To Better Understand Vincent : A Study of The Emotional Tone of Vincent Van Gogh's Letters to His Brother Theo: 1872-1890

Cynthia Whissell*

Laurentian University, Canada

*Corresponding Authors: *Cynthia Whissell, Laurentian University, Canada*

Abstract*: The artist Vincent Van Gogh (1853-1890) kept up an energetic correspondence with his brother Theo between 1872 and 1890. Theo supported Vincent financially and enabled his pursuance of art. The Van Gogh Museum in Amsterdam has English translations of 645 letters written by Vincent to Theo available on their website. To better understand the artist, this research examines the emotional tone (Pleasantness, Activation) of these letters and fluctuations in tone over time, using the Dictionary of Affect sentiment analysis tool. Three distinct "chapters" of letter-writing (Before Art, Studying Art, Artist) are defined, based on the frequency of letters and breaks in letter-writing. Surprisingly, the overall emotional tone of the letters is positive. The hypothesis of decreasing overall pleasantness across time is supported by a regression analysis. Specifically, the trajectory of pleasantness in the letters has a tragic form: it falls to a low in the mid-1880s and then rises briefly before the artist's death. The second chapter of Vincent's life (1880-1886) is the most turbulent and includes a distinctive vocabulary reflecting Vincent's preoccupations.*

Keywords: *Vincent Van Gogh, Theo Van Gogh, letters, emotional tone, pleasantness.*

1. INTRODUCTION

Why would one study the correspondence of someone they wanted to understand better? According to Barnes (2018, p. 1), they would do this because "letters carry material traces of the emotions that motivated the writer" and also because letters "stand in for face-to-face communication with familiars". Barnes suggests that inkblots, torn pages, or hurried scrawls might provide clues as to the nature of the emotion in letters. The research described in this paper consults a different source: it looks for emotion in the words that letter-writers employ. This research analyzes the letters of the post-impressionist painter Vincent van Gogh to his brother Theo and scores them for the emotional tone of their words and for word usage patterns. The paper describes three chapters in the painter's life between 1872 and his death in 1890 (outlined in Table 1), and searches for evidence of negative emotional tone or depression in the letters because depression was a diagnosis offered to explain Van Gogh's behavior towards the end of his life (Nolen, van Meekeren, Voskuil, & Tilberg, 2020). Vincent Van Gogh fascinates. He commands attention. He did this in intense interactions with his family (Naifeh & White Smith, 2012, chapter 1), and in his collaborations and communications with fellow artists such as Paul Gauguin (chapter 31). Vincent's admirers affirm that his letters embody both great literature (Grant, 2016, p. xi; Roskill, 2008, p. 11) and an innovative theory of art (Roskill, 2008, p. 39). Vincent commanded attention by his art, making choices for form and color that were far from usual. More than a century after his death, Vincent continues to command attention by way of the Van Gogh Museum (vangoghmuseum.nl/en), and the many critical and analytical works written about him and his art and letters (e.g., Mainwaring & Mainwaring, 2020; Walther & Metzher, 2015, Woittiez, 2019). When one encounters Vincent, it is difficult to look or listen briefly and then move on. The artist's compelling oeuvre and his absorbing life, which was lived dramatically and never lacked for conflict, entangle his audience. This article studies Vincent as a letter-writer, employing techniques that limit subjectivity in the interpretation of the letters' contents. It calls on a semi-objective scoring procedure (the Dictionary of Affect in Language; Whissell, 2009) to score Vincent's letters to his brother Theo along two emotional dimensions (Pleasantness, Activation) and one cognitive dimension (Imagery). The research will examine the letters, not in terms of their details or meanings but rather in terms of their emotional flavours. Pleasantness and Activation are background characteristics of the letters: they describe whole letters in terms of a single score and report on their general emotional tone. The measure of Imagery quantifies the artist's language in terms of its

abstraction. Some letters use many words that promote mental pictures or images; the tone of such letters will be concrete or highly imaged. Other letters use words that do not promote mental pictures; their tone will be abstract. The research also employs the additional objective measures of letter length, date of writing, and the proportional use of particular words or classes of words. A computer program is employed to calculate all of these measures.

Why Use Semi-objective Measures of the Letters?

The techniques described above – the counting of word occurrences and the scoring of Vincent's letters for their underlying emotional tone and imagery – are a step removed from a subjective reading of the documents. In application, these techniques are more objective than the reactions a human reader who was familiar with Van Gogh would likely experience when reading his letters. When I read Vincent's letter to his brother Theo of mid-August 1888, I encounter phrases such as "Thank you very much for sending me the canvas and paints," (Roskill, 2008, p. 279). I respond to such phrases subjectively, calling to mind the entire relationship between Vincent and Theo, Theo's monetary support of Vincent, and Vincent's incessant badgering requests for more money or more painting supplies. In the same letter, I note that Vincent "would very much like to see Gauguin here [in Arles] for a good long time," (Roskill, 2008, p. 281). Anyone familiar with Vincent's history and the famous ear mutilation incident, myself included, cannot but call these to mind when reading this portion of the letter. Because of the background knowledge that readers hold, and because of their awareness of the unfolding story of Van Gogh's life and its ending, their understanding of Van Gogh's letters is teleological and profoundly inter-textual. Information beyond the letter under study biases readers' understanding of it and they might be tempted to diagnose the presence of foretelling or irony in the excerpts quoted above when the author likely intended neither of those. The ideally "fair" or objective reader of Van Gogh's letters is the one with no exterior knowledge of the writer's life story – the disinterested reader. The computerized analytical techniques of this paper, which focus on lexical sentiment analysis, are useful. I do not suggest that computerized readings of Vincent's letters should replace human readings, but rather that the former would enrich the latter. We should feel free to step away from our subjectivities in order to consider a different source of information, and then return to our readings of Vincent's letters with the additional knowledge offered by these alternatives. I use the term "semi-objective" because human beings rated the words that are included in the computer program which scores sentiment. These scores are, to some extent, subjective. However, they are unbiased with respect to special knowledge of Van Gogh's history. When the two brief excerpts from letters discussed above were analyzed using semi-objective techniques (results for this scoring, in Table 2, are discussed below), they both proved to be somewhat pleasant and of average activation or arousal. There was no forecast of doom in them. The first phrase was moderately high in imagery (it included words such as "canvas" and "paints" that could be pictured) while the second was low (it was more abstract, with words such as "like" and "would" in it).

Three Chapters in Vincent Van Gogh's Life and in his Correspondence with Theo

There are 645 letters in the collection of the Van Gogh Museum written by Vincent to Theo van Gogh. Letters to Theo in tandem with another addressee were not included in the total. The original languages of the letters were Dutch, French, and, occasionally, English. All letters written in other languages were translated into English (the philosophy of the translation is described at http://vangoghletters.org/vg/about_4.html). Dates for these letters range between August 1872 and July 1890. Some of the analyses described below use the entire set of letters, while others divide them into chapters. The letters occur in three distinct bursts, with two relatively large interruptions in the correspondence punctuating them (Figure 1, Table 1). In Figure 1, the three chapters are represented by three "hills" in the frequency of letters, and the breaks between them by the two low points or valleys. The earliest chapter contains 135 letters and covers the time between August 1872 and August 1879. In terms of Vincent's life, this includes his early work with Goupil and Co., his work in London, his preoccupation with religion, his aborted studies in religion, and his work at the Borinage mission. At the end of this period, Vincent was beginning to be interested in art and wishing to study it. This chapter of the artist's life is the "Vincent before Art" chapter. There follows a period of about 10 months when the brothers did not correspond because they could not agree on Vincent's plans for his future life, or on his treatment of his family (August 1879 – June 1880). The second chapter of the correspondence contains the most letters (336) and covers Vincent's different attempts to study art and to interact with figures in the art world. Theo's monetary support of Vincent begins at the start of this period and continues until Vincent's death in 1890. The second chapter – the one where "Vincent

Studies Art", ranges from June 1880 to the date of Vincent's surprise arrival on his brother's doorstep in Paris in February of 1886. Because they were living together, the brothers had no need to maintain a regular correspondence during the period of February 1886 to February 1888. In February of 1888, Vincent departed (somewhat unexpectedly) for Arles in Provence. The correspondence with Theo (171 letters) resumed and continued until Vincent's death in July of 1890. During this third chapter of his life ("Vincent as Artist"), the painter produced his most famous paintings.

Table1. *Three chapters in Vincent Van Gogh's life, defined on the basis of the frequency of his letters to his brother Theo.*

| Chapter or Break	Dates	Number of Letters	Events Taking Place During the Period (V.=Vincent)
Chapter 1: Vincent Before Art	August 1872 to August 1879	135 (21%)	1873 V., works with Goupil and Co., moves to London; 1874 V. is temporarily transferred to Paris, then back to London; 1875 V. returns to Paris; 1876 V. is given notice by Goupil; 1877 V. begins to study Theology in Amsterdam; 1878 V. drops out and changes to an Evangelical school; 1879 V. works as a lay preacher in the Borinage, but is later dismissed due to his extreme religious fervor.
First Break	August 1879 to June 1880	0	1880 V. finds his vocation as an artist and begins to draw.
Chapter 2: Vincent Studies Art	June 1880 to February 1886	337 (52%)	1880 V. decides to study art – Theo begins to support him financially; 1881 V. returns to live with parents, suffers a romantic rejection; 1881 V. meets artists, discusses art; 1882 V. begins his relationship with a prostitute (Sien); 1883 V. parts from prostitute on Theo's insistence, moves back with family; 1884 V. has another romantic disappointment; gives his paintings to Theo in return for Theo's financial support; 1885 V.'s father dies; 1886 V. leaves for Antwerp to attend the art Academy.
Second Break	February 1886 to February 1888	2	1886 V. moves to Paris and lives with Theo; has frequent contact with the art world; develops his painting style.
Chapter 3: Vincent as Artist	February 1888 to July 1890	171 (26%)	1888 V. leaves Paris to go to Arles in Provence; plans to meet with Gauguin; 1888 Theo reveals plans to marry; 1888 V. has first crisis after the relationship with Gauguin deteriorates (crisis of the ear); 1889 V. endures a second crisis in February, then a third, is hospitalized; 1889 V. moves to an asylum in Saint-Rémy; 1889-1890 V. experiences several crises and requires medical help; 1890 January V. receives recognition as an artist; 1890 May V. visits Paris and Theo, then moves to Auvers-sur-Oise with Dr. Gachet; 1890 July 27 V. dies (probably a suicide).
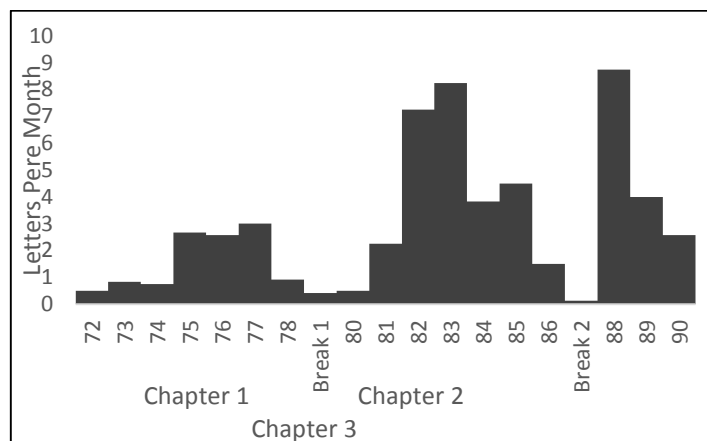
Figure1. *Frequency of Vincent's letters to Theo: average number of letters per month for each year 1872-1890.*

Note: Table 1 explains the three chapters of Vincent's life and the breaks between them more fully.

The first chapter of Vincent's life contains a series of disappointments and failures, both with respect to his choices of profession and with respect to his choices of life partner (Table 1). The second chapter includes more failures and disappointments, but also an increasing interest in, and preoccupation with, art. In the final chapter of his life, Vincent hit his stride as an artist, but at the same time experienced a series of seizures and profound neuropsychological crises. He persisted in the face of all of these, with his art as his focus, until his death.

Van Gogh's Mental Problems and their Possible Effect on his Letters to Theo

Most people observing the behaviors of Vincent Van Gogh in the third chapter of his life, or reading about them after his death, would agree that these were abnormal in the literal sense of the word (rare, unusual, not within the common range). While Van Gogh was still alive, those in contact with him diagnosed and labeled his problem in a number of different ways. Suggestions offered by professionals of the day include "artist's craziness," epilepsy, mania, and delirium (Nolen et al., 2020). Van Gogh definitely suffered seizures of some sort: Jo Bonger, Theo van Gogh's wife, refers to "nervous attacks" in her brief biography (Roskill, 2008, p. 76). The language of seizures and attacks focuses on the transient nature of Van Gogh's problems: they came and went, with relatively clear beginning and end-points. However, attacks increased in frequency, intensity, and duration within the last two years of the artist's life. The final end-point involved his death, possibly by suicide. Voskuil (2020) discusses some preliminary results of a symposium on Van Gogh's illness organized by the Van Gogh Museum. Nolen and coauthors (2020) offer a comprehensive overview of diagnoses proposed by various observers since Van Gogh's death, placing them in one of six diagnostic categories. Diagnoses offered after the artist's death are usually based on his letters, the diaries and letters of others, and even (until the mid-20th century) on eyewitness reports of various kinds.

One diagnostic category involves an *Unhealthy Lifestyle*(Nolen et al., 2020, pp. 5-6). This category includes malnutrition (Van Gogh was known to be careless of nutrition), and alcoholism or absinthe poisoning (Van Gogh probably used alcohol to excess). Withdrawal from alcohol might have contributed to his problems. A second category suggested by Nolen and coauthors (2020, pp. 6-7) is that of *Somatic Disorder* including possibly syphilis, porphyria, headaches and/or carbon monoxide intoxication. The third category of *Epileptic Disorders* was one of those originally diagnosed by Van Gogh's physicians (Nolan et al., p. 7). Epilepsy is also cited as the possible issue by Vitturi and Sanvito (2021).Temporal lobe epilepsy is the sub-diagnosis often referred to in current research. Turkheimer and coauthors (2020) suggest the presence of a GABA interneuron deficit. There are three more categories of psychological disorder suggested for Van Gogh, *Mood Disorder* (Nolan et al., p. 6), *Psychosis* (p. 5), and *Personality Disorder* (p. 6).*Mood Disorder* would include diagnoses of Bipolar Disorder or Depression. Some researchers refer to the "Van Gogh Syndrome" which is interpreted as a form of Non-Suicidal Self Injury (even though Van Gogh may eventually have committed suicide). Murray (2020) points out that this is not a valid diagnostic term. Psychoses were not clearly defined in early years, but members of Van Gogh's family seem to have been diagnosed with schizophrenia and this diagnosis was applied to him as well in the past (Nolen et al., p. 5). Nolen and coauthors (2020) describe systematic structured diagnostic interviews, which they employed in

attempts to validate each of the several different families of diagnoses based on information provided by art historians and interpretations offered by diagnosticians. The authors conclude that the diagnosis of *Personality Disorder* is the most apt because this diagnosis satisfactorily addresses Van Gogh's solitary behavior, his self-neglect, his self-destructive behavior, and his unstable personal relationships. Nolen et al. (2020) do not exclude the possibility that Van Gogh was suffering from multiple problems belonging to various categories in addition to that of *Personality Disorder*.

This research looks at Vincent van Gogh's letters as expressions of his feelings and motivations. Although many authors recognize that Van Gogh was subject to a severe episodic problem that manifested itself in "attacks" or "seizures", most of those writing about his correspondence note that it was minimally affected by his psychological condition. Van Gogh's writing remained clear and lucid, even around the day of the ear-cutting event (Murray, 2020). Voskuil (2020) points to the fact that Van Gogh continued painting in spite of his mental illness – though not during times of acute crisis. The same is likely true of the letters. Roskill's (2008) book on the letters carries a blurb on the back that contrasts Van Gogh's "tender and often ebullient" letters with his "devastating" mental breakdowns. At no point do the letters give evidence of extremely disorganized thinking. There is no word salad. Sentence structures are preserved and the content of the letters is understandable. A reader of the letters who was unfamiliar with the story of the artist would likely not diagnose the presence of psychological problems based on the style of the letters alone. Oddly enough, Vincent's letters during the last chapter of his life are open and friendly. They also project something of an optimistic tone, in spite of the serious medical issues the author was experiencing. However, at the height of his various crises, Vincent did not actually correspond extensively with Theo. Only seven letters exist in the collection dated within the time limits associated with Vincent's acute crises, which tended to be of several days duration.

Previous Lexical Research with Vincent's Letters (Woittiez's MA Thesis)

Many have studied Vincent Van Gogh's letters (e.g., Apostolopoulou and coauthors (2022) examined Vincent's concept of creativity in a qualitative analysis of his letters), but research at the lexical level, similar to that in this article, is rare. Lexical research focuses on the use of particular types of words. A rich source for lexical information on Vincent Van Gogh is the MA thesis of Lot Woittiez (2019). Woittiez employed computer analytic techniques and a method of sentiment analysis – LIWC or the Linguistic Inquiry Word Count – to study the letters. LIWC (www.liwc.net) compares a text to several different sets of key words and notes the frequency of occurrence for the words. One such set represents first person singular pronouns, which this research also studies. Other sets of words look at positive and negative emotions. LIWC and the Dictionary of Affect perform sentiment analysis in different – but complementary - ways. LIWC employs relatively focused lists of words validated as indicators of various affects and concepts, while the Dictionary of Affect scores almost all the words in a text in terms of their emotional connotations or tone. Because of these different approaches, LIWC provides more focused and specific measurements while the Dictionary addresses background tone more thoroughly. There are differences between Woittiez's approach and that of this research. I only analyzed the letters of Vincent to Theo, while Woittiez included all letters in the database written by Vincent. As well, I treated time as a continuum, or as having three categories based on Vincent's correspondence with Theo and breaks in it, while Woittiezemployed 16 periods based on where Vincent was residing at a particular time. If results from the two approaches are congruent, this will offer evidence of convergent validity: such validity is present when two different measurement techniques agree in their results.

Woittiez (2019, Figure 2, p. 39) shows that first person singular pronouns were used at somewhat higher rates while Vincent was studying art, with a high point for their use for his times in Etten and Amsterdam, as well as Paris.Woittiez (2019, Figure 10, p. 48) also reports on a higher use of positive than negative emotional words, suggesting that the letters had a generally positive tone. Positivity was highest early in Vincent's correspondence, fell for several years, and rose at the very end.

Research Plan and Five Predictions

This focuses on two measures of the emotional tone of Vincent's letters – Pleasantness and Activation – assessed by a sentiment analysis tool known as the Dictionary of Affect in Language. To these will be added a measure of word Imagery (or its opposite, abstraction), also quantified by the Dictionary of Affect. The final three variables characterizing Vincent's letters are the frequency of

Vincent's mentions of money, which include his requests for monetary support, his use of first person singular pronouns (I, me, my, mine), and the length of his letters (in number of words). These are the six dependent variables or criteria of the research. The independent variable or predictor is time, interpreted in two related ways – first as a continuous variable from 1872-1890 and second as a categorical variable, the categories being the chapters "Vincent before Art", "Vincent Studying Art" and "Vincent as Artist".

Given descriptions of Vincent van Gogh's life and the events in it, we are ableto form several expectations with respect to the relationship between predictors and criteria. If Vincent's life were that of a "tormented soul" and a "fanatic" (Naifeh & White Smith, pp. 3, 4), we would expect the Pleasantness of his letters to Theo to drop steadily between 1872 and 1890 (first prediction). If some form of "craziness" was involved in Vincent's seizures (as suggested by many authors offering different diagnoses, Nolen et al., 2020), we would expect the Activation of the letters to be higher at the end of the artist's life when he was experiencing almost constant mental health crises (second prediction). Theo's monetary support of Vincent began with the second chapter of their correspondence (Table 1), so there should be a rise in references to money at this time (third prediction). Self-reference with pronouns (I, me, my, mine) is likely indicative of great concern with one's own thoughts and plans. As Vincent found his métier in art, and as he grew in the assurance that he had taken the right direction it is likely that his use of first person singular pronouns would increase. We would predict the occurrence of more first person singular pronouns during the last chapter of Vincent's life (fourth prediction). This prediction was made a *priori*, before a reading of Woittiez's (2019) results that contradict it. Vincent was essentially a tourist in his early life (he moved from town to town, job to job, and school to school): this would suggest that the earlier letters would be more descriptive and therefore more highly imaged. On the other hand, he spent much time describing his paintings towards the end of his life, and this might lead to higher Imagery scores for the letters as well, with letters in the middle period being more abstract (fifth and final prediction).

2. METHOD

Materials

A website of the Van Gogh Museum - http://vangoghletters.org/vg/ - offers access to English versions of all of Vincent's letters along with the original letters and extensive annotations. This research analyzes the letters of Vincent to Theo. I downloaded all these letters in November and December of 2019. Letters with multiple senders and multiple recipients were not included. Neither were telegrams. While maintaining the letters for study, I excluded extensive quotations of other works from the letters (e.g., I omitted the lengthy Bible passage about Elijah from letter #87: http://vangoghletters.org/vg/letters/let087/letter.html). These extensions occurred most often in the earliest chapter of Vincent's life. There were 645 letters in all, 135 written during the first chapter of Vincent's life (Before Art), 336 during the second (Studying Art), and 171 during the third (Artist); three letters belong to the second break in Paris.

Sentiment Analysis with the Dictionary of Affect

Table2. *Example of Dictionary of Affect scoring: two excerpts from Vincent's letter to Theo of mid-August 1888 (Roskill, 2008, pp. 279, 281)*

Word	Excerpt	Pleasantness	Activation	Imagery
thank	1	79.00	55.00	42.00
you	1	67.57	40.00	30.00
very	1	49.00	58.00	18.00
much	1	59.00	55.00	42.00
for	1	33.28	36.66	18.00
sending	1	81.50	70.00	78.00
me	1	66.50	59.09	114.00
the	1	44.00	20.00	18.00
canvas	1	29.00	36.66	102.00
and	1	39.00	43.34	18.00
paints	1	41.86	61.43	138.00
--------				
would	2	47.00	43.34	18.00
very	2	49.00	58.00	18.00
much	2	59.00	55.00	42.00

like	2	101.86	70.00	18.00
to	2	45.67	44.28	30.00
see	2	79.00	70.00	66.00
Gauguin	2	--	--	--
here	2	39.00	10.00	42.00
for	2	33.28	36.66	18.00
a	2	59.00	33.08	18.00
good	2	104.00	65.00	18.00
long	2	41.86	34.00	78.00
time	2	53.00	77.50	78.00
Normative Value for				
Everyday English		50	50	50
Averages Excerpt 1		53.61	48.65	56.18
Averages Excerpt 2		59.58	49.22	46.17

The Dictionary of Affect is a list of 8740 words (Whissell, 2009). Each word in the Dictionary has three scores accompanying it: one for Pleasantness, one for Activation, and one for Imagery. For example, the word "love" is associated with scores of 119 (Pleasantness), 108 (Activation), and 42 (Imagery).These scores reflect ratings of the words offered by volunteers in previous research, and are interpreted in comparison to a normative mean of 50 for all scales. According to its scores, the word "love" is pleasant, active, and somewhat abstract (of lower imagery). The Dictionary has been employed in various studies to examine the sentiment or emotional tone of natural language (Whissell, 2009; 2010; 2012). To score each Van Gogh letter, a computer program compares every word in the letter to the word list of the Dictionary. If the word matches exactly, the program adds the three dictionary scores to those of other matched words and averages over these to obtain a mean score. Table 2 illustrates this procedure. The two excerpts analyzed are the ones discussed in the introduction, they are from a 1888 letter. For the 24 words in Table 2, the computer program identified 23 matching words in the Dictionary. Only the name "Gauguin" did not have a match, and therefore does not have scores for Pleasantness, Activation, or Imagery. The scores in Table 2 are transformed scores. The normative average for these scores in everyday English is 50 (in all cases). This means that scores above 50 designate words that are high in Pleasantness, Activation or Imagery, while scores below 50 point to low Pleasantness, Activation, or Imagery. For example, the word "like" has a score of 101.86 for Pleasantness: it is a very Pleasant word. On the other hand, "canvas", with a score of 29, is Unpleasant. The word "here" has a score of 10 for Activation, so it is a very passive word (it is low on Activation). The most Active word in Table 2 is "time" with a score of 77. The words "canvas" and "paints" have very high scores for Imagery (102, 138) which means that they are easy to picture or envision. In contrast, the words "very" and "like" have low scores for Imagery (18), which means that they are abstract. Each excerpt has an average score for Pleasantness, Activation, and Imagery. These averages are included at the bottom of Table 2. In comparison to normative everyday English, the excerpts are of average or slightly above average Pleasantness and of slightly below average Activation. They are different from each other in terms of their Imagery with the first excerpt being more concrete (above 50) and the second less concrete (below 50). Dictionary of Affect scoring becomes more valid with large samples (≥100 words). On the average, Vincent's letters to Theo were 1113 words long. The Dictionary of Affect provided matching scores for 92% of the close to 720,000 words in the letters.

Additional Lexical Analyses

I conducted three different analyses at the level of individual words. I studied the use of first person singular pronouns because of the self-focus typical of Borderline Personality Disorder. I added an examination of references to money because these seemed to be central to the relationship of Vincent with Theo. I also examined the vocabulary of the three chapters of Vincent's life (Before Art, Studying Art, and Artist) to see if each phase had its own characteristic vocabulary.

Each letter had a score indicating how often (proportionally) Vincent employed first person singular pronouns (I, me, my, mine) in it. Letters had a minimum of seven first person singular pronouns per thousand words and a maximum of 82 per thousand, with an average of 44. A different score looked at whether Vincent referred to money in his letters (0 or 1). The words "guilders", "francs", and "money" were evidence of a reference to money. Vincent referred to money in 55% of his letters.

Finally, I compared the vocabulary of the letters across chapters in Vincent's life. This analysis included all words occurring at least 20 times in the letters. A chi square Goodness of Fit analysis compared the relative frequency of each word across chapters at p<.0001. Results associated with all three measures of words (first person singular pronouns, money, and vocabulary) are discussed below.

Limitations of the Approach

This research has some limitations that should engender caution. The first and most obvious limitation is that the letters studied were translations (only a few were in English originally). The Van Gogh Museum discusses the principles behind its preparation of the letters for a wide English-speaking audience: their focus was on a literal rather than an interpretative translation (http://vangoghletters.org/vg/about_3.html#intro.VI.3.1;http://vangoghletters.org/vg/about_4.html). The sentiment analysis technique employed in this research (the Dictionary of Affect in Language) is not available in Dutch or French, so this limitation is unavoidable. The Dictionary was successfully applied to English versions of translated material in the past (Whissell 2006, for *Beowulf*; Whissell 2019, for the *Iliad* and *Odyssey*), so it has some validity in situations such as the present one. A possible limitation involves the study of only Vincent's letters to Theo. These comprise the bulk (71.5%) of Vincent's correspondence available on the website, and are therefore worthy of study. There are limited examples of Vincent's correspondence to others and letters written by others (including Theo) to Vincent. Another possible limitation lies in the scoring technique of the Dictionary. The word "love" has many different meanings, and the Dictionary scores them all in the same manner (as being Pleasant and Active). Within his first few letters, Vincent uses the word "love" to refer to a love of music, a love of nature, a woman's love for her family, and the concept of loving in general. He does not use it to refer to romantic love, which is what a modern reader might expect. The Dictionary captures the overall emotional meaning or tone of a word, but it is not sensitive to nuances that might accompany different uses of the word. Most current lexical analyses of sentiment take similar approaches, with words serving as the unit of meaning. These various limitations do not invalidate the research, but they do set boundaries on its generalizability. Results discussed here characterize the English translations of Vincent's letters to Theo, and they do so in terms of a general emotional tone.

3. RESULTS

Description of the Entire Sample of Letters

The 645 letters were, on the average, 1113.32 words long. Fifty-five percent of them referred to money in one way or another, and 4.4 of each 100 words in the letters were, on average, first person singular pronouns. Means for Pleasantness, Activation, and Imagery were 50.71, 48.18, and 45.12. All of these were significantly different from the normative mean of 50 for everyday English. The letters were somewhat more Pleasant (t=12.44, p<.001, d=.49), quite a bit less Active (t=-41.71, p<.001, d=1.64), and considerably more Abstract (low in Imagery: t=-47.64, p<.001, d=1.88) than the English of TV programs, newspaper reports, essays, and books (everyday English). Table 3 includes examples of letters scoring at the extreme end of each of the six variables. I provide the link for each letter to the Van Gogh Museum's collection, and briefly summarize the occasion of its writing. It is quite easy to see, from the occasions described, why each letter should have the characteristics that it does: this provides some face validity for the measures. For example, a letter written after an argument with Theo is unpleasant in tone, a description of visits to museums and exhibits is highly imaged, and a letter describing Vincent's own theory of art uses many first person singular pronouns (Table 3).

Table3. *Samples of extreme letters for each of the dependent variables (criteria)*

_____

Very Unpleasant (47.55)

Letter #456 (http://vangoghletters.org/vg/letters/let456/letter.html)

From: Nuenen, September 16, 1884

Occasion: The brothers had quarreled and a neighbor with whom Vincent had been romantically involved had attempted suicide by poison.

Very Pleasant (57.72)

Letter #23 (http://vangoghletters.org/vg/letters/let023/letter.html)

From: London, June 16, 1874

Occasion: Vincent happily looks forward to a return to Holland.

_____

Very Passive (44.05)

Letter: #522 (http://vangoghletters.org/vg/letters/let522/letter.html)

From: Nuenen, July 29, 1985

Occasion: Vincent briefly describes family visits and plans.

Very Active (52.06)

Letter: #58 (http://vangoghletters.org/vg/letters/let058/letter.html)

From: Paris, November 15, 1875

Occasion: Vincent describes how he "cured" an English friend of worrying in an "unwholesome" way about his family and loving and missing them too much.

_____

Very Abstract (Low in Imagery: 40.26)

Letter #479 (http://vangoghletters.org/vg/letters/let479/letter.html)

From: Nuenen, February 23, 1885

Occasion: Vincent is unemployed and sees gloominess all around him (he is describing the mood of what he sees, not things that he sees. Descriptions of mood tend to be abstract.)

Very Highly Imaged (56.87)

Letter #34 (http://vangoghletters.org/vg/letters/let034/letter.html)

From: Paris, May 31, 1875

Occasion: Vincent arrives in Paris and visits museums and exhibitions which he describes in the letter.

_____

Very Short Letter (69 words)

Letter #429 (http://vangoghletters.org/vg/letters/let429/letter.html)

From: Nuenen, February 18, 1884

Occasion: A brief note about a parcel Vincent had sent to Theo.

Very Long Letter (5709 words)

Letter: #193 (http://vangoghletters.org/vg/letters/let193/letter.html)

From: Etten, December 23, 1881

Occasion: A very long and involved letter: discusses Vincent's artwork, family, and the failed relationship with Kee (Cornelia Vos-Stricker).

_____

Few Uses of First Person Pronouns (7 per 1000 words)

Letter: #143 (http://vangoghletters.org/vg/letters/let143/letter.html)

From: Amsterdam, April 3, 1878

Occasion: Vincent offers an involved discussion of ideas, philosophy, and religion. There are many references the ideas and work of others.

Many Uses of First Person Pronouns (8 per 100 words)

Letter #494 (http://vangoghletters.org/vg/letters/let494/letter.html)

From: April 18, 1885

Occasion: Vincent discusses many ideas about art in comparison to his own views, including a theory of colour – makes a strong statement of his conclusions.

_____

Letter not Referring to Money (0)

Letter #4 (http://vangoghletters.org/vg/letters/let004/letter.html)

From: The Hague, January 28, 1873

Occasion: Vincent describes visits, news about family and acquaintances.

Letter Referring to Money (1)

Letterr #877 (http://vangoghletters.org/vg/letters/let877/letter.html)

From: Auvers-sur-Oise, June 3, 1890

Occasion: This letter does not involve a request for money, but rather a description of how Dr. Gachet will be "paid" with Vincent's paintings.

Predicting the Dependent Variables from Time

A curve estimation regression for quadratic relationships was employed to predict each dependent variable (Pleasantness, Activation, Imagery, Length, Use of First Person Pronouns, and Mention of Money) from time which was represented by the year/month in which a letter was written coded as a decimal number. There was no significant prediction for Activation. All other variables were predicted successfully at $p<.001$, and both linear and quadratic components were significant in all cases ($p<.001$; Table 4). Table 4 lists the variables, R for each prediction, beta weights for time and time squared, the shape of the function (U-shaped or Inverse-U-shaped), and the inflection point which is determined by the peak (Inverse-U) or trough (U) where the curve changes direction. Figure 2 depicts the predicted functions for Pleasantness and Imagery, which were both U-shaped. The figure also includes a line designating the normative value for everyday English. Predicted Pleasantness for the letters falls consistently above the norm and Predicted Imagery below it. Both have a minimum at the end of the second chapter of the correspondence (1884, 1885), just before Vincent joined Theo in Paris. Pleasantness and Imagery fell steadily from the beginning of the correspondence to this point, but they rose again when Vincent went to Arles after his stay with Theo in Paris. The longest letters and the ones with the most first person singular pronouns tended to be in about 1883. Length and pronoun use rose to this point, and fell again afterwards (Inverse-U functions). Mentions of money also followed in Inverse-U pattern, rising until 1889 and falling briefly thereafter.

Table4. *Regression (quadratic curve estimation) for each of six dependent variables predicted by time*

Beta Weights

Variable	R	time	time²	Curve Shape	Turning Point
Pleasantness	.56	-14.05	13.66	U	Min. at approx. 1885
Imagery	.43	-10.89	10.60	U	Min. at approx. 1884
Length	.38	11.86	-11.71	Inverse U	Max. at approx. 1883
1st Person Pronouns	.17	5.84	-5.83	Inverse U	Max. at approx. 1883
Money Mentions	.41	5.42	-5.05	Inverse U	Max. at approx. 1889
(Activation)	--	--	--	--	--

Note: With the exception of Activation, for which there was no significant prediction, all R values are significant at p<.001, and all beta weights at p<.001.
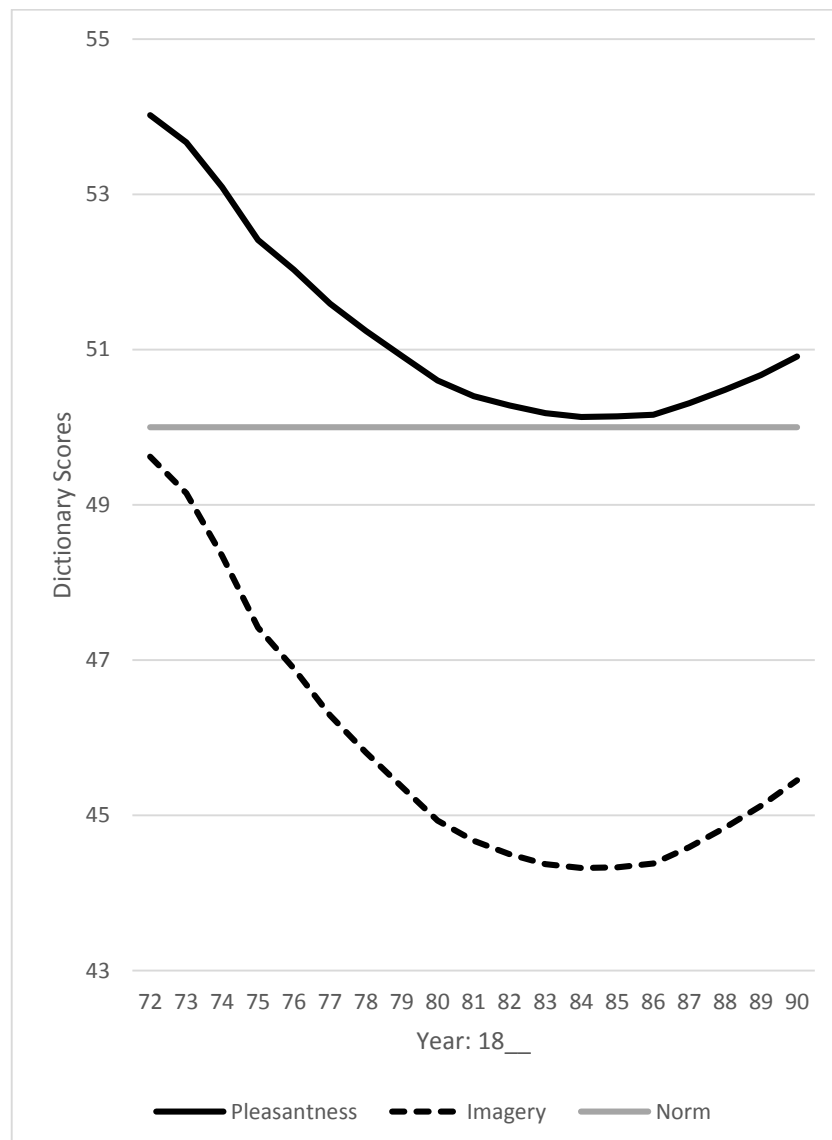

Figure2. *Predicted pleasantness and predicted imagery of Vincent Van Gogh's 645 letters to his brother Theo, plotted as a function of year (based on regression analysis in Table 4).*

The last chapter of Vincent's life was characterized by letters that were quite Pleasant (though not as Pleasant as the early letters), reasonably strong in Imagery (though not at strong as the early letters), somewhat shorter with fewer self-references in pronouns, and containing frequent mentions of money. They are different from letters at other points in his life, but not in a way that obviously matches

expectations. They are not, for example, the least Pleasant. Nor are they more Active than letters written at other times. As well, it is not possible to conclude that the letters were unpleasant in emotional tone, since the entire correspondence was above the normative mean. Nor is it possible to identify excess Anxiety in the letters as the majority of the letters fell well below the normative average for Activation, meaning that the letters were somewhat passive in tone.

The nadir of Vincent's life – as revealed in his letters to Theo – is somewhere around the years 1883-1885. These years lie at the end of the second chapter of the correspondence and coincide with times when Vincent was trying quite desperately to study art and find his role as an artist. Pleasantness plummets to these dates, but it rises after Vincent has lived in Paris with Theo (1886-87). We could conclude that Vincent has successfully defined himself as an artist before leaving for Arles and that many indicators in his letters pointed to optimism for his success near the end of his life.

Comparing Vocabularies from the Three Chapters of Vincent's Correspondence

Table5. *Words employed unusually often in letters to Theo during each of the three chapters of Vincent's life.*[1, 2]

Chapter 1 – Before Van Gogh's Commitment to Art (1872-1879)

Words Related to Religion: God, church, Lord, Rev, Christ, Sunday, sermon, blessed, faith, God's, pray, Jesus, evil, Christian, spirit, gospel, thy, thee thou.

Words Related to Family: uncle, father, brother, aunt, pa.

Proper Names: Jan, Anna, London, Rooses', Gladwell, Mendes, Cor, Goupil, Etten, Dordrecht, Stricker, Zundert, Stricker's.

Remaining Words: loving, shall, evening, and, us, boy, unto, morning, we, beautiful, Christmas, heart, heard, walked, housemates, walk, life, went, boys, there, hanging, words, hear, also, our, regards, the, birthday, is, was, yesterday, sorrowful, upon, joy.

Chapter 2 – Van Gogh's Early Engagement with Art (1880-1886)

Words that Focus on Van Gogh's Ideas and Plans: I, but, because, would, more, that, don't, say, her, something, I've, if, drawing.

Chapter 3 – Van Gogh's Years as a Productive Artist (1888-1890)

Proper Names: Gauguin, Jo, Mr., Peyron, Arles, Rey, Salles, Roulin, Isa, Haan, Delacroix.

Words Likely Related to Painting or Paintings: canvases, olive, canvas, mountains, wife, reaper, portrait, wheatfield, cypresses.

Remaining Words (Possibly Related to Van Gogh's Health Issues): anyway, crises, that, myself, asylum, besides, me, north.

_____

[1]Each word in the table was used a total of at least 20 times and the chi square value for Goodness of Fit was ≥100, p<.0001.

[2]Words within each category are listed in decreasing order of chi squared value (decreasing order of uniqueness to the Period).

Table6. *Results from a multivariate comparison of the three chapters of correspondence*

Variable	F	p	etasq	C1	C2	C3	Bonferroni Results
Multivariate	.57	<.001	.28				
Pleasantness	92.66	<.001	.22	52.00	50.23	50.63	c2 < c3 < c1
Activation	6.56	.002	.02	47.87	48.27	48.23	c1 < (c2, c3)
Imagery	107.69	<.001	.25	47.46	44.09	45.28	c2 < c3 < c1
Length	39.52	<.001	.11	689	1336	1017	c1 < c3 < c2

First Person Sing.	39.72	<.001	.11	.038	.048	.040	(c1, c3) < c2
Money Mention	71.69	<.001	.18	.148	.628	.725	c1 < (c2, c3)

Notes: Multivariate df (12, 1270); Univariate df (2, 639); etasq=partial eta squared; c1=mean for chapter "Before Art", c2=mean for chapter "Studying Art", c2=mean for chapter "Artist"; < and > are employed to indicated the direction of significant differences; group means included in the same set of parentheses are not significantly different.

As discussed above, there seem to be three distinct chapters in Vincent's correspondence with Theo, punctuated by two lengthy breaks in the correspondence (Table 1). The first chapter dealt with Vincent's life before he decided to become an artist, the second with his early attempts to learn art, and the third chapter with his productive years as an artist. I tried to confirm the different focus of each chapter by comparing the words used at different rates in each. In this comparison, I included every word used at least 20 times in the entire correspondence and performed a chi squared for Goodness of Fit to compare the relative frequency of the word in each chapter. The results of this procedure are reported in Table 5, which lists words characteristic of each chapter in groups. Chi square>100 and p<.0001 in every case. It is clear that religion was Vincent's preoccupation during the first chapter of the correspondence and that painting was his preoccupation during the last. Interestingly, the second chapter, where Vincent was a man in search of a calling, has many words dealing with his personal plans and ideas.

Multivariate Comparison of the Three Chapters

I conducted a multivariate analysis of variance to compare the three chapters in terms of the six dependent variables (Table 6). This analysis overlaps with predictions made using linear regression, but it examines the data with a focus on the manifestation of three distinct phases in the artist's life. The multivariate group difference was significant, as was each univariate comparison. Except for Activation, where partial eta squared was .020, eta squared values were between .11 and .25. I applied a Bonferroni post hoc test to compare the means of each variable in each chapter, and its results are in Table 6. The first chapter of the correspondence (Before Art) included pleasant, passive, highly imaged, short letters with relatively few first person singular pronouns and few mentions of money. In contrast, the last chapter (Vincent as Artist) included less pleasant, active, abstract, and long letters, with few first person pronouns and frequent mentions of money. The middle chapter (Vincent Studying Art) had letters that were the least pleasant, most active, most abstract, and the longest, with the greatest use of first person singular pronouns and the most frequent mentions of money. A discriminant function analysis predicting chapter of origin from the six variables was able to correctly classify 67% of the letters, with Wilks' lambda=.47.

In overview, results from a multivariate comparison among chapters and results from linear regressions predicting variables on the basis of time point to the central period of Vincent's life as the one of greater emotional turmoil (emotional negativity), and highlight the fact that the last chapter of his life is a weaker echo of the first (it is emotionally pleasant, but not as pleasant as the first chapter).

4. DISCUSSION

Evaluations of the Five Predictions and Comparisons to Woittiez's Lexical Research

Results of the research partly support the first prediction made above - that the pleasantness of Vincent Van Gogh's letters would descend across time. Figure 2 provides evidence of the significant fall of Pleasantness across time. However, this prediction is qualified in two ways. The letters as a whole are pleasant in tone and do not descend below the normative value of 50 (Figure 2). As well, the descent is interrupted by a rebound in pleasantness in the third chapter of Vincent's correspondence (Vincent as Artist). Data provide only weak support for the second prediction that the activation of the letters would rise as Vincent's psychological problems multiplied (Table 6). With a low effect size, Activation is significantly higher in the last two chapters of the correspondence (Studying Art, Artist). Activation remains unrelated to time in correlational analyses (Table 4), and low throughout, suggesting a passive tone to the letters. The prediction that Vincent would mention money more often in the latter part of the correspondence is confirmed (Table 6). The fourth

prediction that Vincent would use more first person singular pronouns during his last and most self-assured chapter of the correspondence (Vincent as Artist) is not supported. In fact, Vincent employed the pronouns most often in the second chapter (Studying Art). Data strongly support the fifth and final prediction that Imagery would be highest in the first (Before Art) and third (Artist) chapters of the correspondence (Table 6). As noted, this likely happened for two different reasons: new people and places Before Art and art itself in the final chapter.

Results from Woittiez (2019) and the present study are in agreement with respect to the general pleasantness of Vincent's letters. Both sources point to a fall in Pleasantness across the first (Before Art) and second (Studying Art) chapters of the correspondence, and a rise in Pleasantness during the third chapter (Artist). Since the two research efforts employed different techniques of sentiment analysis and somewhat different samples of letters, the agreement between them is evidence of convergent validity. Woittiez's results also agree with those of the present study in terms of the use of first person singular pronouns: it is highest during the second chapter (Studying Art) of the artist's life. Woittiez suggested that this might reflect Vincent's more depressed mood during this time, and the relatively low level of pleasantness in the letters supports this.

The Pleasantness Trajectory of Van Gogh's Life Interpreted (Post Hoc) as a Tragic One
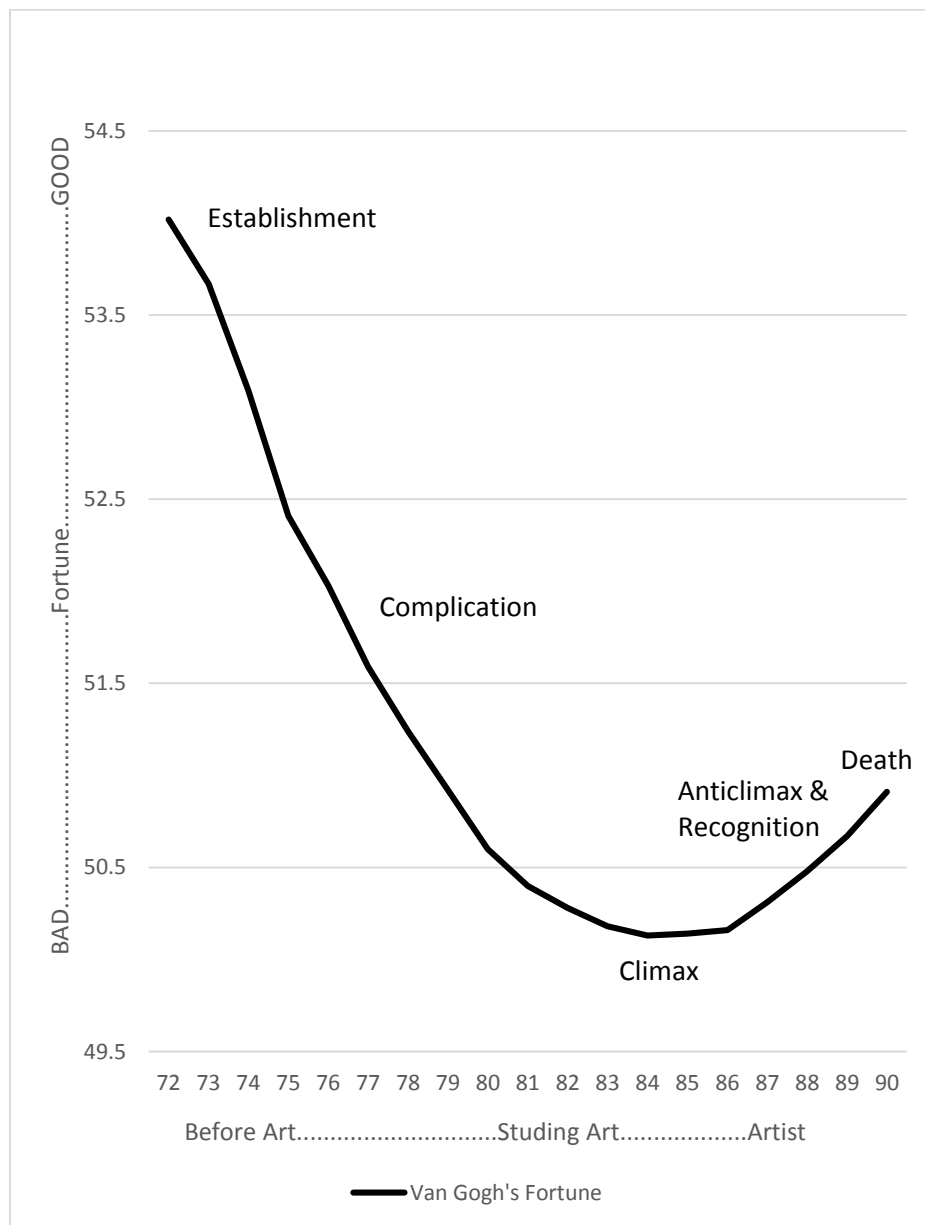

Figure3. *The tragic trajectory of Vincent Van Gogh's life, as expressed in the "Fortune" of his letters which is equated with predicted pleasantness.*

Figure 3 outlines the pleasantness trajectory of Vincent's letters based on the predicted Pleasantness function from Table 4 and Figure 2. The figure represents what readers of the letters might conclude about the trajectory *post hoc* if they were familiar with the artist's life story (Naifeh& White Smith, 2012), the Aristotelian concept of tragedy (Butcher, 2008/1895), and Kurt Vonnegut's "Man in a Hole" depiction of story plots (Vonnegut, 2005). The vertical axis of the figure ranges, according to Vonnegut, from Good Fortune to Bad Fortune. The plot descends to its minimum (the hole, or lowest point) and then begins to rise again. However, it never quite rises back to the level of Good Fortune at which it began. This defines tragic plots: the protagonist falls into a hole, and might begin to recover from this fall, but the recovery is never complete. If Good Fortune were achieved again, the plot would be that of an adventure or quest rather than being tragic.

The protagonist of the plot in Figure 3 (Vincent) is "of a higher type" (Aristotle's *Poetics*, Butcher 2008/1895, Part II) because he is a famous artist. He suffers from his failures and illnesses, and eventually dies (in Part XI, Aristotle stresses the importance of suffering "such as death on the stage, bodily agony, wounds, and the like"; Butcher, 2008/1985). According to Aristotle (Part VI), "the plot… is the first principle, and, as it were, the soul of a tragedy". The plot of Vincent's life has three parts, just as Aristotle suggests it should (VIII) – the beginning or establishment that sets the scene for the tragedy (Vincent before Art), the middle, which grows out of the beginning and leads to the climax (Vincent Studying Art), and the ending where the anti-climax, recognition, and the protagonist's death take place (Vincent as Artist). In Figure 3, the climax occurs at the lowest point of the curve in terms of Pleasantness, which is actually at the end of the second chapter: the anti-climax or reversal embodies a change in direction towards greater fortune, but this change is foiled by the artist's death. Recognition implies that the protagonist understands his responsibility in his life's trajectory: Vincent's final letters are somewhat resigned and might be depicting recognition. The audience of a tragedy benefits from a catharsis or purgation of emotion (Aristotle, part VI): by falling into the hole with the protagonist, and struggling to climb out again, we experience the protagonist's pain and suffering and are then able to lay these aside and go on with our own lives.

Many are drawn to Vincent because the trajectory of his life can be interpreted as a tragic one, but this represents a subjective interpretation of the letters. The tragic model is one possible way of looking at Vincent, but it does not account for the overall pleasantness of his letters (negative or unpleasant language never dominates), and their overall passivity. Grant (2016, p. 13) accommodates both the tragic model and the positive tone by juxtaposing Vincent's "utopian wholeheartedness "with the "inevitable disappointments" that the artist experienced.

Do the Letters "Tell the Truth" about Van Gogh?

One reason I undertook the analysis of Vincent's letters is that I wanted to understand him better. I have both succeeded and failed in the attempt. Different sources of information about Vincent broadcast different versions of the artist. For example, the biography by Naifeh and White Smith (2012) seems to me (as a reader) to be implacably accusatory and emotionally negative as well. It does not jive with the tone of the letters, which is not only positive but also almost unfailingly optimistic, even at the end. The emotional tone of the letters may be the result of letter-writing traditions, which were quite formal in the later 1800s: one was not expected to "spill their guts" in a letter, and there were always the formalities of greetings and good wishes to be observed (Mules, 2013, p. 6). In a more pointed explanation of the character of the letters, Naifeh and White Smith (2012, pp. 891-2) suggest that since Theo was supporting Vincent, Vincent "could not speak openly and spontaneously" about his concerns and that he instead employed "stratagems" to make his letters palatable to their recipient. Naifeh and White Smith doubt the "accuracy" and even the "veracity" of the letters. For these reasons, and because the letters were not "entries in a journal" the authors conclude that they cannot be used to tell the reliable story of Vincent's life (p. 891). I disagree. Other than Vincent van Gogh's paintings, his letters are the most plentiful source of evidence of his life and thoughts, even if they should be interpreted with caution. Those suggesting that Vincent directed his energies at systematically disguising his emotions in his letters are giving him too much credit for subtlety and Machiavellianism. It would be difficult to maintain a systematic deception across 645 letters and 720,000 words. I suggest rather that Vincent chose what to talk about, just as he chose what to paint, which makes both his letters and paintings representations of a truth about him (though not necessarily the whole truth). In spite of their critiques of the letters as an inauthentic source,

Naifeh and White Smith quote from the letters frequently in their biography. Nine out of 10 randomly selected pages from the biography included a quote from the letters. It seems as if the authors, having "invalidated" the correspondence as a whole, felt free to cherry pick from it in support of their own conclusions. They were also dealing in partial truths.

Future Research

Van Gogh's "character" (as represented in his paintings and letters, and as understood by observers) needs to be better integrated or rationalized. This research has begun an attempt at rationalization by noting the overall pleasant tone of the letters, and the variability of this tone in association with events in the artist's life. As well, the article has drawn attention to the tragic form of the "plot" of Van Gogh's life evinced in the trajectory of pleasantness. Future research might examine the remainder of the Vincent van Gogh correspondence, perhaps with special attention being payed to interchanges between Vincent and Theo and the emotional interplay in their letters. Differences in tone between letters to different recipients are also of interest. Some of Vincent's seemingly grimmest works (e.g., The Potato Eaters, 1885) were painted at the emotional nadir of his career, as represented in his letters. One might tie in different paintings to the letters in which they are mentioned and have expert observers rate the paintings in terms of their emotionality. This might lead to an understanding of the coherence between Vincent's mood (in the letters) and the emotional tone of the paintings. Finally, it is interesting that commentators (e.g. Vitturi & Sanvito, 2021) refer to sadness in Van Gogh's letters when the negative emotionality (unpleasantness) of sadness is not present there. It would be of interest to determine what it is about the letters (perhaps their passivity) that endorses an interpretation of sadness.

REFERENCES

[1] Apostolopoulou, A., &Issari, P. (2022). Constructions of Artistic Creativity in the Letters of Vincent van Gogh. *The Qualitative Report, 27*(1), 96-113. https://doi.org/10.46743/2160-3715/2022.5172

[2] Barnes, D. G. (2018) Emotional debris in early modern letters. In Downes, S., Holloway, S., &Randles, S. Feeling things: objects and emotions throughout history. Oxford Scholarship Online. Doi:10.1093/oso/9780198802648.00.0001

[3] Butcher, S. H. Trans. (2008/1895) *Poetics*. Aristotle. NY, NY: Cosimo Classics.

[4] Grant, P. (2016) Reading Vincent van Gogh: a thematic guide to the letters. Edmonton, AL: Athabasca University Press.

[5] Mainwaring, R. D. & Mainwaring, S. (2020) Dr. Gachet, in the kitchen, with the foxglove. *Cardiology in the Young*, 30, 1856-1865.

[6] Mules, P. (2013) Challenging the conventions of personal correspondence: txting time for literacy snobs. TEXT, 17, (no page number). https://doi.org/10.52086/001c.28297

[7] Murray, B. (2020) 'Van Gogh' syndrome: a term to approach with caution. *General Psychiatry*, 33, e100210.

[8] Naifeh, S. & White Smith, G. (2012) *Van Gogh: the life*. NY, NY: Random House.

[9] Nolen, W. A., van Meekeren, E., Voskuil, P., & van Tilberg, W. (2020) New vision on the mental problems of Vincent van Gogh; results from a bottom-up approach using (semi-) structured diagnostic interviews. *International Journal of Bipolar Disorders*, 30, 1-9.

[10] Pennebaker, J. W., Booth, R. J., Boyd, R. L., & Francis, M. E. (2015) LIWC 2015: *Operator's Manual*. www.liwc.net.

[11] Roskill, M. Ed. (2008) *The letters of Vincent van Gogh*. NY, NY: Touchstone.

[12] Turkheimer F. E., Fagerholm E. D., Vignando M., Dafflon J., Da Costa P. F., Dazzan P., Leech R. (2020) A GABA interneuron deficit model of the art of Vincent van Gogh. *Frontiers in Psychiatry*, 11, 685. DOI=10.3389/fpsyt.2020.00685

[13] VitturiK. B, &SanvitoL. W. (2021) The veiled intimacy between neurology and Vincent van Gogh. RevueNeurologique, 177, 615-618. doi:10.1016/j.neurol.2020.10.010.

[14] Vonnegut, K. (2005). At the blackboard. *Lapham's Quarterly*. Retrieved from https://www.laphamsquarterly.org/arts-letters/blackboard

[15] Voskuil, P. (2020) Vincent van Gogh and his illness: a reflection on a posthumous diagnostic exercise. *Epilepsy and Behavior*, 111, 10725

[16] Walther, I. F. & Metzger, R. (2015) *Vincent van Gogh: the complete paintings*. Cologne, Germany: Taschen.

[17] Whissell, C. (2006). The flow of emotion through Beowulf. *Psychological Reports*, *99*, 835-850.

[18] Whissell, C. (2009)Using the revised Dictionary of Affect in Language to quantify the emotional undertones of samples of natural language. *Psychological Reports*, 105, 509-521. https://doi.org/10.2466/PR0.105.2.509-521

[19] Whissell, C. (2010) Poet interrupted: differences in the emotionality and imagery of Byron's poetry associated with his turbulent mid-career years in England. *Psychological Reports*, 107, 321-328.

[20] Whissell, C. (2012). The trend towards more attractive and informative titles: American Psychologist 1946-2010. *Psychological Reports*, *110*, 1-18.

[21] Whissell, C. (2018) According to their emotional plots, the Iliad is most likely tragic while the Odyssey is not. *Athens Journal of Philology,* 6, 53-64.

[22] Woittiez, L. (2019) *A lexical analysis of Vincent van Gogh's letters based on psycholinguistics*. MA Thesis, University of Leiden, https://hdl.handle.net/1887/77790.