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Professional v. Amateur reviewers: What does their language actually tell us?

A Descriptive Text Analysis of Early Adopters

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This thesis concludes my time at Luleå University of Technology. Commencing almost a decade ago, beyond the economics institution, come May 2021 I will have finished this M.Sc. in Business and Economics. This project spanning roughly five months, was a suitable final challenge to where I have applied what I have learned thus far.

I want to thank all the faculty members at Luleå University of Technology who have aided my progress throughout both my degrees. Too many come to mind who deserve to be personally accredited in this acknowledgment, yet one stands out from the rest. Jeandri Robertson, my supervisor and mentor throughout this project. Your guidance and input have greatly improved what comes next, and I am deeply grateful for that.

Jeandri would sometimes say "you live, and you learn", which sums up my time in the educational system quite well. Now entering a new chapter, it would be apt to modify the saying. The day you stop learning is the day you stop living.

Erik Andreasson

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ABSTRACT

The purpose of this thesis is to find and categorize differences in the language used in online reviews by early adopters. By filling this gap in knowledge, marketers can better understand the nature of an online review, be it derived from professional or amateur early adopters. These categorizations aim to pinpoint differences between professionals and amateur reviewers who are considered to be early adopters of technology. Publicly available third-party data was analysed using a descriptive text analysis tool, LIWC (Linguistic Inquiry and Word Count).

The results regarding the professionals are highly conclusive seeing the uniformity of the population. They compose long format, highly analytic, unpartisan reviews which can be perceived as inauthentic due to the formality of the text and lack of personal opinions. With these traits, professional online reviews are subjected to the risk of alienating their audience, thus losing their influence over the potential adopters.

The amateurs were not as uniform as the professionals. However, there are clear tendencies of shorter formats, personal experience-based writing which comes off as more authentic compared to the professionals. Within the population of amateurs, one can clearly distinguish that satisfied amateur reviewers' write shorter reviews but more frequently, compared to dissatisfied amateur reviewers who write longer format, but not as frequently.

Due to the clear and statistically supported differences between the two populations, they are easily distinguishable from each other. This also shows in their motives to post online reviews. Where professionals are financially incentivised, amateurs find their motivation in intrinsic motivators such as altruistic, egotistic, and other self-fulfilling motivators.

These distinct differences enable marketers to allocate their efforts towards either professionals or amateur reviewers in order to achieve the desired market effect. To reach a customer on an emotional level, they should promote amateur reviews. But in order to display unadulterated facts and figures, they should promote professional reviews.

Key words: Early Adopters, Review, Reviewers, LIWC, Text Analysis

SAMMANFATTNING

Syftet med denna avhandling är att hitta och kategorisera skillnader i språket som används i produktomdömen som skrivits av early adopters online. Genom att fylla detta kunskaps gap, kan marknadsförare få en bättre förståelse för kundomdömen online, oavsett om de är från professionella- eller amatörskribenter. Denna kategorisering siktar på att kunna specificera skillnaderna mellan professionella granskare mot amatörer. Allmänt tillgängliga tredjepartsdata analyserades med hjälp av ett beskrivande textanalysverktyg, LIWC (Linguistic Enquiry and Word Count).

Resultaten gällande de professionella recensenterna är mycket tydliga, främst med tanke på enhetligheten bland populationen. De skriver längre format, mycket analytiskt och så opartiskt som möjligt. Detta sett att skriva kan uppfattas som icke autentiskt på grund av dess strikta formalitet och avsaknad av personliga synpunkter. Med dessa egenskaper löper de professionella skribenterna risken att fjärma läsarna och därav tappa sin inflytande på potentiella kunder.

Amatörrecensenterna är dock inte lika enhetliga som the professionella. De har dock tydliga tendenser att skriva kortare format, med personliga erfarenheter som bas till texten. Denna text tolkas som betydligt mer autentisk jämfört med de professionellas recensioner. Men inom populationen av amatörer kan man urskilja ett tydligt fenomen. De nöjda amatörrecensenterna skriver i stor utsträckning korta omdömen, medan missnöjda skriver mer utförligt men inte lika frekvent.

Till följd av de klara och statistiskt stödda skillnaderna mellan de två populationerna, går det att enkelt skilja dom från varandra. Detta märks även i deras motiv att publicera omdömen online. Där professionella är strikt finansiellt motiverade, påvisar amatörer så kallade inneboende motivatorer, så som altruism, egoism och andra självuppfyllande motivatorer. Dessa distinkta skillnader gör det möjligt för marknadsförare att allokera deras ansträngningar mot antingen professionella eller amatörrecensenter, beroende på marknadsförarens önskade resultat. Som exempel, för att lyfta produktens mjuka aspekter såsom att leva med produkten, bör de vända sig till amatörrecensenter. Men om de vill framhäva filtrerade fakta och statistik, bör de vända sig till professionella recensenter.

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1. INTRODUCTION

The introductory chapter presents the background for the thesis. Followed by a problem discussion to highlight the importance of the research topic. The chapter is then concluded with the research purpose and research questions.

1.1 Background

"For scientific truth is precisely what is valid for all who seek the truth."

(Max Weber, 1904)

Adoption of innovations has been a subject of research since the early 1960's. During this time Everett Rogers developed the Diffusion of Innovation Theory, explaining the adoption rate of novel technologies and innovations. These adoption rates are divided into time periods which describe the adoption behaviours of the various groups. The groups are divided into innovators, early adopters, early majority, late majority, and laggards. All descript titles which categorize the specific population (Rogers, 2003). Of these groups, early adopters hold an important role as they are able to greatly impact the adoption behaviours of the other groups (Rogers, 2003). An early adopter can fundamentally be defined as a person who adopts innovation in an early stage of the product's or service's diffusion process (Rogers, 2003). As a group, early adopters are, however, not uniform, as the group consists of various people with ranging characteristics (Rogers, 2003). Because of this, different people with various characteristics can qualify as an early adopter. When adopting a novel innovation, early adopters have great tendencies to share their experience and opinions on said innovation (Rogers, 2003). To do so they often share their experiences in the form of online reviews (Rogers, 2003).

Over the past decade the Internet has become a vital source for gathering information as part of the purchasing process (Goldsmith, 2002). Potential customers turn to online reviews on third-party sites to gather more information about products or services which they are interested in. With automotive reviews as the example, Motor Trend, Car & Driver, Cars.com, Edmunds etc. are examples of online websites which now are currently regarded as the predominant sources of information for potential customers when researching an automotive purchase (Coxautoinc, 2019). Some of the now most prominent websites started out as magazine-styled publications which were carried over to the online platforms. These publications were and still are

traditionally composed by professionals, who are deemed experts in their given area of automotive expertise. However, with the proliferation of social media and the versatility of the Internet, many early adopters who are reviewing products or services online, are now not only professional or career product- or service reviewers, but also everyday customers who, as self-disclosed amateur reviewers, still qualify as early adopters of innovation or technology. Thus, both professional reviewers and amateur reviewers are deemed members of the group of early adopters. Extant literature asserts that it is not always easy to tell the professional reviewers apart from the amateurs (Buck, 2019; Ferguson, Ewing, Bigi & Diba, 2019). For the purpose of this thesis, professional and amateur reviewers can be distinguished from each other by examining the source. This can be verified by looking at the nature of the review as an officiated review of a motor vehicle on a particular website, versus open platform or public domain reviews that are open for anyone to create the content. From a marketing perspective this contributes to uncertainty in how the different types of early adopter online reviewers, either a professional online reviewer or a self-disclosed amateur online reviewer, may influence potential consumers in their purchase decision process. Can one tell apart professionals from amateurs based on the language they use?

According to Arndt (1967), the purpose of a review is to elicit a true reaction from the customer to then put into words for the public to read and react to. Reviews can also be used to delve deeper into the ownership experience and to shine a light on specific quirks and features of a product or service (Arndt, 1967). These qualities and characteristics of reviews can constitute the reason for any given customer's purchasing decision thus providing adequate information to persuade the customer to commit to the purchase (Spear & Singh, 2004). Reviews come in various formats in a great array of forums. They can be divided into professional reviews and self-disclosed amateur reviews on the grounds of motive. The difference being that professional reviewers are financially incentivised whereas the amateur reviewers operate based on other non-financial motives, such as altruism (Simon, 1993). However, the financial incentives do have a crowding-out effect over altruistic, and similar, motives would influence the source's credibility thus possibly lose power in the total impact of the reviews (Hsieh, Hudson & Kraut, 2011).

Before the information age, product or service reviews were often compiled in magazines thus heavily reliant on professional writing and editing. Due to the nature of journalism and its inherent properties, objectivity was and still is associated with professional writing (Revers,

2014). With a wider degree of objectivity follows a credibility which may or may not be matched by amateur reviews (Chen, Teng, Yu & Yu, 2016). If this is the case, it should still be applicable when taking advice on what product or service to purchase. On the contrary, impartiality and motives of amateurs may still prove more appealing to a potential customer who seeks a credible opinion.

1.2 Problem Discussion

The greater the product or service complexity, the more complex the purchasing journey (Kotteaku, Laios & Moschuris, 1994). When a potential customer is in the process of buying a product or service, the more complex and expensive the product service is, the more research is done before making the purchasing decision (Kotteaku et al., 1994). The definition of complex buying in the Britannica Encyclopaedia (2020), states that cars and other forms of motorised transportation are to be considered a complex purchase. This is due to the inherent high price, complexity, and variation of the product or service. One must account for fuel efficiency, safety innovation, vehicle styling and several other critical factors. Accompanied with the factor of price, the magnitude of variables makes a car purchase tremendously complex. Figure 1 illustrates the importance of various factors when deciding on a car purchase in North America (KPMG, 2015). Based on survey data, Figure 1 shows that fuel efficiency and safety innovations are regarded as the most prominent factors that matter to the customers year after year.

| #1 Fuel efficiency | #2 Enhanced vehicle lifespan | #3 Safety innovation | #4 Ergonomics & comfort | #5 Environmental friendliness |

| #6 Vehicle styling/exterior | #7 Plug-in solutions for navigation, speech recognition & mobile internet devices (e.g. iPhone, Blackberry) | #8 Vehicle-bound internet connectivity & built-in technologies such as navigation, speech recognition etc. | #9 Telematics/personal assistance services | #10 Use of alternative fuel technologies such as fuel cell electric power, bio-fuels, solar power etc. |

Figure 1: KPMG's Global Automotive Executive Survey 2015

Complex purchases tend to come after vigorous research and general information gathering (Kotteaku et al., 1994). This is done in different ways from first-hand information gathering, to passive influencing such as listening to advice from various sources (Coxautoinc, 2019). This process is continuous for each customer, through iterative loops which updates the beliefs and valuation of the given product or service (Branco, Sun, & Villas-Boas, 2012). While gathering information, it is also important that the consumer is not overloaded by information (Malhotra, 1984). Malhotra (1984) and Jacoby (1984) discuss the inherent risks of information overload from the consumer's perspective, where the overload leads to reduced information perception. The survey conducted by Coxautoinc in 2019 showed that the average time spent on research and shopping for a vehicle was 13 hours 55 minutes in 2019 and 14 hours 29 minutes in 2018. Of this time, an average of 61% (8 hours 29 minutes and 8 hours 50 minutes respectively) are spent on online research before making the purchase decision. Therefore, the time spent researching online is vital and could indeed show great impact on the final purchase decision.

To understand where potential customers navigate to during an online car purchase search episode, the Coxautoinc (2019) survey also analysed go-to websites used to gather said

information. These sites include general Google search, Original Equipment Manufacturing (OEM) sites, third-party sites, and dealership sites. The data shows a preference among the great majority to visit third-party sites. Through a time-distribution analysis, it is apparent that most customers acquire the predominant information from third-party sites. Therefore, the potential customers are impressionable to information and opinions gathered from non-OEM or dealership sites (Coxautoinc, 2019).

With the extensive impact that reviews have on a potential customer, this arcs back to the theory of diffusion of innovation. As the early adopters hold such influence over potential customers, the language they use to share or review their experiences with innovations or products, could shed light on how they are perceived by customers (Darley, Blankson & Luethge, 2010). However, before finding how they are perceived, it is vital to actually be able to distinguish the professionals from the amateurs. Here lies a clear gap in knowledge seeing not much has been done previously, to discern the populations from each other. To analyse the reviews from different early adopter reviewers, i.e., professionals, and amateurs, can prove insightful regarding the gap in knowledge from the perspective of marketing efforts. The language differences can be found in the online reviews posted by the professional and amateur reviewers. Thus, stipulating the reviews as the unit of measurement.

With this background it is relevant to examine and analyse the characteristics and writing of both the professional and amateur online reviewers. This would be of interest for marketers in order to broaden the understanding of the customer's perception of a given product- or service review and the potential differences in language used by different reviewer types. Furthermore, understanding how the online review language between professionals and amateurs differ, may provide new insight to apply to the concept of word-of-mouth (WOM) marketing.

1.3 Thesis Purpose

The purpose of this thesis is to assess the differences between the language used by professional and amateur early adopters in their online reviews of a complex product, but also to fill the previously highlighted gaps of knowledge. The thesis also aims to substantiate intuitive claims derived from the processed data, claims such as "professional reviewers write longer reviews compared to amateur reviewers". All for marketers to use when allocating resources for product reviews. The processed data is derived from publicly available reviews of both professionals'

and amateurs' reviews and will be analysed using the descriptive text analysis tool, LIWC (Linguistic Inquiry and Word Count).

1.4 Research Questions (RQ)

To address the overreaching research problem, which is to analyse the language and characteristics of professional and amateur online reviewers, the following three research questions will be the foundation for the thesis. These questions have been developed to encompass the relevant lines of open-questioning of interrogative character i.e., "what..?". As per the nature of a descriptive text analysis, RQ1 and RQ2 which are specific in what is asked for, will therefore be resolved through numerical data. However, RQ3 as a more open-ended line of questioning will utilize theories and results from RQ1 and RQ2 to reach a satisfactory answer.

> *RQ.1: What are the language characteristics of the reviews written by professional early adopters?*
>
> *RQ.2: What are the language characteristics of the reviews written by amateur early adopters?*
>
> *RQ.3: What does the differences in language characteristics between early adopter professional and amateur reviewers tell us about their motivation to post online reviews?*

1.5 Delimitation

Seeing that reviews come in all forms, on anything and from anyone, delimitation is necessary. Firstly, to attain adequate amounts of data, the research will focus on one of the major markets of which is heavily subjected to reviews in all forms, the global automotive market. Secondly, only online reviews on free third-party sites will be utilized as data for analysis, which means that the information is available to most of the global population. Therefore, geographical limitation will not be applied. Thirdly, the thesis is delimited by the sources of information. To eliminate "noise", and to provide the adequate datasets for the analysis, abbreviated reviews and comments are excluded. Lastly, in order to form some structure of which brands and models to include to the data gathering, some choices must be made. It is of course not viable to include every

active car- make or model, thus a reasonable delimitation would be the globally most sold cars as per 2020.

2. LITERATURE REVIEW

The chapter of the literature review will summarize and illustrate the already established theories and frameworks on which the thesis later will build its conclusion upon. Within the literature there are fundamental theories, frameworks, previous research, conducted surveys and technical aspects regarding the analysis tool. This provides the reader with a solid foundation of information and understanding to fully grasp the purpose and conclusion.

2.1 Diffusion of Innovations

The fundamental theory on which this thesis is based on is Diffusion of Innovations (Rogers, 2003). The theory revolves around the concept of diffusion, which is "the process in which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 2003, p. 169) visualized in Figure 2 below. The theory has been frequently used and applied to various scenarios and situations, most with the purpose of understanding and applying marketing efforts.
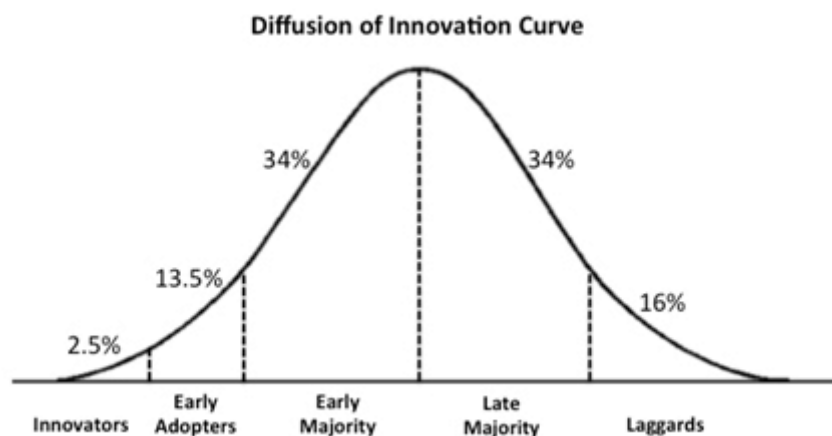
Figure 2: Diffusion of Innovation, Rogers (2003)

Where innovation has been the topic of much research for several centuries, the concept of studying the innovators themselves are not such an explored area (Greco, Riopelle, Grippa, Colladon & Gluesing, 2020). According to Dyer and Singh (1998), identifying and supporting the sole innovative individuals within a social system can further the innovation efforts of said social system, thus rendering continuous research relevant to enhance the understanding of the innovators. Due to the size of the groups of early- and late majority, being able to influence such a critical mass is highly beneficiary from a sales perspective.

2.1.1 Four Elements of Diffusion of Innovation

From Rogers' (2003) definitions of diffusion, the process is composed of four separate elements; an (1) innovation is (2) communicated through certain channels (3) over time among the members of a (4) social system. Each element is recognisable thus identifiable in every study of a diffusion process as illustrated in Figure 3. The components are further described in detail in the following sections.
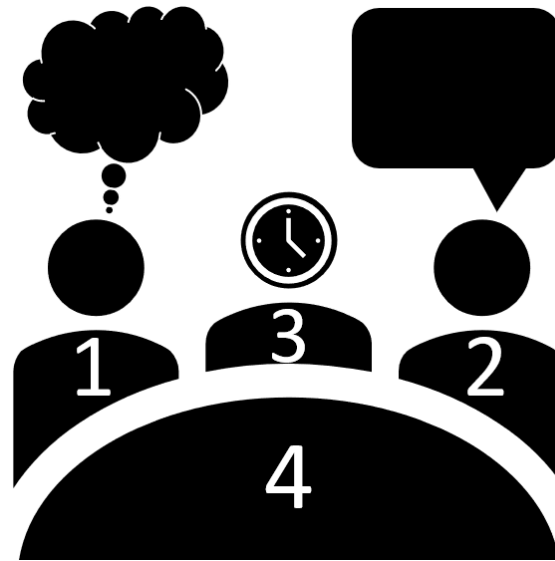
Figure 3: Visual Representation of the Definition of Diffusion as adapted from Rogers (2003)

2.1.1.1 The innovation

The notion of innovation has evolved over time. Becker and Whisler (1967, p.463) defined innovation as "…a process that follows invention, being separated from invention in time…" while also emphasising that the innovation is the first or early, adoption of an idea. Later in the twentieth century, Dosi (1990, p.299) incorporated the component of learning and discovery to the concept of innovation. This was forwarded through the innovation of novel products, production processes and novel forms of economic organization (Dosi, 1990). Dosi's (1990) definition found its base in the competitive nature of non-centrally planned economies, to drive the innovation on the product market. Shortly after, Rothwell (1992, p.221) established the definition as "the technical, design, manufacturing, management and commercial activities involved in the marketing of a new (or improved) product or the first use of a new (or improved) manufacturing process or equipment". This definition encompasses the previous definitions and summarizes the spirit of the innovation. Where Rogers (2003, p.12) defined

innovation as "an idea, practice or object perceived as new by an individual", Becker et al. (1967), Dosi (1990), and Rothwell (1992) all put distance between their definitions and the subjectivity found in Rogers' (2003) definition. Yet, the communality amongst them is clear. For an innovation to be classified as technological, its design must warrant an instrumental action which reduces the uncertainty involved in achieving a desired outcome (Rogers, 2003). Any new product or service which aims to succeed a previous solution is to be classified as a technology innovation (Rogers, 2003), which also includes incremental innovation, as often found within the automotive industry (Lazzarotti, Pellegrini, Manzini & Pizzurno, 2013). Attributes of the innovation are relative advantage, compatibility, complexity, trialability and observability (Rogers, 2003). These perceived characterises of the innovation, as seen by the social system, determines the rate of adoption.

2.1.1.2 Communication channels

Communication channels constitute the means of transporting a message from the source to the receiver (Rogers, 2003). When seeking to create knowledge effectively, mass media channels are to be preferred due to its reach and diversity. However, interpersonal channels are more effective in forwarding an eloquent and affecting message with the intent of changing the receiver's thoughts and perception. Therefore, the direct communication that is interpersonal channels are more probable to influence a non-adopter to commit to the innovation (Westmyer, DiCioccio & Rubin, 1998). When sending and receiving messages through the various channels, most individuals evaluate the innovation through subjective analysis of the near peers who already have adopted the innovation (Rogers, 2003). This phenomenon occurs alongside the minority who adopt an evaluation method based on scientific research from experts in the applicable area.

Another clear and ever-present phenomenon which occurs within the communication channels whilst achieving diffusion, is a degree of heterophily: the degree to which two or more individuals who interact are different in certain attributes such as beliefs, education, social status etc. (Rogers & Bhowmik, 1970). This specific type of communication is unlike most everyday communications. Most conversations are between two rather similar individuals (homophily), but once a diffusion process occurs, the parties in the conversation are commonly non-similar (Rogers et al., 1970). These individual differences can often lead to problems in achieving effective communication.

2.1.1.3 Time

Time constitutes one of two dimensions in the diffusion of innovation-graph, and as such, the importance of time is fundamental to diffusion. The two dimensions are: 1) rate of adoption, 2) over a period of time. Not only is time important to diffusion, but also to surrounding processes such as innovativeness and the actual innovation's rate of adoption or other decision-making units (Rogers, 2003). Through this ongoing journey which the innovation sets out on five distinct phases are conceptualized: knowledge, persuasion, decision, implementation, and confirmation, as per Figure 4 (Rogers, 2003). A non-adopter can come to seek information at any stage in order to mitigate uncertainty and potential consequences of adopting the innovation. The decision stages which follow are simply to adopt, or to reject the innovation.
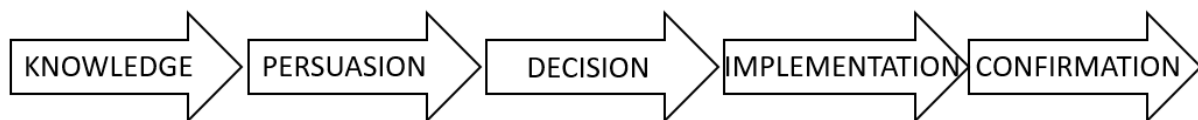
KNOWLEDGE ⟩ PERSUASION ⟩ DECISION ⟩ IMPLEMENTATION ⟩ CONFIRMATION ⟩

Figure 4: Visual Representation of the Innovation Decision Process as adapted from Rogers (2003)

2.1.1.4 Social system

Rogers (2003, p.23) defines a social system as "a set of interrelated units that are engaged in joint problem solving to accomplish a common goal". The structure of the system can facilitate or impede the diffusion of innovation process and is therefore vital in order to reach any rate of adoption. Parsons and Shils (2001, p.25) states that a social system "must be coherently organized and not merely a random assortment of its components". Yet, a social system cannot be fully incorporated no matter how organized it may be. Thereby, nor can a social system ever completely disintegrate (Parsons et al., 2001). With that, Parsons et al. (2001) define the actual social system as an interactive relationship of a plurality of actors. The first aspect of a social system structure are norms, which are established behavioural patterns prearranged by the members of the system. Within these structures one or many social members hold the characteristic of opinion leadership (Katz & Lazarsfeld, 2005). This dictates the degree to which an individual can influence other members' attitudes, thus overt behaviour in an intended fashion. Katz et al. (2005, p.325) states "popular imagery has equated opinion leadership with high status" which corroborate Rogers' (2003) connection between early adopters, high status, and opinion leadership. The social system often contains a change agent to aid and reinforce the message from the opinion leader. The agent is often a professional who acts in the interest of the "change agency". An aide is like the agent, but rather a non-professional who intensively

distributes the message in order to influence the non-adopters' innovation-decision (Rogers, 2003). By that definitions of agent and aide, Rogers (2003) categorizes professionals and amateurs in a similar manner. Both filling the same purpose of distributing the message, where the professional/agent act on financial motivation whereas amateurs/aides act beyond the same motivation.

2.1.2 Segmentation of innovation adopters

Rogers (2003) divides the population of adopters of innovation into segments based on when they adopt the given innovation. This is seen as a floating time period as there is no fixed timespan, rather varying lengths of time for the innovations to diffuse throughout the whole population. Within these time periods, Rogers (2003) stipulates that there are five groups of adopters: innovators (the ones who are in the forefront of adopting novel innovations), early adopters (the ones who are adopting novel innovations at an early stage), early majority (one of the larger masses who adopt novel innovations before fully accepted and established), late majority (the ones who adopt novel innovations once they have been fully tried and tested) and laggards (the ones who adopt the novel innovation late or, perhaps, not at all). These segments hold a specific timeslot throughout the innovation adoption process, starting with the innovators and finishing with the laggards.

Of the five categories of adopters, early adopters are the paramount for this thesis as they hold an influential position over the remaining segments, where the remaining groups do not influence each other to such extent (Rogers, 2003). Due to their unique combination of being early in the adoption process yet holding influence, makes the segment an excellent group to study further seeing the impact they bring on the perception of the product or service. Rogers' highlighted characteristic of the early adopter is "respect", as in being respected by the other groups. This inherent respect is an important part of why the early adopters hold influence over the remaining groups in a way that is unmatched. Rogers (2003) describes the early adopter as a more integrated component of the local social system compared to the Innovators. Because of this, potential future adopters tend to gravitate towards early adopters to gather information and opinions in order to understand the product service. Rogers (2003, p.283) writes: "They serve as a role model for many other members of a social system." This enables the early adopters to steer and trigger the critical mass once they adopt a novel innovation.

2.2 Professional online reviewers versus self-disclosed amateur online reviewers

The concept of professional online reviewers versus self-disclosed amateur online reviewers is not a novel concept. Various studies have been conducted with the aim of analysing and evaluating differences between professional and amateur opinions. Buck (2019) found a known phenomenon often referenced as the "Sundance Curse", where professional and amateurs' written opinion i.e., reviews, of films, differed widely. Buck (2019) continued to conduct a qualitative analysis to be able to pinpoint the variables which were most likely to elicit a response from the two populations. What Buck (2019) found was that, compared to amateur critics, the professional critics tended to compile a more comprehensive consideration of the film. The professional critics provided equal attention to above-the-line variables such as writing, characters, performances, and direction. What stood out regarding the amateur film critics was that they treated emotional responses as the single most important factor when critiquing a film. Buck (2019) highlights the extensive knowledge gap between professional and amateur critics. Where professional critics generally are more well-versed in the filmmaking process thus noticing the intricate of elements such as writing and performances. Members of the audience, however, usually have not studied these aspects in the same extent as professionals, which leads them to gravitate toward their own emotional response as the indicator to the overall quality of the film.

Buck (2019) states that the small number of featured audience reviewers is considered a limitation, which was simply due to time and resource constraints. Where Buck (2019) states that a "more detailed results would have undoubtedly brought a more nuanced look at this topic". This would leave space for a more quantitative methodology in order to widen the scope of the study or any study aiming to emulate the method of researching language differences between professionals and amateurs. Other studies have applied a text analysis method when analysing the difference, discrepancies or other social cues between professionals and amateurs (Beaudouin & Pasquies, 2016; Pollach, 2005). Both Beaudouin et al. (2016) and Pollach (2005) successfully applied the text analysis tool to distinguish prominent differences between the target populations within their given area of analysis. These studies are further discussed in the subsection which follows.

Pollach (2005) studied the consumer-to-consumer interaction as an area that holds tremendous benefits and opportunities provided by computer-mediated communication. Pollach (2005)

highlights the wide array of available websites where customers can voice their opinions on companies, products and services, or as a platform to read the opinions of others in order to gather information during the purchasing process. These sites are considered intermediaries between the buyers and the sellers. Pollach (2005) found that people do not utilize the language resources that are typical of computer-mediated communication i.e., emoticons, conventionalized acronyms, or hyperlinks. To appear credible and trustworthy, they use neutral, non-emotive language, which would make their reviews appear more professional than features typical of computer-mediated language would (Pollach, 2005). Beyond that, amateur reviewers make use of language resources that would present themselves as knowledgeable, for example by using technical terms the readers may not be familiar with. Even though amateur reviewers strive to create a professional review, the large number of typing errors and misspellings found in the product and service reviews suggest the opposite. Professional reviews are more thought out and carefully prepared, qualities not achieved by the amateurs (Pollach, 2005).

Beaudouin et al. (2016) in particular, highlight the viability of extending the data collection to a quantitative degree by analysing 39'474 analysed reviews. The paper is based on data from 18'000 contributors on a non-disclosed web-based platform and is consequently regarded as a highly quantitative study. Beaudouin et al. (2016) examine the relationship between the status of the contributors to the type of reviews of said contributors. The conclusion showed a correlation between higher frequent posting and the established norms and formats of a professional reviewer. Compared to the more modest 30 participants in Buck's (2019) as a qualitative paper, Beaudouin et al. (2016) set a high benchmark on data gathering which is unlikely to be achieved without automated data gathering.

The previous work done by Buck (2019), Beaudouin et al. (2016), and Pollach (2005), demarcates the scope of text analysis in a context of professionals versus amateurs. This opens up the possibility to apply a similar method in a different subject area, namely, to find specific differences in the language used for online reviews between professional and amateur early adopter online reviewers.

2.3 Online Reviews

For online reviews to have such an impact on customer opinion and sales, further exploration will always be relevant. Word of mouth (WOM) has been identified as one of the most

influential resources of transmitting information (Thompson, Loveland, & Castro, 2019). This is particularly applicable to experience goods, which are a product or service where characteristics such as price and quality are difficult to observe prepurchase (Godes & Mayzlin, 2004). WOM is naturally dependent on clear and direct interpersonal contact which can become an issue per Ellison and Fudenberg (1995) who state that conventional interpersonal social contact loses its influence drastically over time and distance. Where this is the case, online reviews are able to maintain a high level of influence beyond the constraint of time and distance by being available at anytime, anywhere (Duan, Gu & Whinston, 2008).

The research of Duan et al. (2008) concern the actual effects of a review, and also conclude the importance of online reviews in general. The online review is treated as an extension from the traditional WOM, thus holding an important part in marketing - and sales communication. Duan et al. (2008) also point to the lack of work done about effects from online reviews. The paper concludes that previous work has been inconclusive to the specific opinion-based effects one can expect from online reviews. However, they found that higher ratings do not lead to higher sales, although the number of posts is significantly associated with number of sales.

3. METHODOLOGY

This chapter explains the set frameworks for the research to follow. This framework consists of research purpose, approach, and strategy. Furthermore, the data collection approach is described.

3.1 Research Purpose

Saunders, Lewis and Thornhill (2016) distinguish between four separate methodological purposes, namely exploratory, explanatory, descriptive and evaluative. These different methods seek to answer specific questions tailored to the research purpose.

- Exploratory studies aim to contribute and add information and insight to any given topic (Saunders et al, 2016). This method is commonly used when a gap in knowledge is found or contemplated. The exploratory nature seeks to fill said gap with scientifically sound data and analyses.

- Explanatory studies are indeed self-explanatory thus seeks to provide understanding of causally related variables.

- Descriptive studies aim to create descriptive profiles, people, situation, events and others.

- Evaluative studies most commonly seek to explain to what level and extent something works or not.

The purpose of this thesis was to quantify unstructured data, recognizing patterns and further explain them. This entails a descriptive study; thus, the purpose of this thesis is solely descriptive. The conclusions from previous work in combination with previously stated gaps in knowledge, reinforced the purpose of researching the topic from new perspectives using different methods.

Saunders et al. (2016) listed four subsections of the descriptive purpose: case reports, case series, ecological study, and cross-sectional study. The latter of which also is referred to as a prevalence study. The prevalence study is defined as an observation of a set population at a single point in time or over a period of time (Saunders et al., 2016). The thesis gathered information available at a certain time, from a specific population, for the purpose of

observation. This indicates that a descriptive prevalence study was indeed an appropriate categorization of the research purpose.

3.2 Research Approach

Saunders et al. (2016) divide the research approach into two sections: quantitative and qualitative. The data which was analysed is unstructured and not necessarily of premium quality as it was composed by a wide range of writers on online websites. In order to reach a conclusion found on unstructured data, acquiring large amounts of data was imperative. Therefore, a quantitative approach was preferable. However, once the datasets were acquired, further qualitative analysis could be performed to verify the integrity of the datasets. To conclude the research approach, the decision of utilizing a deductive or inductive approach still needed to be made. Seeing that the thesis was heavily reliant on gathering data, a deductive approach was suitable to the intent of developing a conclusion based on large amounts of gathered data (Saunders et al., 2016). In order to build these predictive datasets, large amounts of data had to be processed and analysed. This process was following the structured method of importing and exporting data from the program Linguistic Inquiry and Word Count (LIWC).

3.3 Data Analysis

The data analysis was solely based on the computerized text analysis tool LIWC. Computerised text analysis is also commonly referred to as text analysis (Tausczik et al., 2010). This analysis tool utilizes computers and programmed algorithms to aid in the interpretation of compiled units of text (Sinclair & Rockwell, 2012). Text analysis allows for both the analysis and synthesis of texts to be broken down into basic units. These units can then be manipulated and reassembled to later be analysed by the researcher (Sinclair et al., 2012). Text analysis has grown in popularity amongst researchers as the amount of unstructured data available on the Internet continuously expands. Accompanied with Moore's Law, increasing computational power enables researchers to take on the growing amount of unstructured data (Moore, 1965). To analyse the content of the reviews this thesis utilized the LIWC text analysis tool as per Pennebaker, Boyd, Jordan and Blackburn (2015).

3.3.1 Linguistic Inquiry and Word Count (LIWC)

In 1996 two psychologists, Pennebaker and Francis discovered the basis for their upcoming development project. They saw a noticeable improvement by those who had undergone a period

of upheaval in their lives once they were asked to keep notes of their thoughts. This routine appeared to make them feel mentally better as a result. To analyse the effects of this notion, they conducted research in order to be able to categorize the language of the written notes. This gave rise to the automated text analysis tool LIWC. Since its development, it has come to lay the foundation for many research topics, such as comparing and grading interviews from male and female Chief Marketing Officers (CMO) Pitt (2019), and analysing people as products (Farshid, Ferguson, Pitt & Plangger, 2019).

LIWC provides extensive information beyond just underlying emotions of the writer or cited source. It can also distinguish notes of motives, social status, and confidence (Pennebaker, Mehl & Niederhoffer, 2003). With the creators' backgrounds in psychology, LIWC has also been developed to encompass different psychological states i.e., agitation, depression, elation (Pennebaker, 2011). While analysing a section of text, LIWC counts the number of words that represent the various psychological states, emotions, thinking styles and parts of speech (Pennebaker et al., 2015). One of LIWCs main functionalities is to provide scores on four main dimensions. These dimensions are analytical thinking, clout, authenticity and tone. Seeing that these main categories are the focus of the program, so will the thesis utilize parts of the concluded features. They are briefly defined as follows:

- *Analytical thinking*: This dimension refers to thinking patterns and the degree to which people use words that suggest logical, formal and hierarchical patterns of thinking (Pennebaker, Chung, Frazee, Lavergne & Beaver, 2014). A higher score reflects formal logical and hierarchical thinking. Analytical skills are applied when detecting patterns, brainstorming, observing, interpreting data, integrating new information, theorizing, and making decisions based on the multiple factors and options available (Heuer, 1999). Heuer also highlights the importance of judgment and its natural connection to analytical ability. It is also closely connected to situational logic which in turn would indicate well-structured thoughts and reasoning (Heuer, 1999)

- *Clout*: This dimension depicts the social status, confidence, or leadership that people portray through their word choices. Empirically, higher status is associated with people who use fewer first-person singular pronouns (I, me) and use more first-person plural (us, we) and second-person singular (you) pronouns (Kacewicz, Pennebaker, Davis, Jeon & Graesser, 2014). A higher score indicates an author who writes with high levels of expertise and confidence. While a lower score suggests a humble, tentative, and

sometimes anxious author. Higher clout is also linked with other-focus whereas lower clout is linked with self-focus.

- *Authenticity*: This dimension refers to people who portray themselves in an authentic or honest way through their word choice and are more likely to be humble, personable, and vulnerable (Newman, Pennebaker, Berry & Richards, 2003). The authenticity algorithm was derived from a series of studies where people were induced to be honest or deceptive (Newman et al., 2003) as well as a summary of deception studies published in the years afterwards (Pennebaker, 2011). Pennebaker (2011) referred to the differences between formal and informal writing in particular. Formal writing, Pennebaker (2011) argued, often appears stiff, sometimes humourless, with a touch of arrogance. It includes high rates of articles and prepositions but very few I-words. More formal writing displays a tendency to be less honest (Pennebaker, 2011). Thus, those who score highly on authenticity tend to be humble and more honest. Authenticity, as a concept, has one of the oldest theoretical foundations, rooted in classical philosophy established by the Ancient Greeks (e.g., Socrates, Aristotle). Also later touched upon by thinkers from the Enlightenment (e.g., Rousseau) and Existentialist movements (e.g., Kierkegaard, 1983; Heidegger, 1962; Sartre, 1943), thus it has no set definition by itself (Lehman, Kovacs, O'Connor & Newman, 2018). Two categorizations which are of much interest for this thesis are self-presentation authenticity and organizational authenticity, both grounded in establishing an image of values and ideas to the observer (Lehman et al., 2018). By that remark, being authentic entails an openness to the observer of one's motives. Be it personal or organizational.

- *Tone*: This dimension considers whether the text expresses an overall negative or positive emotional tone. A single summary variable is created, containing scores for both positive and negative words. A score above 50 entails a positive tone, which subsequently means a score below 50 holds a negative tone (Cohn, Mehl & Pennebaker, 2004). The tone-aspect of the analysis consists of negative and/or positive inclination of the writer but also considers the formality of the text (Cohn et al., 2004). An informal text may be humorous, subjective, casual, experimental, simple among other characteristics listed by Capital Community College (n.d). Beyond being easier to

understand, informal texts can also be easier to relate to which in turn create trust (Rempel & Holmes, 1985).

Tausczik and Pennebaker (2010), Bantum and Owen (2009), Pennebaker and King (1999), Seih, Beier and Pennebaker (2017), all put emphasis on the *panoptic* efforts to ensure the validity of LIWCs various word classifications. A *panoptic* analysis is to permit the viewing of all parts or elements (Merriam-Webster, n.d) or in other words, being able to view and analyse single components of the classifications. It is of course of utmost importance for the words to be categorized into the appropriate correct subsections. Seeing that LIWC has already been applied in several studies with the aim to analyse the language of certain individuals, it is a solid analysing tool to base this specific research on (Cohn et al., 2004; Kacewicz et al., 2014; Pennebaker et al., 2014).

3.4 Data Source

Purposive sampling was applied in order to acquire adequate amounts of data of viable quality. Purposive sampling provides the liberty for the researcher to direct the sampling at their own discretion (Saunders et al., 2019). This made the targeted sample size and quality achievable and more probable to succeed compared to a more random sampling. With that reasoning, the sampling contained data from professional, early adopter online reviewers on professional online platforms i.e., Motor Trend, Edmunds, Cars.com, as well as self-disclosed amateur reviews from the very same platforms. By having excluded general social media, the data reduced the noise and thereby provided a more valid result. If this were not the case, the amateur data would have needed extensive scrubbing in order to isolate the relevant automotive reviews, from random non-relevant text i.e., noise. The reviews from reviewers who are stated to be official contributors, were regarded as professional reviewers, versus amateur reviewers who contribute on open platforms or forums, who's contributions were not officiated or authenticated as initiated on commission by the platform or forum.

In order for LIWC to work properly thus providing an accurate result, longer and more comprehensive reviews were preferable. This is simply due to the way LIWC operates, more substance provides more data which in turn would provide a more accurate result. Previous work from Buck (2019) and Pollach (2005) displayed an array of different viable word counts

per analysed text. This sets a framework for which length of reviews has been used before, thus were appropriate to emulate.

3.5 Quality Standards

As one of the most widely used text analysis tools, LIWC has been applied in research disciplines such as linguistics, psychology, information systems and marketing (Humphreys, 2010; Ludwig et al., 2013; Tausczik & Pennebaker, 2010; Zhang, 2019). Previous research has exhibited great reliability of LIWC's dictionaries to extract variables and content ratings provided by human coders (Pennebaker et al., 2007). The reliability and validity of applying LIWC as part of the methodology in an online setting has been confirmed in over 100 studies (Slatcher & Pennebaker, 2006).

3.6 Data Collection

Following the principles stipulated in the research purpose and approach, the data was collected in a purposive manner. Despite the selective nature of a purposive sampling, it is important to not exclude reviews which may give a subjectively unsatisfactory first impression. In other words, poor and non-sensical reviews which one perhaps would not spend time reading, still needed to be included to encompass the full quality spectrum of reviews. All reviews, by both professional and amateur, were collected from the same three online websites, namely: Edmunds.com, Cars.com, and MotorTrend.com. To acquire some sense of communality among the reviews and structure throughout the data collection, reviews of specific car models were chosen to analyse. To remain as unpartisan as possible and minimizing subjective influence over the choice, the chosen models were among the most sold vehicles per the year 2020. Online reviews were collected in an array of different model years ranging from 2017 to 2021, with the purpose of gathering adequate amounts of data from the same source regarding the same model. However, seeing the overrepresentation of amateur reviews, all amateur reviews were collected from the same car model year, the year 2020.

The data collection was concluded once reviews of 11 different car models had been gathered, providing 115 professional and 1063 amateur reviews, respectively. Even though the lower

number of professional reviews seems somewhat suboptimal at first glance, they provide 58% more data in terms of word count, compared to the much larger sample set of the amateurs. The 11 models are represented in Table 1 below. The data gathering was concluded at this point in order to test the viability and integrity of the data.

Table 1: Number of professional and amateur reviews collected.

Make & Model	Number of Professional Reviews	Number of Amateur Reviews
Chevrolet Silverado	11	94
Dodge Ram	11	100
Ford F-Series	12	87
Honda Civic	7	100
Honda CR-V	10	100
Nissan Rogue/X-Trail	11	90
Nissan Sentra/Sylphy	9	92
Toyota Camry	11	100
Toyota Corolla	13	100
Toyota RAV4	9	100
Volkswagen Tiguan	11	100
Total	115	1063

4. Data Analysis

The following chapter includes the gathered data and its analysis which was processed through the automated text analysis tool, LIWC. The data is presented in sub-sectioned categories founded in the four main categories provided by LIWC, analytic, clout, authenticity, and tone for each population, respectively. The interpretation of the data and what it may entail is later described in the coming chapter, conclusions and implications.

As the following subsections delve deeper into the various variables of the results, found in the appendix, Table 7 summarizes the averages of the results in its entirety. The averages are further dissected, and their derivatives connected in their respective subsections. The table covers every variable gathered from both professionals and amateurs through the LIWC-process. This table is provided in its entirety, both as an easy access to find any specific data as well as possible future references on research questions not covered in the particular thesis. The relevant variables for this thesis is contained within the first eight cells in the first column and will be further analysed in the coming subsections.

4.1 Analysis of the Professional Reviews

Once categorized and analysed through LIWC, all data was exported to Microsoft Excel for further processing. In the case of the professionals, 115 data files amounting to 149'052 words was analysed. By firstly sorting by word count (WC), it is clear the data collection achieved a good variation in review length, as per Figure 5. This figure illustrates the normal distribution of the WC with a bin limit increment of 150. The bin limit refers to the incremental progression when plotting the normal distribution. As there are no clear bell-shaped curves, it can be assumed the data sampling is sufficiently random. This is not a requirement from LIWC. However, it is a desirable trait seeing it disconnects the purposiveness of the data collection from any probable linguistic traits found within the reviews.
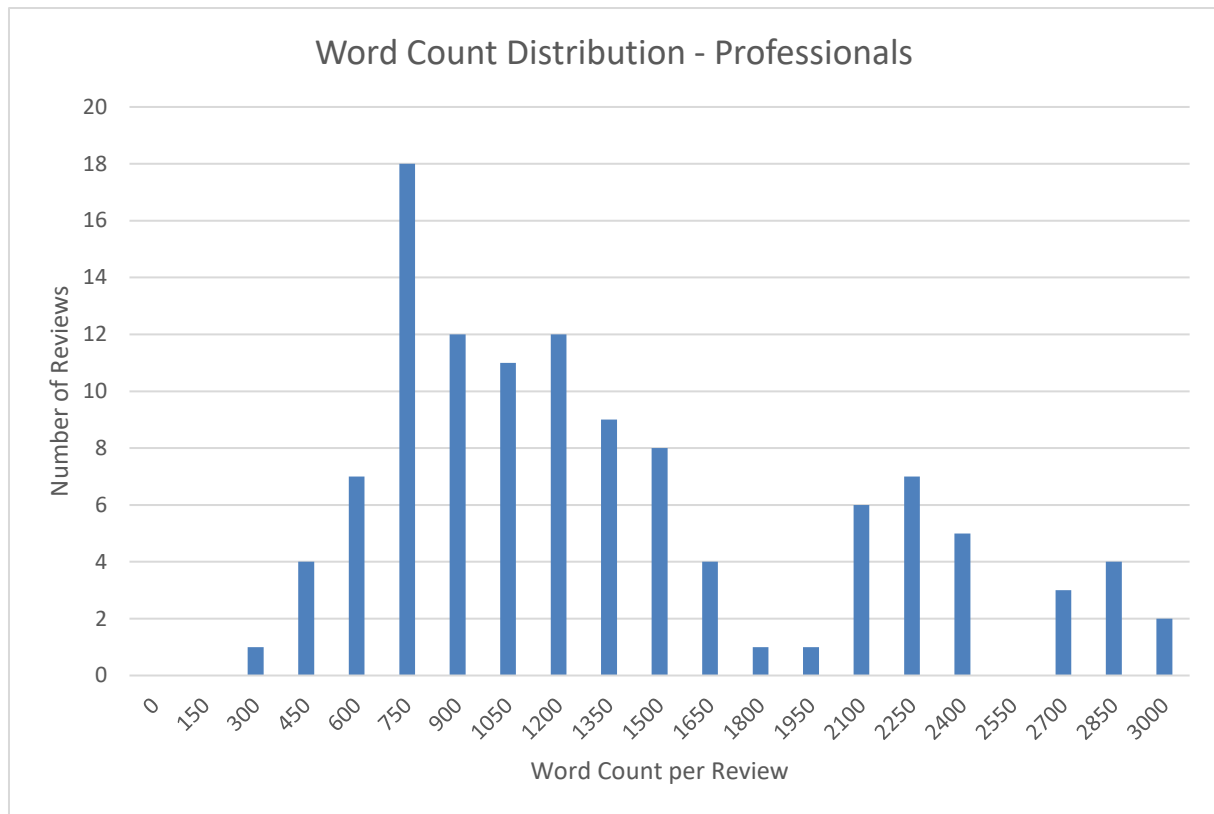
Figure 5: Normal-distribution, Word Count per professional review

Continuing exploring the data as analysed through LIWC, the four main characteristics being a*nalytic, clout, authenticity* and t*one* are analysed. Firstly, the averages of the abovementioned variables are presented. Table 2 below shows the general descriptive statistics, including both the averages as well as the standard deviation (SD) of each language characteristic.

Table 2: LIWC Main variables' averages, and standard deviation for professional reviews

PROFESSIONAL	Analytic	Clout	Authentic	Tone
AVERAGE	93,8	51,6	27,7	63,8
SD	3,4	6,6	10,1	15,4

At first glance it would seem the data shows visually obvious averages with a generally low SD. The impact of the low SD is clearer once visually illustrated as per Figure 6. The data is clearly structured into bell-shaped curves with few to no outliers. This indicates a well-predictable and re-creatable result of a uniform population. Therefore, the above-stated averages of each of the four main categories of the linguistic analysis are well-founded and credible and are consequently a good foundation for the analysis.
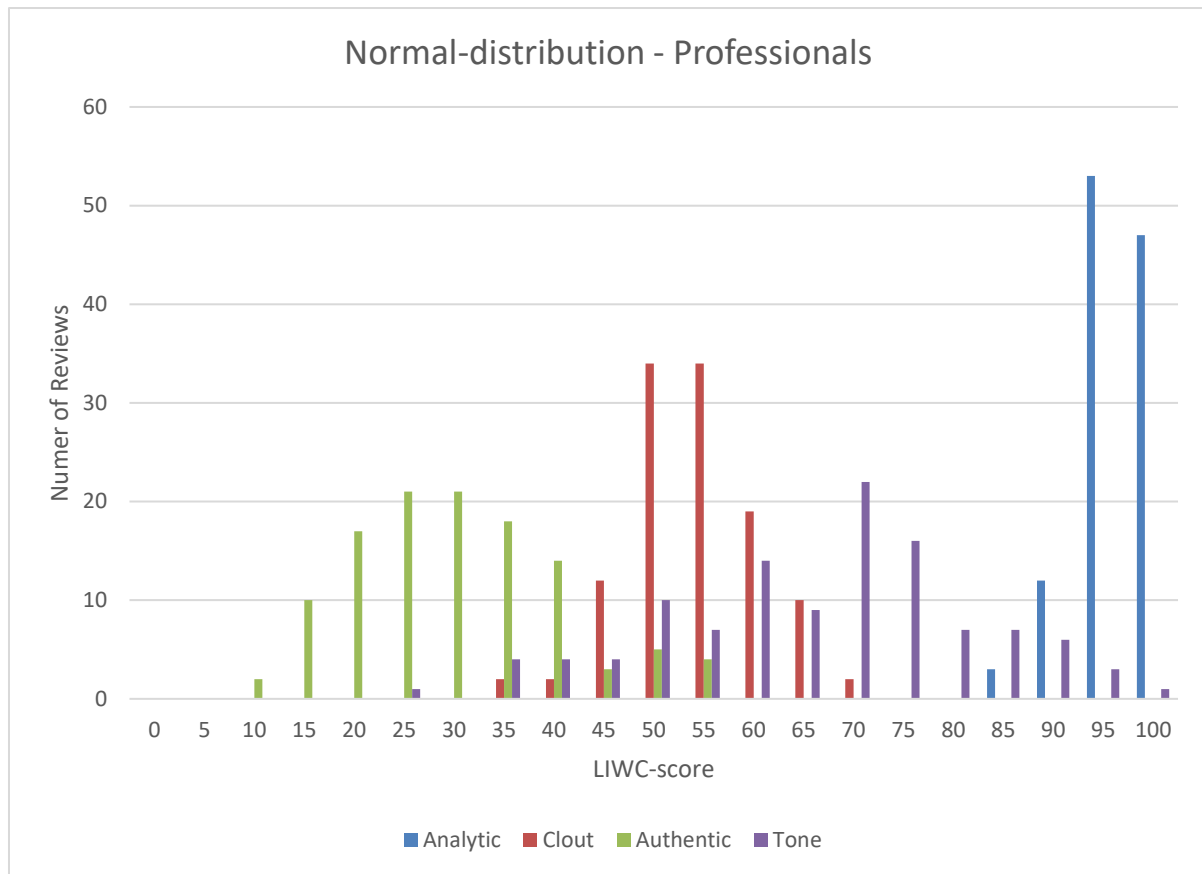
Figure 6: Normal-distribution, LIWC-variables for professionals

4.2 Analysis of the Amateur Reviews

Unlike the professionals, the amateurs are more diverse and unpredictable. Firstly, it is clear that amateurs tend to construct short-form reviews, rarely exceeding 100 words. Figure 7 illustrates the WC distribution of the amateur reviews with a bin limit increment of 50. Whereas the professionals were seemingly random in their WC ranging from 300 to 3000 words per review, the amateurs' reviews below 100 words are overrepresented at 76% of the total reviews. This negatively exponential start of the curve sets the trend for the remaining 24%, diminishing for each bin limit. With the specific bin limit of 0-100 words per review being utterly dominant, the results could become skewed to one side if not countered for.

Figure 7: Normal-distribution, Word Count per amateur review

Following the methodical example set in the previous subsection, the analysis continues with a calculation of average WC and SD. Same as previously, the four main categories are analysed to give a score for the general population of amateur reviewers. As per Table 3 the average varies widely from t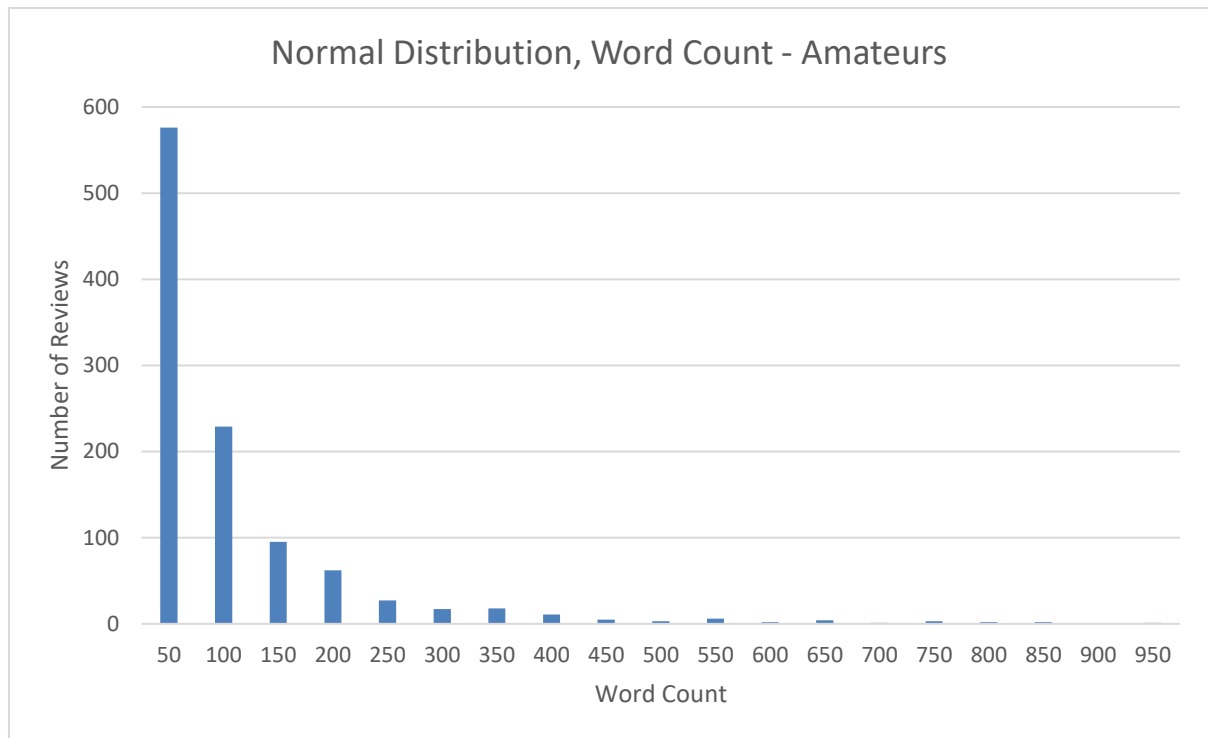he professionals but more importantly at this point, the SD-range is wider by a factor of two to seven. This indicates a much more diverse population with less predictability and communality.

Table 3: LIWC Main variables' averages, and standard deviation for amateur reviews

AMATEUR	*Analytic*	*Clout*	*Authentic*	*Tone*
AVERAGE	66,4	40,4	54,5	74,8
SD	25,6	24,1	32,2	32,8

To further analyse why the data varies so much within the set population, the population itself needs to be divided up into sub-categories in order to find characteristics to explain the results. The most prominent way of doing this is to analyse the variables of their dependencies of WC. This could prove to be a well-functioning way to find specific characteristics within the given segmentation. This can of course be done the other way around i.e., looking at the WC dependency of the various variables. However, considering the first step of the analysis was

through WC, it would be the most appropriate and consistent way to procced through the analysis.

Once segmented, new numbers emerge with varyingly observable patterns. Table 4 displays the new averages and SD of the five segments. By dividing the population, it becomes apparent that the low-WC reviews have a skewing effect on the general average. However, this effect varies depending on the given variable. For instance, the variable clout holds a lower average and a significantly lower SD in the (WC≥101)-segments compared to (WC≤100). The average does seem to converge to a steady-state around 37 compared to the general population average of 40.

Table 4: LIWC results for amateurs, segmented based on Word Count

	Analytic	Clout	Authentic	Tone	WC
AVERAGE	63,5	43,6	49,2	85,2	0–50
SD	29,3	26,4	35,2	27,7	
AVERAGE	67,8	37,8	56,9	68,8	51–100
SD	22,6	23,2	29,5	34,4	
AVERAGE	70,7	34,1	63,4	61,6	101–150
SD	17,0	21,2	25,9	33,0	
AVERAGE	75,4	35,9	63,6	57,9	151–200
SD	16,6	15,2	25,6	34,1	
AVERAGE	70,4	36,9	64,8	51,8	200<WC
SD	15,7	15,6	22,0	31,6	

It is also possible to turn the analysis on its head, by looking closer at how the variables score over the given WC. This would in turn show points of convergence, or if indeed there is a linear relationship connecting the WC to the variables. Seeing the already clear convergences of the professionals, this exercise is solely to explain the erratic behaviour of the amateur data. This analysis quickly shows points of general convergence in all four main categories. However, all points of convergence hold different characteristics in the way of number of points, WC, and rate of convergence. Due to the extraordinary difference between the main categories on all counts, its necessary to take a closer look at each.

4.2.1 Analytic over WC

At first glance, the analytic scores hold the most conclusive results seeing that the average score is consistent over WC (0-920) as per Figure 8. However, there are notable points of convergence all over the scale. These points of convergence are identified by the compact and horizontal line, covering multiple WC. In the case of the analytical variable, convergence points arise at 18, 38, 52, 62, and 93, respectively. The first two holding strict convergence up until WC=50 and the latter three scattering past WC=100. It also becomes apparent that the SD is greatly reduced once reaching the higher WC, almost reduced by half. This indicates that higher WC produces a "truer" analytic score seeing that the score itself increases somewhat by WC.
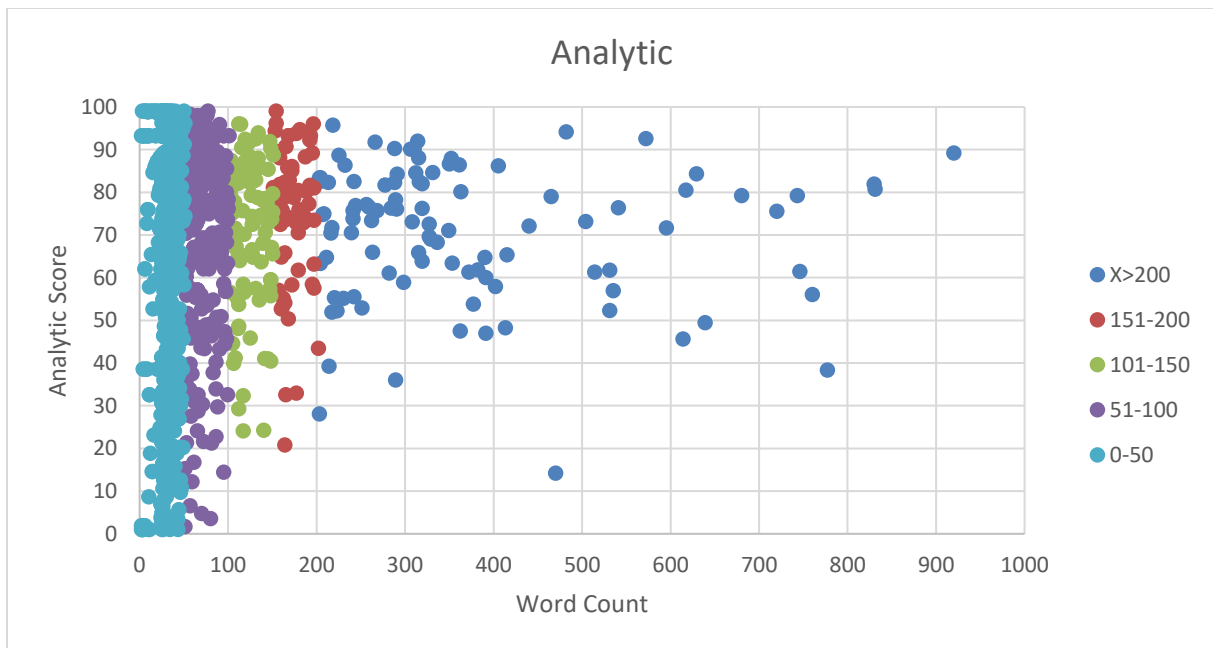
Figure 8: Analytic results over Word Count for amateurs

4.2.2 Clout over WC

Like analytical, clout shows a rather clear and concise result in the way of consistent averages over multiple sections of WC as per Figure 9. Unlike analytical, clout only shows one distinct point of convergence, at 50. As per Figure 9, clout shows a clear example of convergent lines all the way up to WC=200. This is a reoccurring phenomenon in analysing the results over WC, where clout is the most prominent variable. Clout suffers the same dependencies on WC as the analytic variable, as the score and SD changes over WC. Regarding to clout, the score is reduced as well as the SD when increasing the WC. However, once the score dips below the initial 40+, it stabilizes around 36 with a relatively low SD.
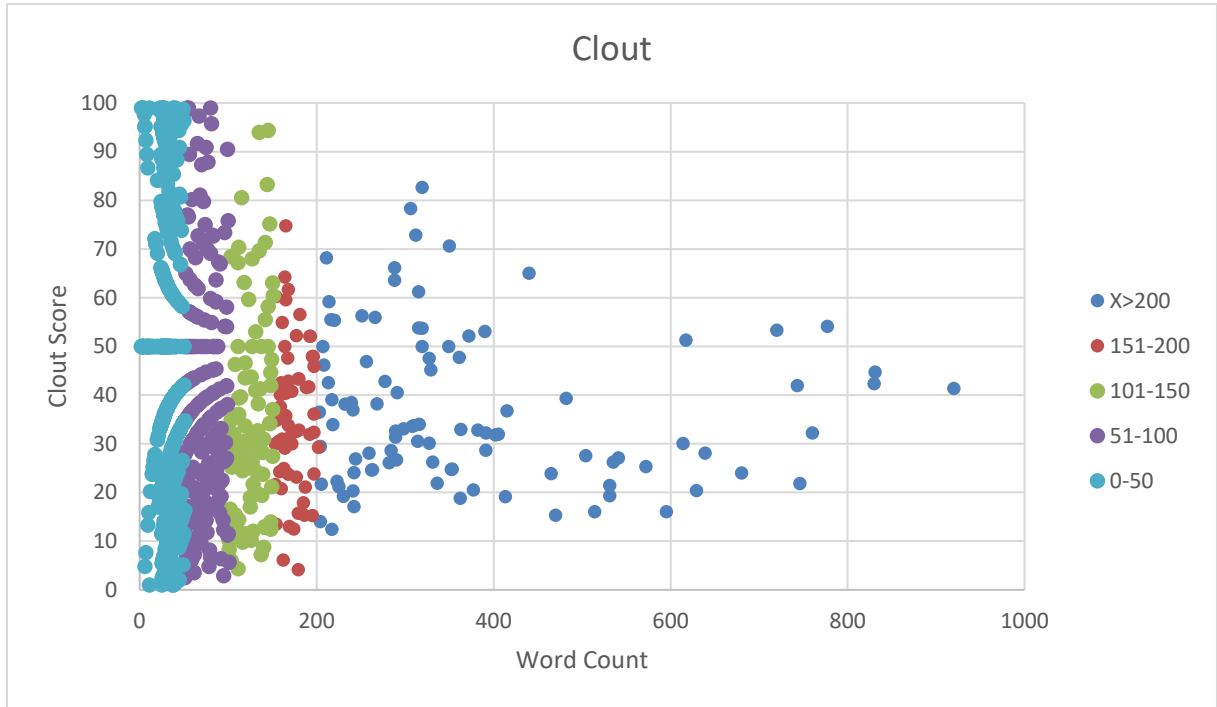
Figure 9: Clout results over Word Count for amateurs

4.2.3 Authenticity over WC

Authenticity over WC is much like the results from the analytic variable. Multiple points of convergence which quickly scatters once above WC=100 as displayed in Figure 10. Authenticity converges to 23, 43, 58, 74, and 89. Authenticity is also heavily reliant on WC seeing the increase from 49,2 with an SD of 35,2 at WC<50, to around 64 with and SD around 25 at WC>100. The immediate correlation to explain this particular behaviour is that lower WC tend to hold more language discrepancies which directly influence the score negatively.
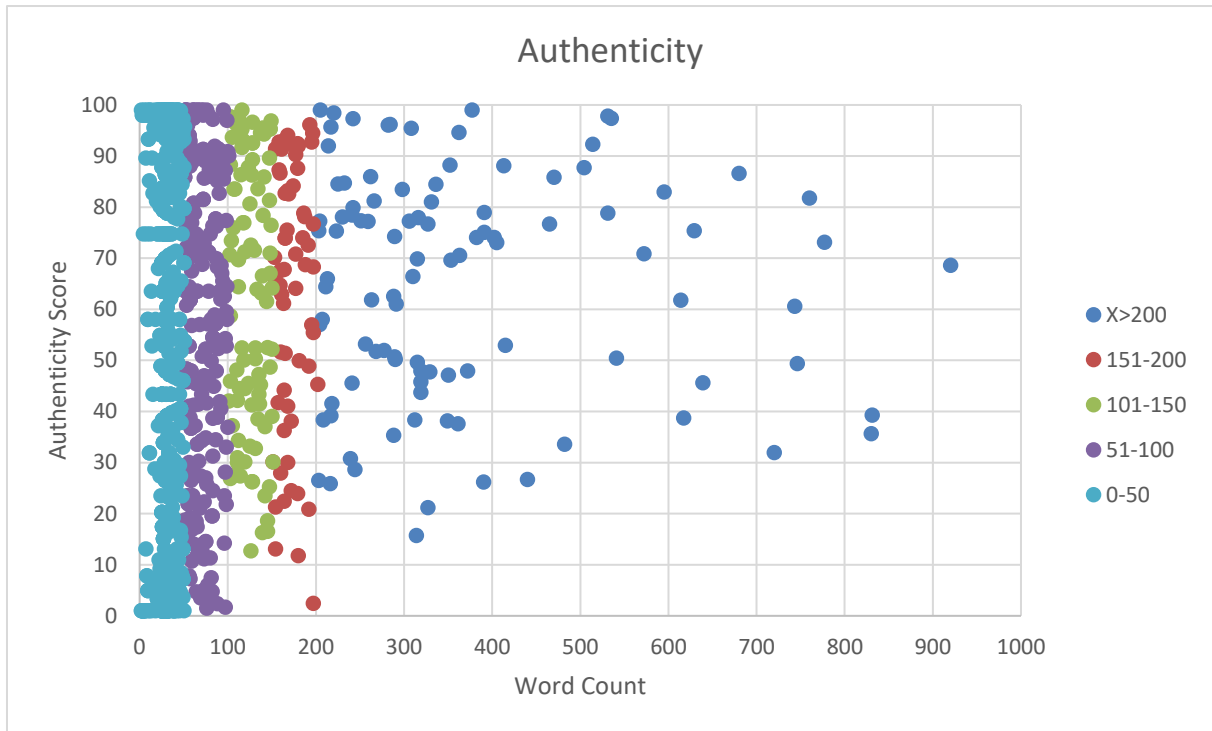
Figure 10: Authenticity results over Word Count for amateurs

4.2.4 Tone over WC

As Figure 11 may suggest, tone is the most unpredictable variable based on standard deviation. But as per all the other variables, there are strong lines of convergence, once again converging to one specific level being 25 below WC=200. Similar to the previous variables, tone also became scattered once reaching a WC>200. Regarding the dependencies on WC, tonality holds the largest difference. With a difference of 33 percentile point, the SD still remains almost uninfluenced. This indicates a general uncertainty within the variable itself which can be explained by further correlation. Not to state that longform reviews among amateurs tend to be increasingly negative, but rather those who write short form reviews are predominantly inclined to use emotionally positively charged words when depicting their views on the product or service.
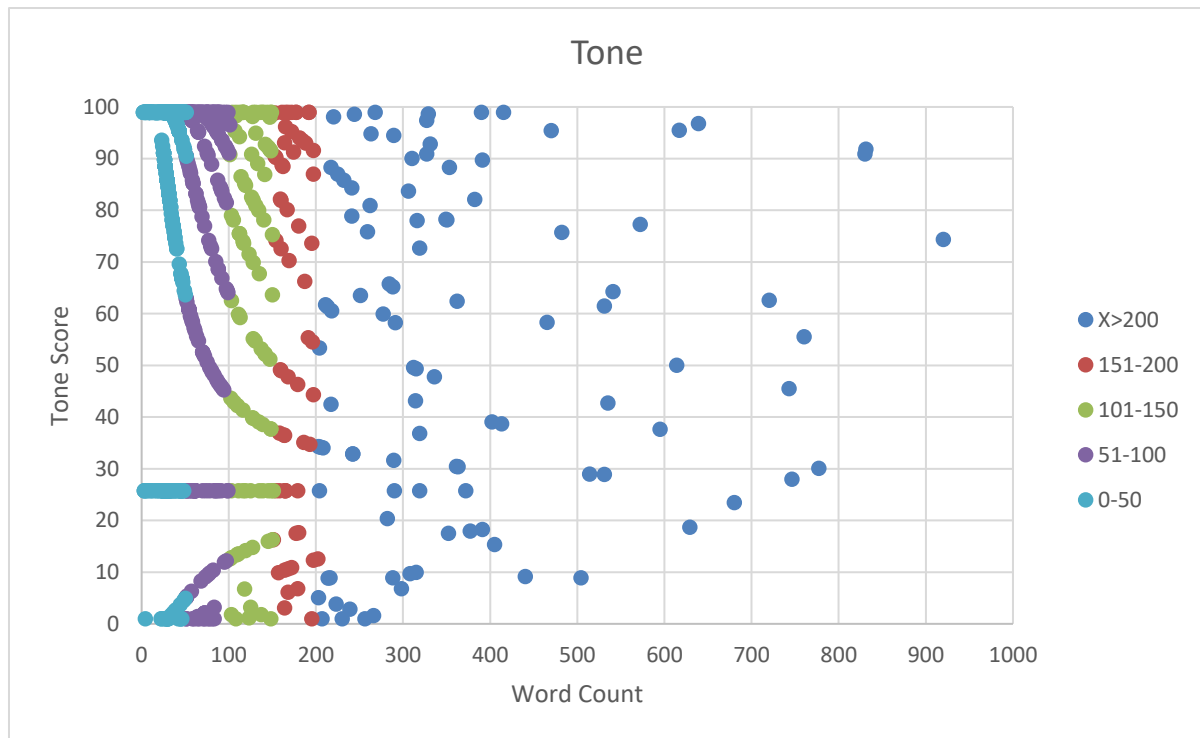
Figure 11: Tone results over Word Count for amateurs

4.3 Points and Lines of Convergence

Highlighted in the previous subsection are the points and lines of convergence. These have not fully been explained to why thy group in such a distinct manner. Convergencies like these tend to show extraordinarily statistical certainty, but with the premise at hand it would appear to be the opposite. Whereas the standardized norm for LIWC is seven or more words to be analysed, the counterpart IBM Watson's Personality Analyser indicates the vitality of larger bodies of text. With said work tool, the analysed data also receive a score on the texts suitability to be analysed, where for instance 5'000 words would be deemed very strong while sub-300 would be considered very weak. This would provide a partial explanation to the peculiar behaviour of the results below WC=200.

4.4 T-Test

"Any series of experiments is only of value in so far as it enables us to form a judgment as to the statistical constants of the population to which the experiments belong" (Gosset, 1908, p.1). As a countermeasure to statistical uncertainty, Gosset (1908) stipulated the methodology of the t-test, which is now widely used in the same manner, to determine the statistical significance of any given result. When conducting an experiment or a test of any kind, it is commonly the case

that the analysis turns on the value of a mean, either directly, or as the mean difference between the two quantities (Gosset, 1908). Gosset (1908) highlights the accuracy of a large sample, contrary to the issues which arise once the sample size is lower.

To determine the probability and significance in the difference between the two populations, a t-test was conducted (Gosset, 1908). Due to the inherent difficulty to predict the results in one way or the other, a two-tailed test was deemed to be most appropriate for the given situation. Also seeing that the populations are unpaired also requires attention when conducting the t-test. Thus, the test was a two-tailed t-test with unpaired populations. What immediately became apparent was the immensely low probability values which then indicates extreme significance in the difference between the populations. As a common standard used when conducting a t-test, the significance threshold of $\alpha \leq 0{,}05$ is applied. In this case, the significance threshold is simply used to depict the extremely low values found in the table, Table 5, below.

Table 5: T-Test results with average results, t-scores and P-values

T-TEST	Professional	Amateur	T-Test Summary Results
WC	1296,10	88,42	t=-18,90; P=0.00
Analytic	93,85	66,42	t=-32,41; P=0.00
Clout	51,59	40,42	t=-11,61; P=0.00
Authenticity	27,72	54,47	t=19,60; P=0.00
Tone	63,77	74,81	t=6,30; P=0.00
WPS	20,84	14,57	t=-13,20; P=0.00
SixLtr	21,91	15,33	t=-22,34; P=0.00
Dic	65,68	81,29	t=26,90; P=0.00

4.5 Effect Size through Cohen's d_s

As a part of determining whether or not the measured differences are significant, Cohen's d_s is assessed in order to support any claims. Cohen's d_s refer to the pooled standardized mean difference, or effect size, between two groups of independent observations (Cohen, 1988), in this case professionals and amateurs. Results from an analysis using Cohen's d_s are grouped into small, medium, and large effects. The effect sizes were calculated by dividing the difference of the averages with the pooled standard deviation. Thus, Cohen's d_s derived through equation one through four.

$$AVE = \frac{\sum_{i=1}^{n} x_i}{n} \tag{1}$$

$$SD = \sqrt{\frac{\sum |x - \bar{x}|^2}{n}} \tag{2}$$

$$Pooled\ SD = \sqrt{\frac{(n_1-1)*SD_1{}^2 + (n_2-1)*SD_2{}^2}{n_1+n_2-2}} \tag{3}$$

$$Cohen's\ d_s = \frac{AVE_1 - AVE_2}{Pooled\ SD} \tag{4}$$

Table 6 display the results with an estimate of whether the effect is small (0,2), medium (0,5), or large (0,8) (Cohen, 1988). Note that a negative and positive result can be of the same size. The operator is vector based thus showing in which direction the gap occurs. In this case, negative number indicates that professionals score higher than amateurs. Also, the score itself indicates how many pooled standard deviations is found between the two averages. The table shows overall medium to high effect sizes, with the exception of tonality. With these results combined with the t-test scores, it became evident that the differences between professional and amateur reviews were tangible and demonstratable.

Table 6: Cohen's d_s results with Effect Sizes

Cohen's d_s	Score	Effect Size
Word Count	–5,06	High
Words per Sentence	–0,67	Medium
Dictionary	1,98	High
Analytic	–1,11	High
Clout	–0,49	Medium
Authenticity	0,86	High
Tone	0,35	Low

5. Results

From the compiled data in chapter four, some characteristics were easy to decern while some demanded more thorough scrutiny to provide concrete answers. The results are dissected into the already mentioned components as follows in the subsections below. To reach the results displayed in this chapter, extensive analysis and dissecting of the various components was performed in the previous chapter. All with the aim to substantiate the claims found in this chapter.

5.1 Analytic

As the first of the four main characteristics, the result from the analytic variable shows a prominent variance between the professionals and amateurs. The results of 93,8 and 66,4 respectively shows a significant variation of how analytic the language used by the populations are. This result entails that professionals tend to be analytic, logical and have a consistent thinking in their use of language (Pennebaker et al., 2014). This characteristic also suggests that the professionals are logical, formal and utilize a hierarchical pattern of thinking. In opposition, amateurs are more intuitive, informal, with narrative unstructured writing (Heuer, 1999).

5.2 Clout

The results concerning clout are not as prominent as per analytic, yet slight variations are found. Here, professionals again tend to hold a higher level of clout at 51,6 compared to 40,4, meaning higher use of we-word, social words while using fewer I-words, negations (e.g., no, not), and swear words. This indicates authority which is gauged by the presence of powerful and confident language. Compared to previous work, this was expected to be a greater variance seeing the typical way of writing published work compared to a subjective statement (Kacewicz et al., 2014). Still, professionals have higher clout. Perhaps just not to the extent which were expected.

5.3 Authenticity

Regarding authenticity, the results conclude the first category in which the amateurs hold an advantage, or at least a higher result. Authenticity indicates to what extent the language is personal and self-revealing, rather than detached and guarded (Newman et al., 2003). In this case, the amateurs outclass the professionals almost by a factor of two, at 54,5 compared to

27,7. A high score on authenticity is achieved by more I-words, present-tense verbs, and relativity words (e.g., old, far, here) and fewer she-he words and discrepancies (Newman et al., 2003). This entails a proficiency amongst the amateurs' opinions and thoughts to be appealing to the readers and open of one's motives (Lehman et.al, 2018).

5.4 Tone

Once again, the amateurs reached a higher score regarding the emotional tone at 74,8 compared to 63,7. The tone is linked to the use of positive and negative words, which not unexpectedly is correlated to what the reviewers reviewed. Therefore, it was imperative to use reviews from the same mixture of cars for both populations. As 50 would be regarded as "half positive, half negative", the analysed reviews in general reflect relatively positive emotional tones towards the products (Cohn et al., 2004). It would be considered intuitive that most users of the most popular cars in the world would be content. Yet, this result substantiates the claim while also highlighting that amateurs are more inclined to write positively about their cars compared to professionals.

5.5 Word Count (WC)

As expected, the WC is the major difference between the professionals and the amateurs. Where professionals write on average 1'296 words per review, amateurs make do with only 88 words per review. That is a difference by a factor of almost 15, where not even the maximum WC for amateurs reach the professional's average. Beyond solely amounts of data, the lengthy reviews of professionals indicate a more rich and extensive background from where the message is formed. Where professionals can highlight and discuss what they find interesting and/or noteworthy about the product, amateurs rarely highlight more than one or two topics or characteristics of the vehicle in question.

5.6 Words per Sentence (WPS)

Similarly, to WC professionals also write longer sentences compared to amateurs, 22 compared to 15 words per sentence. Like WC, WPS indicates a "richer" message which holds more information (Pennebaker, 2011). Compared to statistical trends on WPS in general writing, both results are within expected range, where professionals are slightly above average while amateurs are slightly below average.

5.7 Language Usage (DIC, Dictionary)

The language usage is defined as a percentual correlation between the used words and the dictionary. It is found in LIWC as the variable DIC. Hundred percent meaning all words are found in the dictionary and zero percent would indicate that not a single word is recognized. At first glance, the results are somewhat baffling seeing that professionals use less words from the dictionary compared to amateurs, 65,7 compared to 81,3. This would be contrary to the hypothesis of professionals being more literate compared to the amateurs. Upon closer inspection, the cause to the perplexing results becomes obvious. In the case of automotive reviews, the subject matter is rather complex in its specific language. This in turn results in that the professionals use industry words associated to cars in order to convey their message. These words are not found in the common dictionary, thus affecting the results in the specific manner.

6. Discussion and Practical Implications

Lastly, the research questions are revisited to provide them with answers based on the results from chapter five, while also discussing what real-world practical implications this may hold.

6.1 Research Question 1

What are the language characteristics of the reviews written by professional early adopters?

It directly became apparent that the professionals are uniform in their manner of writing. As all four main categories resulted in averages with minimal standard deviation, it can therefore be concluded as following. All professional reviewers are highly analytical in their way of writing. This would be a clear staple of a professional review while not being extensively cavalier with their choice of words, thus showing an average level of clout. The lack of authenticity is yet another clear staple of the professional review, seeing that professional writers distance themselves from the review on a personal level. They rarely depict their own thoughts and values, thus using language that is perceived to be less authentic in the process. The last of the four categories, tone, is once again tied to the professional status which brings a sense of impartiality. Therefore, the tone is ever so slightly positive, which is perhaps not surprising given the dataset the thesis is founded on, being the most sold cars per 2020.

What also became apparent right from the start is the extremely high word count for most of the professional reviews. It shows how meticulous the early adopter professional reviewers are as they aim to provide as an extensive review still palatable for the reader. This is also achieved by a higher-than-average number of words per sentence, being 22 compared to 15-20 for and average text. That shows thought given to the structure of the sentence while also cramming in as much information as possible. The compact writing manners also shows indirectly for the dictionary compatibility. Professionals use a rather low percentage of words found in the dictionary. While not in the dictionary, the words are not made up but rather found within the particular product sphere.

6.2 Research Question 2

What are the language characteristics of the reviews written by amateur early adopters?

Unlike the professionals, the amateurs were not as easily distinguishable from one another. The first two main characteristics, analytical thinking and clout, were rather consistent and straight forward. Both variables showed considerably lower results compared to the professionals due to the more personally based opinions rather than factually based statements. This also becomes apparent when looking at the other two variables, authenticity and tone. The amateurs have greatly higher levels of authenticity compared to the professionals due to their willingness to self-disclose and provide the reader with a personally based opinion. As the thesis utilized data collected from reviews on the most popular vehicles on earth, in terms of sales numbers, it would be obvious to expect that most reviews would be of positive character thus higher tone. Rightly assumed, most amateur reviews were of positive tone. But what the study also shows, is the correlation between word count per review to the emotional tonality. The negative reviews were arbitrarily spread over the spectrum of word counts. However, the positive reviews are clearly overrepresented when the reviews shorter. Thus, a negatively linear correlation between word count and positive tonality. In other words, amateur reviewers write short format when happy, and long format when discontent.

As discussed previously, the most prominent difference in terms of language characteristics of online reviews by professional and amateur reviewers, is the word count. As an average amateur review only holds roughly seven percent of the total amount of words compared to an average professional review, only so much information can be transmitted through the review itself. This is further linked to words per sentence which once again is substantially lower compared to the professionals, thus reducing the flow of information between the reviewer and the reader. Therefore, it is more difficult to promote any given information through the medium of amateur reviewers as their intrinsic writing style, partially being word count and words per sentence, limits the comprehensiveness and flow of information between the early adopters and the early majority, according to Rogers (2003).

6.3 Research Question 3

What does the differences in language characteristics between early adopter professional and amateur reviewers tell us about their motivation to post online reviews?

Professionals are consistent amongst each other thus having uniform characteristics throughout. The greatest difference being the word count, which can be explained by looking at the set norm for any of the given sources. Some of the websites were consistently shorter formats compared to the others, thus diluting the word count as a result from editorial decisions. Yet, no matter the word count, the professionals always seem to strive to be impartial in the language that they use. They try to reserve personal opinion and can therefore come across as cold and analytical. Their tendencies to be personally reserved, in combination with their non-existent use of swear words supports the claim of non-controversial professional writing. This entails motivation of appearing non-partisan, which of course is a desirable trait regarding journalistic and professional writing. By writing in this manner, the professionals can cater to a large audience with a mitigated risk of being offensive, rude or uncompelling in other ways. Accompanied by a high level of clout, forwards professional reviewers as strong opinion leaders as their language are powerful and impactful. They are thereby strongly positioned as opinion leaders, and as early adopters, they hold the tangible influence over the early- and late majority. This appeal should then also reflect a positive response from the readers, as early- or late majority, thus increasing the number of readers which then leads to greater revenues for the publicist and the professional reviewer. However, the extensive and complicated language puts the reader at risk of information overload, thus potentially compromising the perception of the potential customer.

Regarding the amateur reviewers' motivators, the results was partially contrary to previous work. Where studies have been conducted which concluded that amateur reviewers seemingly aim to appear more knowledgeable on the given topic compared to their actual level of knowledge (Pollach, 2005), the result from this study shows that may not be the case. When comparing to the professional reviewers, the amateur reviewers are not on the same level of knowledge indicated by both the analytical thinking, but also their lack of industry words, indicated by more common word usage. Complementary to that, a much lower clout also suggest that the amateurs are not able to forward their message with the same impact as other opinion leaders. This result is not entirely conclusive seeing that no set standard on language

complexity or industry words were established for the given population. This could be performed in future studies where the same population, amateur reviewers, are analysed both from a review perspective, but also through common everyday writing.

What became obviously apparent when analysing tonality, was the overwhelming positive responses from the amateur reviews. The inverse dependency of tonality and word count indicates that, when the amateur reviewer is content with their purchase, they spread the positive message without bothering to go into detail. On the other hand, once dissatisfied, the amateur reviewers are more thorough in explaining their thoughts and opinions. Where the introductory chapter speculated to what the motivation of the amateur reviewer may be, altruism does fit in as a possible motivator for the larger word count reviews as they want to warn and ward of potential customers from the product's specific faults and fallacies. However, this does not explain the motivation behind the lower word count reviews as they write positive opinions without much context. This can possibly be due to some level of virtue signalling seeing that amateur reviewers stand to gain not much else from them sharing their experience. This could hopefully be further explored in the future through additional research, specific to find amateurs' motivators for posting online reviews.

6.4 Limitations and Future Research

The limitations of the thesis are naturally linked to what future research could or should be conducted. The very first limitation is found in the applied language. Seeing that the thesis itself was written in English, it became natural to gather data in the same language. LIWC is not constrained solely to English, however, the proficient language of the author limits the selection. The use of the English language forwards additional intrinsic limitations as well. Due to the availability of reviews written in English, a geographical inclination towards North America and the British Isles emerges, thus creating an indirect geographical limitation.

Further work could and should be done to incorporate additional branches of reviews. Seeing that this thesis only analyses automotive reviews, switching area of analysis would be a worthwhile venture, which also then could be compared to the results of this thesis. In the era of information, it would also be an interesting and probably worth-while venture to delve into fake reviews. These fake reviews could possibly be composed by brands pushing their own product, but also self-affirming non-adopters who review a product they do not possess. Beyond switching area of analysis, more could still be done on the same area. As influencers occupy a

grey area between professional and amateur reviewers, it would be interesting to encompass their action and influence into the mix. More so, perhaps seeing which of the two groups hold most in common with the influencers. Lastly, for the purpose of the data gathering of this thesis, it is limited to the most popular cars, by sales number. If one were to analyse different spectrums of the popularity, then perhaps other tendencies may arise.

Beyond contributing to the gaps in knowledge regarding the use of language and motivation, this thesis also contributes with a methodological strategy. The manner in which LIWC was applied when conducting this thesis could by all means be recreated in the different scenarios as suggested as future research.

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Appendix A

Table 7: Results from LIWC

	Professional	Amateur		Professional	Amateur
Word Count	1296,1	88,42	Differ	2,69	2,52
Analytic	93,85	66,42	Percept	2,2	2,76
Clout	51,59	40,42	See	0,71	1,23
Authentic	27,72	54,47	Hear	0,55	0,62
Tone	63,77	74,81	Feel	0,81	0,77
Words per Sentence	21,79	14,57	Bio	0,76	1,42
Six Letter	21,91	15,33	Body	0,46	0,32
Dictionary	65,68	81,29	Health	0,22	0,21
Function	38	48,35	Sexual	0,05	0,01
Pronoun	4,69	11,98	ingest	0,07	0,07
Personal Pronoun	1,5	6,34	Drives	6,58	8,25
I	0,16	4,63	Affiliation	0,91	2,05
We	0,61	0,63	Achieve	1,46	1,37
You	0,6	0,64	Power	3,04	1,91
She/He	0	0,08	Reward	1,4	2,86
They	0,13	0,35	Risk	0,74	0,86
ipron	3,19	5,64	Focus past	1,18	2,89
Article	10	7,97	Focus future	6,94	9,47
Prep	11,07	11,1	Relative	0,49	0,75
Auxiliary verb	5,05	7,98	Motion	14	15,33
Adverb	2,83	4,91	Space	2,39	4,28
Conjugate	6,32	6,19	Time	9,05	7,28
Negate	0,7	1,36	Work	2,97	4,15
Verb	8,14	13,45	Leisure	1,98	1,42
Adjective	5,6	7,4	Home	0,84	0,98
Compare	3,03	2,39	Money	0,35	0,6
Interrog	0,67	0,74	Religion	0,72	1,57
Number	5,65	2,79	Death	0,02	0,02
Quant	2,59	2,78	Informal	0,34	0,69
Affect	3,64	8,28	Swear	0	0,03
Positive emotion	2,84	7,27	Netspeak	0,08	0,09
Negative emotion	0,76	0,97	Assent	0,03	0,29
Angst	0,1	0,13	Nonflu	0,16	0,25
Anger	0,09	0,15	Filler	0	0
Sad	0,24	0,21	All Punct.	18,77	15,26
Social	2,74	4,69	Period	4,8	7,93
Family	0,04	0,28	Comma	5,62	3,08
Friend	0,09	0,15	Colon	0,12	0,05
Female	0	0,15	Semicolon	0,11	0,03
Male	0,02	0,11	Quest-mark	0,03	0,07
Cogproc	7,63	9,05	Exclaim	0	1,36
insight	1,01	1,01	Dash	4,74	0,42
Cause	1,33	1,07	Quote	0,15	0,14
Discrep	0,57	1,58	Apostrophe	1,86	1,46
Tentat	1,88	1,69	Parentheses	0,73	0,34
Certain	0,94	1,93	OtherP	0,59	0,36