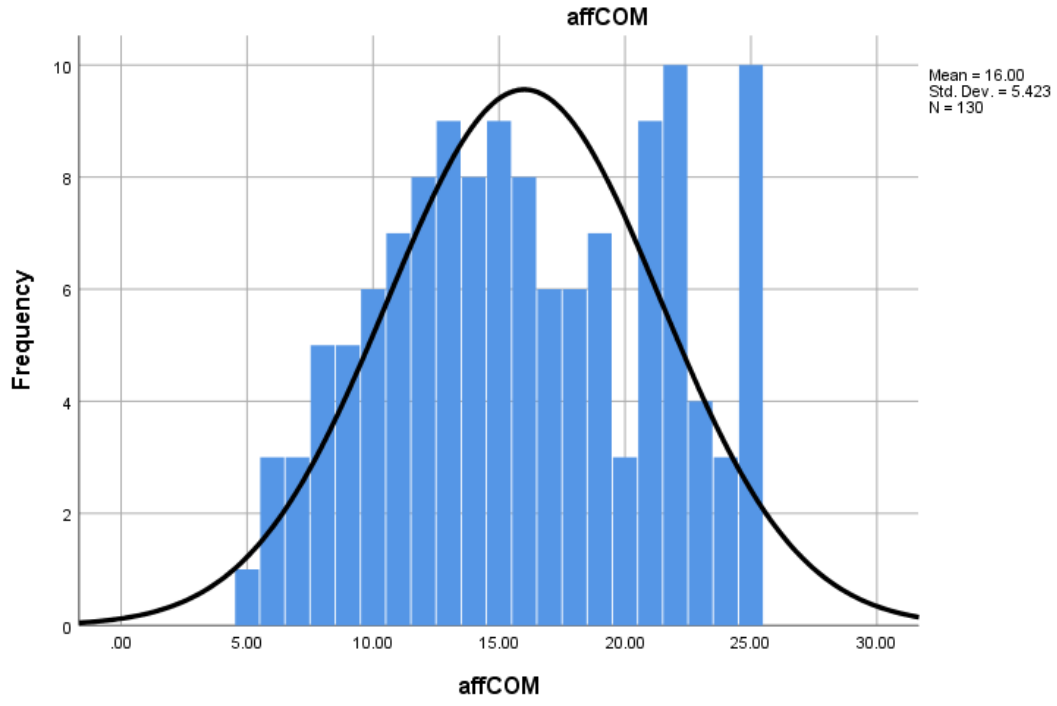
crunch HR support



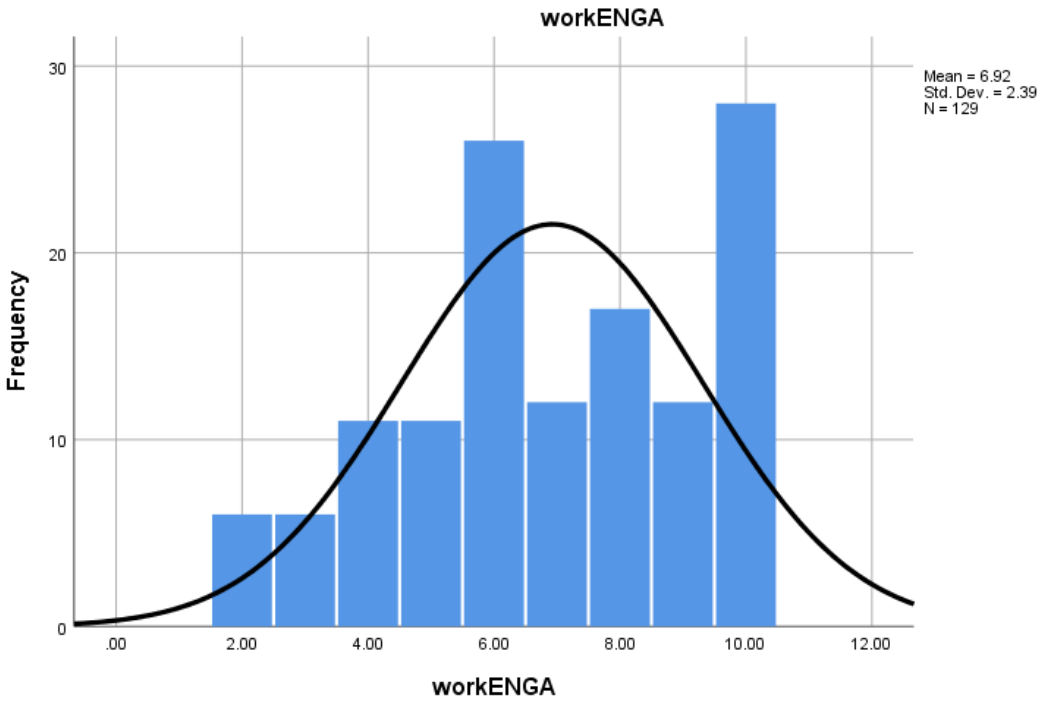
crunch support manager



affective commitment



work engagement


workENGA
Mean = 6.92
Std. Dev. = 2.39
N = 129
Frequency
30
20
10
0
.00
2.00
4.00
6.00
8.00
10.00
12.00
workENGA

Appendix B: Table of recodings

Original variable	Original values	New variable	New values
Education	0= high school/secondary 1= vocational training 2= Bachelor or equivalent 3= Master or equivalent 4= Doctoral or equivalent 5= other	EducationBin	0= Secondary degree and vocational training 1= University degree
crunchLENGHT	0= A couple of days 1= A week 2= Several weeks 3= A month 4= Over a month	crunchlenghtBin	0= less than a month 1= more than a month
Lenghtofempl1	0= 1-3 months 1= 3-6 months 2= 6 months- a year 3= 1-2 years 4= 2+ years	lenghtofemploymentBin	0= less than two years 1= more than two years
crunchEXP	1= strongly disagree 5= strongly agree	crunchbinary	0= 1-3 1= 4-5
crunchCOMP	1= strongly disagree 5= strongly agree	crunchCOMPbin	0= 1-3 1= 4-5

crunchHR	1= strongly disagree 5= strongly agree	crunchHRbin	0= 1-3 1= 4-5
crunchMANG	1= strongly disagree 5= strongly agree	crunchMANGbin	0= 1-3 1= 4-5
comWORKFUT, comEMOTORG comBELORG comORGPROB comDIFFATT	1= strongly disagree 5= strongly agree	affCOM	SUM (comWORKFUT, comEMOTORG comBELORG comORGPROB comDIFFATT)
engaEMOTPRO, engaWORKMEAN	1= strongly disagree 5= strongly agree	workENGA	SUM (engaEMOTPRO, engaWORKMEAN)

Appendix C: Robustness test with binary variables

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	b/se	b/se	b/se	b/se	b/se	b/se	b/se
crunch experience bin.	-2.133*	-1.972	-2.170*	-1.487	-2.132*	-2.034*	-1.615*
	-0.98	-1	-0.97	-0.93	-0.98	-0.81	-0.79
Age		0.088					
		-0.07					
Sex of the employee		0.084					
		-1.21					
contract of employee		3.566*					2.886*
		-1.49					-1.11
scale of company		-0.922					
		-0.97					
education binary		-2.045					
		-1.14					
lenght of employment		1.034					
		-1.06					
crunch compensation bin.			1.789				
			-1.03				
crunch HR support bin				1.452			
				-1.29			
crunch manager support bin				3.339**			2.423**
				-1.01			-0.8
crunch lenght binary					-0.34		
					-0.95		
work engagement						1.243***	1.070***
						-0.16	-0.16
constant	16.771***	12.296***	16.275***	14.945***	16.923***	8.186***	5.749***
	-0.59	-2.95	-0.65	-0.69	-0.72	-1.25	-1.43
R-sqr	0.036	0.167	0.058	0.162	0.037	0.339	0.434
dfres	128	106	127	126	127	126	117
BIC	812.5	722.5	814.3	803.9	817.2	762.2	709.9

* p<0.05, ** p<0.01, *** p<0.001

Appendix D: Bivariate analyses between independent variables with affective commitment (affCOM)

VARIABLE	COEFFICIENT
age	**0,135**
Status of employment	**0,232****
Sex	**0,011**
Size/scale of company	**-0,16**
Contract	**0,263****
workload	**-0,276****
Time pressure	**-0,247****
crunchyesno	**-0,114**
Crunch experience	**-0,211***
Crunch compensation	**-0.196***
Crunch HR support	**0,320****
Crunch manager support	**0,391****
Crunch colleague support	**0,011**
Crunch is necessary	**0,417****
Crunch is expected to occur in the future	**-0,136**
Work engagement	**0,575****
Crunch experience binary	**-0,190****

Crunch compensation binary	**0,145***
Crunch HR support binary	**0.250*****
Crunch manager binary	**0,369*****

* p<0.05, ** p<0.01, *** p<0.001

Appendix E: Questionnaire

Crunch time" Questionnaire

My name is Christoffer Larsson, and I am a Master student at the University of Gothenburg. This is a questionnaire I developed as part of my Master thesis research on video game developers facing "crunch time" in their respective organisations. Questions 1 through 11 cover basic questions regarding the respondent, its company and its work. Questions 12 through 31 cover various statements which are evaluated by the respondent on a 1-5 scale (1 being "strongly disagree", while 5 meaning "strongly agree"). Please respond based on your current company of employment. But, if you find yourself between jobs, then you are welcome to answer the questions based on your previous company of employment.

Respondent's information is kept confidential. Results of the research will be primarily used for academic purposes. However, one of the goals of this research is also to shed light on the issue of "crunch time" that video game developers sometimes face during their professional careers. Video game developers are my heroes, and I believe that their voices need to be heard.

Thank you for your help!

Basic information and employment questions

In this section, you will be asked basic questions regarding yourself and current employment situation.

1. What is your age?

Your answer

2. What is your sex?

Female

Male

Other:

3. What is your current employment situation?

Employed

Unemployed

Self-employed

Other:

4. What is the highest level of education you have obtained?

Secondary/High School

Vocational training

Bachelor or equivalent

Master or equivalent

Doctoral or equivalent

Other:

5. In which country do you work in?

Your answer

6. Size/scale of your most current company of employment.

Smaller/indie developer

AAA video game studio/publisher

Other:

7. Approximate number of employees at your most current company of employment.

1-10

10-50

50+

Other:

8. What type of project are you currently working on (please state in other, if it is more than one).

Mobile game

PC

Console

Multi-platform

Other:

9. Current role/position in company or project (art designer, level designer, etc.)?

Your answer

10. Type of employment contract?

Open-ended/permanent

Temporary

Other:

11. Approximate length of employment (in months or years) at the current (or recent if unemployed) company/position?

1 month

1-3 months

3-6 months

Half a year - a year

1-2 years

2+ years

Other:

Crunch

In this section, you will read 13 statements, 11 of which are to be evaluated on the basis of how much you agree with them. Statements are evaluated on a scale from 1 to 5 with 1 indicating strong

disagreement, while 5 indicates strong agreement with the respective statement. The other are multiple-choice questions.

12. I think the workload is excessive for the salary I receive.

Strongly disagree

1

2

3

4

5

Strongly agree

13. I think there is generally too much time pressure to complete a project/task.

Strongly disagree

1

2

3

4

5

Strongly agree

14. Have you ever experienced crunch at your place of employment?

Yes

No

Other:

15. I experience "crunch time" at my organisation on a regular basis.

Strongly disagree

1

2

3

4

5

Strongly agree

16. I am often compensated during a period of "crunch time".

Strongly disagree

1

2

3

4

5

Strongly agree

17. I feel that the HR department is there to help me when/if I experience "crunch time" or overbearing workload/working hours (answer only if applicable).

Strongly disagree

1

2

3

4

5

Strongly agree

18. I feel that the manager(s) is/are there to help me when/if I experience "crunch time" or overbearing workload/working hours.

Strongly disagree

1

2

3

4

5

Strongly agree

19. I feel that my colleagues is/are there to help me when/if I experience "crunch time" or overbearing workload/working hours.

Strongly disagree

1

2

3

4

5

Strongly agree

20. I think that "crunch time" is a normal part of the video gaming industry.

Strongly disagree

1

2

3

4

5

Strongly agree

21. I believe "crunch time" is a necessary part of the gaming industry.

Strongly disagree

1

2

3

4

5

Strongly agree

22. It is very likely that I will experience "crunch time" at some point within the next three months.

Strongly disagree

1

2

3

4

5

Strongly agree

23. What type of game was being developed under the most recent "crunch" period.

Mobile Game

PC

Console

Other:

24. What was the approximate duration of the last "crunch" you have experienced.

A couple of days

A week

Several weeks

A month

Over a month

Other:

Feelings towards the organisation and work

In this section, the questions are about the feelings you have towards the organisation you are currently employed at (or the most recent one if between jobs) and the project you are working on (or have most recently worked on). Once again, the statements are eveluated on a 1 to 5 scale with 1 indicating strong diasgreement and 5 indicating strong agreement.

25. I would be very happy to continue working at my current company of employment in the foreseeable future.

Strongly disagree

1

2

3

4

5

Strongly agree

26. I feel emotionally attached to this organisation.

Strongly disagree

1

2

3

4

5

Strongly agree

27. I feel emotionally attached to the project I work on.

Strongly disagree

1

2

3

4

5

Strongly agree

28. I find the project(s) that I work on meaningful and important to me.

Strongly disagree

1

2

3

4

5

Strongly agree

29. I feel a strong sense of belonging to my organisation.

Strongly disagree

1

2

3

4

5

Strongly agree

30. I feel that the organization's problems are part of my own.

Strongly disagree

1

2

3

4

5

Strongly agree

31. I think It would be very difficult for me to become as attached to another organisation as I am to this one.

Strongly disagree

1

2

3

4

5

Strongly agree

Additional comments, thoughts and opinions

32. Through which IGDA FACEBOOK group have you found this survey?

Your answer

33. Additional comments (feel free to write about anything you want or you believe needs to be said). Also, please let me know if you would be willing to discuss this issue via an interview by adding your email address below.

Your answer

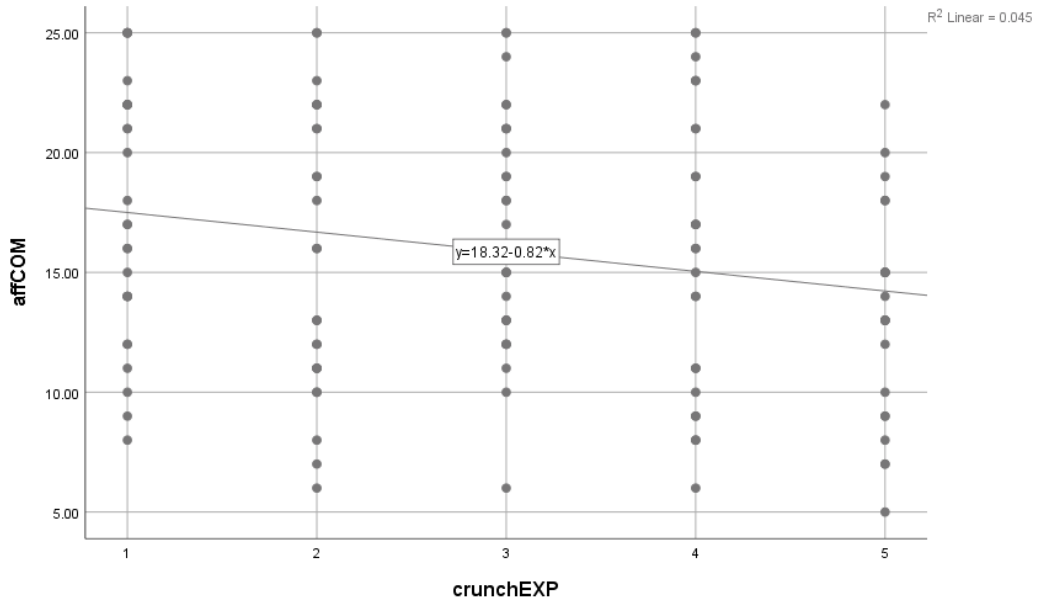
Appendix F: Pre-regression diagnostics

7.2.2 Pre-regression diagnostics

There are several tests that need to be conducted to evaluate whether the multivariate regression is valid. Since, the thesis opted to leave several of the Likert items as is, it would be prudent to conduct several extra tests to ensure that the multivariate regression is sound.

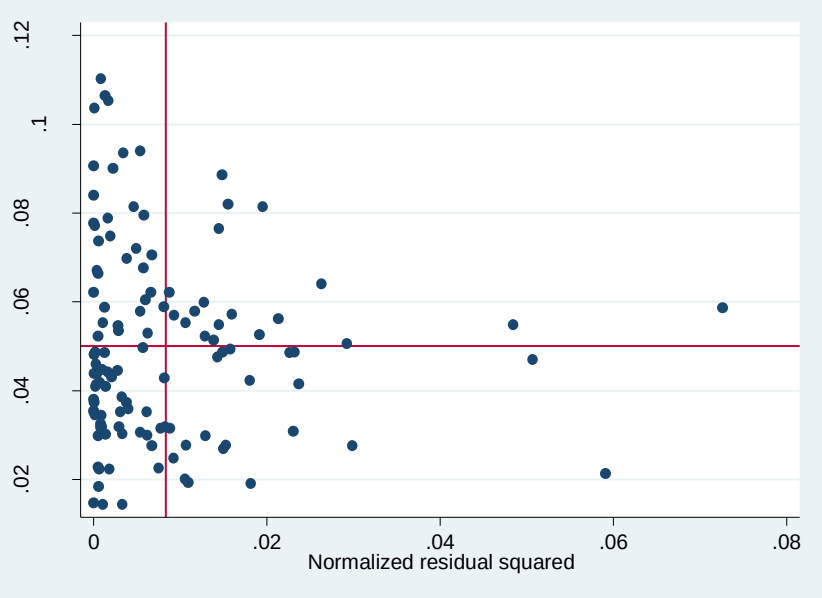
To show whether there is an association between the dependent and independent variable, and the control variables, we use the Pearson product-moment correlation coefficient (Pearson's r). Figure 1 depicts an unconditional bivariate relationship between the dependent variable affective commitment and the independent variable *crunch experience*. The linear regression line shows how a perfect correlation would look like.

Figure F1. Linear regression scatterplot.



The downward line of the scatterplot suggests a negative relationship between the key explanatory variable and the outcome variable. It is hard to tell solely based on the graph which cases can be considered outliers, therefore, further tests are required. To find potential outliers a leverage versus squared residual plot was produced (Figure 7.2).

Figure F1. Leverage versus squared residual plot outlier test.



The plot was created after the final regression model was produced. In this plot, normally one would delete cases that are right from the vertical line and above the horizontal one. However, in this case, none of the cases are far from both lines simultaneously, thus I chose not to delete any cases prior to the OLS regression analysis.

To test for multicollinearity, VIF and tolerance values were taken into account. The results were taken from the final model. According to Field (2009, p. 325) a VIF value higher than 5 with a tolerance value of less 0.2 indicates signs of multicollinearity. As can be seen in Table 7.1, no values come close to that value, thus multicollinearity is not assumed.

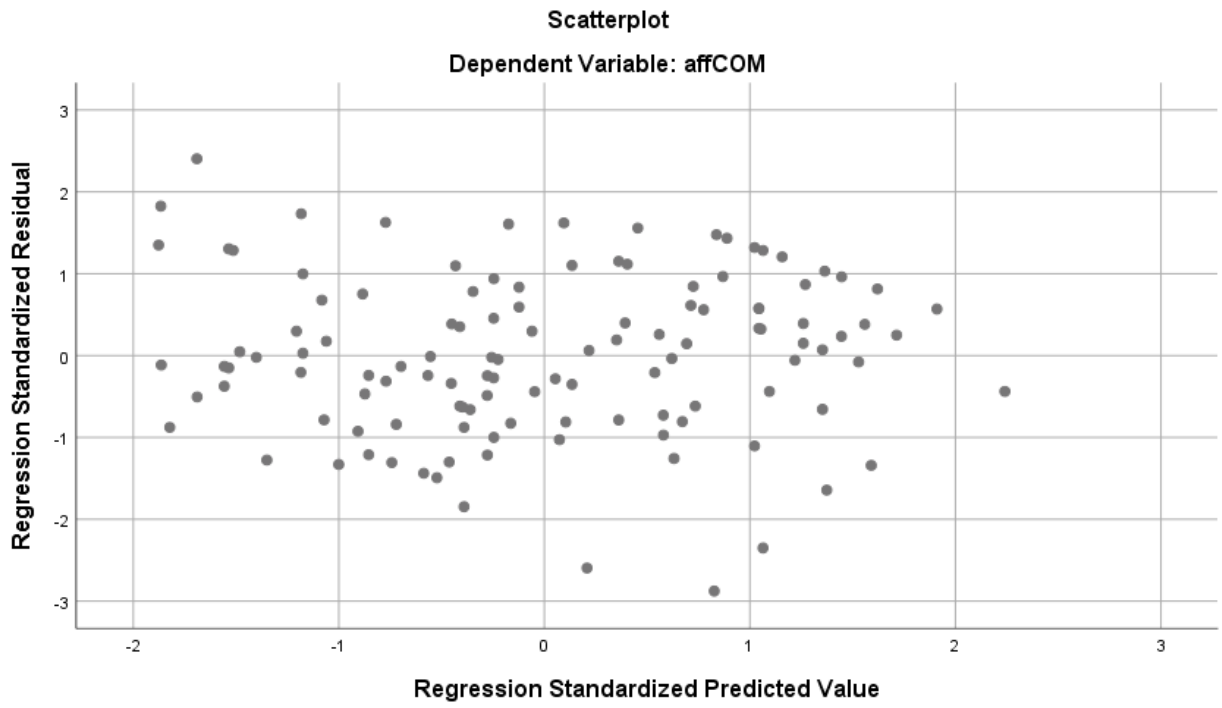
Table F1. Tolerance and VIF values

VARIABLE	Tolerance	VIF
crunch experience	0.991	1.009
Education binary	0.972	1.028
Contract of employment	0.982	1.019
Crunch compensation	0.982	1.019
Work engagement	0.968	1.033

When conducting an OLS regression, one has to make an assumption that the errors are constant (homoscedasticity). The test for heteroscedasticity involves charting a diagram between the regression's standardized residuals and standardized predicted values from the final regression model.

If a certain shape could be made out from the scatterplot (a megaphone or an hourglass) then homoscedasticity could not be assumed. However, as seen from the model in Figure 3, the cases are not spread out in any particular way, meaning that homoscedasticity can be assumed.

Figure F3. Homoscedasticity test.



Despite, the latter scatterplot being sufficient for testing for heteroskedasticity, the the thesis opted for several other measurements to prove homoskedasticity of the final model. By using a special macro written by Ahmad Daryanto for the IBM software SPSS, the Breusch-Pagan and Koenker test statistics can be calculated. Homoskedasticity is present if the sig. values of both tests are below 0.05. In this case, both sig values are 0.715, meaning the null hypothesis is not rejected and heteroskedasticity is not present.

Table F2. Breusch-Pagan and Koenker test values.

	LM	Sig.
Breusch-Pagan	2.903	0.715
Koenker	2.901	0.715