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INVESTIGATING THE CORRELATION BETWEEN ATTACHMENT STYLE AND AFFECTIVE WORDS IN ESSAYS WRITTEN BY MARKETING STUDENTS

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ABSTRACT

This study has its fundamentals in the Attachment Theory of Bowlby and the aim is to understand whether a person's attachment style affects the way of writing. Specifically, we involved students in the Neuromarketing course at Erasmus University and asked them to write about their strengths and weaknesses and to justify their choice. By submitting their essays to a software for Text mining (LIWC) we tried to find a correlation between being anxiously or avoidantly attached with the language used in the essay. From the outcome, we can argue that certain type of words, like the ones that define social bonding as well as emotional-type words, have been used by students when writing about their strengths and weaknesses. It suggests that the relationships we build since we born (with our family members) and the ones we develop in a more mature age (such as friendship) are exactly the connections that shape our personality, either in a positive, or negative way.

Keywords: *Marketing, Language Inquiry, Positive Emotions, Negative Emotions, Attachment Style, Friendship Bond, Family Bond*

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CHAPTER 1: Introduction

Affect analysis or opinion mining is a type of subjectivity analysis, which attempts to identify opinions, feelings, and emotions expressed in natural language. The main objective is to envision the sentiment orientation (in this specific case, positive or negative) of an evaluation by analysing sentiment words and expressions in essays.

In particular, the aim of this research is to understand how marketing students convey emotions in writing. Our experiment consisted of two different phases: firstly, students were asked to submit a self-assessment questionnaire about their emotional attachment and then we asked them to write two essays, one regarding their strengths and one about their weaknesses, explaining why they designated their choice by emphasizing their personal past experiences.

More specifically, we performed an analysis of their writing using the software for Language Inquiry and Word Counting (named LIWC, pronounced 'Luke') that allowed us extrapolation of their sentiment. In the next chapter, I've exposed what is the literature background of this work.

Starting with a brief description of the software used to analyse language patterns, I then shifted to explain the attachment styles that have been considered in the analysis phase. Relevant is the explanation of the Broaden-and-Build theory by Fredrickson that sets the fundamentals for the research. Furthermore, in this section can be found the conceptual model and the hypotheses.

Chapter 3 will be dedicated to the illustration of the methodology of the study, from the procedure to the analysis itself. People will be assigned a score for their attachment style and it will be correlated with the results obtained through LIWC. Will be also clarified the importance of factor analysis and the reliability test here.

In chapter 4 we'll get deeper into the core of the analysis. Firstly, we'll understand better how the sample looks like through demographic variables and

descriptive statistics, then we'll dive in the data gathered to have a clear idea of the tests ran and the results achieved.

Finally, the last chapter will be dedicated to answering the research questions stated in the second chapter. In this section, there will be the response of the tests performed as well as the limitations of the study and suggestions for further researches will be covered.

CHAPTER 2: Theory

In the next pages, the most important topics related to this work will be clarified. What are the theories behind the model and analysis of this study? Also, what exactly is the meaning of Language Inquiry and Word Counting, its applications and utility? Finally, attachment styles are the core of this work, and we'll go through some of the main papers to better understand the essence and importance of analysing attachment style when it comes to exploring personality and emotions.

2.1. Attachment Styles

An attachment is an affectional bond which is formed in humans from birth, usually between infants and adults, and develops through interaction with a primary caregiver. The emotional bond that develops between adult romantic partners is influenced by the type of attachment developed in early childhood. (*freely adopted from* Barry, 2015, p.63-74)

From a young stage, four main categories of attachment style can be identified: Secure, Avoidant, Ambivalent, Disorganized.

Let's first start explaining what is intended as a secure base. In attachment theory, parents are conceived as granting a secure base from which a child can grow older, safe in knowing that the parent is available and willing to protect him/her if needed (Byng-Hall, 1995). Being aware of the fact that there is someone who is concerned about you is essential to creating a safe base at any age.

Fraley stated that a secure childhood attachment is likely if a person in adult stage describes its relationship as if "*it is relatively easy to get close to others*" and "*feel comfortable depending and be depended by others*" (Fraley 2000, p. 132-135). Furthermore, securely attached people don't feel worried about being abandoned or about someone who gets too close to him/her.

Adult attachment styles and childhood ones, tend to be similar even though there are slight differences. Indeed, while in children it is studied and eventually supported by the relationship that the infant has with a parent (generally, the mother), for adults it is studied in a romantic level, specifically studying relationship with the partner.

A person's attachment style is of clinical relevance because emotional difficulties are associated with difficulties in later life. Former research indicate that avoidantly attached people contribute to mental and behavioural issues, such as introversion and poorer handling of stressful events (Fagot, 1990).

It is crucial to mention that there are diverse approaches to measuring attachment styles. In infants, as Melhuish (1993) suggests, the Strange Situation is the most widely used method for assessing attachment to a caregiver, Lamb et al. (1985). In this procedure, the child's behaviour is examined in diverse situations, for instance when he is left alone or with a stranger, or else with a stranger and his parent together. Bowlby described child attachment styles as ways of connecting with other people (Bowlby, 1969/1982). He indeed found patterns commonly shared among infants (max. 3.5 years old), adducing to three personality treats:

1. Securely attached infants, which return and seek closeness to the caregiver

2. Ambivalent infants that can't be comforted by the caregiver after their absence

3. Avoidantly attached infants that avoid proximity/closeness and seem to have no interest in caretaker's return.

In adults, there are two dominant methods to determine attachment style, specifically self-report measurements and narrative methods. They are both mean to classify attachment groups. Self-report questionnaires either categorize attachment style in secure, preoccupied, avoidant dismissing and fearful, or they determine the intensity to which attachment styles are present (Ravitz, 2009). The output of self-report features is a product of personal thoughts about emotions of a person, and therefore reflects how the person represent him/herself (*freely adopted from* Ravitz, 2009, *Consideration V*). According to Bartholomew and Horowitz's model, a securely attached person is defined as relatively absent of avoidance and anxiety, while a ambivalent

attached one is identified by higher anxiety level than avoidance levels (p. 227-241). Furthermore, people with an avoidant attachment style have low anxiety and high avoidance. Lastly, the fearful attached person is conceptualized as high insecurity on both attachment avoidance and anxiety (Bartholomew, 1991).

As conceptualized by Bowlby and finalized by Bartholomew & Horowitz in 1991, the attachment style model is represented by two-dimensions and four categories. Is indeed possible to classify and distinguish an attachment style of a subject into the abovementioned categories, only once both dimensions that build an attachment are determined (Livesley, 2001). This is the reason why, in this work, data will not be gathered to assign subjects to a certain category, but it will be based on the two dimensions that make up an attachment style: anxiety and avoidance.
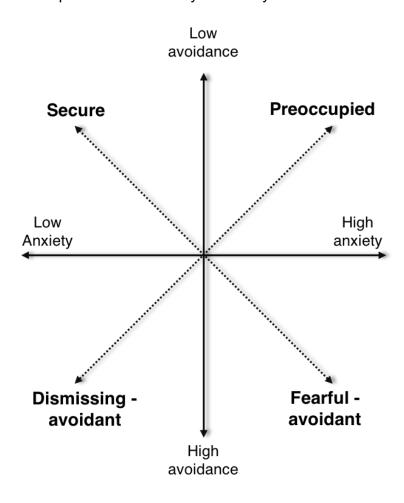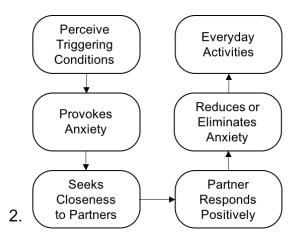

Figure 1: Attachment styles based on Avoidance and Anxiety dimensions

Dimension 1 - Anxiety

Bowlby observed that there are everyday-life events that trigger anxiety, for children as for adults. These events can be summarized in:

- The ones depending on the person's conditions: for instance, illness or pain for infants, personal well-being for adults, provoke anxiety)

- Events that involve the caregiver, either a parent or in adulthood the partner

- Conditions of the surrounding environment (rejection from others, dangerous occurrence)

Our instinct will try to allay anxiety by seeking proximity to partners or others in general. Different scenarios are identified, depending on whether the partner accepts or rejects the request for closeness (Mikulincer & Shaver, 2003). (Figures 2,3,4)

Figures 2,3,4: Different scenarios that happen when seeking for proximity.

Figure 2 is a representation of the first scenario, where after the condition is triggered and anxiety provoked, the partner responds positively at the request of the person so that the anxiety level is finally reduced.

Unfortunately, this is not always the case. Indeed, in Figure 3 and Figure 4 is explained what happens when anxiety holds due to a negative response from partner. Either the anxious person will be even more insecure and anxious due to a negative response (3), or he/her will abandon the idea of a positive reply, eliminating the anxiety feeling and start taking distance from the attachment (4).

Certainly, depending on behaviour and personal attachment style, consequences can be different. A securely attached person will have more positive thoughts, trying to explain him/herself why the partner would have a certain behaviour; an avoidant attachment will lead to more pessimistic thoughts, or, in the worst cases, depression.

Practically, Verbeke & Bagozzi (2000) treated anxiety state for salespeople. They demonstrated that anxiety – fear of being negatively evaluated and rejected by a customer – leads to poor performance in sales.

Dimension 2 - Avoidance

The avoidant attachment style is implied by the sentiment: "I am uncomfortable being close to others" or "I find it difficult to trust others completely" either "I am nervous when anyone gets too close" (from RQ-Relationship Questionnaire, Gander, 2015).

Generally, infants that developed an avoidant attachment to their parents, tend to search for tighter relationship with their parents or partners, but they might get distressed in case the relationship gets oppressive or simply too dense.Avoidantly attachment has been identified as representing roughly 30% of the global population (Catlett, 2005).

But then, which are examples of avoidant patterns? Has been demonstrated that this kind of behaviour can be provoked by parents that discourage crying and encourage independence in their offspring. Logically, in this way, children are taught to repress natural desire to seek out a parent for comfort when distressed or afraid. Avoidantly attached children and - consequently – adults, develop a self-sufficient adaptation in life that makes them believe they can take care of themselves on their own. Therefore, they are not motivated, even in a later stage, or seeking out for help or support and they tend to minimize the importance of emotions. They will likely search for support and help from a partner during bad periods, but they would do it indirectly, using strategies like complaints and sulk.

As we see, having a certain attachment style rather than another one is not necessarily negative or positive, but we can all agree that for marketing students, being securely attached can have definitely a good impact on his/her career, especially if oriented in sales disciplines (Verbeke & Bagozzi, 2000).

An attachment pattern is settled in early childhood attachments and continues to operate as a model for relationships in adulthood. Auspiciously, we don't have to remain "cornered" within the boundaries of an attachment strategy we developed at an early stage. Thanks to what we experience through life we are provided opportunities for personal growth and change. Although your attachment treats were formed in childhood

and persist during your life, it is possible to develop an earned "Secure Attachment" at any age (Catlett, 2005).

2.1. LIWC

Linguistic Inquiry and Word Count (LIWC) is a powerful software able to look for and count words in different psychology-relevant categories across numerous files. The software includes 80 categories and its genial algorithm of classifying words allows users to classify and predict a range of behavioural outcomes out of a text, sentences, books, articles and much more.

Obviously, while in the beginning it has been more used for psychological purposes, recent studies demonstrated that such a tool can be used with marketing intent. For instance, in 2010 LIWC has been used to analyse reviews (in Spanish, since LIWC is available in 15+ languages) for Movies and Tech corpora (Del Pilar Salas-Zàrate, 2014).

Words and language are the real core of psychology as well as social communication. They are the mean by which emotional and social psychologists endeavour to understand human beings. Because LIWC allows extrapolating information out of thousands of pages of text within a few seconds, researchers can link everyday language use with behavioural measures of personality, social behaviour, and attachment styles: empirical results demonstrated LIWC ability in detecting attentional focus, thinking style, social relationships and social differences (Pennebaker, 2010).

To develop this study, not all the linguistic markers extracted through LIWC 2015 have been included. Indeed, only the very relevant ones were considered to run the analysis. Dimensions such as Language Metrics (that states words per sentence, words with more than 6 letters and dictionary words), but also grammar features (articles, adverbs, etc…) and informal speech (includes swear and informal words) macro categories were not included. Conversely, we decided to pay more attention to psychologically-relevant categories, such as:

- Affect words (Positive & negative emotions),

- Social Words (family, friends, female/male referents),

- Cognitive processes (cause, differentiation and discrepancy words)

Anyhow, LIWC presents limitations of disambiguation and ignores irony, context, and idioms (Pennebaker, 2010). In Chapter 3.1: Procedures & LIWC we'll investigate LIWC categories details and results in a deeper manner.

2.3. Broaden & Build Theory

The "Broaden and Build Theory" conceptualized by Fredrickson, can be considered the core of this work; it sets premises and fundamentals of hypotheses that will be tested in the next chapters. Fredrickson's theory always refers to positive and negative emotions; for a better understanding of the theory, as well as LIWC results, will be better explained what is intended as Positive and Negative emotions in the next subchapters.

In general, positive and negative emotions, also known as Positive Affect (abbreviation PA) and Negative Affect (NA) are dimensions of prosperity. They describe the frequency and intensity that people tend to feel positive and negative emotions, from joy to anger, from happiness to sadness (inspired by Zanon, 2013).

According to Diener and Larsen (1984), people have feelings and personality traits quite stable over time. That means, they might have extreme mood changes over a short period of time, but on average people will be emotionally stable. Some studies confirmed that variations in well-being are also due to genetic heritance, but these fluctuations of emotions are not the same for everyone: someone can be more stable over time, some other have different oscillations.

Positive Emotions

Fredrickson found out which are the emotions that people experience relatively frequently in the daily life.

In her paper, she listed 10 principal emotions, in order of higher frequency: Love, Joy, Gratitude, Serenity, Interest, Hope, Pride, Amusement, Inspiration, and Awe. But she also pointed out that this is not an exhaustive list (Fredrickson, 2013).

In a nutshell, the Broaden-and-Build theory describes positive emotions as the mean to build resources, which can be personal satisfaction, well-being, and happiness.

The upward spiral process, represented in Figure 5, tell us how a positive mindset can influence the way to see problems and events and the way to overcome them by replacing negative with positive emotions.
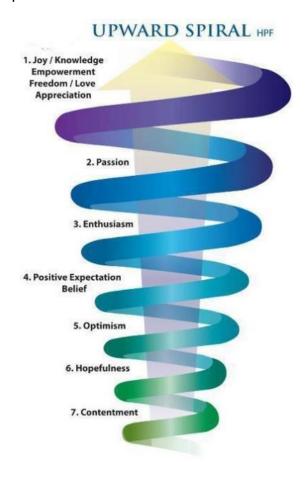

Figure 5: The upward spiral of flourishing.
(Garland, 2010)

These upward shifts in positive emotions produced increases in a wide range of personal resources, including for instance marital satisfaction, positive relations with others, physical health and reduced illness symptoms (Kok, 2013). Although, the phases described by the spiral are not fixed. Oppositely, they are flexible, mutable and may change from person to person.

Negative Emotions

High level of negative-affect has been proved to be associated with depression, anxiety, and rumination (Nolen-Hoeksema, 1991).

Fredrickson refers to negative emotions as downward spirals (reverse of the positive spiral) which graphical representation can be found in Figure 6.

As positive affectivity widens people's mindset, negative affectivity tends to narrow self-focus and lead to a more defensive behaviour.

As Garland (2010) pointed out, attention narrowing is just one and the initial state of a "negative emotion path". Indeed, what has been demonstrated is that people with a pessimistic mindset are more likely to remain in that state of mind, which allows stress to take over on rationality, leading to an appraisal of even more stress.
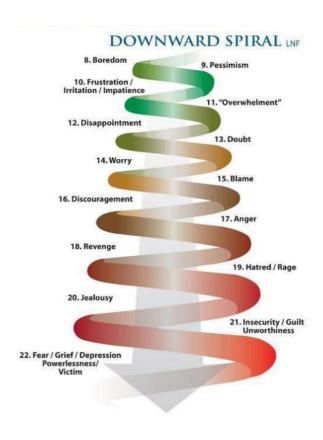
Figure 6: The downward spiral of psychopathology.
(Garland, 2010).

When negative emotions enhance into downward spirals, that mainly focus on threat and defensive behaviour, these cycles can lead to barren life experiences.

But what exactly is intended as negative emotion or negative affectivity? Koch (2013) found out that NA incorporates feelings like anger, contempt, guilt, fear, anxiety. Anxiety/Neuroticism has been declared it as one of the Big Five personality traits of emotional stability (Digman, 1990).

High levels of Neuroticism indicate instability in the subject, that is more likely to feel negative emotions and tends to depict a normal situation as threatening. Furthermore, these individuals are very likely to talk about themselves in by focusing on the unpleasant aspects of their life, behaviour, physical aspects, while they underestimate their strengths.

Individuals who count low in neuroticism are inclined to be more sedate and smooth, which does not necessarily mean that their positive affectivity is soar (although high positive affect and low negative affect are recurrently correlated.

In any case, returning to the Broaden-and-Build theory, upward spirals are mean to counter and reverse downward spirals.

2.4 Attachment & social bonding

In a research conducted in 2005 by Morgan and Dutton, is stated that a paradox of human psychology is that individuals tend to remember criticisms but they respond to praise. This means that whilst receiving critics makes people feel more defensive, on the other hand receiving praises from someone else increases confidence and the desire to perform better. Although, it is also true that being aware of each own fault is not necessarily translated into an increase in performance. This point of view is notably strictly linked to the spiral mentioned in the Broaden and Build Theory. As a matter of fact, also the Fredrickson' theory affirms that the more a subject enters in the positive spiral (e.g. by receiving appreciation and compliments) is very much likely that the upward spiral of flourishing triggers, leading to a rise of appraisal and self-esteem. It is reasonable to think that criticisms, as well as compliments, should come from someone you are bound to. Dr. Morgan made the experiment where subjects had to ask their own friends, family members, colleagues, to build a profile. Then, the participant would read the feedbacks and compare them with the profile that the respondent him/herself had to prepare. In this way, one becomes conscious of what is the idea of himself and what is the idea others have about him. results were promising: first, when it is a person you have some type of connection, you definitely tend to give that person more importance than from unknowns. Furthermore, respondents were getting more confident after all feedbacks were gathered and a certain pattern was discovered. Once one is aware of the strengths he/she is characterized of, it also offers a better understanding of how to deal with your weaknesses.

It is well known that attachment is related to social bonding. According to the Social Bond Theory explored by Travis Hirschi in 1969, there are four basic elements of

social bonding, and they are: attachment, commitment, involvement and the common value system of a person within a society or subgroup.

According to Hirschi also attachment, evolved for instance in an educational environment such as school or university, is extremely important, especially when it comes to parental figures but not exclusively.

Thus, the child with supportive caregivers is able to form more positive expectations regarding relationships of any kind and has the opportunity to learn the basic social skills for conferring in the social world (Sroufe, 1988). Conversely, children who are insecurely attached are at risk of developing problematic relationships with their peers. The long-term influence of friendship quality also has been demonstrated in a 12-year study by Bagwell, Newcomb, and Bukowski (1998), who found that fifth-graders without friends, compared with those with friends, had lower self-esteem and more psychopathological symptoms in adulthood. (*adopted from* Kerns, 2005, p.163)

2.5. Gender differences in language use

Some studies have found sex differences in how childhood attachment is related to later-stage behaviour. For example, insecure attachments showed to externalizing behaviour in girls more than boys (Barry, 2015).

One noteworthy result obtained by Pennebaker (2003) was that women are more likely to use first-person singular figure, which is consistent with the discovery that depressed (hence, anxious) people use more first-person singular words. The conclusion is that there is a higher probability for women to be anxious-attached rather than male individuals (Newman, 2008).

A similar study conducted with medical students reported as results that female students used more positive emotion words and words related to sadness rather than male students. However, in this previous study, the differences were quite small, while other research findings regarding gender differences were inconsistent.

As far as emotion words are concerned, they appear to be an area of contrasting results: Mulac et al., performed two different studies, one in 1990 and another one in 2000 regarding this topic. In the first research, he disclosed that women were using more emotional words, whilst in the second study it has been exactly the opposite. Pennebaker (2003) went deeper and found out that while women were using more positive emotional words, men were using more anger and negative emotional words. That is, in this work we are going to test on gender differences within our research circumstance.

2.6. Conceptual Model & Hypothesis

LIWC outcomes have been considered as dependent variables to associate with Anxiety and Avoidance levels in order to understand whether diverse attached students were scoring differently in categories of words.

The model we used to test through SPSS the significance of our hypothesis is stated below.

$$Y = Intercept + Anxiety + Avoidance + Gender + Anxiety*Gender +$$
$$Avoidance*Gender$$

In the model are also included interactions between gender and anxiety level as well as gender and avoidance scores. The aim of this model is also to test for gender differences in order to see which impact gender has on the output if any.
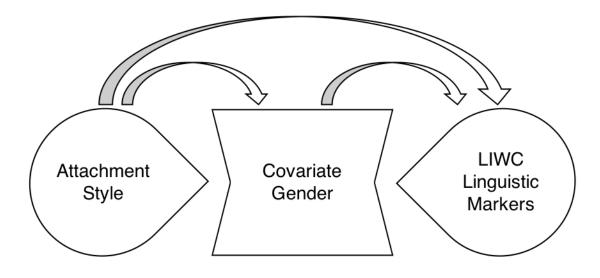

Figure 7: Model Framework

The figure above graphically depicts the model used in this work. From here you can notice that we are trying to understand what the impact of attachment style is (on students writing) when questioning subjects on their past experiences, both positive and negative. The model considers the implications of gender stated from previous literature.

The LIWC variables that we'll analyse will be:

- Positive and negative emotions, described by the label (respectively, *posemoS* and *negemoS* when talking about strengths whilst *posemoW & negemoW* are the one defining the weaknesses). With the Broad & Build theory as background, we suppose that by describing their own strengths, will be more likely for students to use positive emotional words, while it's supposed to be the contrary for the Weaknesses essays.

- Together with positive and negative emotions, the affect macro category contains anxiety, anger, and sadness (*anxW, angerW, sadW*). Supposedly, these values should give outcome only for the Weaknesses part of the essay.

- We'll take into account also the macro category Social words which includes family and friends. The reason is that extrovert people tend to talk more about others, while introvert and depressed individuals tend to use more first-person singular pronouns (Pennebaker, 2010). As explained in Chapter 2.4, friends and family play a very important role both in creating and then shaping one's attachment style. Therefore, we expect to find a correlation between attachment style and the use of linguistic markers that are interpreted from LIWC to be friend/family related. After all, their experiences with friends or family members make students realize what are their strengths and weaknesses.

Wilks' Lambda (Λ) is a statistic test expressed in results from MANOVA, Multivariate analysis of variance. SPSS shows other statistic tests such as Pillai's Trace, Hotelling's Trace and finally Roy's Largest Root. However, within this research, we'll adopt the Wilks' Lambda, as described below.

In a Multivariate analysis, Λ tests if there are differences between the means of a certain aggregate of dependent variables. Lambda is a measure of the variance in percentage of the dependent variables.

What would be optimal is a value of zero, that signifies that the independent variables explain the whole variance. More simply, when Λ gets closer to zero, it means that the variable in question contributes to the model.

H1: As exploratory hypothesis, we suggest that diversified attached students would feel differently when they are asked to talk about their strengths and weaknesses.

H2: More deeply, we expect that anxious marketing students would reflect their feelings by writing more negative emotional words, especially when they are asked to talk about their weaknesses. Reasonable, we also expect the opposite, thus, higher use of linguistic markers that LIWC classifies as positive emotional words, even more with regards to the strengths essay.

H3: We've already discussed how attachment style has been proved to be correlated with social bonding in previous researches. We also believe that essays will show a relatively high use of linguistic markers that represent social bonding. Theoretically, secure people tend to be more social bonded, whilst anxiously attached people tend to seek for proximity but they are afraid of being negatively judged; conversely, avoidantly attached people feel uncomfortable to get close to others, therefore they prefer to stay by themselves.

H4: Gender is supposed to mediate the correlation. For instance, women tend to use more social and positive emotional words, whilst men are more likely to feel and therefore write, emphasizing anger and negative emotions, according to gender stereotypes that will be explored in Chapter 2.5.

CHAPTER 3: Methodology

In this chapter will be explained in detail all the phases of the experimentation, from data gathering and mining until the analysis. How did we involve students in the study? Basing on what did we build the questionnaire? What students had to write about in their essay? These questions will be answered here.

3.1. Procedure & LIWC

The experimentation took place in April 2017 in a class of Erasmus University of Rotterdam. Students were asked to participate voluntarily in the experiment and before filling in the questionnaire they were asked to sign an agreement form to allow us the use of personal data.

The consent form to sign is the agreement concerning how personal data collected in the study are strictly confidential and anonymous. Moreover, as the participation is voluntary, there would be no consequences in case of refusal.

As compensation for the effort of writing an essay and filling out the questionnaire has been established, in collaboration with the course's professor, part of the exam grade in that class. By setting an incentive such as an increase in the exam grade, students might have been more motivated in writing truthfully and carefully.

The questionnaire (Appendix A) was formed by 10 different statements concerning a student's social behaviour and feelings. The first group of five questions (confirmed by performing a sub-sequential Factor Analysis) determined in which degree a student is likely to be more anxious attached, whilst the second group of five statements were determining the avoidance score. All the 10 questions have been presented as a 7-point Likert scale where a low score (e.g. 1-2-3) was meant to categorize the marketing student as poorly anxious/avoidant (depending on the question set) whether a high score (e.g. 5-6-7) would represent a strongly anxious/avoidant person.

The questionnaire was inspired by the one created by Fraley, Waller & Brennan (2000 to measure attachment in adults. This type of questionnaire, named ECR-R that stands for Experiences in Close Relationships-Revised, consists of 36 statements and measures one person's subscale of attachment, avoidance, and anxiety. According to Fraley's research, avoidant people find discomfort with intimacy and seek independence, whereas anxious people tend to fear rejection and abandonment.

The version adopted in this work is a simplified and shorter version of the ECR-R questionnaire, where students had to assign a value to only ten questions instead of thirty-six, mainly for a matter of time: the questionnaires were referred only to students who were attending the class. Moreover, the ECR-R assessment was specifically oriented to adults with partners, whilst our sample did not include only students with partners or lovers. The questions were then readapted and generalised to settle the issue.

An example from ECR-R questionnaire was: "*When I show my feelings for romantic partners, I'm afraid they will not feel the same about me*", whereas an example statement to determine anxiety level for the marketing students was, for instance: "*I have noticed that other people do not wish to be as close to me as I would like to be to them*".

To calculate the anxiety final score, for instance, we need to sum up the answers for the first set of statements and then divide by five.

Let's get to the core of this research. The next step for marketing students was to complete an essay. The full version of the essay included three questions. In the first one, they were asked to list three of their strengths and three of their weaknesses, therefore, to provide an explanation for their choices according to past experiences. The two other questions were about how they would see themselves in five years, life and career-wise. The research you're reading concerns only the first part of the essay, related to strengths and weaknesses, which is mostly associated to past experiences, while the second part (future career and life expectancy) has been studied and analysed in another research from one of my colleagues.

The question states: *"Outline three strengths and three weaknesses of your personality and describe them briefly with examples from your PAST experiences.''*

In order to give LIWC enough text to analyse but without having disparate results from students (for instance, someone who writes ten words and someone else ten pages) we set a minimum ad a maximum number of rows that should be written by each student. The range is from twelve rows until twenty-five. We thought that more words would give more significant and impactful results through LIWC, considering the same sample size.

Due to LIWC convenience in analysing Spreadsheet file containing text, we gathered all the essays in one single Excel file, splitting each paper in 4 different parts or columns (one for strengths, one for weaknesses, one for future career expectation and the last one for future life expectancy) correlating papers with progressive numbers to keep students anonymous. LIWC2015 operates by reading one target word at a time. Therefore, we analysed the text per column. The LIWC text analysis software was for us extremely essential since enabled the extraction of psychological and linguistic traits out of natural language text of marketing students.

For each essay, the software generates approximately 90 linguistic markers as one line of data to an output file. This data record includes word count, 4 summary language variables (analytical thinking, clout, authenticity, and emotional tone), 21 standard linguistic dimensions (e.g., percentage of words in the text that are pronouns, articles, auxiliary verbs, etc.), 41 word categories tapping psychological constructs (e.g., affect, cognition, biological processes, drives), 6 personal concern categories (e.g., work, home, leisure activities) and more data like 5 informal language markers (assents, fillers, swear words), and punctuation categories that are not taken into account for this work (details taken from *The Development and Psychometric Properties of LIWC 2015*, Pennebaker, 2015,).

The LIWC2015 Dictionary is the core of the text analysis strategy. Each dictionary defines one or more-word categories or sub-dictionaries. For instance, the word *depressed* can be found in at least five-word categories: sadness, negative

emotion, overall affect, verbs, and past focus. Thus, if the word *depressed* is found in the text, each of these five categories or sub-categories scores will be raised.

According to the example, LIWC categories work hierarchically: this means that all happiness words belong to "positive emotion" category, and by consequence, the latter category is contained in the macro category "Overall affect words". (Pennebaker, 2015)

But then, how an actual analysis through LIWC works? Once a file has been loaded on the software, all the user has to do is select the categories of interest and start the analysis. After a few seconds, the table shows the percentage of a certain category in a paper or essay. That percentage reveals how many words that belong to that category have been used by the author. Clearly, LIWC is not able to tell us if that person is depressed or happy based on those results, but by comparing the analysis to (for example) survey results, is reasonable to seek for any connection or relation between the two. In this study case, we've gathered information regarding the attachment style of every marketing student who participated in the experiment and we correlated the outcomes. By previous researchers we found some benchmark to attest to the validation of our study. For instance, people that are experiencing pain (either physical or emotional) tend to have their attention focused on themselves; hence, it's very likely that they would use more first-person singular pronouns like *I*, *me.* (Pennebaker, 2010)

3.2. Multivariate Analysis

In statistics, multivariate analysis of variance (MANOVA) is a procedure for comparing multivariate sample means. As a multivariate procedure, it is used when there are two or more dependent variables (Warne, 2014). It provides the output useful to understand what are the relationships among the dependent variables and the relationships among the independent ones (Stevens, 2002).

What we want to understand is whether there is a correlation between an attachment style (Anxious/Avoidant) and certain word categories. In our specific case,

all variables provided by LIWC such as the percentage in the text of positive & negative emotions, word counting, social words and so on are dependent variables, whilst Anxiety and Avoidance will be considered as independent variables. Indeed, it is plausible that the avoidant and anxious behaviours might affect one's person writing features.

It is reasonable (and has been proven that) extravert people are more likely to write a higher amount of words than introvert ones. As well as it has been discovered that people who seem more confident in their writing (higher value of *Clout* in LIWC) resulted to be more anxious attached (Pennebaker, 2010). We also want to test these already established outcomes by using marketing students as sample.

The 10-questions questionnaire helped us to gather more anonymous information about the students. We also asked for their Country of origin, age, and gender.

As already described in the previous chapter, gender might vary the way of writing, that is the reason why it has been chosen as the covariate of the multivariate analysis. In statistics, a covariate is a variable that is conceivably predictive of the outcome under study. A covariate may be directly interested, or it may be a confounding variable. According to Newman & Pennebaker, males and female have different patterns of writing, so we wanted to test the divergences.

Since all data is analysed as within-subject design, we set gender as a covariate and introduced it in the model, both individually and as interaction with attachment styles. In this way, we could understand whether gender as covariate works as a mediator, moderator or does not affect the variables in any way.

3.3. Factor Analysis

In order to identify hidden structure in data, we performed a factor analysis for two sets of questions within the questionnaire. In this way, we managed to create two

groups of variables, respectively Anxiety, and Avoidance that allowed us the comparison with LIWC outputs.

Collecting the principal components corresponds to finding the eigenvectors in the covariance matrix: each eigenvector gives us one component. The corresponding eigenvalue tells us the variance of that factor and the principal components with the largest variances are the most important to consider.

We need only consider the first few components instead of all of them, greatly simplifying the description of the correlations.

The factor analysis used was the Confirmatory Factor Analysis (CFA) that is not only essential to reduce statistical dependence in data, but also to 'force' questions in groups. The questionnaire was a shorter version of the already used and tested ECR-R questionnaire, so we had no doubts about its efficiency. To avoid misdirection of data we performed the CFA with 2 factors. The results will be shown in the next chapter.

3.4. Reliability Test

Reliability refers to the extent to which a scale generates consistent outcomes when the measurements are iterated n times. Reliability analysis is determined by collecting the proportion of systematic variations in a scale. Thus, if the association in reliability analysis is high, the scale returns consistent results and is therefore reliable (Armor, 1974).

Two different Reliability analyses have been performed for the questionnaire, specifically, one regarding the first set of five questions, and the other one for the second set of questions.

Reliability analysis in SPSS is measured through Cronbach's alpha. An accepted rule for describing internal consistency using Cronbach's alpha states that for values between .60 and .80 the consistency is acceptable and calculation of a summated scale is possible (Janssens, 2008), but still consider that a greater number of items in the test can artificially boost the value of alpha whilst a sample with a limited range can deflate

it. Generally, calculating the Cronbach's Alpha requires at least three items and it's strongly recommended to run the factor analysis beforehand.

Reliability Statistics (1-5)		Reliability Statistics (6-10)	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
0.729	5	0.768	5

Table 1: Reliability Test results.

In order to have an acceptable internal consistency, the Alpha needs to be greater than 0.7, although 0.8 would be preferred. The analysis performed in both question groups proofs acceptable results (see Table 1).

CHAPTER 4: Results

In this chapter will be explored all the results derived from the analysis performed in the study. Firstly, we'll briefly go through demographic variables such as gender, country, and age. Afterward, we'll get more into the core of the study, starting with the factor analysis outcomes and ending with the multivariate analysis results.

4.1. Demographic Variables

170 students submitted the first self-assessment questionnaire. 61 candidates filled the above-mentioned questionnaire, but they did not write the essays, therefore, they've been excluded from the sample. The final sample comprised 109 students. Specifically, 53 female and 56 male Marketing students were involved in the analysis. All of them were attending Neuromarketing course in Erasmus School of Economics in 2017.

Respondents were aged approximately 23.7 (standard deviation 1.5) and 56 of the total respondents were from The Netherlands, while the remaining 53 were mostly from European countries with few exceptions.

Results from the questionnaire are on a Likert scale from 1 to 7. That means these variables are ordinal. However, in order to correlate these results with the LIWC output, we split questions into 2 categories (as mentioned in previous subchapters, anxiety for the 1st set of questions and avoidance for the 2nd set of questions) and we calculated the mean. The mean can hypothetically be any number between 1 and 7, therefore, from ordinal variables they have been transformed into interval.

Regarding results from LIWC, they are expressed in percentage and can hypothetically vary from 0 to 100% (even though scoring 100% in a category is practically impossible for an essay). Therefore, they'll be taken as a ratio, where 0 stands for 0% of that category in the essay and 1 theoretically stands for 100%

The last variable considered in the model is Gender. Gender has been treated as a categorical (or nominal) variable since it can have value 0 in case a student is female or 1 in the case of male students. In the next subchapters, when Gender is interacting with the attachment styles, the interaction will be possible only when gender has value 1 (male students), otherwise, the interaction would assume a null value, regardless of the significant level.

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Gender	109	0.0	1.0	0.514	0.5021	0.252
Age	109	20.0	28.0	23.752	1.5585	2.429
Q1	109	1.0	7.0	3.890	1.4423	2.080
Q2	109	1.0	7.0	3.294	1.5887	2.524
Q3	109	1.0	7.0	3.706	1.6849	2.839
Q4	109	1.0	6.0	2.578	1.3354	1.783
Q5	109	1.0	6.0	2.917	1.3549	1.836
Q6	109	1.0	7.0	5.083	1.3273	1.762
Q7	109	1.0	6.0	2.807	1.2581	1.583
Q8	109	1.0	6.0	3.321	1.3600	1.850
Q9	109	1.0	6.0	2.734	1.2740	1.623
Q10	109	1.0	6.0	2.725	1.3463	1.812
Anxiety	109	1	6	3.28	1.030	1.061
Avoidance	109	1	6	3.33	0.946	0.894

Table 2: Descriptive Statistics

4.2. Factor Analysis

Before running the Multivariate analysis that will be deeply investigated in the next subchapter, a factor analysis has been performed over the two sets of questions. Considering that there are three different types of this analysis, here it has been used as a confirmatory factor analysis. The Confirmatory Factor analysis (CFA) assesses "a priori" hypotheses and is mostly theory-driven: by imposing these constraints, we are "imposing" the model to be consistent with the attachment theory explained by Pennebaker 2010. It is different from the Exploratory Factor Analysis (EFA) that has the

intent to discover an underlying structure of a set of variables and the relationships between them. By following the CFA approach, we are also verifying whether the construct of the Pennebaker's theory and therefore the set of questionnaires are consistent with the scenario we've created.

The Scree Plot (Figure 8) below sheds a light on what the Eigenvalue would be considering a certain number of factors. The plot shows that the eigenvalue falls below 1 when considering 4 or more factors.

The eigenvalue for a given factor, measures the variance in all the variables which are accounted for, by that factor. If a factor has a low eigenvalue, it means it is contributing slightly to the explanation of variances among the variables and may be ignored as redundant when more relevant factors are involved. Eigenvalues measure the amount of variation in the total sample accounted for by each factor.

In our case, the analysis revealed that considering only 2 factors could be not explicative enough of the variance. By reading the Factor Matrix (Table 3) after rotation we notice that the first-factor Anxiety is mostly associated with the third question, but also Q7 and Q8 that in ECR-R questionnaire represents high score for high avoidance. Generally, questions analysed have correlations greater than 0.2, which muddies the picture.

Figure 8: Factor Analysis in relation with Eigenvalue in Scree Plot

Due to the fact that our analysis was explorative since the questions have been used in prior tests, we believe that the bi-dimensional approach of Anxiety - Avoidance would give significant results in a later stage since its validity has been proved already. Therefore, we keep the two factors with respective questions.

	(1) Anx.	2
Q1	0.238	0.571
Q2	0.548	0.598
Q3	0.576	0.396
Q4	0.341	0.359
Q5	0.233	0.256
Q6	0.276	-0.216
Q7	0.672	-0.381
Q8	0.695	-0.26
Q9	0.75	-0.269
Q10	0.467	-0.297

a. 2 factors extracted. 7 iterations required.

Table 3: Factor Analysis Extraction

In the figure below (Table 4) can be found the Total Variance table. By including 2 factors, indeed, we are explaining the variance at its 52.3%, whilst it would have been 64% including 3 factors in the analysis and still keeping an Eigenvalue bigger than 1. The cumulative percentage of variance explained is approximately 41% after the extraction of squared loadings.

Factors	Initial Eigenvalues		Extraction Sums of Squared Loadings	

	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.161	31.607	31.607	2.649	26.49	26.49
2	2.071	20.709	52.316	1.456	14.564	41.054
3	1.219	12.186	64.502			
4	0.977	9.772	74.274			
5	0.662	6.624	80.897			
6	0.528	5.281	86.178			
7	0.405	4.051	90.23			
8	0.388	3.875	94.105			
9	0.316	3.162	97.267			
10	0.273	2.733	100			

Extraction Method: Maximum Likelihood.

Table 4: Total Variance Explained by Factor.

4.3. Multivariate Results

Here has been performed a multivariate analysis in order to capture the underlying correlation between attachment style and linguistic markers from LIWC. As already mentioned, the software is not able to completely understand what a person wants to express, but it creates these categories of words that are pure representation of feelings.

SPSS reports 4 different statistical tests after the analysis has been performed. Specifically, they are *Pillai's Trace, Wilk's Lambda, Hotelling's Trace and Roy's Largest Root.* From what we can see from Table 5, not all tests resulted significant. On the other hand, Wilk's Lambda test resulted to be significant. In MANOVA, Lambda tests if there are differences in means for combinations of dependent variables. A Value of zero, which would be optimal, tells us that there is no variance that is not explained by the independent variable. Therefore, we can state that all the variables contribute to the model, given a low p-value. From Figure 5, emerges that even interactions between gender and attachment styles are relevant to the model as well as all p-values are lower than 0.05.

Value	F		Hypothesis df	Error df	Sig.
Anxiety	0	9.333	608	58.812	0
Avoidance	0	6.677	684	74.402	0
Anxiety*Gender	0	3486.798	494	37.34	0
Avoidance*Gender	0	1784.759	532	44.184	0
Gender		.c	38		

Table 5. Wilk's Lambda values for the underlying Model design.

In the Appendix B and Appendix C are attached results from the Test of Between-Subject effect. The former explains the correlations between Attachment style and linguistic markers in the Strengths essay, whilst the latter explains the correlation in the Weaknesses context.

Strength Essay

What emerges from the data gathered in the essay in which participants were asked to talk about 3 of their strengths by explaining the reason behind their selection, is that the model is significantly correlated with LIWC variables. As far as positive and negative emotions are concerned, we do not see a correlation between anxious and avoidant marketing students, since the *p-value* is lower than 0.05, although correlation is found between both attachment styles mediated by gender (Anxiety*Gender and Avoidance*Gender) and negative emotion marker. Hence, the covariate Gender somehow mediates the relationship between the independent variables (attachment styles) and emotion markers highlighted by LIWC.

The Test of Between-Subjects Effects displays the following statistics:

1. Sum of Squares: indicates how much of the total variability is explained by the experimental effect. In this case, the variables that most explain the total variability are: Affect (5780.07), Positive emotion (3727.34), Negative emotion (310.78), Social (7601.03). The linguistic markers that are less accountable of

the total variability are Sad (23.53) and Anger (21.42), which is congruent with what we would expect from a Strength-related essay.

2. Df (*degree of freedom)*: The total degree of freedom is 109, as the number of observations in our dataset.

3. Mean Square: calculated as Sum of Squares/df

4. F-ratio is calculated as follows: Mean Square/Mean Square (Error), The F-Ratio presents the amount of systematic variance to unsystematic variance.

5. Sig. (*significance level*): we'll be able to reject the null hypothesis when the p-value is lower than 0.05.

Let's dig deeper into the categories and linguistic markers elaborated by LIWC. What has been highlighted is that positive emotions, which theoretically should be triggered mostly by writing about one's own strengths, didn't show any significant correlation with attachment style, either with or without considering the gender covariate. Contrary, negative-emotion marker appears to be correlated to both anxious and avoidantly attached students when interacting with the Gender covariate. This means that the correlation does exist (although, with a medium-low sum of square of 27.628) when males are considered, but it does not happen in a gender-neutral situation.

Surprisingly, what has been discovered within the sample is that the family marker has shown a significant correlation (p-value < 0.05) for both anxiously and avoidantly attached marketing students. The sum of square associated with this marker is 4.7 (out of 29.069) whilst reaches 7.89 in correlation with avoidantly attached students. The correlation has been found even within the interaction of gender and avoidant attachment style. In general, we can affirm that when people are avoidantly attached and they are asked to talk about what makes them proud of themselves (hence, strengths) they refer in their context to their family.

The LIWC linguistic marker Family belongs to the category Social Processes that includes the subcategories (or linguistic markers) friends, family, humans. In detail, the

subcategory family includes words such as mom, brother, dad, cousin. Let's inspect more on which context students did talk about their families.

Examples from essays:

"[...] I am a very ambitious person. During my childhood nobody (except my family, of course) really believed I could achieve something [...]"

The sentence above describes a situation in which the family acknowledges one person's feelings and virtues, whilst other parties don't. In the most common scenario, the caregivers always have the function of understanding the child and the latter can always be comfortable in knowing that there is someone that can listen to them and understand who they really are.

"[...] I changed my mindset to be positive and believe in myself, even though it was difficult, I kept going only to make my mom proud [...]".

In this second example, it's already visible a different approach to the answering the question. Here the student feels more like an *obligation* towards the caregiver and makes effort to make the parent proud of him/her. The fact that he starts saying that he changed his own mindset into a more positive one, gives a more sad/anxious tone to the answer. This sentence is also an example of how students, even when describing their skills, can have a negative attitude that might have led to trigger negative and anxious emotional words that we found significant in the analysis.

In a certain sense, what has been found is in line with the Broaden and Build Theory of Fredrickson that states that whilst positive affectivity expands people's mindset, negative affectivity does the opposite, tightening the mentality and leading to a conservative attitude. Family, in this scenario, gave hope and a reason for the writer to be persistent even in hard times, perhaps helping the subject to reinvert the spiral by replacing negative emotions with positive ones.

Weakness Essay

As far as the weakness-essays are concerned, participants were asked to list three of their weakness and motivate their choice. From the test between-subject effect

in Appendix C emerges that Anxiety, Avoidance, and Anxiety*Gender (anxiety in interaction with the covariate gender) are significantly correlated with the linguistic marker Friend. The p-value that corresponds to the correlation between anxiety and the linguistic mark is 0.006 with a degree of freedom of 16 and a Mean Square of 0.6. The correlation between Friends and Avoidance is explained by a p-value of 0.027 and a mean square of 0.469. Finally, the interaction Gender and anxiety is also significantly correlated with Friend for a p-value of 0.003 (highly significant) and a Mean Square of 0.718.

What emerges is that there is no other significant correlation within the essays of weaknesses, except for Friend, which, although slightly, affects the model.

LIWC includes in this subcategory of Social, words from *pal, buddy, mate* to *coworker*. The findings revealed that both anxious and avoidant people referred to their friends or colleagues when writing about their weaknesses.

Let's not forget that students involved in the study were attending the Neuromarketing course in a one-year Specialisation at Erasmus School of University. During the first three bimesters that preceded the Neuromarketing course, students were also actively participating in workshops and seminars with companies connected to Erasmus University. In order to be prepared to have interviews with agencies, the majority of students, by diving on the internet, could see which were the most common questions asked by companies during interviews. Jacquelyn S. in 2013 listed fifty of the most asked questions during interviews. The two at the top of this list are indeed: What are your strengths? And then, what are your weaknesses? It wouldn't surprise if participants spoke about their prior working experiences and relationships with colleagues.

A person's attachment style is formed initially with birth but then it can modify thanks to different experiences that a person goes through his/her life. Friendship, as well as family, has one of the biggest impacts in shaping one's personality. Also, we are the results of the relationship with friends who are no longer our friends. And yes, friendship does help in understanding better ourselves. Thanks to them we know what we like and what we don't, and finally what makes us feeling cheerful or unhappy.

Family, mostly parents, give us the basics, the background of our personality according to their feelings and to what they experienced in their lives. But at the core, the persona we build for ourselves is based on so many factors that is almost impossible to understand what affected our behaviour mostly. Friendship surely has an impact in our life, as discussed in chapter 2.4; Bagwell (1998) found that children without friends at the last school year of elementary school, in comparison with those with friends, were less confident and presented a more psychopathological sign of problems when grown up.

Below some example from the essays

 "[…] The difficulty to trust others also shows itself in my friendship, it takes quite long for me to really start calling people my friends […]".

"[…] I have troubles expressing myself. I hate it when my friends are sad about something. I want to help them but I don't know how […]".

Thanks to our peers, we also become aware of our weaknesses, indeed. The students comprehend the difficulties they have in relationship with peers, and the avoidant timbre is quite evident in the sentences.

They did not talk about they friends or family members just because they felt some sort of pressure, but because the experiences where we showed either a strength or a weakness, was often in presence of a friend or family member.

CHAPTER 5: Conclusion

In the final chapter of this work, we'll draw conclusions answering the research questions stated in Chapter 2.6 and discuss which were the limitations that did not allow to reach the outcome as expected. In the very end, we'll give suggestions for further researches in the field.

5.1 Answering the Research Questions

This study meant to investigate the presence of correlation between attachment style of a student and what words he uses when talking about strengths and weaknesses. In Chapter 2, four different hypotheses have been stated and below we'll connect what has been hypothesized with the actual results.

H1: As exploratory hypothesis, we suggest that diversified attached students would feel differently when they are asked to talk about their strengths and weaknesses.

After exploring the tables of significance levels, we can notice that the first research question can be considered broad since we did not discover a pattern in students' writing. In terms of negative and positive emotions, unfortunately, we couldn't find differences in how marketing students discussed their strengths and weaknesses. However, we do distinguish them when it comes to the Social category of LIWC. Whilst students used more family-related words in the essay regarding strengths, they've used more friendly-related words in the weaknesses essay. Therefore, we can assert that a different set of emotion provoked in students' mind different memories, either more related to family or friends. As far as the research question is concerned, students did react differently, but we cannot say how they actually felt, since LIWC is all but an emotion interpreter and no pattern could be found (e.g. if linguistic markers such as Angry, Anxious and Negative Emotions markers were all triggered during the weakness essay, we could say more or less how they really felt when writing).

H2: More deeply, we expect that anxious marketing students would reflect their feelings by writing more negative emotional words, especially when they are asked to talk about their weaknesses. Reasonably, we also expect the opposite, thus, higher use of linguistic markers that LIWC classifies as positive emotional words, even more with regards to the strengths essay.

According to the results described formerly, there was no correlation between positive emotions and any attachment style in the strength-essay, as well as there was no presence of correlation between anxiety and avoidance with negative emotions

within the weakness-essay. Conversely, one discrepancy has been found, specifically with regards to the strength essay. Here, how it is visible from Appendix B, it is notable a correspondence between both male anxious- and avoidantly attached students and the linguistic marker *Negative Emotion*.

H3: We also believe that essays will show a relatively high use of linguistic markers that represent social bonding.

Thanks to LIWC Social categories, we've managed to study correlations between attachment style and the use of Social Bonding words in essays. The results, as explained at the end of the previous chapter, revealed that marketing students did make use of words that belong to Friend and Family linguistic markers. Reasonably, students explained their selection of strengths and weaknesses through the usage of friendship and family, either because the closest people are typically the sincerer ones (therefore more likely to tell us what characterizes our personality), either because of their past experiences with friends and family members, that made them being aware of their key strengths and weaknesses in a specific situation.

The outcomes revealed that marketing students, regardless of what is the attachment style, tend to write more words that are identified by LIWC as being friend and family related. As Barry (2015) stated, the emotional bond that develops between adults is influenced by the type of attachment developed in early childhood, therefore it's not a coincidence that people which we relate daily are also the one that we mention when talking about ourselves.

H4: Gender is supposed to mediate the correlation. Women tend to use more social and positive emotional words, whilst men are more likely to feel and therefore write, emphasizing anger and negative emotions.

Pennebaker in the early literature describes that some difference in writing among gender does actually exist. If we lAppendix 2 where the results of strength essays are shown, we can see that the covariate had a role in mediating the non-

significance of the variable Gender (non-interacted) and the same variable interacting with the two dimensions.

This means that ideally, male students are likely to write using more negative emotional words and other words that triggered the anxiety linguistic marker. It indicates that male might be more anxious and stressed than women of the same age, which is in line with Pennebaker's finds.

5.2 Implications

As we've seen earlier, a correlation has been found comparing students essays on what makes them proud or not of themselves with their bond to parents and friends. In which field and how such information could be used in a marketing context?

Nowadays every information is important, especially for companies are trying to get as many data as possible on their customers in order to create products and services tailored for specific market segments.

Let's imagine a company that after studying the correct target group decides to narrow it to students. By investing resources in studying reviews, running market analysis and creating ads based on the attachment to parents or friends (e.g. family moments or hanging out with friends), it is possible to re-evoke memories or feelings that could potentially restore positive affectivity in the customer's mind.

Text mining can be implemented on reviews (as has been performed already), feedbacks, emails, or even comments on social media (with due considerations and permissions).

Additionally, such information could be used to increase brand loyalty and awareness by strengthening positive associations. When moving to a more psychological context, we won't even talk about brand associations, but more on Brand attachment. Tsai (2011), connects the Bowlby theory of attachment with brand attachment, stating that attachment to figures is innate in our behavioural system. What brings a customer to be *attached* to a brand? According to Tsai, four are the indicators of this concept:

- Physical chemistry between the brand and the consumer
- Brand and consumer represent each other
- The brand fits the consumer's self-image
- The consumer feels miserable if the brand is not available.

Brand attachment is basically the bond that connects consumer and brand, and it is absolutely relevant for marketers because it deems re-purchase behaviour that increases the customer value through time. The brand is perceived by the customer via the experience that creates, from logos and colors to a brand motto and identity. Therefore, a positive brand experience likely leads to a positive emotional state, that influences and turns into brand attachment.

5.3 Limitations and further research

The model applied in this research has mostly been inspired by other prior researches, and this has pros and well as cons. Some aspect of this work could be revisited from further researchers that involve, for example, a greater sample number or a more in-depth knowledge of text mining. Below are listed some aspect that we believe could stimulate future researches.

My first suggestion would be to use the entire version of the questionnaire ECR-R (chapter 3.1) which includes more questions. In that way, it would be possible to create more than two attachment styles (i.e. secure, ambivalent, etc.) instead of considering the two-dimensions only. In case of a negative Cronbach's alpha, it would be optimal decrease the number of questions less relevant in order to have a score of at least 0.8 to perform an excellent sample. The Confirmatory Factor Analysis pointed out the possibility of allowing even three factors into this research instead of two, and still keep an eigenvalue higher than 1. In chapter 4.2 we saw that the factor matrix didn't show high correlations between questions and the relative factors (anxiety and avoidance). In other words, the partition into factors wasn't as net as initially expected. By including, for instance, the Big Five personality treats (see the negative emotion paragraph in chapter 2.3) in the analysis would have helped in shedding a light on a more complete study. Has been confirmed that these five traits are the most important

ones, so the suggestion would be to include all of them in the analysis. With more than double the factors, it would be a more extensive analysis in terms of significance and completeness (always if the factor analysis shows an Eigenvalue greater than one when analysing those five factors).

Regarding text gathering, we were concerning about the essay length before realizing: the longer, the better. In this study, the boundaries were set from 12 to 25 lines in total for strengths and weaknesses essay. This is very limitational since LIWC would be able to analyse hundreds of entire files in a few seconds. For instance, by indicating a minimum of 1 page of Strengths description, and the same for Weaknesses, we would have gathered at least twice the sample we were in possession of. Perhaps this would have helped to have more impactful and significant results. Furthermore, we could also have included other variables to test attachment style with, such as Word Counting. The study we performed was based on attachment style and social figures, although LIWC generated 90 linguistic markers, hence variables, that could help to identify the subject on other levels rather than socially and emotionally.

Lastly, another idea would be to analyse spoken language instead of written language. With developments in technology, nowadays software that can be used to track our behaviour are constantly developed and improved. One of the mentioned software is EAR, and allows researchers to record and transmute a speech into data. It works somehow like LIWC, but it would be interesting due to the fact that vocal language is way more natural than the written one. In the case of this specific thesis, students had days to write the essay. That means they had more time to think about an answer, which could have changed what they actually wrote. Instead, conducting a study on spoken language which is surely more direct, could really help in studying more features (i.e. time of response, that indicates insecurity if the subject is hesitating) that could help in determining an attachment style and social behaviour.

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Appendix A – Questionnaire

How I Look at My Past and My Future

My student number: **Country of origin:**

Gender: **Age:**

Please answer the questions hereunder with the following anchors between 1 and 7. Number 1 stands for "not at all applicable to me and 7 "totally applicable to me"

I often need to be reassured by others.	1…...2……3……..4……..5……..6……...7
I fear being abandoned by others.	1…...2……3……..4……..5……..6……...7
I fear being hurt by those to whom I am close.	1…...2……3……..4……..5……..6……...7
I have noticed that other people do not wish to be as close to me as I would like to be to them.	1…...2……3……..4……..5……..6……...7
I like to cultivate close relations with others, but they do not always reciprocate.	1…...2……3……..4……..5……..6……...7

It is important to me that I remain independent from others.	1…...2……3……..4……..5……..6……...7
I do not like it when others try to get very close to me.	1…...2……3……..4……..5……..6……...7
I try to keep a certain distance between myself and others.	1…...2……3……..4……..5……..6……...7
When other people try to get close to me, I often find myself retreating from them.	1…...2……3……..4……..5……..6……...7
I try to avoid getting attached to others.	1…...2……3……..4……..5……..6……...7

Appendix B – Strengths Essay Results (Test of Between Subjects Effects)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Model	affectS	5580.494	73	76.445	13.789	0.000
	posemoS	3555.592	73	48.707	10.209	0.000
	negemoS	282.701	73	3.873	4.964	0.000
	anxS	37.048	73	0.508	2.668	0.001
	angerS	16.795	73	0.230	1.788	0.029
	sadS	19.304	73	0.264	2.251	0.004
	socialS	7170.136	73	98.221	8.206	0.000
	familyS	29.069	73	0.398	3.708	0.000
	friendS	49.623	73	0.680	2.059	0.009
Anxiety	affectS	66.061	16	4.129	0.745	0.732
	posemoS	51.394	16	3.212	0.673	0.800
	negemoS	12.590	16	0.787	1.009	0.470
	anxS	4.781	16	0.299	1.571	0.128
	angerS	2.048	16	0.128	0.995	0.483
	sadS	2.467	16	0.154	1.313	0.242
	socialS	351.042	16	21.940	1.833	0.065
	familyS	4.707	16	0.294	2.739	0.006
	friendS	5.845	16	0.365	1.107	0.385
Avoidance	affectS	76.207	18	4.234	0.764	0.725
	posemoS	67.755	18	3.764	0.789	0.699
	negemoS	15.869	18	0.882	1.130	0.365
	anxS	2.428	18	0.135	0.709	0.780
	angerS	5.410	18	0.301	2.336	0.015
	sadS	1.928	18	0.107	0.912	0.570
	socialS	165.804	18	9.211	0.770	0.719
	familyS	7.897	18	0.439	4.085	0.000
	friendS	4.610	18	0.256	0.776	0.712
Anxiety * Gender	affectS	102.673	13	7.898	1.425	0.196
	posemoS	68.520	13	5.271	1.105	0.386
	negemoS	24.330	13	1.872	2.399	0.019
	anxS	5.612	13	0.432	2.269	0.026
	angerS	0.659	13	0.051	0.394	0.963
	sadS	1.262	13	0.097	0.826	0.631
	socialS	212.638	13	16.357	1.367	0.223
	familyS	2.232	13	0.172	1.599	0.131
	friendS	4.642	13	0.357	1.082	0.404
Avoidance * Gender	affectS	77.041	14	5.503	0.993	0.480
	posemoS	66.347	14	4.739	0.993	0.480
	negemoS	27.628	14	1.973	2.529	0.013
	anxS	2.537	14	0.181	0.953	0.516
	angerS	3.293	14	0.235	1.828	0.072
	sadS	2.112	14	0.151	1.284	0.264
	socialS	119.986	14	8.570	0.716	0.744

	familyS	5.212	14	0.372	3.467	0.001
	friendS	6.446	14	0.460	1.395	0.206
Gender	affectS	1.086	1	1.086	0.196	0.661
	posemoS	0.093	1	0.093	0.019	0.890
	negemoS	1.479	1	1.479	1.895	0.177
	anxS	0.147	1	0.147	0.772	0.385
	angerS	0.017	1	0.017	0.130	0.720
	sadS	0.341	1	0.341	2.899	0.097
	socialS	2.274	1	2.274	0.190	0.666
	familyS	0.031	1	0.031	0.287	0.595
	friendS	0.167	1	0.167	0.507	0.481
Error	affectS	199.578	36	5.544		
	posemoS	171.756	36	4.771		
	negemoS	28.087	36	0.780		
	anxS	6.848	36	0.190		
	angerS	4.632	36	0.129		
	sadS	4.229	36	0.117		
	socialS	430.896	36	11.969		
	familyS	3.866	36	0.107		
	friendS	11.883	36	0.330		
Total	affectS	5780.071	109			
	posemoS	3727.348	109			
	negemoS	310.788	109			
	anxS	43.897	109			
	angerS	21.427	109			
	sadS	23.533	109			
	socialS	7601.032	109			
	familyS	32.935	109			
	friendS	61.506	109			

Appendix C – Weaknesses Essay Results (Test of Between Subjects Effects)

Source			Sum of Squares	df	Mean Square	F	Sig.
Model	affectW		5308.670i	73	72.722	13.992	0.000
	posemoW		1366.557j	73	18.720	5.791	0.000
	negemoW		1368.044k	73	18.740	6.088	0.000
	anxW		275.033l	73	3.768	2.890	0.000
	angerW		56.594m	73	0.775	1.471	0.102
	sadW		61.585n	73	0.844	1.650	0.050
	socialW		4277.250o	73	58.592	7.081	0.000
	familyW		11.553p	73	0.158	0.941	0.597
	friendW		43.532q	73	0.596	2.700	0.001
Anxiety	affectW		134.483	16	8.405	1.617	0.114
	posemoW		42.607	16	2.663	0.824	0.652
	negemoW		60.546	16	3.784	1.229	0.294
	anxW		17.422	16	1.089	0.835	0.640
	angerW		4.169	16	0.261	0.495	0.934
	sadW		11.672	16	0.730	1.427	0.184
	socialW		226.887	16	14.180	1.714	0.089
	familyW		3.853	16	0.241	1.431	0.182
	friendW		9.691	16	0.606	2.742	0.006
Avoidance	affectW		43.425	18	2.413	0.464	0.958
	posemoW		48.264	18	2.681	0.830	0.656
	negemoW		39.292	18	2.183	0.709	0.780
	anxW		21.209	18	1.178	0.904	0.579
	angerW		3.831	18	0.213	0.404	0.978
	sadW		8.407	18	0.467	0.914	0.568
	socialW		74.153	18	4.120	0.498	0.942
	familyW		3.304	18	0.184	1.091	0.398
	friendW		8.440	18	0.469	2.123	0.027
Anxiety * Gender	affectW		99.894	13	7.684	1.478	0.173
	posemoW		27.985	13	2.153	0.666	0.781
	negemoW		71.124	13	5.471	1.777	0.086
	anxW		14.122	13	1.086	0.833	0.624
	angerW		5.109	13	0.393	0.746	0.708
	sadW		7.715	13	0.593	1.161	0.345
	socialW		213.471	13	16.421	1.985	0.052
	familyW		2.263	13	0.174	1.035	0.442
	friendW		9.337	13	0.718	3.251	0.003
Avoidance * Gender	affectW		27.054	14	1.932	0.372	0.975

	posemoW	17.061	14	1.219	0.377	0.973
	negemoW	30.599	14	2.186	0.710	0.750
	anxW	11.286	14	0.806	0.618	0.832
	angerW	5.053	14	0.361	0.685	0.773
	sadW	2.469	14	0.176	0.345	0.982
	socialW	135.940	14	9.710	1.173	0.335
	familyW	2.411	14	0.172	1.024	0.453
	friendW	3.799	14	0.271	1.228	0.298
Gender	affectW	0.198	1	0.198	0.038	0.847
	posemoW	4.134	1	4.134	1.279	0.266
	negemoW	7.475	1	7.475	2.428	0.128
	anxW	1.631	1	1.631	1.251	0.271
	angerW	0.904	1	0.904	1.716	0.199
	sadW	0.106	1	0.106	0.207	0.652
	socialW	0.032	1	0.032	0.004	0.951
	familyW	0.456	1	0.456	2.709	0.108
	friendW	0.326	1	0.326	1.474	0.233
Error	affectW	187.105	36	5.197		
	posemoW	116.366	36	3.232		
	negemoW	110.822	36	3.078		
	anxW	46.931	36	1.304		
	angerW	18.967	36	0.527		
	sadW	18.402	36	0.511		
	socialW	297.879	36	8.274		
	familyW	6.057	36	0.168		
	friendW	7.952	36	0.221		
Total	affectW	5495.775	109			
	posemoW	1482.924	109			
	negemoW	1478.866	109			
	anxW	321.964	109			
	angerW	75.560	109			
	sadW	79.987	109			
	socialW	4575.129	109			
	familyW	17.610	109			
	friendW	51.484	109			