

# Love Language Over Time: An Analysis of Self-Presentation in Dating by Comparing Historical Personal Ads and Contemporary Dating App Biographies

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## **ABSTRACT**

This research focused on the biographies of dating apps which are space-limited and self-written and therefore give insight in what users find crucial to mention about themselves and their wishes for possible partners. The content of the biographies was compared to the content of personal ads, collected and analysed between 1947 and 1985, providing insight in self-presentation in mate search through time. The method relied on biographies which were collected in The Netherlands in 2021 from three dating apps: Tinder, Bumble, and Lexa. Profiles of men and women aged 18 to 37 looking for a heterosexual partner were selected. The texts were analysed on mentions of intention, lifestyle, personality, and appearance and on usage of negation and emoji. The personal ads collection was composed and annotated by researcher Wil Zeegers, according to similar content themes. Comparisons were made between men and women, between age 18 to 27 and 28 to 37, and between dating applications. Historical analyses was done between men and women. Results include that intentions differ per dating app. Personality self-description increased over time, number of requests peaked in late personal ads. Appearance description were more frequent in personal ads, probably because dating apps allow for photographs. The most important lifestyle element in early personal ads was religion, while later ads and dating app biographies focused mostly on interests. In conclusion, this research gives insight in how description of identity and projected partner in personal ads and dating app biographies can be used as indicator for mate choice criteria and how this can give insight in societal values.

## **Keywords**

Mate choice, personal ads, dating apps, self-presentation, online dating, online identity, online relationships

## 1 INTRODUCTION

The search for a partner is as old as human kind. Long ago, people were often limited to family contacts or neighbouring tribes or villages to find a partner (Dunbar, Gamble & Gowlet, 2014). With the emergence of widespread media such as newspapers, people could reach out to possible partners all over the country (and beyond) via personal advertisements. The first personal advertisements were placed in a London newspaper in 1695 (Beauman, 2011). In a personal ad, people typically shared some information about themselves and their wishes for a partner, with the hope to appeal to a suitable partner. Interested people could respond with a letter to the newspaper, where it would be forwarded to the original writer, which could be the start of a romance. Writers were charged based on length - per letter or per millimeter of text - forcing them to be concise while sharing as much important information as possible (Bruthiaux, 1994).

In these ads, writers needed to present themselves as a unique person, in order to appear appealing to others in hopes of receiving responses. This could be achieved by describing person-specific qualities based on universal characteristics. The interpretation of these qualities depends on social context and is thus time-specific (Zeegers, 1988).

This influence of time on interpretation of personal ads is illustrated by Zeegers's (1988 & 1998) historical research about what personal ad writers shared about themselves and their prospective partner. Zeegers's work focused on three major Dutch newspapers from 1947 to 1998. The results give insight in how often writers mentioned appearance, personality, lifestyle, and intention of their writing in their advertisements over several decades.

Zeegers (1988 & 1998) related the content of the personal ads to the prevailing societal standards of the era they were written. This shows how contents of personal ads accentuated values of society. Personal ads are thus a good indicator to study mate choice criteria through time.

Travelling further in time to the rise of the internet shows how the partner search moved online: first dating websites and now also mobile dating applications. A typical dating app profile tries to lure a possible partner with photos and a biography (and more additional information depending on the app). This means the biographies need to be intriguing, or else the profile is easily swiped away and disregarded.

Personal ads and dating app biographies have in common that writers have limited space available to share what they consider the most important information about themselves and their desired attributes in a potential partner. This research investigates if the content of dating app biographies can be used to continue the documentation of mate choice criteria through time, following up on the historic data and results regarding the content of personal ads.

To determine this, this research examines where the content of personal ads overlaps with the content of dating app biographies and where the contents differ. This will give insight into what people feel is important to share in their mate search over the course of time. It will also be considered if the content of dating app biographies can be used as an indicator for prevailing societal values, similar to personal ads.

Before comparing the content of collected dating app biographies to personal ads, this paper will outline the scientific background in the next section. Here, self-presentation will be discussed in more detail, as well as previous research into personal ads and dating apps. Then, the four commonly shared different content themes of personal ads will be considered, along with predictions of how they will be used in dating app biographies. This is

the foundation for the research statements presented in section 3. Section 4 discusses the methodology of personal ads and dating app biography collection, along with the annotations. The results in section 5 are split between a comparison between dating apps and a comparison between dating apps and personal ads. This is followed by the discussion in section 6 and section 7 will comprise the conclusion.

During the process of working on this paper, I, first author Marthe, noticed how sometimes I felt limited by scientific guidelines and terminology. Therefore, I will introduce these intermezzos, indicated by their placement and colour. The intermezzos will provide me the opportunity to reflect on the cited literature on a more personal and philosophical level and to consider the choices I have made in this paper and their implications.

## **2 SCIENTIFIC BACKGROUND**

Most people care about how they present themselves to the world, considering the large amount of trendy clothes, make-up, and accessories sold each year. Goffman (1959) described how the presentation of one's self can be controlled by manipulating setting, appearance, and behaviour, illustrating how complex the process of self-presentation is in everyday life.

Broadly, two processes can be defined in self-presentation to others (Leary & Kowalski, 1990). The first is impression motivation, which refers to the desire to influence other people's impressions. The second process is the impression construction, where behaviour is changed to affect people's perception.

In dating, both impression motivation and impression construction are present. People carefully manage their self-presentation to positively influence how they are perceived by possible partners. Once motivated, the desired impression can be constructed by, for example, self-description. The self-presentation has to be balanced: people are motivated to present their ideal self but hiding imperfections may be a deal-breaker later in the relationship. Also, it can be hard to maintain one's desired public persona in a pub after a few beers. It is easier to control self-presentation in a written context such as personal ads and dating app biographies which both facilitate selected self-presentation (Walther, 1992).

The following subsections will look into how self-presentation is facilitated in personal ads and dating app biographies. Moreover, the historical rise and place in society of personal ads and dating apps is examined on the basis of previous research. Then, the content of the personal ads will be discussed, divided into four recurring themes that are commonly present in personal ads. Knowing the content of the personal ads and the relationship between the content and the societal values of that time, can lead to predictions about the content of dating app biographies within the current societal values.

### **2.1 Personal Ads**

Over the course of the 300 years of personal ads' existence, the content of the ads has varied, as will be examined in the following subsections. Even the name is subject to change; personal advertisements can also be known as contact ads, dating ads, lonely hearts columns, matrimony ads, and many more local names.

In the beginning, almost all ads were written by men. After the Civil War (1861 to 1865), more women submitted personal ads in the United States of America and after World War I, the number of ads written by women in the United Kingdom grew larger, both of these trends were due to a shortage of men to marry (Beauman, 2020).

Indeed, up until the early 20<sup>th</sup> century, the goal of most personal ads was to find a partner in marriage. Most newspapers did not allow any other intention and named the column the marriage rubric (Zeegers, 1988; Beaman, 2011). Gradually, the intention of some ads changed, reflecting societal changes, such as legislation of divorce and the introduction of the birth control pill (Van Hasselt & Van den Hout, 2009; Beaman, 2011).

Since finding this partner, whether for marriage, a relationship, or friends with benefits, is an important matter for most people, it can be assumed the search for a partner was taken seriously and the written text of the advertisement was thoughtful (Beaman, 2011). In practice, this meant that typically, ad writers described themselves as to appeal to their perfect partner (Van Mulken & Brandt, 2002). However, this was a balancing act between giving enough information to attract the right partner, but not too much to give away anonymity (Montini & Ovrebro, 1990). Balance also needed to be found between self-enhancement to appear as attractive as possible and authenticity to not hide major attributes or characteristics that could be considered breakpoints and could waste the time of all parties involved (Harrison & Saeed, 1977).

Personal ads are very good resources for scientific research because they are widely available and can be obtained without consent (Lynn & Bolig, 1985). Secondly, the ads reflect naturalistic behaviour as they are collected in a natural environment and the subjects are not aware that they are being studied.

Past studies on personal ads can be divided into three broad types: studies that looked into the expressiveness of the self-presentation of ad placers, studies that tested the exchange theory and looked into the information trade in personal ads and the following correspondence, and comparative studies between ads written by men and women (Montini & Ovrebro, 1990). This study examines the self-presentation of ad writers as the first step of the information trade and comparisons will be made between ads written by men and women and ads written by different age groups. The next subsection will review prior work on self-presentation in personal ads.

## **2.2 The Work of Wil Zeegers**

This research builds upon the extensive work by Wil Zeegers (1952-2012), specifically his book *Different Times, Different People: The social representation of identity* (Andere Tijden, Andere Mensen: De sociale representatie van identiteit\*<sup>1</sup>), written in 1988 which comprised Zeegers's PhD research, and *Looking for a champ: personal ads in The Netherlands* (Op zoek naar een kanjer: contactadvertenties in Nederland\*) from 1998, which is the revised edition that also contains follow-up research. In the rest of this paper, the reference of the name 'Zeegers' will refer to the two books written by Zeegers in 1988 and 1998, for sake of readability. If specific text parts are mentioned, this will be stated.

Zeegers collected personal ads from three major Dutch newspapers (Het Parool, de Volkskrant, and Trouw) and divided the data into three time periods. The first era comprised 1947 until 1965, the second era 1965 to 1975, and the third 1975 until 1985. The follow up research from 1998 discusses the time period 1985 until 1995.

Zeegers used the content of these personal ads to study them in regard to the societal context of their time. With this, Zeegers showed that the personal ads reflect values of

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1. This paper contains some Dutch phrases that are translated by the authors into English to clarify. This asterisk will indicate the original Dutch phrase which followed our English translation. Appendix A contains an overview of all translations in this paper.

society and argued that personal ads could be used to substantiate theories about societal values of that time.

As an overview, Zeegers assembled a sample study in 1988 for which one hundred personal ads written by women and one hundred personal ads written by men were randomly picked every other year. Zeegers then analysed what women and men wrote about themselves and their wishes for their future partner. A subsection with results of this sample study relevant to this research can be found in Table 1 and Table 2 (in section 4.1).

This data and Zeegers's findings about societal context will be used as starting point for the present research. Zeegers's research showed developments of content of personal ads through time and how personal ads reflected values of society. This research aims to investigate how the content of dating app biographies relates to that of personal ads and if dating app biographies also reflect values of the present society.

Collecting the data of Wil Zeegers involved quite some detective work. Originally, the plan for this thesis involved collecting personal advertisements from the online newspaper archive Delpher.nl and annotating these according to the same criteria as collected dating app biographies. In fact, this data set was already composed. However, interpreting meaning from texts from decades before I was born presented quite a challenge because I lacked knowledge of social context and usage of words and phrases. During the hunt for explanatory scientific papers concerning Dutch personal advertisements, I came across a review of Zeegers's book by Cas Wouters which suggested Zeegers described Dutch personal ads in his research. However, I could not find this research online. I located one of the few physically available books on a very dusty shelf in a bookstore in my hometown (luck was on my side!) and ordered the other book from an antique shop in Belgium. Indeed, these books provided extensive research on Dutch advertisements over the years. The appendix included some tables with the results of the sample studies based on annotations of personal ads. Sadly, Zeegers passed away, so I could not reach out to him. I tried to locate the initial data (the advertisements and annotations) by contacting his former research group without success. The name in the dedication of one of the books eventually led me to Zeegers's widow, who I contacted on LinkedIn. Unfortunately, Zeegers's archive was not conserved and therefore this research is build upon the results of the sample data only. Nonetheless, she was sure Wil Zeegers would have found it very interesting to see his research continue.

## **2.3 The World of Online Dating**

The widespread use of newspapers has been surpassed by the internet. Now partners could not only be found locally or nationally, but all over the world. Almost immediately at the start of the World Wide Web (which was released to the public in 1993), dating websites emerged, and by the time of the new millennium, approximately ten percent of Americans had a partner they met online (Beauman, 2020).

Then, with the rise of the mobile devices, online dating applications became even more widespread. Tinder was created in 2012 and grew out to be one of the world's largest online dating applications, with to date more than seven times as many matches as there are humans on Earth at present (Tinder Newsroom - About Tinder, n.d.). There are five elements that made Tinder revolutionary, that also hold for later developed mobile dating apps. First, the portability of being a mobile app in contrast to former dating websites being only accessible via a computer. This allowed dating apps to be easily integrated in everyday live. Second, being accessible on a phone increased availability, since phones can be checked sponta-

neously and regularly allowing for quick and frequent interactions. Third, the GPS tracking function enabled users to meet others in close proximity which increased locatability affordance. This is advantageous for actual face-to-face meetings. Fourth, other platforms as Facebook and Instagram can be linked, increasing multimediality and providing more possibilities for self-presentation. Last, haptic gestures such as scrolling and swiping affects perception of potential partners. (Ranzini & Lutz, 2017; Rochadiat, Tong, & Corriero, 2020).

How has the online world influenced relationships? Early popularity of online dating caused an increase in casual sex (Rochadiat, Tong, & Corriero, 2020). Today, this is still an important goal of online dating, but definitely not the only goal of most people. Tong, Hancock, and Slatcher (2016) looked at how technology has changed how people look at relationships and themselves. Results showed that users felt less in control of their mate search if an algorithm presented possible matches rather than swiping through all possible partners. If users felt more control over their mate choice, they felt more satisfaction when they had a match and felt more enthusiasm to pursue a future relationship.

Similar to personal ads, self-presentation in dating app profiles is a balancing act. But instead of contextual, visual, and auditory cues available in face-to-face communication (Goffman, 1959), users of dating apps can decide themselves which information to publish. Nevertheless, since most online daters plan a face-to-face meeting, it is important to balance between accurate self-presentation and creating a desirable image of the ideal self when creating a profile (Ellison, Heino, & Gibbs, 2006). Daters have high motivation to construct versions of themselves that are attractive to potential partners (Ellison, Hancock, & Toma, 2011). Users that have a goal to meet people in real life are more honest on their profile and disclose more personal information (Gibbs, Ellison, & Heino, 2006).

## **2.4 Content Themes**

According to Zeegers's data set, five main elements form the basis of the personal advertisements: an introduction, a description of the writer, a description of the desired partner, the intention of writing, and a way to connect, although not every element is always present. All elements serve to appeal to a possible partner.

These elements can be divided into themes that are common in most personal ads. First, the goal of writing the ad, in other words the intention of the mate search. Second, the description of personality, either or both of the writer or desired personality characteristics of the projected partner. Third, description of appearance, also of the writer or the desired partner, or both. And last, description of lifestyle which can be about religion, having or wanting children, possessions (of house or vehicle), nationality, profession (and thus a salary indication), and interests.

This research will extend the themes found in personal ads to the content of dating app biographies. This will allow to study the content similarities and differences of personal ads and dating app biographies and differences in contemporary dating.

The following parts will look into these four content themes of personal ads and dating app biographies. The relationship of the content of the personal ads to the prevailing societal values of their time will be examined and it will be evaluated to what extent this relationship might exist for dating app biographies and the current societal values.

Because this paper uses the data of Zeegers's research, which focused on 1947 to 1988, the themes will be discussed within that same time frame. In addition, the themes will be extended to recent research on dating apps and present societal values.

### *2.4.1 Intention*

Intention refers to the intention of the mate search, thus the goal of writing the personal ad or creating a dating app profile. This can be to find a marriage partner, casual dating, friends with benefits, even regular friends, and anything in between or outside these goals. This research will only focus on mate search, thus personal ads indicating friendships and the finding friends setting of some dating apps will be left out.

In Zeegers's study sample, a constant of around ten percent of men and women indicate to intend to marry. Around the early 1970s, the manifestation of wanting a relationship rather than marriage increased. Zeegers interpreted that before the 1970s, looking for marriage or a long-term relationship was self-evident. From the 1970s, actually less people wanted a long term relationship so the people that did want this needed to emphasise it.

One of the reasons for the decreasing search for a long term relationship mentioned by Zeegers was that from 1972, divorce became easier and more accepted in The Netherlands. The idea of one partner for life became less common, so those who did look for that needed to put emphasis on their intention.

Another reason was that in 1964 the birth control pill became widely available in The Netherlands. Additionally, secularisation of society made it more acceptable for people to acknowledge their intention for casual contact in personal ads (Centraal Bureau voor de Statistiek, 2020). Both paved the way for more casual sexual intercourse and the sexual revolution, during which other forms of relationships, such as casual intercourse, became more common.

Hence, the early ads in Zeegers's data set did not mention the form of relationship they desired in their writing often. The intention was self-evident, as almost everyone pursued a lifelong partner. Those who did mention their intention did this to put extra emphasis on their desire for a serious partner. Starting from the mid 1960s, society became more open to other forms of relationships. As a result, descriptions in the personal ads of Zeegers data set become more specific about the intention, sometimes taking up half of the advertisement.

It is important to mention that Zeegers's research focused on personal ads from three newspapers. These newspapers represented parts of society, *Het Parool* as a political left paper, *de Volkskrant* being an official Catholic paper until 1960, and *Trouw* was founded as a Protestant paper. Led by religion, the latter two explicitly or implicitly supported marriage as the only possible goal of personal ads and it can be expected that most writers also shared this intention. Other Dutch newspapers, such as *Vrij Nederland* published personal ads with casual or other intention, and early on allowed ad writers from non-hetero sexualities.

The diverse intentions of mate search have continued today. Sumter, Vandenbosch, and Ligtenberg (2017) gave six motivations for people to use Tinder: to find love, to get casual sex, to easily communicate with others, for validation of self-worth, for excitement, and because it is trendy to use. Furthermore, Ranzini and Lutz (2017) found that men mostly use Tinder for sex, travelling, and relationships, and women use it for friendship and self-validation. The rise of mobile dating applications caused an increase in casual sex (Rochadiat, Tong, & Corriero, 2020). Because users can select matches based on real-time location, it facilitates quick and easy contacts for casual sex, similar to for example Grindr (Van De Wiele & Tong, 2014).

But while Tinder, developed in 2012, is one of the biggest dating apps currently in use, it is not the only dating app out there. Bumble is an online dating application developed in 2014. revolutionary was that it is technically enforced that in heterosexual matches the

woman always makes the first move by messaging the man (Bumble, n.d.). The women only have 24 hours to start a conversation after a mutual match, otherwise the match expires. This allows to break with traditional dating conventions such as the man chasing the woman and taking the lead in the courting (Bivens & Hoque, 2018).

Lexa is a Dutch dating website and app founded in 2002, focused on serious dating and targeted towards “serious singles” (Lexa, n.d.). This is facilitated by allowing users to create extensive profiles and allowing messages to ideal partners without an initial mutual match.

Looking at the three dating applications evaluated in this research, they can be placed in order of most used to find casual sex to most used to find a serious relationship: Tinder - Bumble - Lexa. Of course, every platform has users with all kinds of intentions, and there are many marriages that started with Tinder. But to stand out in a competitive market, it is wise to target a specific audience, such as Lexa does. Because Tinder was one of the first dating applications with live location, it initially was used for casual intercourse and this intention implicitly stayed. Bumble targets equality in dating, which can grow out to all kinds of relationship forms. Thus, using one of these dating apps might already imply an implicit intention.

#### **2.4.2 Personality**

Personality can be hard to abstract from written text. As with the other characteristics, the writer has control over what is presented, and what is not. Moreover, part of one’s personality is composed by the perception of others, so cannot be put into self-descriptive words.

However, not only specific descriptive words are required to abstract personality. Linguistic cues of dating app biographies can also provide information about personality traits of the writer (Ellison, Heino, & Gibbs, 2006). This so-called lexical approach to personality suggests personality is reflected in natural language and has been subject of study in online dating but is also applicable to personal advertisements (Tong, Corriero, Wibowo, Makki, & Slatcher, 2020). This paper does not put emphasis on linguistic cues in personal ads or dating app biographies, because Zeegers did not note this in his research and the interpretation of these cues is too subjective to let only one judge assess it of the dating app biographies. Furthermore, most linguistic cues (such as spelling mistakes) are written unintentionally, and this research focused on deliberate self-presentation.

In the 1940s and 1950s, Zeegers found that most men described themselves as gentlemen (heer\*) and women called themselves lady (dame\*), reflecting to modest and civilised character (Groskamp-Ten Have, 1939). This is elaborated in personality terms referring to etiquette manners like decent (degelijk\*) and cultured (beschaafd\*), which were used by many men and women to describe either themselves or their desired partner. On top of that, social status or class was often mentioned, suggesting a certain level of etiquette knowledge was often desired. So, in Zeegers’s early subset, almost all terms concerning personality reflected etiquette manners or societal status.

Starting from 1965, personality traits related to emotion become more common as part of the presented identity in personal ads, such as sensitive (gevoelig\*), spontaneous (spontaan\*), and emotional (emotioneel\*). In addition, writers started to present themselves in first person perspective, as apposed to talking about themselves in third person perspective (which this research does not take into account, but would be an interesting examination in further research).



Where in the 1940s the use of personality terms referring to etiquette manners was widespread, in the 1980s these terms are very rare, while the overall use of personality terms increased. Frequently emotion related characteristics were mentioned, such as sweet (lief\*) and soft (zacht\*), referring to both men and women. It is expected that the trend of overlapping personality characteristics continued in today's dating app profiles, because characteristics considered masculine and characteristics considered feminine are less diverse nowadays (Diekmann & Eagly, 2000).

At the same time, Zeegers noticed how more people used astrological signs<sup>2</sup> and psychology terms as introvert and extrovert to describe their personality. Also the sixteen personality types from the Myers-Briggs Type Indicator were used (Myers, 1962). With this test, all personalities are divided into sixteen types indicated by four letters. These letters do not take up a much space in an advertisement but could give a lot of information about one's personality (if the other person was also familiar with the test).

Modern dating profiles allow for photographs, which of course can transfer some personality by smiling from ear to ear or looking stoical. There is a research opportunity into what personality characteristics are portrayed in written texts in online dating profiles. Up until now, most research focused on the differences between the online representation and the real self.

### **2.4.3 Appearance**

Studies into mate choice express two different appearance exchange theories. The first is that people tend to have a partner that is equally good-looking as themselves (Berscheid, Dion, Walster, & Walster, 1971; Huston, 1973; Murstein, 1972).

Secondly, other studies showed that often appearance is exchanged for financial security or status (Harrison & Saeed, 1977; Bolig, Stein, & Mckenry, 1984; Koestner & Wheeler, 1988). Here, often women offer their attractiveness and seek a professionally successful partner in return, while men seek attractiveness and display their financial security. So, being attractive as a heterosexual woman allows to either seek for an attractive partner or a professionally successful partner (Harrison & Saeed, 1977).

But what does it require to be considered attractive? Langlois and Roggman (1990) generated faces consisting of the average of several existing faces from different cultural backgrounds. These digital faces were presented along the individual faces to judges who scored them on attractiveness. Both male and female average faces were considered more attractive than almost all individual faces, indicating a preference for facial features that are close to the mean of the population (Langlois & Roggman, 1990).

Additionally, time and place are also influencing general views on attractiveness. This is for example illustrated by leading top-models of the time, such as Lesley 'Twiggy' Hornby with her very slim figure who was the leading image of beauty in the 1960s, versus Kim Kardashian who was the predecessor of lush shapes for women in the past decade.

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2. Astrological signs are said by some to hold information about one's character and compatible partner signs. One word can thus hold a lot of information for those who are equally interested in Astrology.

I think the preference for the mean of the population can be misleading. Peer pressure may allow only people thinking like the group to voice their preference, while distinctive preferences may be kept silent or hidden in outsider groups. This research only focuses on three major dating apps. While these have large user groups, there are many smaller dating apps out there focusing on different preferences that exist outside of the ‘mean preference of the population’. For example, targeted against one of the preferences of the population for bodies of fit girls and boys (and thus slim with a shaped buttocks): WooPlus advertises itself as ‘the number one app for big beautiful women and big handsome men’ where plus size people can find friendship, dates, and relationships with more than four hundred thousand active users and almost four million matches (WooPlus, n.d.).

These expressions of appearance in personal ads obviously have to be put in words which are subjective. For the writer, the description of appearance is a balancing act between being honest yet as attractive as possible. This means the writer might enhance their attractive traits, but not hide off-putting attributes.

One strategy that was often used by personal ads writers to know about the responder’s appearance as soon as possible was to ask for an accompanying photograph with the reply letter. Because pictures used to be expensive, the writers would often promise to send the picture back, often indicated by abbreviations, as in personal ad (1).

- (1) (...) Br. m. foto (o.e.r). **Male, 30, 1989, de Volkskrant & Het Parool ref. p. 121, Zeegers, 1998<sup>3</sup>**

‘Letter with picture (my word of honour that it will be returned).’

Modern dating app profiles almost always contain photographs which replace the appearance description found in personal ads (Ward, 2016). Additionally, the pictures can carry references to hobbies or lifestyle. However, these photos cannot always be trusted. Hancock and Toma (2009) investigated the accuracy of photographs on dating profiles judged by self-report, judges, and coders (that had a professional eye to notice Photoshopped images) and found that photos were retouched, made to appear younger, and contained inconsistencies. This shows the tension between wanting to enhance physical attractiveness but keeping a possible face-to-face meeting in mind.

Another sometimes exaggerated appearance characteristic is height. In the 18<sup>th</sup> and 19<sup>th</sup> century, being tall indicated one had enough food and nutrition growing up, and was thus a sign of wealth (Stulp & Barrett, 2016). In addition, for females, being tall is an index for pelvic width (Ellison, 2009). Wider hips are preferred in human evolution to be able to give birth to infants with greater brain size (Stulp & Barrett, 2016). For males, being tall is linked to being stronger and thus more dominant, which leads to a higher fitness, resulting in a male-taller preference in mate selection (Gluckman & Hanson, 2006). Pawlowski, Dunbar and Lipowicz (2000) argued women favour to select taller men in mate choice, indicated by taller men having more reproductive success than shorter men. Accordingly, research into correlation between different aspects of physical appearance descriptions in personal ads and response rate showed that tall men and slender women received more responses, while eye and hair colour had no effect (Lynn & Shurgot, 1984).

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3. Personal ads as illustrative example from Zeegers’s collection are labelled in the following order: gender and age of writer, year of publication, possibly the newspaper of publication, referential page number, and book of Zeegers where the personal ad is discussed.

Mentions of height were indeed found in numerous personal ads. Koestner and Wheeler (1988) investigated 250 local American ads and found that women were more likely to share their weight and look for height, while men were more likely to share their height and look for weight.

In the early personal ads of Zeegers's collection, height was barely specified, while a quarter of the later ads mentioned height. However, Zeegers argued this did not indicate an increase in height importance in mate choice, but a greater distribution of different heights among society. Generations born in the second half of the 20<sup>th</sup> century grew taller, which caused greater differences in height and thus more reason to mention height. Therefore, someone is more likely to mention height if they are taller than average (Koestner & Wheeler, 1988). Alternatively, Toma, Hancock, and Ellison investigated the accuracy of dating app profiles and found that male users typically added a few centimeters to their height and women subtract some kilograms from their weight (Toma, Hancock, & Ellison, 2008). By the same token, Hall, Park, Song and Cody (2010) examined over five thousand dating profiles and found women were most likely to misrepresent weight than any other attribute.

#### ***2.4.4 Lifestyle***

Lifestyle comprises how one spends their day. This research focused on descriptions of lifestyle regarding religion, wanting or having children, possessions (house or car), nationality, profession, and descriptions of hobbies or interests.

As highlighted in section 2.4.3, men offer a financial security which women seek in men. Zeegers's data however, shows a lot of women offering financial information in the 1940s, 1950s, and beginning of the 1960s. Possibly, the readers of the papers studied by Zeegers's were of wealthy fortune, because already wealthy women could compensate possible financial gaps of their male partner and thus did not necessarily seek rich husbands (Harrison & Saeed, 1977). Powlowski and Koziel (2002) investigated Polish personal ads from the 1990s and found that for ads written by men, education level was of most influence to response rate than other descriptions.

Zeegers found that in the 1940s and 1950s, the only activities women mentioned or men sought in women were related to housekeeping. Regarding men in this era, Zeegers reported primarily financial and material lifestyle descriptions. Both men and women often mentioned their wealthy descent and their religion.

All these descriptions of lifestyle decreased with time in Zeegers's collection and were replaced by hobbies and interests. This is explained by Zeegers by the smaller role of church in society. Before, it was important to marry and create offspring. Secularisation in society opened possibilities for people to marry on the basis of friendship and share interests with a partner.

The personal ads from the 1970s and 1980s expressed lifestyle in habits (as smoking or partying), nationality, and political preference, according to Zeegers. Identity was represented extensively with emphasis on uniqueness.

Because church has become even less important in Dutch society, it can be expected that dating app biographies focus even more on interests as part of their lifestyle. The trend of being unique described by Zeegers continued in dating in modern society. With millions of potential matches (way more than the personal ads in a local or even national newspaper), it is important to present a profile as unique and a "must-swipe". Users can for instance

accomplish this by listing all their hobbies and interests, which together form their unique lifestyle.

Because of globalisation, people with all kinds of nationalities often get together nowadays. One's origin can give information about lifestyle, such as rituals and manners. Therefore, it can be regarded as important to share nationality in online dating. Even if it is just to indicate a preferred communication language.

Elements as (some) hobbies and nationality are easily represented in emoji. Because there are so many profiles available, users have a short time to convince not to swipe their profile away. A lot of dating applications, such as Tinder, initially only show the first two lines of a biography, providing room for a short message only. To express as much information as possible, emoji are convenient because in the space of one letter a whole activity or country can be represented. Accordingly, it seems at first glance likely that dating app biographies contain a lot of emoji that could symbolise interests or nationality.

### **3 RESEARCH STATEMENTS**

All this previous research can lead to the following predictions of how the content themes will be represented in the dating app biographies. These are the hypotheses of this research.

Since nowadays all kind of relationship goals are accepted and practised, it can be expected that writers want to make their intentions clear. However, different dating apps often reflect differences in users' intentions. For example, Tinder is regarded to be more about casual meet ups, while Lexa users are overall more in search for a serious relationship. Thus, it is predicted that intentions or goals will differ across dating platforms.

Personality descriptions are expected to continue in the trends acknowledged by Zeegers. That is, zodiac signs and personality tests types based on the Myers-Briggs Type Indicator are used to express personality. In the context of mobile communication, emoji can be used to accompany sentences and express emotion and personality.

Since every dating app requires users to upload photos, it can be expected that not a lot of appearance descriptions will be found in the dating app biographies, except descriptions of appearance that can be hard to see on pictures such as tattoos or height.

Regarding lifestyle, the trend registered by Zeegers that over time more hobbies and interests are shared is expected to continue. Because of globalisation, nationality will be an important part of someone's identity. Some lifestyle elements such as nationality and hobbies are easily expressed in emoji without using up a lot of space. Therefore it is expected dating app biographies contain a lot of emoji.

### **4 METHOD**

To investigate these research statements, a method of examination was created. This section first describes the sampling and assembling of personal ads, followed by the acquisition of dating app biographies. Section 4.3 discusses the criteria by which the dating app biographies were annotated, based on the annotations of Zeegers's data set. Section 4.4 explains the comparisons that were made in this research.

#### **4.1 Personal Ads Collection**

As previously noted, Zeegers collected personal ads from three major Dutch newspapers from 1947 to 1985. This collection could unfortunately not be traced and is probably lost. What did remain are the two books written by Zeegers in which he discussed the content of

the personal ads and the results of his study. This subset of data from the sample study contained one hundred randomly selected personal ads written by each gender every other year. For every sampled year, it was counted what the writer shared about themselves and their projected partner for several categories, which this research builds upon. Table 1 contains the data of men regarding their self-presentation and their requests for women and table 2 contains the data collected about women’s self-presentation and their requests for men.

For some values, such as intention<sup>4</sup>, Zeegers determined if it was mentioned. Thus, only a single yes or no per ad. These values are indicated with ○. For other values, such as interests, Zeegers counted every separate mention, which could thus be multiple per personal ad, indicating in this research by △.

MALES	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85
<b>Intention</b> ○																				
Marriage / family	11	6	6	4	7	6	5	5	7	9	6	7	10	8	15	8	8	6	13	5
Relationship	0	0	0	0	0	0	0	1	0	1	1	3	13	17	17	26	23	31	25	34
Other intention	2	1	2	2	0	2	3	1	2	3	5	5	9	7	11	13	35	29	31	36
<b>Personality</b> △																				
Self-description	16	4	12	5	5	7	9	7	8	17	12	20	19	20	41	34	52	67	79	62
Requests	46	33	30	18	24	28	25	32	32	42	40	49	58	54	67	68	95	64	74	72
<b>Appearance</b> △																				
Self-description	12	10	11	6	9	14	9	13	18	18	16	11	14	25	24	21	26	38	58	44
Requests	15	8	5	6	7	0	5	7	8	2	6	3	7	6	14	8	14	14	14	12
<b>Lifestyle</b>																				
Possessions & Finance	31	25	35	50	41	33	34	41	35	42	45	29	46	47	30	27	24	22	19	12
Religion	24	11	15	13	16	14	13	9	23	14	18	21	30	23	18	29	5	9	7	8
Profession	29	30	21	27	22	23	24	22	24	24	24	18	29	27	14	29	24	14	16	14
Interests	1	2	3	0	10	1	0	2	1	7	10	14	2	17	16	31	39	39	68	68

**Table 1:** Reproduction of data relevant for this research out of Zeegers’s subset of data about male personal ad writers,  $n=100$  ads per year (one column per year).

FEMALES	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85
<b>Intention</b> ○																				
Marriage / family	8	6	10	8	5	9	8	3	5	7	8	13	7	12	5	6	3	5	5	5
Relationship	0	1	0	1	0	1	0	0	0	0	0	3	2	13	17	34	20	24	36	31
Other intention	4	4	1	2	5	5	1	3	1	3	4	6	13	14	14	14	23	20	31	44
<b>Personality</b> △																				
Self-description	32	12	22	12	13	14	18	6	16	24	28	39	30	37	32	52	61	39	70	71
Requests	16	17	23	15	20	22	15	23	37	27	46	50	53	67	49	77	80	81	97	97
<b>Appearance</b> △																				
Self-description	17	10	12	9	12	4	20	17	22	19	25	17	21	24	30	30	32	40	50	49
Requests	2	6	4	6	3	1	12	6	7	7	5	3	12	9	3	6	11	9	21	20
<b>Lifestyle</b>																				
Possessions & Finance	67	50	53	44	39	48	34	37	39	32	22	18	17	23	17	11	10	17	9	10
Religion	26	18	29	21	26	20	26	15	24	24	30	48	32	22	38	18	9	11	9	15
Profession	6	3	7	4	7	6	4	6	7	11	15	25	16	10	17	20	22	17	15	10
Interests	0	2	4	0	1	1	3	1	6	3	13	6	24	17	24	39	43	41	119	53

**Table 2:** Reproduction of data relevant for this research out of Zeegers’s subset of data about female personal ad writers,  $n=100$  ads per year (one column per year).

## 4.2 Dating App Biography Collection

Most dating applications follow one of two algorithmic designs: (1) algorithmically-driven websites that match selectively based on lengthy questionnaires and (2) “see-and-screen”

4. In Zeegers’s data set intention was subdivided into: marriage/family, relationship, time specific intention, activity specific intention, harmonious get together, casual affection. For the sake of clarity and comparability, the latter four goals are combined here into ‘other intentions’.

websites that allow users to browse through their database profiles and “swipe” what they like (Tong, Hancock, & Slatcher, 2016). This research only looks at the latter, to prevent an algorithm from choosing profiles. The user can apply provided tools to narrow down the list of potential partners, such as age range. Selected were Tinder, Bumble, and Lexa, chosen based on the underlying implicit intention in society: Tinder being for casual-hookups, Lexa for serious relationships, and Bumble for everything in between.

#### **4.2.1 Why Biographies?**

Biographies are self-written and it can be expected that overall people take writing seriously, because the goal is mate search. The biography is part of the self-constructed online representation of the self (Ellison, Hancock, & Toma, 2011). Moreover, text is more easily compared in scientific research than photographs.

#### **4.2.2 Why Only Biographies?**

All the selected dating apps contain other information in the profiles of users besides the biography. However, this research focuses only on self-written content for two reasons.

First, because the biographies are open and self-authored it can be expected that users write whatever they want and whatever they deem most important to disclose. For example, next to the biography, Bumble proposes around 40 open-ended questions, such as “I have never...” or “If I was president...”. Users can answer up to three of these questions, which are then shown in between the pictures on their profile. However, although users can decide which question to answer, these questions did not come from users’ own intrinsic thoughts and were therefore considered less interesting for this research.

The second reason this research only focused on the biographies is to allow for comparisons. All applications provided fill-in questions for the users which are then shown on the profile. However, every app has a different collection of questions which would make comparisons inaccurate. For example, Tinder provides words that express values or hobbies, Bumble groups eleven categories in “my basic info” with already formulated answers such as: “sport? Often, sometimes, almost never”, or “children? Someday, never, yes and I want more, yes and no more, not sure yet”.

#### **4.2.3 Which Biographies?**

For all three dating apps, Tinder, Bumble, and Lexa, two profiles were created: a female and male of 28 years old looking for a heterosexual<sup>5</sup> partner aged 18 to 37. To create a profile on all the dating apps, a photograph was required. From [thispersondoesnotexist.com](http://thispersondoesnotexist.com) the first two pictures were selected that, assessed by the first author, looked like a male and a female aged around 28 years old. No biography was written for the accounts or other information was provided (such as educational level or intention). The location of the collection of dating app profiles was in Utrecht, The Netherlands and profiles were selected within a range of 80 kilometers (such that almost all of The Netherlands was within this range, but not far outside of The Netherlands, to be as comparable as possible to Zeegers’s data which was comprised of personal ads published in Dutch newspapers).

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5. Of course, both parties do not have to be (solely) heterosexually oriented to find each other, but could also be bisexual, pansexual, polysexual, etc. This research focused on profiles from people that identified as male or female and set to find a partner from the opposite gender, for clarity this is called a ‘heterosexual partner’ meaning opposite gender.

Then, for each account, fifty profiles aged 18-27 and fifty profiles aged 28-37 that did not have an empty biography were collected. The profiles were collected by taking a screenshot of the profile in which age and biography were clearly visible. After the screenshot, the profile was “swiped away” (for all three apps that was to the left). This resulted in six hundred profiles in total. The profiles were selected out of the proposed profiles by the application. All dating apps investigated present potential matches on a “see-and-screen” basis, allowing users to browse through a database of profiles within the set limits. It was tried to spend an equal amount of time on all the profiles to prevent a bias for certain profiles (such as profiles with longer biographies) noted by the algorithms of the apps.

Tinder and Bumble do not propose the same profile twice. Lexa only offers 100 profiles per day for each users. Because not all profiles had something written in the biography, not all data could be required in one day. It was made sure the eventual data set contained no identical profiles.

All profiles that did not state age were swiped away before inclusion into the data set. Although because of the settings of the dating apps all the presented profiles were certainly within the age-range, they could not provide meaningful data without clearly stated age. This decision could have biased the data. For example, users that do not state age might be more insecure or private. However, to be able to compare biographies written by younger users versus older users, knowledge about the specific age was needed.

It was decided to use only Dutch or English biographies, because these are the only two languages the authors of this research are fluent enough in to infer meaning out of the translation. It was not decided to exclude biographies written in English although the profiles were collected in The Netherlands because often Dutch and English were both included and intertwined in one biography and most Dutch people know English sufficiently enough to understand a biography, therefore most users would consider to like the profile even if it contains English text.

This study focused only on heterosexual mate search (or at least, profiles looking for a partner that is not from the same gender). There are of course studies about online dating with regard to other forms of sexuality (such as Corriero & Tong, 2015), but I noticed most researchers in this field focus on one specific sexuality per study. I doubt if this a relevant distinction to make within this research topic. I also made a distinction between age-groups. This decision was based on the question if thirty-something people, generally, are looking for other things in a relationship than a younger generation. Similarly, the comparison between male and female data allowed to investigate differences in self-presentation in dating between these genders. To avoid another comparison, because there was also between dating apps, I decided only to include profiles of people indicating to look for a heterosexual relationship. Looking back, I question if it was necessary to cut out non-heterosexually oriented profiles because I am not sure these profiles would create another distinction but just fit into the already existing comparisons. Would a study benefit from heterosexuality compared to homosexuality (or other sexualities) or is this distinction not necessary and could all sexualities be compared withing gender and age-groups?

Next to a questionable relevance, I fear creating distinction within scientific research, as I noticed is quite common, creates different groups in society. By researching different sexualities in comparison to another, scientific peers, journalists, and so all people will view heterosexuals and homosexuals as different groups with different beliefs and intentions. This can drive a wedge, because it can be viewed as “Us versus them!”.

I understand researchers need to make decisions in regard to focus of their study, more subgroups will not always benefit clarity of results, and creating a heterogeneous representation group may be difficult. However, I doubt if it is necessary to divide sexuality into subgroups. Looking back, I felt obligated to choose, but at the end I think I could have chosen a mixed group to represent a greater part of society.

Zeegers’s study does not necessarily only focus on personal ads looking for a heterosexual match, however the three newspapers he investigated only allowed for heterosexual partner search up until the 1970s. Even after this time, rarely any calls for relationships other than heterosexual were found, according to Zeegers. Zeegers ascribed this to the religious roots of the newspapers. Only in the 1990s were more non-heterosexual calls found in the personal ads, but those data is not included in the sample study. Therefore, to be consistent with Zeegers, focusing this research on heterosexual users led to more equal comparisons.

### 4.3 Annotations

In addition to gender and age, the dating app biographies were annotated on the following criteria to be comparable to Zeegers’s data set of personal ads. Some annotations were added, based on literature that suggested interesting analysis and from inspiration from recent studies into contemporary dating (such as Tidwell, Eastwick, & Finkel, 2013). The annotations were managed in CATMA version 6.4.1. Figure 1 shows an overview of the annotation tags created in CATMA.

Mentions of intention were noted on a yes-no scale, a biography either has a mention of intention or has none. The biographies were annotated on what kind of intention was mentioned for further investigation. Because one biography cannot express two or more different intentions (one cannot simultaneously be looking for a serious relationship and a casual relationship, if someone would write something like “maybe something serious, maybe something casual, we’ll see” then this is regarded as other intention), this value was



treated as an exclusive disjunction. All biographies could be tagged serious mate search (including mentions of marriage or desire for offspring), or casual mate search (including emphasis on friends with benefits or hook up), or other (if the writer explicitly mentions another intention, such as letting the goal depend on the situation or the match), or none specified.

Personality annotations were divided into two tags, description of personality attributes of the writer and description of requested personality attributes of the desired partner. This was not on a yes-no scale, but every biography received one point for each described personality trait. This meant that every biography received two integer values for personality, one for the writer and one for requests. For example, a biography could contain four personality attributes of the writer and request two personality traits, totalling six personality descriptions. Moreover, mentions of zodiac signs and personality test types based on the Myers-Briggs Type Indicator were counted in a subset of personality. For example, one of the four personality attributes could have been the notion of being a Capricorn, because (for some people) this gives a lot of information about one's personality if they are interested in astrology (see 2.4.2 for more).

Similar to personality, appearance annotations were divided into self-descriptive appearance of the writer and requested appearance attributes for the desired partner and were counted for every attribute mentioned. Additionally, it was noted if a reference to another photograph-based social media platform was given and if height or weight were written down. A reference to Instagram or Snapchat often is a reference to more pictures of a person which give thus more information about appearance.

Regarding lifestyle, it was considered on a yes-no scale if there was a description of profession or occupation, if the writer had children already, if the writer acknowledged their nationality, if the writer noted to be religious or spiritual, and if the writer mentioned to own a house or vehicle. The interests or hobbies mentioned were counted for each instance.

Last, additional annotations included usage of emoji and negatively phrased sentences, which were both counted as one per usage. The latter point out interesting tactics about

Tagsets	Tags
Intention of mate search	▼
	Serious
	Casual
	Other
Personality	▼
	▼ Self-description
	Personality test type
	Zodiac sign
	Request partner
Appearance	▼
	▼ Self-description
	Height
	Weight
	Social media
	Request for partner
Lifestyle	▼
	Profession
	Religion
	Nationality / location
	Has children
	Possession
	Interest
Extra	▼
	Emoji
	Negative phrase

Figure 1: Overview of annotations in CATMA.

minimizing bad experiences in mate choice. For example, a user can explicitly say they are looking for someone that does not smoke.

Contrary to the time of personal ads, the modern digital world has developed emoji. Emoji started with the rise of a smiley face and consists of over 3600 emoji in 2022. One emoji can convey a whole meaning in one text character such as nationality, hobbies, or clarify emotion of a sentence (Stark & Crawford, 2015). Therefore it was decided to interpret emoji usages in the annotations within this research. For this, emoji were interpreted in three different categories. The same emoji can be interpreted in a different category depending on the context. First, emoji that have no meaning, such as in example biography (2). Second, emoji that support the context of the sentence, either supporting the content, such as a flag emoji next to a country, as in biography (3) <sup>6</sup> or stressing the emotion of the sentence, such as in (4). Third, emoji as a stand alone messages, for example nationality, such as (5) or interests, as in biography (6), where clearly the heart with the colon indicates a list of things the users loves, such as dancing, cooking, travelling. However, the interpretation of these can be very ambiguous and should be treated carefully, e.g. are dancing/cooking/yoga interests, or might one of these be a job? These last case of emoji were also counted during annotation regarding interests, nationality, and zodiac signs.

- |  |   |
|--|---|
| (2) <i>(butterfly)(butterfly)</i> <sup>7</sup>   | <b>Male, 23, Tinder, ref. 6<sup>8</sup></b> |
| (3) Dutch <i>(flag: Netherlands)</i> (...)   | <b>Female, 33, Tinder, ref. 491</b>         |
| (4) (...) mijn leerlingen maken zich zorgen en vinden dat ik moet daten. <i>(face with tears of joy)</i> so here I am.<br>'My students worry and think I should date, so here I am.' | <b>Female, 23, Bumble, ref. 400</b>         |
| (5) <i>(flag: Yemen)</i>   | <b>Male, 28, Tinder, ref. 173</b>           |
| (6) (...) <i>(red heart): (woman dancing)(paw prints)(woman cook)(airplane)(globe showing Asia-Australia)(woman running)(fork and knife)(books)(woman in lotus position)</i> (...)   | <b>Female, 29, Bumble, ref. 520</b>         |

To illustrate how annotations were made, some examples will be discussed. Biography (7) includes profession (psychology), nationality (Dutchy), four interests (climbing, personal growth, music, nature), seven personality characteristics about writer (the Myers-Briggs personality type INFP, sporty, compassionate, out of the box thinker, curious, introvert, little bit of a nerd), and no specified intention. Biography (8) includes three interests (techno, Marvel, F1), two self-descriptions about appearance of which one is a height notion (scar on chin, 1.80m), and a social media mention. Biography (9) includes a casual mate search intention (a date), two appearance descriptions of the writer (1.93, fat), and one appearance request (1.95 or taller).

6. Biographies written in Dutch or English were included in this research. All biographies are displayed in their original writing, if necessary translation will be provided.

7. The names for the emoji are abstracted from: <https://unicode.org/emoji/charts/full-emoji-list.html>. This website can be consulted to see the original emoji used. In this paper, the emoji will be displayed in italic and in parentheses.

8. Dating app biographies as illustrative examples from the data collection of the present study are labelled in the following order: gender, age, dating app, and reference number to data set. Note that while the specific age is given, the users were divided into two age groups in the data comparisons.

- (7) INFP | sporty (climbing) | compassionate | out of the box thinker | curious | introvert | psychology | Dutchy | personal growth | little bit of a nerd | music  
I'm much happier in nature than at parties. **Male, 30, Lexa, ref. 271**
- (8) Techno Techno Babyyy  
*@(instagram handle)*  
1.80m :)  
Secretly a big Marvel and F1 fan  
Sinds zaterdag door het leven met een litteken op mn kin **Female, 19, Tinder, ref. 315**  
'(...) Living with a scar on my chin since Saturday.'
- (9) Life is short and I'm not.  
Ik zoek een date voor 26 november in Utrecht. Helaas moet je dan wel 1.95 of langer zijn. Oja, verder ben ik 1.93 en dik, take it or leave it.  
Haha, doe! **Female, 27, Bumble, ref. 385**  
'(...) I'm looking for a date for the 26<sup>th</sup> in Utrecht. Unfortunately you'd have to be 1.95 or taller. By the way, I am 1.93 and fat, take it or leave it. Haha, bye'

#### 4.4 Comparisons

Comparisons were made between males and females in contemporary dating apps, between age group 18 to 27 and 28 to 37 in dating apps, and between the three different dating apps. Moreover, comparisons were made between personal ads and dating app biographies. Statistical analysis was performed between contemporary data. Historically, statistical comparison was not possible, because of the different lengths of the time periods (38 years versus 1 year). Graphs will give insight in historical development of the content themes.

There are 600 dating app biographies collected, half male and half female, and only 100 personal ads per gender per year. To allow for comparisons between equally sized groups, dating app biography data was divided by three per gender when dating app biographies are compared to personal advertisements. Thus,  $n=300$  when males and females or age groups are compared in contemporary data,  $n=200$  per app when comparisons are made between dating apps in contemporary data, and  $n=100$  for every year when males and females are compared historically. For example, if some element would occur 200 times in contemporary data about males ( $n=300$ ), and 150 times in contemporary data about females ( $n=300$ ), this would be divided by three to be able to compare through time: element occurs 66.7 in data about males ( $n=100$ ) and 50 times in data about females ( $n=100$ ).

Statistical analysis was performed in JASP version 0.16.1. ANOVA tests were performed in cases where the independent variable was categorical/nominal and the dependent variable was a scale variable. Chi-squared tests were performed to test frequency distributions across two categorical/nominal variables, against their expected values. Pearson's  $r$  tests were performed to measure correlation between two scale variables. Graphics were made in Microsoft PowerPoint for Mac version 16.16.27.

#### 5 RESULTS

This sections displays results. First, a contemporary comparison between dating apps, between gender, and between age group based on the four content themes will be discussed. Then, a comparison through time where the dating app data will be set against a selection of Zeegers's data from personal ads.

## 5.1 Between Dating Apps

Table 3 demonstrates interesting statistically significant dependencies found in the data set of dating app biographies along with the significance test and relevant values.

The significant outcomes include that male users ( $\mu=28.150$ ;  $\sigma=38.511^9$ ), users aged 28-37 ( $\mu=28.603$ ;  $\sigma=37.272$ ), and users on Lexa ( $\mu=46.230$ ;  $\sigma=49.652$ ) used on average more words in their biographies than female users ( $\mu=22.467$ ;  $\sigma=31.141$ ), user aged 18-27 ( $\mu=22.013$ ;  $\sigma=32.528$ ), and Tinder ( $\mu=3.325$ ;  $\sigma=17.634$ ) or Bumble users ( $\mu=5.370$ ;  $\sigma=14.387$ ). Note that words could be zero if users only used emoji in their biography.

Tinder users ( $\mu=1.740$ ;  $\sigma=2.880$ ) used on average significantly more emoji in their biography than Bumble ( $\mu=1.145$ ;  $\sigma=2.177$ ) and Lexa users ( $\mu=0.595$ ;  $\sigma=1.672$ ), Bumble users significantly more than Lexa users.

The direction of the significance of the remainder of data as well as some other results will be discussed per content theme.

### 5.1.1 Intention

Combining age groups and apps, 39 males and 32 females expressed a serious dating intention, 11 males and 6 females a casual dating intention, 22 males and 20 females some other intention, and 228 males and 242 females did not specify the goal of their mate search.

Users that indicated a serious dating intention ( $\mu=73.465$ ;  $\sigma=56.948$ ) used on averaged the most words, and all users that indicated what they were looking for (casual:  $\mu=37.471$ ;  $\sigma=45.518$ , other:  $\mu=33.095$ ;  $\sigma=26.053$ ) used on average significantly more words than users that did not specify their intention of mate search ( $\mu=16.898$ ;  $\sigma=22.963$ ). Also, the interaction between app and stated intention significantly influences the average word count. Users indicating a serious intention also used on average significantly more personality characteristics to describe themselves and their requested partner (see 5.1.2).

Users that indicated a casual mate search intention ( $\mu=0.471$ ;  $\sigma=0.717$ ) used on average significantly more negative phrases in their biographies than users looking for a serious intention ( $\mu=0.169$ ;  $\sigma=0.560$ ), other intention ( $\mu=0.119$ ;  $\sigma=0.453$ ), or no intention specified ( $\mu=0.060$ ;  $\sigma=0.271$ ). Overall, users that indicated any intention used significantly more negative phrases than users that did not specify intention, thus a significant difference was found between serious intention and no intention and between other intention and no intention.

Lexa users ( $n=56$ ) noted significantly more often than Tinder ( $n=8$ ) and Bumble ( $n=7$ ) users to be looking for a serious relationship. Tinder users ( $n=9$ ) noted significantly more often than Lexa ( $n=5$ ) and Bumble ( $n=3$ ) to be looking for a casual relationship. Tinder ( $n=16$ ) and Bumble users ( $n=16$ ) indicated an other intention significantly more often than Lexa users ( $n=10$ ).

### 5.1.2 Personality

The mean number of personality characteristics to describe oneself for male users was 1.380 ( $\sigma=2.312$ ) and for female users 0.953 ( $\sigma=1.795$ ). The mean number of personality requests for a partner was 0.413 ( $\sigma=1.211$ ) for males and 0.357 ( $\sigma=1.092$ ) for females.

Male users ( $\mu=1.380$ ;  $\sigma=2.312$ ), users aged 28-37 ( $\mu=1.340$ ;  $\sigma=2.303$ ), and Lexa users ( $\mu=2.295$ ;  $\sigma=2.842$ ) used on average significantly more personality characteristics to describe themselves than female users ( $\mu=0.953$ ;  $\sigma=1.795$ ), users aged 18-27 ( $\mu=0.993$ ;  $\sigma=1.816$ ), and Bumble ( $\mu=0.755$ ;  $\sigma=1.320$ ) and Tinder users ( $\mu=0.450$ ;  $\sigma=1.106$ ). Also, as noted

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9.  $\mu$  stands for mean;  $\sigma$  stands for standard deviation.

above, users that indicated a serious dating intention ( $\mu=2.93$ ;  $\sigma=3.335$ ) used more personality characteristics to describe themselves than users that indicated a casual intention ( $\mu=1.353$ ;  $\sigma=3.258$ ), other intention ( $\mu=0.786$ ;  $\sigma=1.335$ ), or no specified intention ( $\mu=0.928$ ;  $\sigma=1.674$ ).

Lexa users ( $\mu=0.895$ ;  $\sigma=1.743$ ) and users indicating a serious intention ( $\mu=1.789$ ;  $\sigma=2.197$ ) also used on average significantly more characteristics to describe their requested partner than Tinder ( $\mu=0.190$ ;  $\sigma=0.683$ ) or Bumble users ( $\mu=.070$ ;  $\sigma=0.309$ ) and than users specifying a casual ( $\mu=0.412$ ;  $\sigma=1.004$ ), other ( $\mu=0.167$ ;  $\sigma=0.581$ ), or no intention ( $\mu=0.191$ ;  $\sigma=0.757$ ).

There is a significant positive correlation between word count and number of personality characteristics listed, about the writer themselves ( $r=0.611$ ) or about their requests ( $r=0.607$ ). According to Cohen (1988), a positive correlation of 0.5 to 1.0 can be considered a large association strength. Thus, users that used more words were more likely to use more words to describe their own personality characteristics or request personality characteristics for a partner. There is also a positive correlation ( $r=0.392$ ) between usage of personality self-description and requesting personality traits, according to Cohen this is a medium strength association.

The top three personality characteristics used by males to describes themselves comprised (including both age groups and all dating apps, so  $n=300$ ): calm (rustig\*,  $n=11$ ), reliable (betrouwbaar\*,  $n=9$ ), and caring (zorgzaam\*,  $n=9$ ). The most used personality characteristics females ( $n=300$ ) used to describe themselves include: caring (zorgzaam\*,  $n=9$ ), spontaneous (spontaan\*,  $n=9$ ), and headstrong (eigenwijs\*,  $n=6$ ).

The most used personality characteristics to request for a partner by males include nice (leuk\*,  $n=10$ ), spontaneous (spontaan\*,  $n=7$ ), and sweet (lief\*,  $n=6$ ). Almost similar, females request most often that their future partner would be nice (leuk\*,  $n=9$ ), sweet (lief\*,  $n=7$ ), and spontaneous (spontaan\*,  $n=4$ ).

Furthermore, four users shared their zodiac sign (three females, one male) and eleven users told their personality test type based on the Myers-Briggs Type Indicator (seven males, 4 females).

### 5.1.3 Appearance

The mean number of appearance descriptions to describe oneself for male users was 0.053 ( $\sigma=0.239$ ) and for female users 0.043 ( $\sigma=0.234$ ). The mean number of personality requests for a partner was 0.017 ( $\sigma=0.152$ ) for males and 0.043 ( $\sigma=0.261$ ) for females.

Tinder users used on average significantly more terms ( $\mu=0.080$ ;  $\sigma=0.307$ ) to describe their own appearance than Bumble ( $\mu=0.055$ ;  $\sigma=0.250$ ) and Lexa users ( $\mu=0.010$ ;  $\sigma=0.100$ ), Bumble users used significantly more appearance traits than Lexa users.

Male users ( $n=33$ ) significantly more often shared their (exact) height than female users ( $n=8$ ). Mean reported height by males was 186.0 cm. The average Dutch male born in 1993 (which means aged 28 in 2021, the median age of this research) is 183,2 cm (Centraal Bureau voor de Statistiek, 2021). Female users ( $n=39$ ) significantly more often wrote their social media handle in their biography than male users ( $n=24$ ).

The description of height, weight, and social media link were included in the counts for appearance description because they give insight in the looks of the feasible match or provide an opportunity to browse through more photographs. The remainder of the appearance descriptions contained reference to vague descriptions about height or weight (such as slim,

curvy, or tall), while the numbers above are only about exact numbers. Also, hair colour (2 males, 1 female), piercings (1 male, 2 females), and tattoos (or an explicit description of the lack of) (4 males) were acknowledged.

#### **5.1.4 Lifestyle**

Regarding lifestyle, males shared their religion or that they are spiritual 2 times, their possessions 7 times, their profession 47 times, that they are a parent 5 times, their nationality 64 times, and in total 638 of their interests or hobbies. Females shared their religion or that they are spiritual 5 times, their possessions 1 time, their profession 48 times, that they are a parent 7 times, their nationality 51 times, and in total 648 of their interests or hobbies.

Lexa users ( $n=46$ ) mentioned their profession or occupation significantly more often than Tinder ( $n=20$ ) and Bumble users ( $n=29$ ), and Bumble users disclosed this information more often than Tinder users. Tinder ( $n=49$ ) and Bumble users ( $n=42$ ) shared their nationality significantly more often than Lexa users ( $n=25$ ).

Interests were frequently found in dating app biographies, significantly more by users aged 28-37 ( $\mu=2.460$ ;  $\sigma=3.166$ ) than users aged 18-27 ( $\mu=1.820$ ;  $\sigma=2.533$ ). Lexa users ( $\mu=3.000$ ;  $\sigma=3.195$ ) listed significantly more interests than Bumble ( $\mu=2.110$ ;  $\sigma=2.879$ ) or Tinder users ( $\mu=1.310$ ;  $\sigma=2.251$ ). There is a positive correlation between word count and number of interests listed ( $r=0.529$ ), which can be considered a large association strength (Cohen, 1988).

The most mentioned interests of males include travelling (reizen\*,  $n=17$ ), music (noted via text, muziek\*, and via the musical notes emoji,  $n=13$ ), and exercising (sport, sporten\*,  $n=13$ ). The most mentioned interests of females include travelling (reizen\*,  $n=13$ ), eating (eten\*,  $n=11$ ), and reading (noted via text, lezen\*, and via the books emoji,  $n=9$ ).

Because manual analysis of phrases was performed and users have used all kinds of phrases to express their interests, it may be that the actual number of occurrences were slightly higher. At least 32 interests of males and 55 interests of females were indicated by an emoji, these were included in this data.

It was decided to only include specific acknowledgements in these top three interests lists. That is, sports only includes instances of users specifically indicating this (by sporten\*) and not, for example, fitness ( $n=9$ ), soccer (voetbal\*,  $n=10$ ), and tennis ( $n=5$ ). These are subsets of sports, that is, liking tennis or soccer logically entails liking (some form of) sports, but an indication of interests in sports does not logically entail in an interests in soccer or tennis. It was decided to only combine interests together when they are described alike to prevent ambiguity. If the interests of liking sports would includes all sport related activities, should “walking in nature” then also be regarded as a sport? To prevent too much interpretation from the authors, all interests were regarded as specific as possible.

## **5.2 Comparison Through Time**

Similar to the contemporary comparison, the analysis through time will be according to the four content themes. As said, no statistics will be performed because the original data of Zeegers is not available, only the sample study. Nonetheless, the graphs can give an impression of self-presentation in dating over time. From 1947 to 1985, each yearly sample contained one hundred personal ads written by men and one hundred written by women. Since the contemporary data contained 300 biographies per gender, the findings are divided by three to be comparable.

(Independent) variable(s)	(Dependent) variable	Test	F-value / Pearson's r	p-value
Gender	Word count	ANOVA	3.951	0.046
Age group	Word count	ANOVA	6.612	0.010
App	Word count	ANOVA	73.373	< .001
Intention	Word count	ANOVA	75.326	< .001
App * Intention	Word count	ANOVA	4.124	< .001
Gender	Pers. self	ANOVA	6.477	0.011
Age group	Pers. self	ANOVA	4.913	0.027
App	Pers. self	ANOVA	53.315	< .001
Intention	Pers. self	ANOVA	20.351	< .001
App	Pers. request	ANOVA	33.103	< .001
Intention	Pers. request	ANOVA	49.785	< .001
App	Appearance self	ANOVA	4.540	0.011
App	Hobbies / Interests	ANOVA	18.194	< .001
Age group	Hobbies / Interests	ANOVA	7.476	0.006
App	Emoji use	ANOVA	12.432	< .001
Intention	Negative phrasing	ANOVA	8.054	< .001
App	Intention	Chi-Squared		< .001
Gender	Height	Chi-Squared		< .001
App	Profession	Chi-Squared		0.001
App	Nationality / Location	Chi-Squared		0.008
Gender	Social media	Chi-Squared		0.046
Word count	Pers. self	Correlation	0.611	< .001
Word count	Pers. request	Correlation	0.607	< .001
Word count	Hobbies / Interests	Correlation	0.529	< .001
Pers. self	Pers. request	Correlation	0.392	< .001

**Table 3:** Table showing interesting significant dependencies, non-significant outcomes are not shown.

### 5.2.1 Intention

Figure 2 shows the percentage of personal ads or dating app biographies indicating a specific intention. Each ad or biography can only express one intention or none at all. After division by three to equalise population size, the percentages for the contemporary data for males include: 13% serious, 3.6% casual, 7.3% other, and for females: 10.6% serious, 2% casual, 6.6% other. Remarkable is that while in the personal ads investigated a serious intention was the least mentioned intention from 1977 to 1985, in 2021 it was the most mentioned intention.

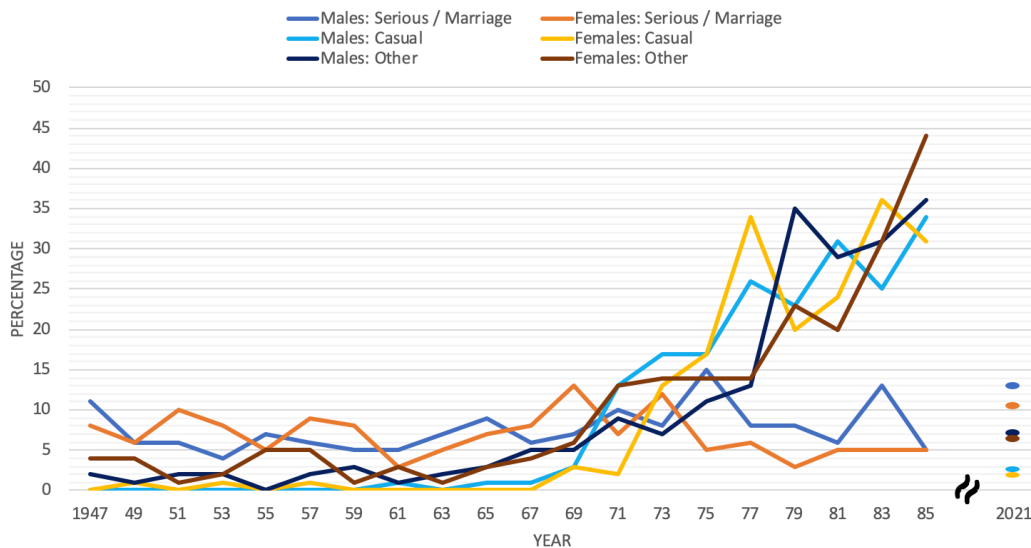


Figure 2: Percentage of personal ads/dating app biographies in which a specific intention was mentioned,  $n=100$  per gender for each year.

### 5.2.2 Personality

Figure 3 displays the total counts of self-descriptive personality characteristics in personal ads and dating app biographies. Because each ad or biography can contain more than one characteristic, this number is counted for each instance and can be higher than the population size. In dating app biographies, males described 141 characteristics and females 97.6.

Figure 4 presents the total counts of personality characteristics requested for a partner in personal ads and dating app biographies. Similar to the self-descriptive personality traits, these are counted per occurrence. In dating app biographies, males requested 41.3 characteristics and females 35.6.

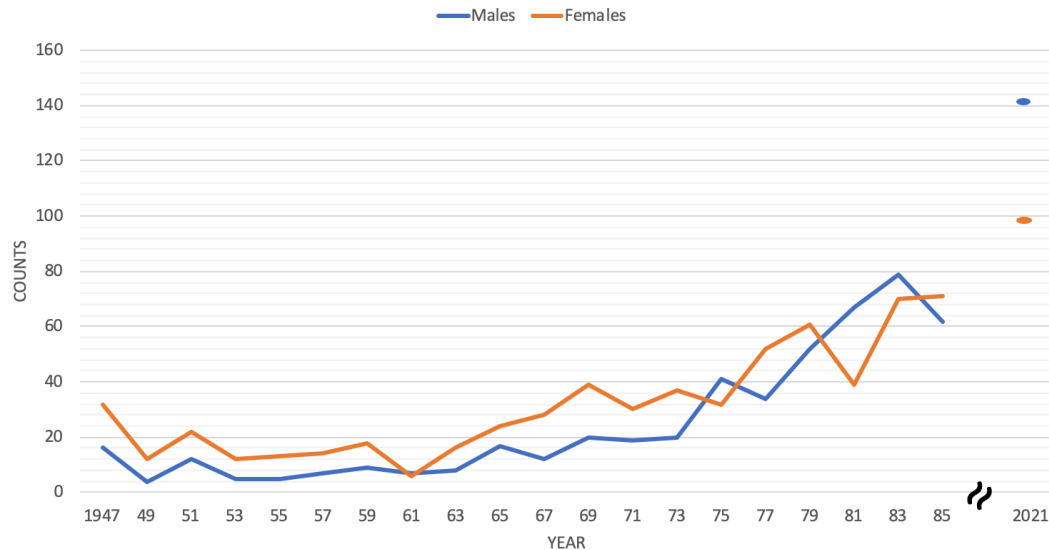


Figure 3: Counts of personality self-description,  $n=100$  personal ads/dating app biographies per gender per year.

### 5.2.3 Appearance

Zeegers used multiple terms to refer to appearance: appearance (verschijning\*), appearance description (uiterl.descr.\*), and appearance evaluation (uiterl.eval.\*). From the accompanying text, it did not become clear what the exact differences between these three definitions were. Perhaps appearance stands for the total image, such as someone being neat (verzorgd\*), the appearance description could be descriptions such as hair and eye colour, and the evaluation might refer to subjective notions of appearance such as corpulent (gezet\*). The three appearance descriptive terms show a correlation of Pearson's  $r$  between 0.6 and 0.8 over the years. This was considered a large enough correlation to examine only one of the terms with regard to historical comparison, and chosen was appearance description.

Figure 5 shows the total counts of self-descriptive appearance descriptions in personal ads and dating app biographies. Each ad or biography can contain more than one characteristic. In dating app biographies, males described 25.6 characteristics and females 20.6, including height, weight, and social media connection.

Figure 6 presents the total counts of personality characteristics requested for a partner in personal ads and dating app biographies. Similar to the self-descriptive personality traits,



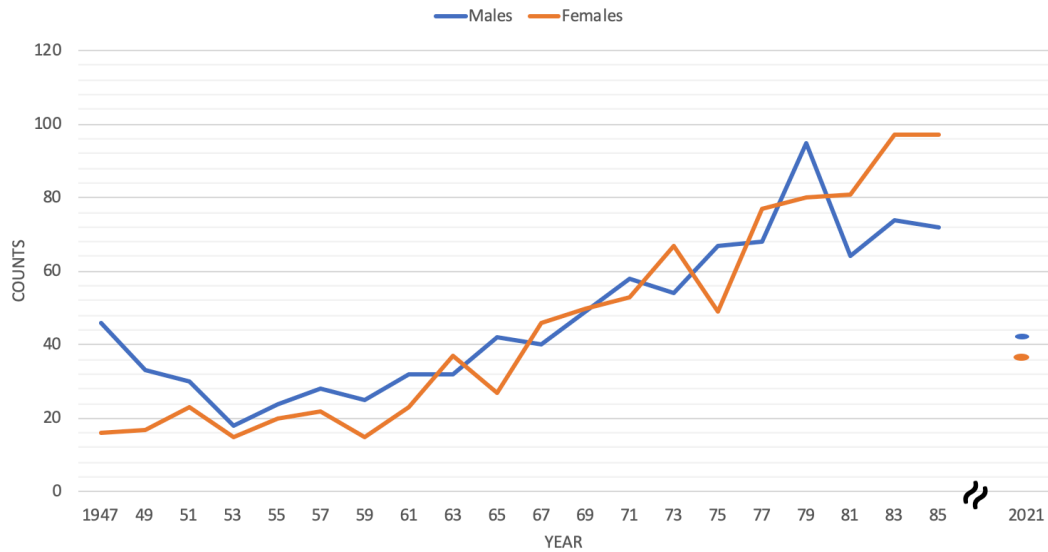


Figure 4: Counts of personality requests,  $n=100$  personal ads/dating app biographies per gender per year.

these are counted per occurrence. In dating app biographies, males requested 1.6 characteristics and females 4.3.

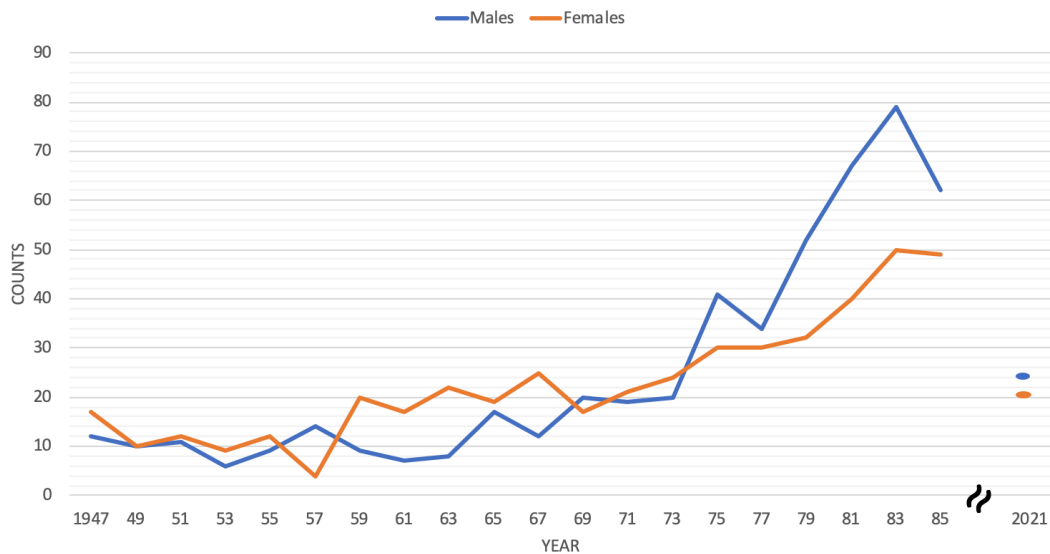


Figure 5: Counts of appearance self-description,  $n=100$  personal ads/dating app biographies per gender per year.

#### 5.2.4 Lifestyle

Figure 7 displays the development of mentions of religion or being spiritual over the years. In dating app biographies, 0.7 percent of males and 2.3 percent of females comment on this topic.

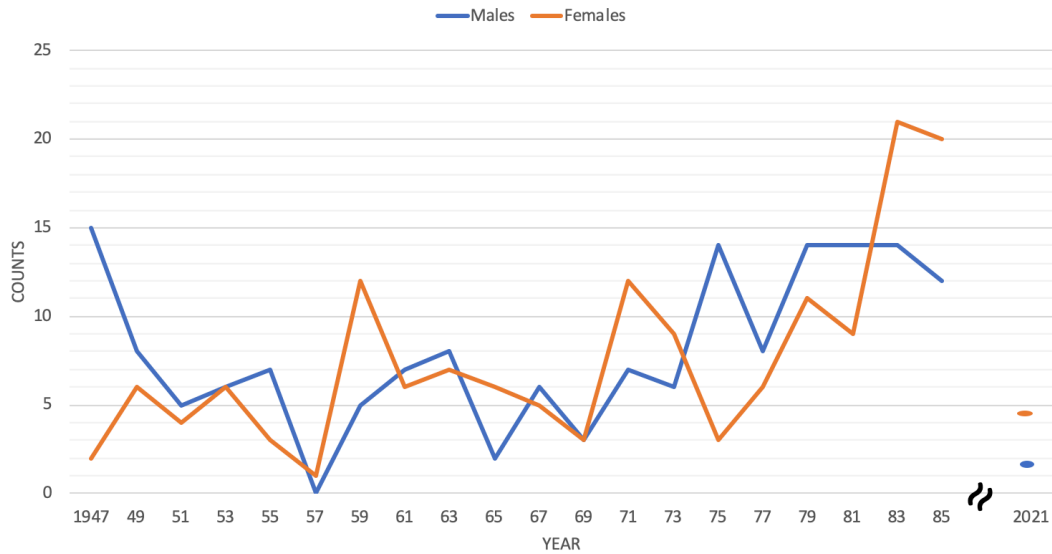


Figure 6: Counts of appearance requests,  $n=100$  personal ads/dating app biographies per gender per year.

Figure 8 is about the percentage of personal ads and dating app biographies in which possessions of a house or car is mentioned. In dating app biographies, this comes down to 2.3 percent of male biographies and 0.3 percent of female biographies.

Figure 9 demonstrates how often profession was mentioned over the years. In dating app biographies, 15.6 percent of males and 16 percent of females refer to this topic.

Finally, figure 10 presents the total number of counts of hobbies and interests mentioned in personal ads and dating app biographies. Each ad or biography can contain more than one interest. In dating app biographies, males listed 212 interests and females 216.

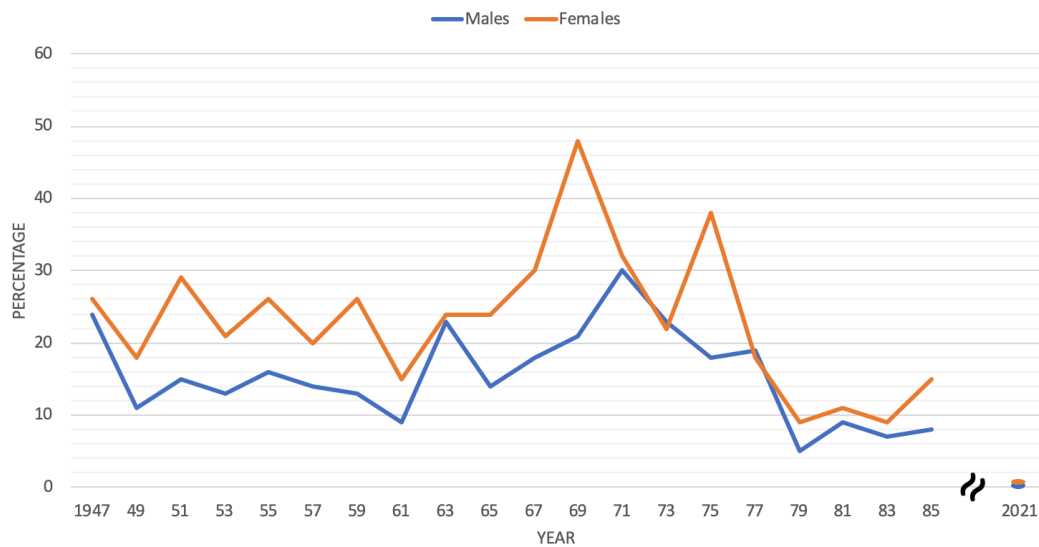


Figure 7: Percentage of personal ads/dating app biographies in which religion or spirituality was mentioned,  $n=100$  per gender for each year.

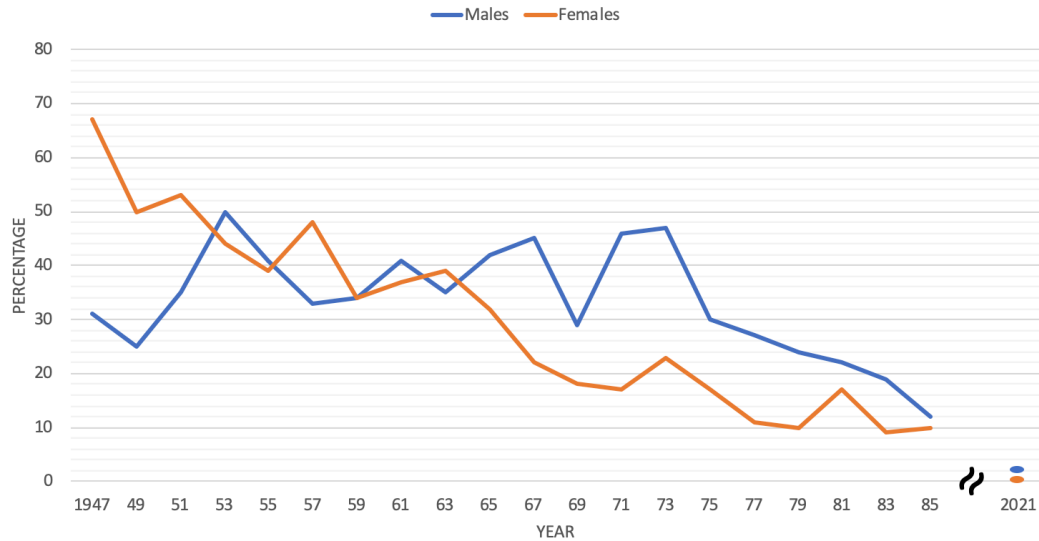


Figure 8: Percentage of personal ads/dating app biographies in which possessions (house or car) were mentioned,  $n=100$  personal ads/dating app biographies per gender per year.

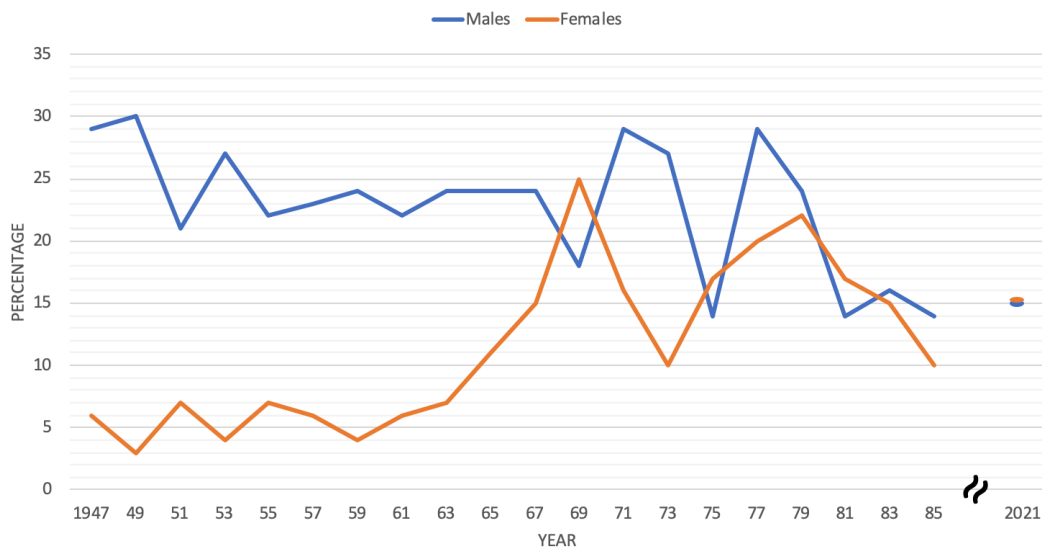


Figure 9: Percentage of personal ads/dating app biographies in which profession was mentioned,  $n=100$  personal ads/dating app biographies per gender per year.

## 6 DISCUSSION

The following discussion will comprise analyses of results in comparison to previous studies. Once again per content theme, the research statements will be evaluated and limitations of this research will be considered. Additionally, limitations in this research will be discussed and suggestions for future research will be given.

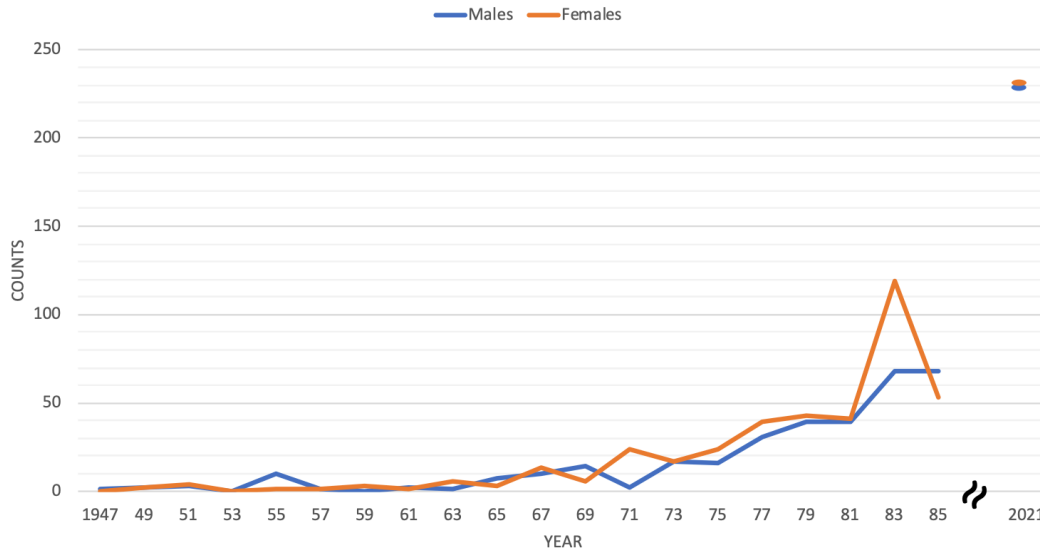


Figure 10: Counts of hobbies / interests,  $n=100$  personal ads/dating app biographies per gender per year.

## 6.1 Intention

Zeegers noted an increase of personal ad writers that had a casual or other intention over the decades. He ascribed this to the societal acceptance of all kinds of relationship forms, as a result of secularisation, the sexual revolution, and divorce possibilities. Marriage was no longer the only accepted form of a relationship in society. Figure 2 showed how the percentages of serious intention remained stable for males and females, while the casual and other intentions graphs steadily grew after the 1970s. Because in modern society even more sexualities and relationship forms are celebrated, it was expected that dating app biographies are clear about intentions. After all, more possible intentions require to be clear about the desired intention.

Surprisingly, in dating app biographies, not a lot of people declared an intention. Some users declared a serious dating intention while very few people stated to look for something casual. This may be ascribed to the different dating apps investigated that all have an implicit intention in their usage. That is, Tinder is more often used for casual hook-ups, because of its origin as one of the first live-location apps. Lexa as a start for a serious relationship, because they target their platform to singles in search of that. And Bumble a bit of everything and in between, where traditional (heterosexual) dating conventions are challenged by giving women the lead in conversation. Indeed, results of this study showed that Lexa users indicated to look for a serious relationship relatively more often than Tinder and Bumble users, while Tinder users most often were looking for casual intercourse.

Another explanation for the lower than expected declaration of any intention might be the COVID-19 situation at the time of the data collection. The Dutch government advised against getting in close contact with people outside one's household.

Users that disclosed any intention of their mate search used on average more words than users that did not specify intention, with serious daters using the most words. Similarly, users that claimed any intention used more negatively formulated phrases in their biography. Users that indicated a serious dating intention also used more characteristics to describe

their own personality and requested more personality characteristics for their partner. These detailed biographies indicate that users that know what they want, elaborate on this, and also know what they do not want. Illustrative examples of this are (10) and (11), which contain detailed explanations of what kind of connection the writers are looking for and what they do not want.

- (10) NL/ENG Smart and calm guy; open minded and easy to talk to. Love to exercise, go skiing.. you name it. Like to go out and dance, basically all music goes well with me. Not looking for anything serious, more poly<sup>10</sup>, FWB or any form of casual dating. Love to broaden my horizon and experiment. No ONS **Male, 27, Bumble, ref. 99**
- (11) Het liefst was ik je tegengekomen in de supermarkt maar op een of andere manier gaan we nooit op hetzelfde moment naar de supermarkt(winking face) Geen ONS! Geen FWB! Alleen serieuze intenties  
*(house with garden)* Zeist *(balloon)* 35 jaar *(airplane)* luchtvaart *(baby)* no kids (yet) Wel kinderwens. Jij ook? *(prohibited)* no smoking *(woman dancing)* festival *(racing car)* F1 **Female, 35, Lexa, ref. 569**  
 ‘I would have preferred to meet you in the supermarket, but we never go at the same time. No One Night Stand! No Friends With Benefits! Only serious intentions. Zeist, 35 years old, aviation, no kids (yet), I do want kids, you too? Festival, F1.’

Future research would benefit from more different dating apps that represent even more different implicit intentions, such as, but not limited to, Second Love, Grindr, match.com, e-Matching, HER, Inner Circle, and Happn: all dating applications with an open ‘about me’ section and not only a fill-in questionnaire so that users can share what they feel is most important. Also, age-group showed not to be of influence for intention in this data set, but imaginably with other age groups it might show to be.

## 6.2 Personality

To recap the research statement about personality, Zeegers noted an increase of personality characteristic over time, both self-descriptive and requested traits as well as zodiac signs and personality test types of the Myers-Briggs Type Indicator, and it was expected this trend would continue. While the self-descriptive personality descriptions were definitely present in contemporary dating app biographies, with an average of 1.380 for males and 0.953 for females, the personality requests were not as prevalent as could be expected if Zeegers’s graph would have continued. This decline of personality requests could be explained by the difference in match making between personal ads and dating apps. Personal ads writers desired potential matches to write a response letter. To prevent someone putting in a lot of effort in this letter while the match might not be made in heaven, the ad placer could already list characteristics that would not result in a love match. By listing requested characteristics for a future partner, there is less chance of wasting the time of two parties (to write and to read). In dating apps on the other hand, a profile of someone that does not meet your wishes is easily swiped away and declined. Often, contact is only possible if both parties liked each other. It is thus not necessary to list desired characteristics, because everyone can select profiles themselves.

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10. Poly can be short for polyamorous.

Zeegers described how self-descriptive personality characteristics became more common starting from the 1965, especially characteristics related to emotion. This trend has continued in contemporary dating app biographies, where even more personality self-descriptions were found. Emotional characteristics, such as caring and spontaneous are found in personal ads as well as dating app biographies. Personal ad (12) and dating app biography (13) have many attributes in common and seek and offer the similar personality characteristics. Personality characteristics such as general knowledge (algemene ontwikkeling\*), cultured (beschaafd\*), and decent (degelijk\*) were already described by Zeegers to deteriorate with time, and are indeed not found in contemporary data.

- (12) R.K. j.vr., 34jr., alg.ontw., sportief, vrolijk karakter zkt. knm.m. leuke sport. heer, 30-40jr., alg.ontw. en gev. v. humor. **Female, 34, 1969, de Volkskrant, ref. p. 200, Zeegers, 1988**

‘Roman Catholic young women, 34 years-old, general knowledge, sporty, cheerful character, looks for a connection with a nice sporty gentleman, 30-40 years-old, general knowledge and sense of humor.’

- (13) Ik denk dat ik van mezelf mag zeggen dat ik een vrolijke, sociale, sportieve dame ben. Altijd in voor gezelligheid. Werkt fulltime en daarnaast sport ik 3/4 keer per week! Opzoek naar en leuke Hollandse man! Liefst ook en beetje sportief! Boven de 30 hoef je echt geen berichtjes te sturen, ik bespaar je de moeite, sorry! **Female, 27, Lexa, ref. 418**

‘I think I can call myself a cheerful, social, sporty lady. Always ready for fun. Work fulltime and sport 3 to 4 times a week! Looking for a fun, Dutch man! Preferably a bit sporty! Don’t trouble yourself to send a message above 30 years-old, sorry!’

In contemporary data, those who used more words in their biography generally used more personality characteristics to describe themselves and request for their partner as well. Similarly, more self-descriptive personality characteristics described were an indication for more personality requests as well, and vice versa. Also, users that indicate a serious mate search intention, had on average more personality characteristics about themselves and requests for a partner in their biographies. Daters that know what they want, elaborate on this.

Men used significantly more personality characteristics to describe their own personality. This is interesting because generally, women are portrayed as more emotional in society (Gray, 1992), encouraged by research suggesting women are more emotionally expressive than men (Kring & Gordon, 1998), and women scoring higher in emotional self-reports (Brebner, 2003). Maybe this could be explained by how dating apps differ from, for example, mate selection in a bar where males can pursue females as opposed to convincing a women to swipe right on them and create a match possibility.

Personally, I have no experience with dating apps (maybe that explains my fascination). Among my friends, I broadly hear two complaints about dating apps. On one side, female daters complain that they get too many likes and responses. They have to be very selective in who they like or they get so many matches they cannot oversee it anymore. On the other side, male users complain they hardly get any matches. Therefore, they like almost every profile presented to them. This turns into a spiral of women liking more selectively and men liking more and more women until both parties declare to have lost the joy of dating because of this.

This is supported by research that showed 57 percent of male American online daters feel they did not get enough messages, while 24 percent of women feels the same. On the other hand, 30 percent of women feel they get too many messages on their online dating profile, while only 6 percent of men feel this way (Anderson, Vogels, & Turner, 2020).

Perhaps this explains why men in this research shared more in general and especially more personality characteristics. Because they felt they needed to convince the women to select their profile.

### 6.3 Appearance

Appearance is the least comparable content theme because personal ads did not contain photographs while dating app profiles do. That might be the reason for the low counts of appearance self-descriptions and requests in contemporary data as opposed to Zeegers's data. The basis for photographic oriented mate search was already found in personal ads. Zeegers described the custom of asking for a picture to accompany the postal response to a personal ad.

Today, almost all written appearance related remarks refer to height or to another photograph based platform (that is, Instagram or Snapchat). The few other appearance remarks contained descriptions focused on traits that might not have been visible in the pictures, such as tattoos (or the lack of, see (14)).

- (14) (...) (Nog) geen tattoo's, wel tongpiercing (...) **Male, 30, Tinder, ref. 197**  
'No tattoo (yet), got a tongue piercing.'

Sharing height showed to be of importance for contemporary male daters, who shared it significantly more often than females. Research to online dating in America showed that 22 percent of female daters think height is very important in the profile of a man, while only 8 percent of men consider this important in female profiles (Anderson, Vogels, & Turner, 2020). Remarkable is that the mean shared height for men in this research was 186,0 cm, while the average Dutch male born in 1993 (which means aged 28 in 2021, the median age of this research) is 183,2 cm (Centraal Bureau voor de Statistiek, 2021). Taller males are preferred according to evolutionary biology (Pawlowski, Dunbar, & Lipowicz, 2000), because being tall is a sign of wealth (Stulp & Barrett, 2016) and is linked to being stronger and thus more dominant (Gluckman & Hanson), which both lead to a higher fitness. Thus, males shared their height because they were tall or they exaggerated their height (or only tall people use dating apps). Illustrative to this tall-or-exaggerate phenomenon is the episode of Screening for Love, that shows street interviews in which they asked women if height is important for them while dating, which was for most of them, and men if they had lied about their height while dating, shorter guys had, taller guys had not, but every male interviewed reported their height in their dating profile. (Girls Answer: "Does Height Matter?", 2022).

Indeed, some biographies written by women state they only date men taller than themselves, such as (15).

- (15) Lang&curvy, aardig grappig, zangerin, geniale fileparkeerster en unicorns zijn blijheid. Ow en ik date alleen (even) lange(re) mannen. **Female, 34, Bumble, ref. 528**

‘I am tall and curvy, pretty funny, singer, amazing in parallel parking and unicorns are happiness. Oh, and I only date men the same height or taller.’

Female users shared more often their social media handle (mostly Instagram, sometimes Snapchat). This is in line with the exchange theory that women offer their looks in mate search, either in exchange for an equally good looking partner or a financial secure partner (Harrison & Saeed, 1977). In this research, photographs on dating app profiles were not a topic of investigation, but future research should definitely take it into account because the pictures form an important part of the presented identity. They represent not only appearance, but also, for example, social interaction (if the picture contains the friends or family) or interests (a picture of someone performing their hobby).

Besides that dating app profiles that share a social media connection want to provide more information about themselves, it can also be to gain extra followers for their social media. This would be in line with self-validation based on likes and followers (Chua & Chang, 2016; Ranzini & Lutz, 2017).

Generally, sometimes I feel the only or most important intention of users of online dating is self-validation. When friends showed me their Tinder or Bumble account (I have no friends that use Lexa), I noticed that they all had more matches than messages. Thus, they matched with someone, which means both parties took the time to consider the other’s profile, decided that they were open for a connection, found out the other person liked them back (“It’s a match!”), but then did not pursue any contact. I think this happens because a lot of people might not even use Tinder and Bumble to find a partner, but for self-validation. If you like someone who turned out to like you too, that boosts your self-esteem.

For this research, I only collected the dating app biographies and extracted meaning from the texts myself. I would find it very interesting to focus future research on the motivations of the people behind the text. What was the thought behind their words? Why do they like this profile but not the other? Why do they meet up with this person but do not even message the other? Let me be like the diary in which their whole love-life is explained!

## 6.4 Lifestyle

The first lifestyle element to compare is profession. Over the years, around a quarter of males disclosed their profession, with a small decline starting in the 1980s. In the early decades of Zeegers’s investigation, few women mentioned their profession. Starting from the 1960s, females more often mentioned their occupation. This can maybe be explained by the removal of the marriage bar in The Netherlands in 1958. Under this law, women had to quit their job upon marriage (Van Baalen, 1955). Since the intention of personal ad writers was often to marry, one can imagine there was not much need for women to mention their profession.

Zeegers also kept track whether writers of personal ads requested a specific profession for their projected partner. Males barely made such a request, only up to three in each sample. Women on the other hand, made such a request in around twenty percent of samples,



up until the 1960s after which these requests became less frequent. This is in line with research that women seek financial security and thus occupation which would entail that (Harrison & Saeed, 1977). In 2021, around fifteen percent of men and women indicated their profession within their biography. Included in this annotation was field of study because this also gives an indication about future job and salary. Note that all dating sites investigated provided the possibility to acknowledge occupation somewhere else on the profile, these numbers only represent users that (also) put it in their biography. This even distribution between men and women could indicate an more equal contribution of finance within a relationship and within society.

In Zeegers's personal ad collection, religion was often mentioned. Up until 1965, only people who had approval from their pastor could place a personal ad in that newspaper, so every personal ad writer surely was connected to a church. Even so, many personal ad writers emphasised their religion and the requested religion for their partner. Religious identity is an important part of the presented identity of the ad placers, also in the other two newspapers investigated by Zeegers. In contemporary dating apps, only seven out of all six hundred profiles mentioned religion ( $n=5$ ) or spirituality ( $n=2$ ). However, future research could look into biographies on dating apps aimed at religious users, such as Jaanam for Hindus, ROOTS dating for Christians, buzzArab for Muslims, and Jdate the Jewish dating app because the dating apps selected for the current research might not provide a complete representation of importance of religion for mate choice in The Netherlands.

The indication of wanting children or having children already (a big part of someone's everyday life and an important agreement within mate search) would have been a very interesting comparison, unfortunately Zeegers did not keep track how often this was mentioned in his personal ad collection. In the current collection of dating app profiles, twelve people indicated to already be a parent. Future research would benefit from a greater collection of dating app profiles and annotation on whether people express the desire to want children in dating apps and how that might differ between genders and age groups.

In dating app profiles, just over a sixth of people indicated their nationality, either via words or with an emoji flag, such as biography (16). This indicates nationality is considered important in self-presentation. Zeegers's did not collect data about nationality or location based information, so a comparison over time is difficult. However, with regard to globalisation, it can be argued that nationality is of more influence nowadays, because people of different nationalities more often live side by side and date each other.

- (16) From Sint Maarten (*flag: Sint Maarten*) Living in The Netherlands (*flag: Netherlands*)  
**Male, 25, Bumble, ref.**  
**62**

Possessions can be regarded as important in mate search with regard to the exchange theory where women seek and men offer financial security, such as a salary or material possessions as a house or car (Harrison & Saeed, 1977). After the introduction of the moped in 1950, Zeegers identified a peak in personal ads with possession of this vehicle as part of identity, such as personal ad (17). This leads to the expectation that because nowadays houses in The Netherlands are scarce, it would benefit daters to mention if one does own a house. New Zealand based news media reported the number of users on Tinder indicating in their biography to use the dating app to find a partner to buy a house with doubled between 2020 and 2021 (Stuff.co.nz, 2021). Out of the six hundred dating app profiles considered

in this research, only seven mention they own a house, of which six were from men, for example biography (18). It is unclear if the low number of declared house owners is because daters do not consider this important to mention or because other people do not own a house, so more research into this would be interesting.

- (17) Heer, 55jr, P.G. in bez. van bromfiets z.k.m. sportieve dame. **Male, 55, 1953, Het Parool, ref. p. 194, Zeegers, 1988**  
 ‘Gentleman, 55 years-old, Protestant, in possession of moped, seeks acquaintance with sporty lady.’

- (18) (...) Verder heb ik eind 2020 een appartement gekocht in Huissen. **Male, 27, Lexa, ref. 123**  
 ‘Furthermore, I bought an apartment in Huissen at the end of 2020.’

In personal ads writers introduced themselves sometimes as their profession, such as ad (19) while now people identify more with their hobbies, such as biography (20). The focus on interests as important in self-presentation is reflected by how often interests are present in dating app biographies as opposed to personal ads. Zeegers described how the increase of interests started around the 1970s and this trend definitely continued in dating app biographies. Especially users aged 28-37 and Lexa users overall described more of their hobbies than younger users and users of the other two dating apps. Interestingly, some users really tried to stand out with their description of interests, such as (21), while other users gave a somewhat arbitrary list, for example (22). Future research would benefit from an empirical study to the motivations behind the shared interests.

- (19) Net werkman, all., P.G., 54jr., goed loon, eigen woning z.k.mm eenv. nette vrouw. **Male, 54, 1953, Het Parool, ref. p. 196, Zeegers, 1988**  
 ‘Neat laborer, bachelor, Reformed Protestant, 54 years-old, good salary, own house seeks acquaintance with simple, neat woman.’

- (20) Sportieve Bourgondiër | 187 | (*flag: Netherlands*) **Male, 35, Tinder, ref. 165**  
 ‘Sporty Burgundian.’

- (21) Koffie met een leuk boek/tijdschrift in de sereniteit van de bieb. Zaterdags lekker over de markt struinen. Lekker en uitgebreid koken (*pot of food*). Een hele dag ongegeneerd, nutteloos op de bank hangen met een goede serie en genoeg snacks ;) Filosoferen over de (on)zin van het leven (*woman in lotus position*). Als ik de inspiratie ervoor heb spring ik ook graag achter mijn naaimachine. Dansen! (*woman dancing*) Een tikkeltje zweverig. Huismus 2.0! Maar ik hou ook wel van kroegen hoor;) En; ik hou van mensen met een verhaal (*beaming face with smiling eyes*) **Female, 28, Tinder, ref. 463**  
 ‘Coffee with a nice book or magazine in the serenity of the library. Roam the market on Saturdays. Delicious and extensive cooking. Spending the whole day being useless on the couch without shame with a good series and enough snacks. To philosophise about the meaning of life. If I have the inspiration I love to jump behind the sewing machine. Dancing! A bit spiritual. Homebody 2.0! But I also like

bars. And I love people with a story.’

- (22) Reizen drankjes vrienden uiteten sport  
‘Travelling, drinks, friends, eating out, sports’

**Male, 31, Bumble, ref. 224**

## 6.5 Limitations

This research was performed with limited resources and time. First of all, as already mentioned, the three chosen dating apps might not be fully representational for all daters. Similarly, Zeegers limited his research to only three newspapers which did not represent the full society. For future research, it might be interesting to explore other dating apps, such as already suggested throughout the paper, and other newspapers, such as *Vrij Nederland*.

Secondly, the restrictions to age groups did not provide a full image of all daters in contemporary society. Moreover, the other party can also set age restrictions on their profile which could exclude the profile created to collect profiles. This means the age distribution might be not fully representative. Pawlowski and Dunbar (1999) described the strategy of women aged 35-50 to withhold their age in personal ads in hopes of more responses than they would get if they shared their age. Research into age strategies in dating apps can be interesting. Zeegers’s research had no age restrictions for inclusion of personal ads in the data set. This means the data of the personal ads and the dating app biographies were not necessarily from daters of similar age.

By the same token, Zeegers’s research comprised personal ads that could be submitted by everyone in The Netherlands. All dating apps investigated required a distance radius to determine what profiles can be presented. To be able to compare to Dutch personal ads and thus prevent dating app users from Belgium or Germany in the data set, the radius was set to 80 kilometers from Utrecht, in the middle of The Netherlands, where the dating app profiles were collected. This excluded several provinces of the Netherlands, which are often mostly regarded as the countryside. This could have biased the contemporary data to include more urban daters.

Another limitation, already pointed out by Zeegers (page 308, 1988) is that the interpretation of identity is limited to the description of the writer and not viewed in a social context. While this research focused on what the users decided to share, societal context is always of influences to the meaning behind what is shared. In the context of this study, the biographies were only interpreted by one judge, which gives a limited comprehension. This judge did not live at the time of the personal ads described by Zeegers, so if Zeegers’s context lacked, it was difficult to interpret the meaning of the personal ads.

As said, the dating app profiles contained more information than just the biographies. It was decided these biographies were the focus point of this study, because they are self-authored. There is more interesting information to find in the rest of the profiles. For comparison between dating apps however, these data was not suitable because it differs per app. Additionally, photographs form an important element of a dating app profile, which were left out in this research. Maybe artificial intelligence could help future research to classify the photos and give meaningful insights.

Biographies of dating apps were the focus of this study, because they are self-authored. However, a few of the biographies investigated in this research contained phrases such as “my friends say I am ...”, for example (23). It can be argued this is not self-written but suggested by friends. Because the user did decide themselves to put it on their profile, it

was still regarded as self-authored and included in this research.

- (23) Mijn vrienden omschrijven mij als: Sociaal, gezellig, eigenwijs en betrouwbaar (...) **Male, 36, Lexa, ref. 272**

‘My friends describe me as: social, fun, headstrong and reliable.’

It was decided to include all profiles that had at least something written in their biography. Sometimes this was very limited, such as only one emoji or greeting such as “hi”. These brief biographies were included to prevent the researchers had to subjectively decide the definition of a meaningful biography.

Sometimes, emoji were interpreted within the content themes (see 4.3). But imaginably, the interpretation of emoji can be even more ambiguous than regular text. Future research should be done in usage of emoji: what do people mean when they use specific emoji in dating app biographies?

Last, this research was limited by time because annotations had to be performed by hand. Natural language processing did not allow to classify all biographies within the content themes, because people used too diverse phrases to say similar things. Hopefully in the future, artificial intelligence will be able to make more interesting comparisons on dating platforms than humans.

## 7 CONCLUSION

This final section will summarise the most interesting results and answer the research statements formulated in section 3, following the content themes again.

Today, all kinds of relationships are practised so it can be important to state the intention of the mate search to prevent confusion, but this goal can also be implicit with the choice of the dating app. Dating app users that stated an intention, used more words, personality descriptions, and negative phrases in their biography. While marriage was a constant intention in Zeegers’s data set, casual and other intentions increased after the secularisation, the sexual revolution, and legalisation of divorce. The low percentage for casual dating intention in dating apps can possibly be explained by COVID-19 related advise to limit contacts or that users already made their intention clear by using an app with implicit intention for casual sex, such as Tinder. Future research into other dating apps can investigate the implicit goals of dating apps further.

The increase of personality characteristic self-description over time noted by Zeegers continued in contemporary dating. While in early personal ads, almost all personality characteristics were related to etiquette, the later personal ads and dating app biographies consisted mostly of characteristics related to emotion. In late personal ads and dating app biographies, less difference between masculine and feminine personality traits and more shared personality characteristics are found than in early personal ads. Men shared more personality traits, maybe because they feel the need to convince the women to select them. Requests for personality characteristics for a possible partner were scarce in dating app biographies as opposed to personal ads, perhaps because there is less emphasis on the possible partner because they can easily be selected by swiping through the profiles.

Appearance was a difficult comparison between personal ads and dating app biographies because the dating app profiles contained photographs that replace the written appearance description of ads. Indeed, appearance self-descriptions and requests were frequently found in personal ads but were scarce in dating apps. With the exception of a link to social media

and height. The average height shared by men was higher than expected based on average height in The Netherlands. Men either exaggerated their height or shared it when they are tall. Does height matter? Yes, because it indicates a higher biological fitness.

In exchange for appearance, women often seek financial security. This can explain why more women shared their social media connection nowadays and that men shared their profession more often in personal ads. In dating app biographies, women shared their profession as much as men, indicating an equal contribution of finance within society. Disclosure about possessions such as house or car is not common in dating apps, while it was in personal ads, perhaps because the current generation of daters does not have a lot of possessions. Religion is of almost no importance in dating apps, following the trend of secularisation noted by Zeegers. However, future research into dating apps aimed at religious users is necessary to form a full picture of society. Children are not often mentioned in dating app biographies investigated in this study and Zeegers did not keep track of this. Today, nationality has become an important part of one's identity, possibly because of globalisation. But dating app users most identified themselves with interests, a trend that already started in personal ads from the 1970s. People are looking for a connection with someone that shares their hobbies rather than their religion.

This study was limited by chosen dating app and selected age groups. Also the subjective interpretation of texts and emoji may have reduced insightfulness of the research. The amount of data that was abstracted from the dating app profiles was limited because of time constraints and could be expanded in future research, including photographs.

All in all, this research has shown that the content of dating app biographies can be used to study mate choice criteria through time, when compared to the content of personal ads. This research also investigated the possibilities to use the content of dating app biographies as an indicator for societal values, similar to personal ads, with promising results.

There is much more interesting research hidden in personal ads and dating app biographies. Luckily, online archives store all newspapers and personal ads which will hopefully be the basis for numerous future studies. Also dating apps and especially the biographies provide an almost unlimited source of inspiration for next researches. For now, only one ad remains:

- (24) Young Woman (25y) is looking for a master's degree, pref. with good grades.  
**Marthe Visser, July 1<sup>st</sup>, 2022**

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## Appendix A

Table with translated words that are used in the text. Translation of full or parts of personal ads or dating app biographies can be found under the original.

Page	Original text	Translation by authors
4	Andere Tijden, Andere Mensen: De sociale representatie van identiteit.	Different Times, Different People: The social representation of identity
4	Op zoek naar een kanjer: contactadvertenties in Nederland	Looking for a champ: personal ads in The Netherlands
8	Heer	Gentleman
8	Dame	Lady
8, 30	Degelijk	Decent
8, 30	Beschaafd	Cultured
8	Gevoelig	Sensitive
8	Spontaan	Spontaneous
8	Emotioneel	Emotional
9, 21	Lief	Sweet
9	Zacht	Soft
21	Rustig	Calm
21	Betrouwbaar	Reliable
21	Zorgzaam	Caring
21	Spontaan	Spontaneous
21	Eigenwijs	Headstrong
21	Leuk	Nice
22	Reizen	Travelling
22	Muziek	Music
22	Sporten	Exercising
22	Eten	Eating
22	Lezen	Reading
22	Voetbal	Soccer
24	Verschijsing	Appearance
24	Uiterl.descr.	Appearance description
24	Uiterl.eval.	Appearance evaluation
24	Verzorgd	Neat
24	Gezet	Corpulent
30	Algemene ontwikkeling	General Knowledge

**Table 4:** Overview of all translated phrases in the paper.