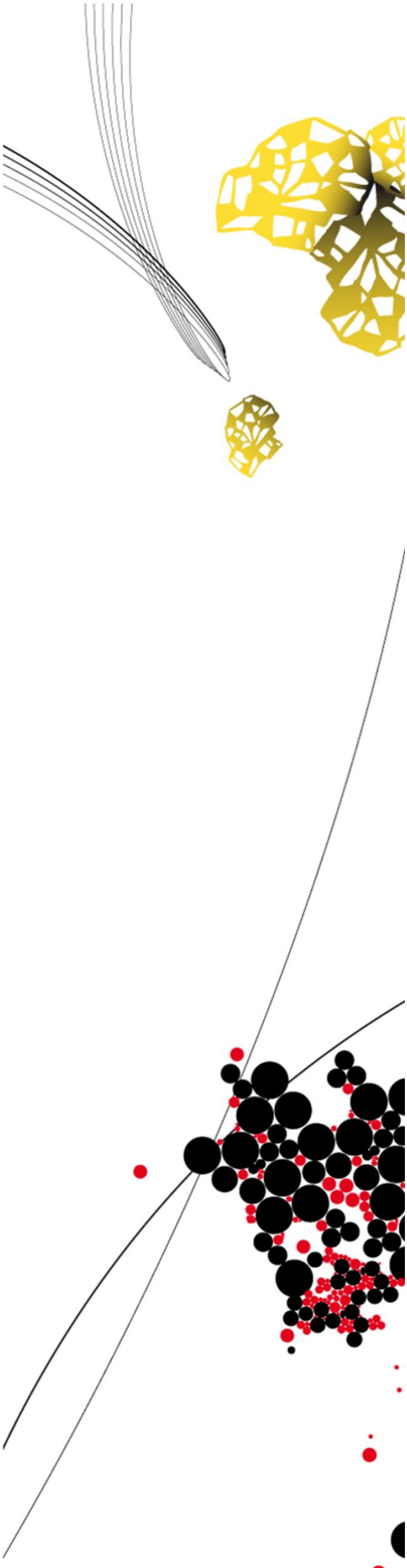

The effects of too much choice and information in online dating website designs

Technological paradoxes in Marketing Communication

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Abstract

Online dating research shows that too much choice and information can lead to low satisfaction and high post-decision regret. In this online dating research these two constructs related to choice are tested again. Furthermore, choice-process satisfaction, website usability, partner choice motivations, the memory on partner characteristics and the website evaluation are tested related to too much choice and information in online dating. In this research participants had to choose a date on a website. Next to limited and extensive choice this research added different website designs (grouped vs ungrouped and presenting much or little information about a date) in a 2x2x2 research design to see if this also has an effect on all the stated constructs. Results show that more dating options lead to lower satisfaction, high post-decision regret and lower website usability. In addition, when a website design has many dating options, participants prefer an ungrouped website design, while when a website design has few dating options, participants prefer a grouped website design. Furthermore, people with much information about the date made quicker information-based decisions than decisions based on the looks of the person. Moreover, people who saw much information about a date experienced that the website was more focussed on a serious relationship. While people with less information experienced that the website was more focussed on getting one-night stands. Finally, participants who saw few dating options on a website design used more words to describe the appearance and information of the date than people who saw many dating options.

Keywords: Online dating, Choice overload, Information overload, Website design, Technological paradoxes

Introduction

Technological innovations give the opportunity to make living conditions easier. Without technology in the Western civilization improvements in education, work and science are almost impossible (Aronowitz, 1994). Nevertheless, new technological innovations can make life also more complicated and complex by making it harder to appropriate use these technological innovations. This contradictory development of unpredicted and unwanted consequences of technological innovations is known as the paradox of technology (Mick & Fournier, 1998). To go more in details about the paradox of technology, Mick and Fournier (1998) stated that nobody can escape from technology. However, technology could also improve feelings of

foolishness, stupidity and ineptitude (Goodman, 1988; Winner, 1994). Research showed that machines bought to save time often end up in wasting time (Goodman, 1988). Moreover, Boorstin (1978) concluded that technological innovations can improve the knowledge of people as well as insulate them. Furthermore, technology could also create too many options to choose from (e.g. D'Angelo & Toma, 2016; Iyengar & Lepper, 2000).

The phenomenon of too many options to choose from could occur in different settings, like searching for a date online or searching for information on the internet and is often mentioned as "choice overload" in earlier research. A good example of choice overload occurs in the research of Diehl and Poynor (2010) where people were asked to choose a birthday card for a colleague. Participants had to choose a birthday card out of a small assortment (25 cards) or out of a large assortment (250 cards). After choosing, the participants were asked to indicate their satisfaction with the chosen option. People with more choice were less satisfied with the chosen option because of too much choice. Choice overload is also researched in the study of Haynes (2009), which showed that large numbers of alternatives could lead to negative consequences for people. In their experiment people were showed descriptions of 3 or 10 prizes of day-to-day products and asked to choose one. In this study people had different amounts of time to choose a product, people with limited amount of time and that had to choose out of a larger set of alternatives had more difficulties and were more frustrated than participants in other settings. This led to the negative consequences of too much choice, like less satisfaction, confusion in memory and regret. According to Scheibehenne, Greifeneder and Todd (2010), many options to choose from could lead to a decrease in motivation to make or commit a choice, a decrease in satisfaction with the chosen option and an increase in negative emotions, such as disappointment and regret, because of many alternatives that could be chosen instead of the final choice. In their research focussed on many low-involvement products all products to choose from agreed with these statements, some products with a high reliability (e.g. coffee), some with a lower reliability (e.g. exotic chocolate). Research about choice overload is frequently focussed on consumer behavior of low involvement products (Diehl & Poynor, 2010; Haynes, 2009; Iyengar & Lepper, 2000; Scheibehenne, Greifeneder & Todd, 2010).

Choice in an online context

Interestingly, however, products and services sold in an online context. An online context where choice overload occurs is in online dating. For example the study of D'Angelo and Toma (2016), that showed that online daters who could chose out of 24 potential partners were less

satisfied, after one week, with the final choice than online daters who chose their potential partner out of 6 potential partners.

Next to the aforementioned research of D'Angelo and Toma (2016) Lenton and Stewart (2008) also conducted a research about choice overload in online dating, presenting that people with higher standards (i.e., where the perfect partner dominates on most characteristics what participants like in a partner) feel content with choosing a date out of a large pool. Despite earlier research about choice overload in online dating is done, this research is different. The focus in earlier research about online dating was only on choice overload. This research is focussed on choice overload and information overload on different online dating website designs, because different website designs could affect the amount of choice overload and the amount of information overload experienced by a participant. Earlier research showed which website design was most favoured by participants to use in an online dating setting, but did not research the effects of limited and extensive choice in these different grouped or ungrouped website designs (Tong, Hancock & Slatcher, 2016). Based on this research gap the following research question can be formulated.

"***RQ1:*** *Does too much choice, too much information on ungrouped website designs result in lower satisfaction, higher post-decision regret and lower scores on website usability?"*

*"**RQ2**: Does too much choice and too much information on different website designs result in different partner-choice motivations, website evaluations and incorrect memories?"*

Choice overload in online dating

According to Chernev, Böckenholt and Goodman (2010), studies focussed on choice show that choice has two conditions. One condition showing the opposite of choice overload (e.g. the more-is-better effect) and one condition that shows the negative effect of the variable choice (e.g. choice overload). Concentrating on online dating, many studies show that too much choice in potential mates leads to negative results. Observing online dating, people assume more enjoyment, higher satisfaction and less regret when they can choose from a large set of potential dates. However, the people with an evidently high number of options experienced no progression in affect and experienced more confusions of memory about their choice than people who could choose out of fewer options (Lenton, Fasola & Todd, 2008). It could be the case that feelings of too much choice are related to a loss of control over the situation, and people with these feelings are mostly being overpowered by information (Bawden & Robinson,

2009). According to Schwartz (2004), too much choice can also lead to anxiety, post-decision regret, anticipated regret and depression.

Making a choice out of a large set of options is difficult and individuals who use online dating websites with many options reduce satisfaction and could increase regret, because it is harder to justify the final partner choice to other people in their social network compared to making a consumer choice (Iyengar & Lepper, 2000; Scheibehenne, Greifeneder & Todd, 2010; Sela, Berger & Liu, 2009). In addition, Lenton and Francesconi (2010) also mentioned that partner choice is something else than consumer choice. Partner choice differs from consumer choice, because humans and animals made partner choices across millennia and could have evolved choice strategies that suit to their personal environment. Moreover, people show and self-report preferences for characteristics in people they like (Kurzban & Weeden, 2005).

Finally, the presentation of potential dates on a dating website could change interpersonal evaluations (D'Angelo & Toma, 2016). Based on this finding perceived complexity of choosing a date depends on the presentation format.

Presentation of online dating websites

The presentation format that works as best in online dating websites is a topic that is scarcely researched (D'Angelo & Toma, 2016). Despite the little research that is done about this topic, it is a topic that is very important in online dating. There are many different online dating websites that all want to attract online daters to stay and go to their website and that want to use the best website design potential daters like. Many different online dating websites use filters to group an overload of potential partners in smaller groups. Focusing on the Dutch online dating market, the three best scored dating websites (Lexa, Parship and Elite) use grouped website designs (top10nederlandsedatingsites.nl, 2017). Based on the observation that the best scored dating websites use grouped website designs, the assumption that a grouped website design works better than an ungrouped website design needs to be tested.

Focussing on contexts where choice overload in website designs is researched, Pan, Zhang and Law (2013) did a study among choice in choosing a hotel from a website. People with too much choice in an ungrouped website design mostly overlook the options in the middle of a page. This is in line with the study of Nielsen and Pernice (2010), which showed in an eye-tracking study that when users have to scroll down a page to see all the information, they focus more on the information on top of the page, and they focus more on the last few items than the items in the middle. These studies from other contexts than online dating must be monitored to see if grouped or ungrouped website designs also influences choice overload in this study.

Furthermore, when a website design is presented ungrouped with many options, people often experience information overload and disorientation (Ahuja & Webster, 2001). Finally, when people have to select an option online with extensive choice presented ungrouped people get confused, leading to less satisfaction and post-decision regret (Thai & Yuksel, 2017). Despite Thai and Yuksel (2017) already researched grouped and ungrouped website designs with extensive choice, this needs to be researched again, because the research of Thai and Yuksel (2017) was focused on choosing a vacation destination instead of online dating. Based on the research focussed on grouped and ungrouped website designs the question raises if grouped website designs work better than ungrouped website designs in an online dating setting. Furthermore, the question raises if grouped or ungrouped online dating website designs show different outcomes when people have limited or extensive choice like in the research of Thai and Yuksel (2017).

Information overload

Differently than choice overload could little or much information on a website also influences the choices people make. The advent of information technology has increased the focus on information overload (Speier, Valacich & Vessey, 1999). Information overload is often experienced by people who have to make a decision on a website design presented ungrouped and with many options (Ahuja & Webster, 2001). The phenomenon of information overload is often mentioned when people have problems with the ability to produce information more quickly and to disseminate this information. (Evaristo, Adams, & Curley, 1995; Hiltz & Turoff, 1985). Previous consumer behavior research clarified that information overload has negative effects on decision making and that information overload increases confusion in making the final decision (Chewning & Harrell, 1990; Cohen, 1980). For example in the research of Chewning and Harrell (1990) people had to make a financial decision. Individuals in this research who experienced information overload made decisions of lower quality and lower consistency than people who did not experienced information overload. Focusing on online dating, different dating websites also show different amounts of information of a date (Sumter, Vandenbosch & Ligtenberg, 2017). The available information on dating applications created to get one-night stands like Tinder is limited compared with traditional dating websites created to get a social gratification, friendship or long-term relationship (Gudelunas, 2012; Sumter, Vandenbosch & Ligtenberg, 2017; Van De Wiele & Tong, 2014). Based on these findings information overload in online dating also needs to be measured to see if this has an effect on the process of choosing.

Post-decision regret

Aforementioned research obtained that choice overload could lead to regret (D'Angelo & Toma, 2016; Lenton, Fasola & Todd, 2008). According to Schwartz (2004), there are two types of regret, people can experience post-decision regret or anticipated regret. Anticipated regret could occur when people have regret directly after making the choice, while post-decision regret could occur when people make a decision that is harder to like overtime. The focus in this research is on post-decision regret. Moreover, research showed that the possibility of regret might be a reason why people prefer smaller choice sets (Iyengar & Kamenica, 2006; Irons & Hepburn, 2007; Lenton, Fasola & Todd, 2008; Sarver 2005; Thai & Yuksel, 2017). In addition, D'Angelo and Toma (2016) found out that individuals who are selecting a date from a large pool could not guard themselves from the harmful experience of regret, while individuals who choose from a smaller pool can reduce regret better after one week. An important reason for this finding could be the contradiction of choice overload known as the-more-is-better effect (Chernev, Böckenholt & Goodman, 2010). For instance, when people have a large pool to choose from, more better or similar options than there final option are presented than in a small pool of options. This could create a higher regret for people in the large pool overtime, because many alternatives might be better or similar than there final decision compared to people who had to choose out of a small pool of options. This example stated by D'Angelo and Toma (2016), shows that choice can have a relationship with post-decision regret. For this reason, post-decision regret needs to be measured in order to see if this also has an effect in this research.

Satisfaction with the final decision

The second dependent variable that needs to be measured is satisfaction with the final decision. Like aforementioned, the choice overload effect has an effect on satisfaction (Diehl & Poynor, 2010; Haynes, 2009; Lenton, Fasola & Todd, 2008; Scheibehenne, Greifeneder & Todd, 2010; Sela, Berger & Liu, 2009). To go further in details about satisfaction, Wilson et al (1993) already rejected that once people make a choice, their liking for this chosen option increased. The use of analysing reasons why people chose their option decreased the satisfaction with this chosen option (Wilson et al, 1993). For example, a participant chose a date in the experiment based on some characteristics and after further analysing of the other potential dates, it could possibly occur that the satisfaction of this participant would decrease,

because the participant made the decision too quick. Based on these findings, the expectation is that more choice leads to lower satisfaction with the chosen option.

Choice process satisfaction

Choice overload or too much information could also have an effect on the satisfaction of the process of choosing. According to Zhang and Fitzsimons (1999), who did an experiment related to aligned- and non-aligned products, choice-process satisfaction is high when people have many options that are aligned or grouped. However, when options are not aligned or ungrouped the choice-process satisfaction is low. Nevertheless, when options are ungrouped or non-aligned in contradiction with aligned or grouped options, the choice-process satisfaction increases when people see less options. Based on these findings, different website designs could lead to different scores of choice-process satisfaction. Furthermore, previous research showed that people who made decisions deliberate and careful were more satisfied with the choice-process than people who made choices via an impulsive and intuitive approach (Crossley & Highhouse, 2005). Finally, the process of choosing showed no influence on choice set size conditions in previous research of Finkel, Eastwick, Karney, Reis and Sprecher (2012).This finding of Finkel et al. (2012) needs to be measured to see if choice overload and information overload on the different website designs also leads to similar satisfaction levels for the process of choosing.

Website usability

Different website designs could lead to different scores on website usability. Website usability is often defined as the effort that is required to use a computer system (Casaló, Flavián & Guinalíu, 2008). Previous research showed that the usability of a website is good when it is simple to use, when it is easy to navigate through a website and when a computer system is easy to understand (Casaló, Flavián & Guinalíu, 2008). In addition, the level of usability will be better when the difficulty to manage an online system is low (Davis, 1989; Teo, Chan, Wei & Zhang, 2003). Different website designs needs to be consistent to measure the choice overload and information overload effect. Therefore in this research website usability needs to be measured to see if lesser choice also improve usability.

Partner choice motivation

Another dependent variable that needs to be measured is the partner choice motivation. Like aforementioned, online dating websites can be used for different purposes. According to

Sumter, Vandenbosch and Ligtenberg (2017), some dating applications are used to get one-night stands (e.g. Tinder) while others are focused on getting serious relationships (e.g. Pepper). Based on this research it could be the case that partner choice motivations are dissimilar when information is presented differently. According to Lee et al. (2008) physical attractiveness is an important motivator for people's dating preferences. However, in their research among the dating website hotornot.com individuals who stated themselves as unattractive not evaluate the dating options based on their own attractiveness.

Memory in online dating context

Memory can be defined as the process in which knowledge is retained (Bailey, Bartsch & Kandel, 1996). Previous studies split memory into implicit memory which is saved unconsciously and explicit memory which is saved consciously (Schacter, 1987; Roediger, 1990). The memory of people needs to be researched in order to see if people made adequate decisions that are correct. According to Finkel et al. (2012), people become cognitively overwhelmed as choice sets are increasing with options. This is in line with other previous research that showed that the memory of people is more confused when people experienced choice overload (Lenton, Fasolo & Todd, 2008; Lenton & Stewart, 2008).

Based on the theoretical framework, the following hypotheses will be tested:

H1: The negative effects of choice will be more pronounced when people experience choice overload

H2: The negative effects of choice will be more pronounced when additional information is presented.

H3: The negative effects of choice will be more pronounced when website designs show potential dates that are not presented grouped

Method

Research Design & Materials

This study used a 2x2x2 research design. The proposed study intended to explore the effects related to choice overload in online dating on participant's *post-decision regret, satisfaction, choice-process satisfaction, website usability, partner-choice motivation, website evaluation*

and the memory on partner characteristics. As we targeted both male and female participants, two different versions were created (either presenting male or female potential dating partners).

The first factor was extensive choice versus limited choice. The group with limited choice had to choose out of 6 dates, while the group with extensive choice had to choose out of 24 dates (see Figure. 2). The number of potential dates that are used for this factor was based on previous research of D'Angelo and Toma (2016). The second factor that is used in this study is the presented information. Within the 'little information' condition participants saw the looks and the name of the potential date. Whereas in the 'much information' condition participants were also exposed to information on profession, hobbies and personal characteristics of the potential date and could experience information overload (see Figure. 1). The third factor in this research was concentrated on the presentation of the website design. Within the 'grouped' website design participants saw the potential dates in groups based on lifestyle. Whereas in the 'ungrouped' condition potential dates were presented separately (see Figure. 2).

According to Tong, Hancock and Slatcher (2016), there are three kinds of online dating website designs. First, there is a see-and-screen format that supports online daters to surf through a database with potential partners and where people can use filters to select potential dates on different characteristics. The see-and-screen format is used by the three best scored dating websites (Lexa, Parship and Elite) in the Netherlands (top10nederlandsedatingsites.nl, 2017). Second, there is an algorithm design that is often promoted as how the technology of a website can provide online daters with the best suitable option (e.g. eHarmony). Lastly, there is a blended design; this is a combination of the see-and-screen format and the algorithm design (e.g. OkCupid.com). Because the three best scored dating websites in the Netherlands use see-and-screen website designs this study also used see-and-screen website designs.

To create profiles of potential dates in this study, 48 publicly available dating profiles were selected from Dutch dating websites. The 48 profiles were split in 24 male profiles and 24 female profiles. For the reason that camera distance and angle can affect interpersonal perceptions, all profile photos with potential partners are faced forward (Schouten, Heerkens, Veringa, & Antheunis, 2014) (see Figure. 1).

Figure 1. Example of 'information availability' manipulation (left panel: little information; right panel: much information).

Before selecting 24 profile pictures of men and 24 profile pictures of women a pretest was conducted to monitor the effect of attractiveness. In total 59 pictures of men and 59 pictures of women were randomly selected to test on attractiveness. In total 5 male participants and 5 female participants did a card-sort approach with a Likert-scale of 5 items, where 1 is most attractive and 5 is most unattractive, to select profile pictures that were used in the website designs. The 24 profile pictures where the final score finished between place 13 and place 36 based on attractiveness were used in the website designs. Focussing on attractiveness, these pictures are average or slightly above average based on the mean scores.

The see-and-screen website designs where the participant could find the potential dates is created through online website maker Wix.com (see Figure. 2). The presented website designs show the conditions of many options vs few options, grouped design vs ungrouped design and much information vs little information. For the profiles with pictures of women the website layout was exactly the same.

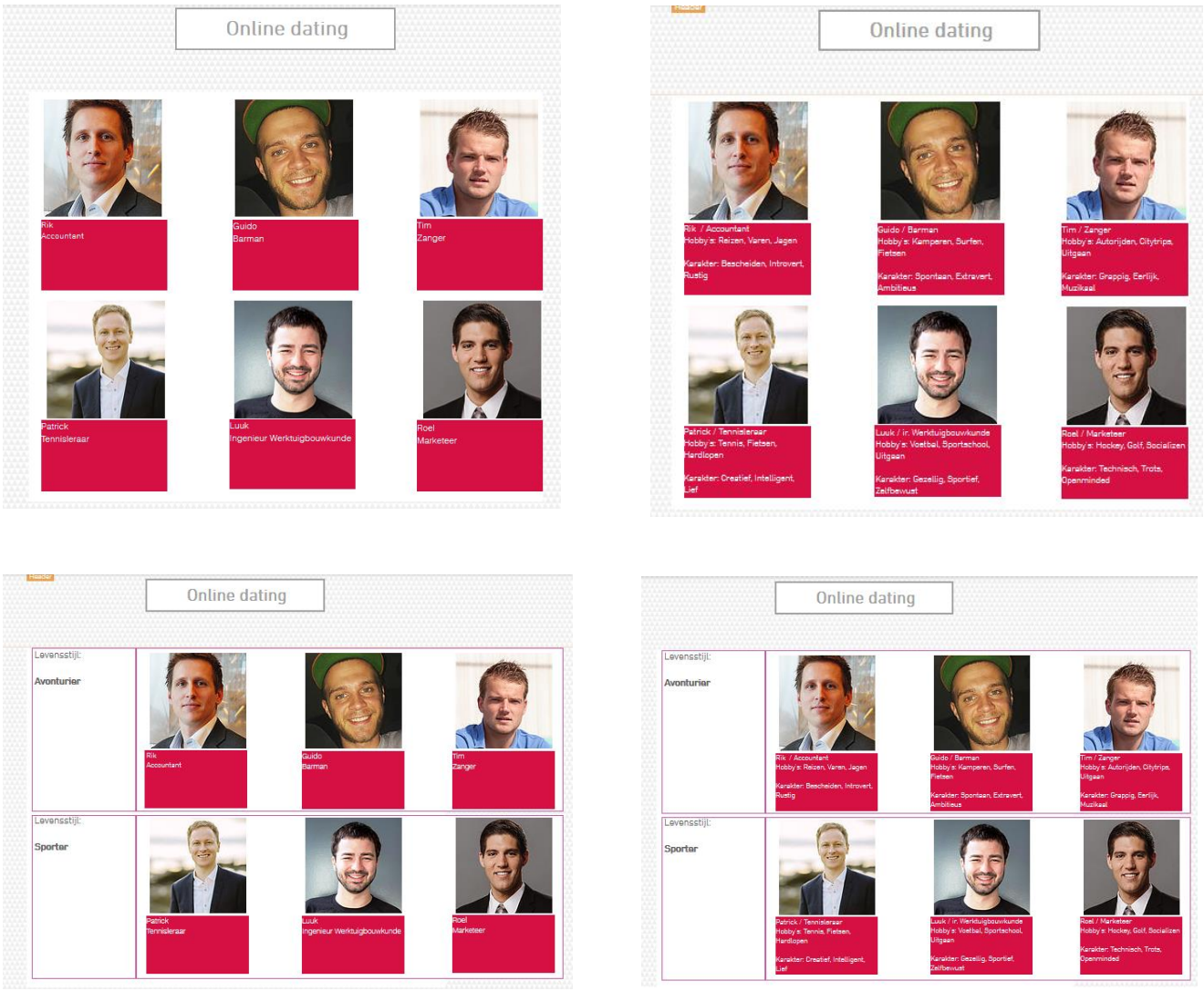

Figure 2a. Website designs of conditions with few dating options (left panel above: little information / ungrouped website design; right panel above: much information / ungrouped website design; left panel below: little information / grouped website design; right panel below: much information / grouped website design)

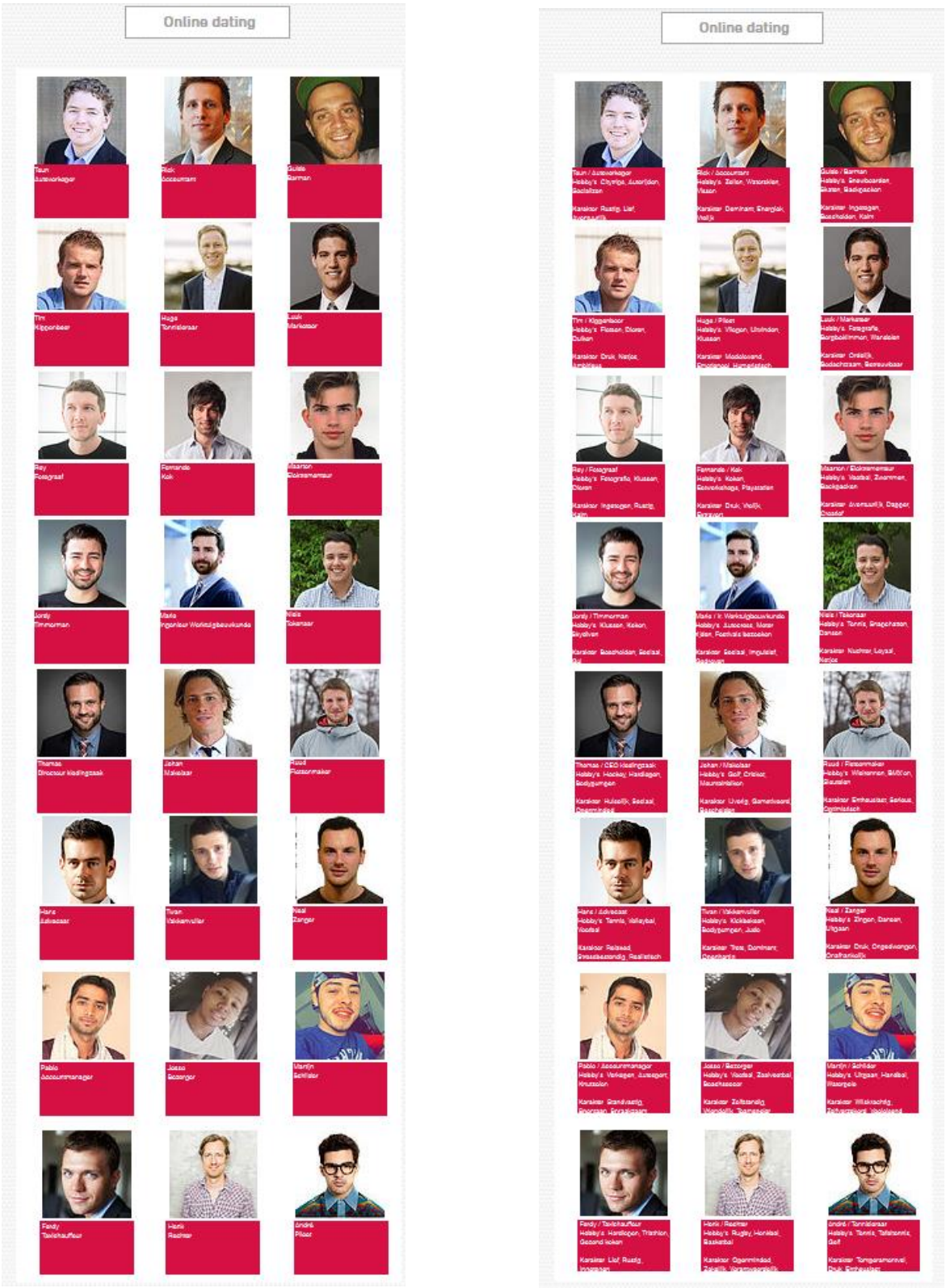

Figure 2b. Ungrouped website designs of conditions with many dating options (left panel: little information; right panel: much information)

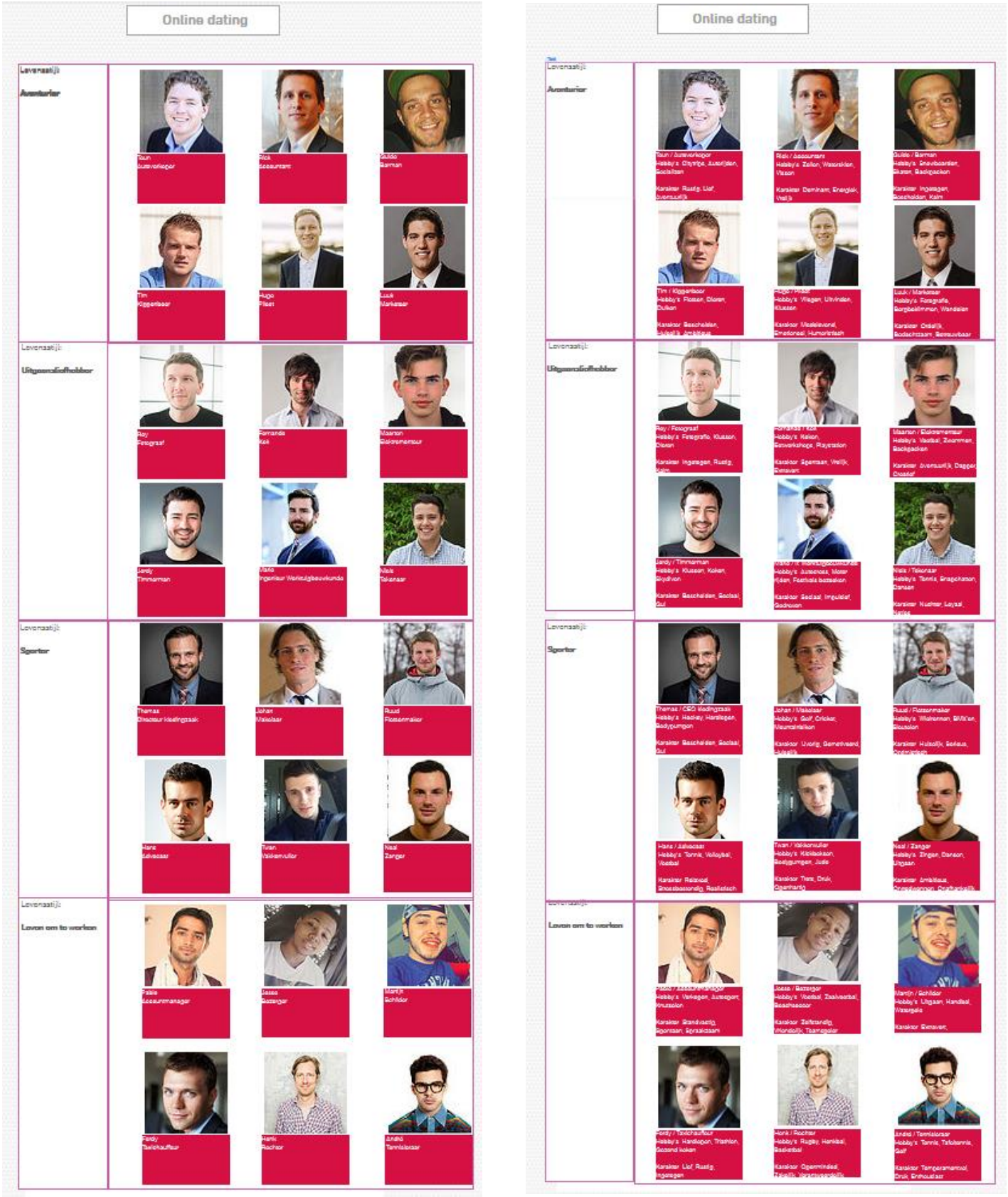

Figure 2c. Grouped website designs of conditions with many dating options (left panel: little information; right panel: much information)

The websites were built for display on a standard pc or laptop, hence participants could not participate using their mobile phones, and were notified accordingly when they nonetheless tried to do so.

Furthermore, Qualtrics.com was used to create the experiment to measure the effects of choice, information and design in online dating on post-decision regret, satisfaction with the final choice, choice-process satisfaction, website usability, partner choice motivation, website evaluation and memory on partner characteristics.

Procedure

Participants of this study were recruited through different ways. Many participants were recruited via social media platforms LinkedIn and Facebook. Next to the recruiting via social media, participants were also recruited via printed invitations that gave the instructions before starting the experiment. The printed A8-papers with the instructions of the research and the website link leading to the research were handed out in the city center of a Dutch town by a small research team of three persons. Based on these two ways of recruiting, 235 participants started with the experiment

The experiment started with demographic questions. By establishing the educational level, age, gender, relationship status and experience with online dating there can be seen who the participants are. These demographic statistics are presented in Table 1 to Table 5.

After these demographic questions the participants had to choose a sexual preference and had to open a link which took them to the created dating site. When the participants opened the link, one of the 8 conditions presented in Figure. 2 was exposed. On this created dating site the participants could watch the dates without having a time limit. The participants were asked to go back to the questions when they knew which potential date was the best option. In the questionnaire they had to select the name of this dating option to go further with the experiment.

After making a choice, participants filled out the online questionnaire comprising the dependent measures.

Participants

From the 235 people who participated in the experiment, 190 finished the experiment (97 male and 93 female respondents; mean age; 31.79; age range; 18-57 years). Each participant was randomly assigned to one of the experimental conditions. In total, at least 19 to 33 people per website design condition participated in this research which ended in n=190 participants. The

group of participants were all above the age of 18. This age restriction was chosen due to the fact that online dating for under aged participants could lead to ethical problems, because normally dating websites use age restrictions (e.g. Chemistry.com and PerfectMatch.com). Below the demographics of the participants for each experimental condition are presented.

Table 1
Age and gender of participants for each experimental condition

Condition	N	Age		Male
		M	SD	
Few options, little information, grouped design	22	30	9.8	54.55%
Many options, little information, grouped design	20	30.35	4.89	45%
Few options, much information, grouped design	23	30.35	8.24	52.17%
Many options, much information, grouped design	19	35.84	9.92	47.37%
Few options, little information, ungrouped design	22	31.09	7.07	50%
Many options, little information, ungrouped design	30	31.9	9.17	46.67%
Few options, much information, ungrouped design	33	32.06	9.27	45.555
Many options, much information, ungrouped design	21	33.09	11.6	71.43%

According to Table 1, all mean scores of age per condition were within the age of 30 years old and 36 years old. Furthermore, concentrating on the percentage males per condition Table 1 showed that males and females were equally divided across the conditions. However, the condition with many options, much information and an ungrouped design had by coincidence 71.43% males in the condition. Due to the fact that gender is monitored by website designs for males and females this finding did not influence the results.

Table 2
Educational level of participants for each experimental condition

Condition	N	Highest completed educational level						
		None	Lower general secondary education	Higher general secondary education	The pre-university education	Intermediate vocational education	University of Applied Sciences	University
Few options, little information, grouped design	22	4.54%	22.73%	13.64%	4.54%	27.27%	22.73%	4.54%
Many options, little information, grouped design	20	0%	10%	10%	0%	15%	50%	15%
Few options, much information, grouped design	23	4.35%	0%	13.04%	4.35%	43.48%	26.09%	8.70%
Many options, much information, grouped design	19	0%	10.53%	10.53%	5.26%	42.11%	26.32%	5.26%
Few options, little information, ungrouped design	22	0%	0%	9.09%	4.54%	22.73%	36.36%	27.27%
Many options, little information, ungrouped design	30	3.33%	10%	3.33%	6.67%	43.33%	26.67%	6.67%
Few options, much information, ungrouped design	33	0%	12.12%	6.06%	6.06%	21.21%	33.33%	21.21%
Many options, much information, ungrouped design	21	0%	14.29%	9.52%	4.76%	33.33%	38.10%	0%

Focussing on educational level, Table 2 shows that most of the participants had secondary vocational education or university of applied sciences as highest completed education.

Table 3
Current relationship status of participants for each experimental condition

Condition	N	Relationship status			
		Single	In a relationship	Engaged	Married
Few options, little information, grouped design	22	50%	18.18%	0,00%	31.82%
Many options, little information, grouped design	20	20%	30%	0%	50%
Few options, much information, grouped design	23	39.13%	21.74%	0%	39.13%
Many options, much information, grouped design	19	31.58%	15.79%	0%	52.63%
Few options, little information, ungrouped design	22	31.82%	31.82%	4.54%	31.82%
Many options, little information, ungrouped design	30	23.33%	26.67%	0%	50%
Few options, much information, ungrouped design	33	36.36%	21.21%	0%	42.42%
Many options, much information, ungrouped design	21	61.90%	19.05%	4.76%	14.29%

Table 3 showed that the participants are almost proportional split into the relationship statuses single, in a relationship and married. Nevertheless, in 6 of the 8 conditions no participant was engaged.

Table 4
Experience level with dating websites of participants for each experimental condition

Condition	N	Using of dating websites in the last 5 years			
		Never	5 times or less	Monthly	Weekly
Few options, little information, grouped design	22	71.43%	19.05%	4.76%	4.76%
Many options, little information, grouped design	20	75%	10%	15%	0%
Few options, much information, grouped design	23	69.57%	8.70%	13.04%	8.70%
Many options, much information, grouped design	19	73.68%	10.53%	5.26%	10.53%
Few options, little information, ungrouped design	22	72.73%	18.18%	4.55%	4.55%
Many options, little information, ungrouped design	30	85.71%	14.29%	0%	0%
Few options, much information, ungrouped design	33	84.38%	15.62%	0%	0%
Many options, much information, ungrouped design	21	47.62%	28.57%	9.52%	14.29%

Table 5
Experience level with dating applications of participants for each experimental condition

Condition	N	Using of dating applications in the last 5 years			
		Never	5 times or less	Monthly	Weekly
Few options, little information, grouped design	22	72.73%	18.18%	4.55%	4.55%
Many options, little information, grouped design	20	70%	20%	25%	5%
Few options, much information, grouped design	23	72.73%	18.18%	9.09%	0%
Many options, much information, grouped design	19	78.95%	0%	10.53%	10.53%
Few options, little information, ungrouped design	22	54.55%	18.18%	22.73%	4.55%
Many options, little information, ungrouped design	30	76.67%	16.67%	3.33%	3.33%
Few options, much information, ungrouped design	33	78.79%	9.09%	9.09%	3.03%
Many options, much information, ungrouped design	21	47.62%	28.57%	9.52%	14.29%

According to Table 4 and Table 5 there can be concluded that a great majority of the participants never or less than 5 times used dating applications or dating websites in the last five years. Based on this finding the study had to take into account that the results were not fully representative with people who use dating applications and dating websites monthly or weekly.

Measurements

The different items were answered via a five-point Likert scale, which means that a fixed-choice response format was provided. By the use of a five-point Likert scale participants needed to

justify the partner choice motivation. Furthermore participants had to answer questions related to the satisfaction and post-decision regret of the final choice. In order to see potential different outcomes in choice, information and website design participants gave their opinions on choice-process satisfaction website evaluation and on website usability. The scale for these dependent variables varies from:

1. Entirely disagree
2. Disagree
3. Neither disagree, nor agree
4. Agree
5. Entirely agree

Next to the questions answered via a five-point Likert scale, two open-ended questions were added to the research were participants used their memory to describe the partner they chose based on information-related and appearance-related partner characteristics.

Post decision regret

The variable consists of five statements (alpha = 0.72; see Table 6) based on Brehaut et al. (2003). The statements used for this variable were negative formulated (e.g. “the choice was not wise” and “I regret the choice I made).

Satisfaction

The variable consists of three statements (alpha=0.71; see Table 6). Based on D’Angelo and Toma (2016). The statements used for this variable were positive formulated (e.g. “the person I chose was definitely the best option” and “I am looking forward to know more about this person”).

Choice-process satisfaction

Next to the two dependent variables created with previous research, this research also added five new statements to measure the choice-process satisfaction. During the measuring of this construct analysis showed that the Cronbach’s alpha would be higher if some items were deleted. For this reason three items were deleted and two items were used to measure the choice-process satisfaction (alpha =0.75). Table 6 shows an overview of the deleted and used items of this construct. Statements used for this variable were focussed on the process of choosing (e.g. “I obtained satisfaction from the choice-process” and “I liked making a choice”).

Website usability

Website usability was measured with four items (alpha=0.72; see Table 6). Statements used for this variable were less focussed on choice, but more on the usability of the website (e.g. “I navigated easy through the website” and “I had a clear overview of the website”).

Partner choice motivation (PCM)

Partner choice motivation was measured by two single-item measures. Controlling if participants made their final decision based on the information of the person, the first single-item measure was conducted. The second single-item was conducted to examine if participants made their final decision based on the looks of the person. Both single-item measures are shown in Table 6.

Website evaluation (WE)

Website evaluation was also measured by two single-item measures. To find out if participants evaluated the online dating website as a website used for serious relationships, the first single-item measure was conducted. To evaluate if the website was more applicable for one-night stands like Tinder the second single-item measure was conducted. Both single-item measures are shown in Table 6

Memory on partner characteristics

Finally, based on two open-ended questions at the end of the questionnaire the memory of the participants on partner characteristics was measured. To discover if participants remembered information-related partner characteristics participants had to fill in information-related partner characteristics they remembered. Based on the correctness of the answer on information-related partner characteristics differences between the conditions are measured. Participants also described the final partner on appearance-related partner characteristics. Both open-ended question are shown in Table 6. Based on the number of words used to describe the information- and appearance-related partner characteristics another analysis was conducted.

Table 6
Used items in this research

Statement	Construct	Status
If I had to choose again, I would not choose the same person	Post-decision regret	Used
The person I chose was not the best option	Post-decision regret	Used
The choice was not wise	Post-decision regret	Used
I regret the choice I made	Post-decision regret	Used
I am disappointed about the partner choice I made	Post-decision regret	Used
I am satisfied with the choice I made	Satisfaction with the final option	Used
I am looking forward to know more about this person	Satisfaction with the final option	Used
The person I chose was definitely the best option	Satisfaction with the final option	Used
It was very difficult to make a choice	Choice-process satisfaction	Deleted
It was frustrating to make a choice	Choice-process satisfaction	Deleted
I had a clear overview of all the dating options	Choice-process satisfaction	Deleted
I liked making a choice	Choice-process satisfaction	Used
I obtained satisfaction from the choice-process	Choice-process satisfaction	Used
I had a clear overview of the website	Website Usability	Used
The website was difficult to use	Website Usability	Used
The website was frustrating to use	Website Usability	Used
I navigated easy through the website	Website Usability	Used
I made my choice based on the information of the person	PCM: Information-based decisions	Used
I made my choice based on the looks of the person	PCM: Decision based on the looks of a person	Used
The website is focussed on getting one-night stands	WE: Focussing on one-night stands	Used
The website is focussed on getting a serious relationship	WE: Focussing on serious relationships	Used
Open questions:		
Which information-related partner characteristics of your final option do you remember?	Memory on partner characteristics	Used
Which appearance-related partner characteristics of your final option do you remember?	Memory on partner characteristics	Used

Results

To investigate the effects of the independent variables, analyses of variance were conducted with the number of dating options (few or many), information about the dating option (little information or much information), and sort of website design (grouped based on lifestyle or ungrouped) as independent variables, and post-decision regret, satisfaction with the chosen dating option, choice-process satisfaction, website usability, partner choice motivation, website evaluation and memory on partner characteristics as dependent variables.

Post-decision regret

An ANOVA with post-decision regret as dependent variable revealed a marginal main effect with the number of options ($F(1,182)=3.57$, $p=.06$) showing that more dating options experienced more post-decision regret ($M=2.46$, *SD* .54 versus $M=2.32$, *SD* .63). As can be seen in Figure 3.

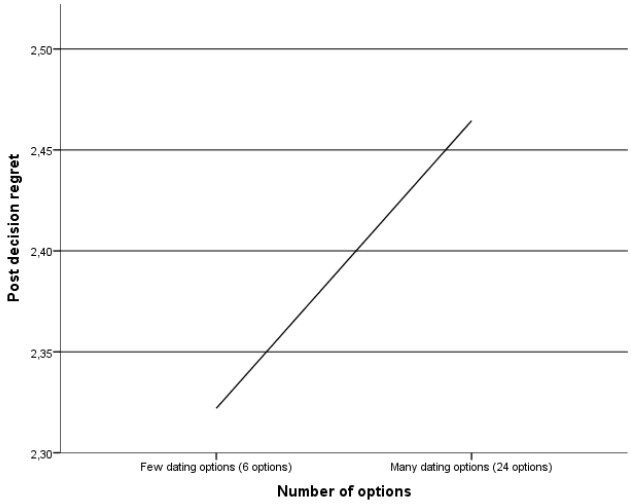

Figure 3. Main effect of number of options on Post-decision regret

Furthermore based on the ANOVA with post-decision regret as dependent variable there can be concluded that the main effects of website design and information were not significant (F's < 1, ns).

Next to the mentioned marginal main effect, there was also a significant interaction between choice and grouping (F(1,182)=4.93, p=.03). As can be seen in Figure 4, in the 'grouped website design condition', post-decision regret is higher when the website has many dating options as opposed to few dating options (M = 2.20, *SD* .70 versus M = 2.55 ; *SD* .55). When the website design is presented ungrouped, post-decision regret does not vary with the number of dating options. (M=2.43, *SD* .56 versus M=2.40, *SD* .52)

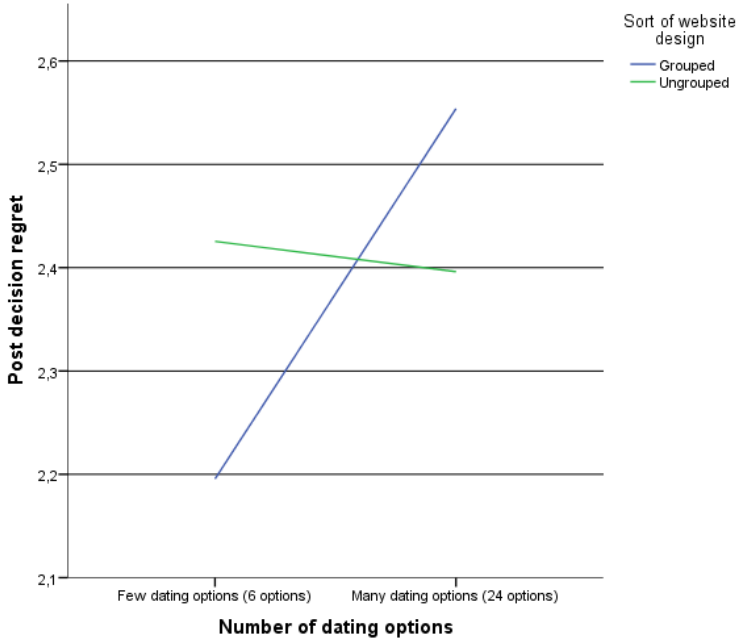

Figure 4. Interaction effect on post-decision regret by number of options and sort of website design

Furthermore, all other interactions did not show marginal or significant effects (F<1, ns).

Satisfaction

Focussing on the dependent variable satisfaction with the chosen option another ANOVA was conducted, which revealed a main effect of number of options (F(1,182)=4.42, p=.04) showing that people with more dating options experienced significantly lower satisfaction with the chosen option than people with few dating options (M=3.46, *SD* .69 versus M=3.65, *SD* .70). As can be seen in Figure 5.

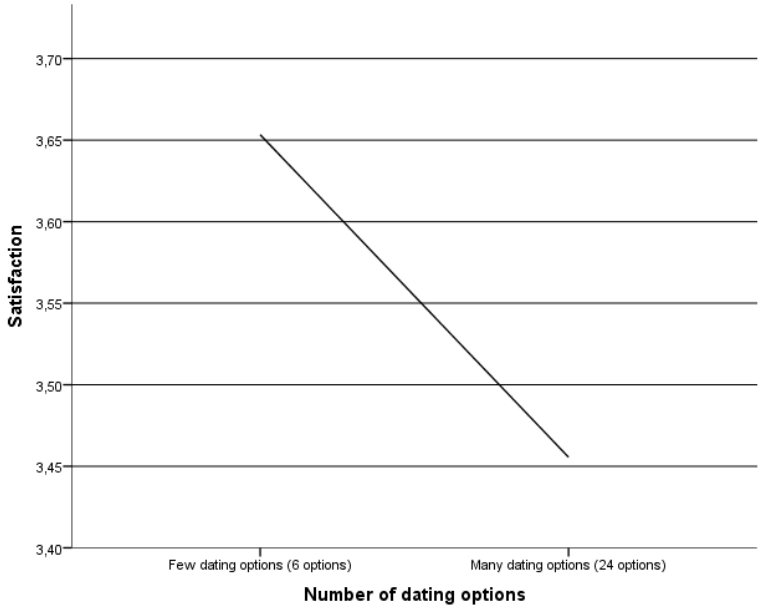

Figure 5. Main effect of number of options on Satisfaction

Furthermore based on the ANOVA with satisfaction as dependent variable there were no other main or interaction effects obtained (F<1, ns).

Choice-process satisfaction

Focussing on the dependent variable choice-process satisfaction another ANOVA was conducted, which revealed a main effect of number of options (F(1,182)=4.16, p=.04) showing that people with more dating options experienced significantly lower choice-process satisfaction than people with few dating options (M=3.24, *SD* .80 versus M=3.46, *SD* .84). As can be seen in Figure 6.

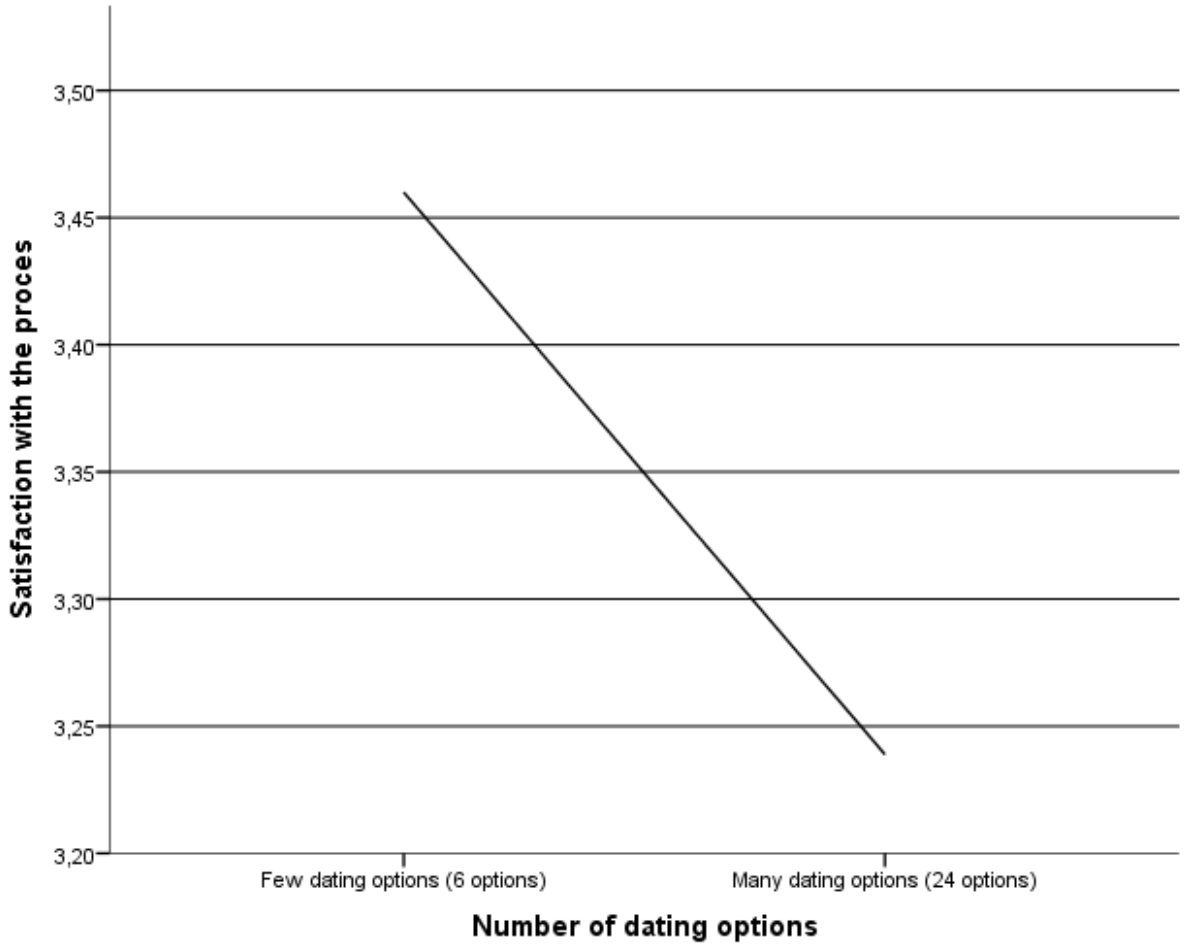

Figure 6. Main effect of number of options on Choice-process satisfaction

Moreover, based on the ANOVA with choice-process satisfaction as dependent variable there were no other main or interaction effects obtained (F<1, ns).

Website usability

Another ANOVA was conducted for website usability, which revealed no main effects (F<1, ns). A significant interaction effect between choice and grouping was obtained (F(1,182)=6.91, p<.01). As can be seen in Figure 7, website usability is higher when it is presented ungrouped with many dating options as opposed to few dating options (M= 3.61, *SD* .59 versus M=3.35, *SD* .56). When the website design is presented grouped the website usability is higher with few dating options as opposed to many dating options (M=3.48, *SD* .47 versus M=3.31, *SD* .46).

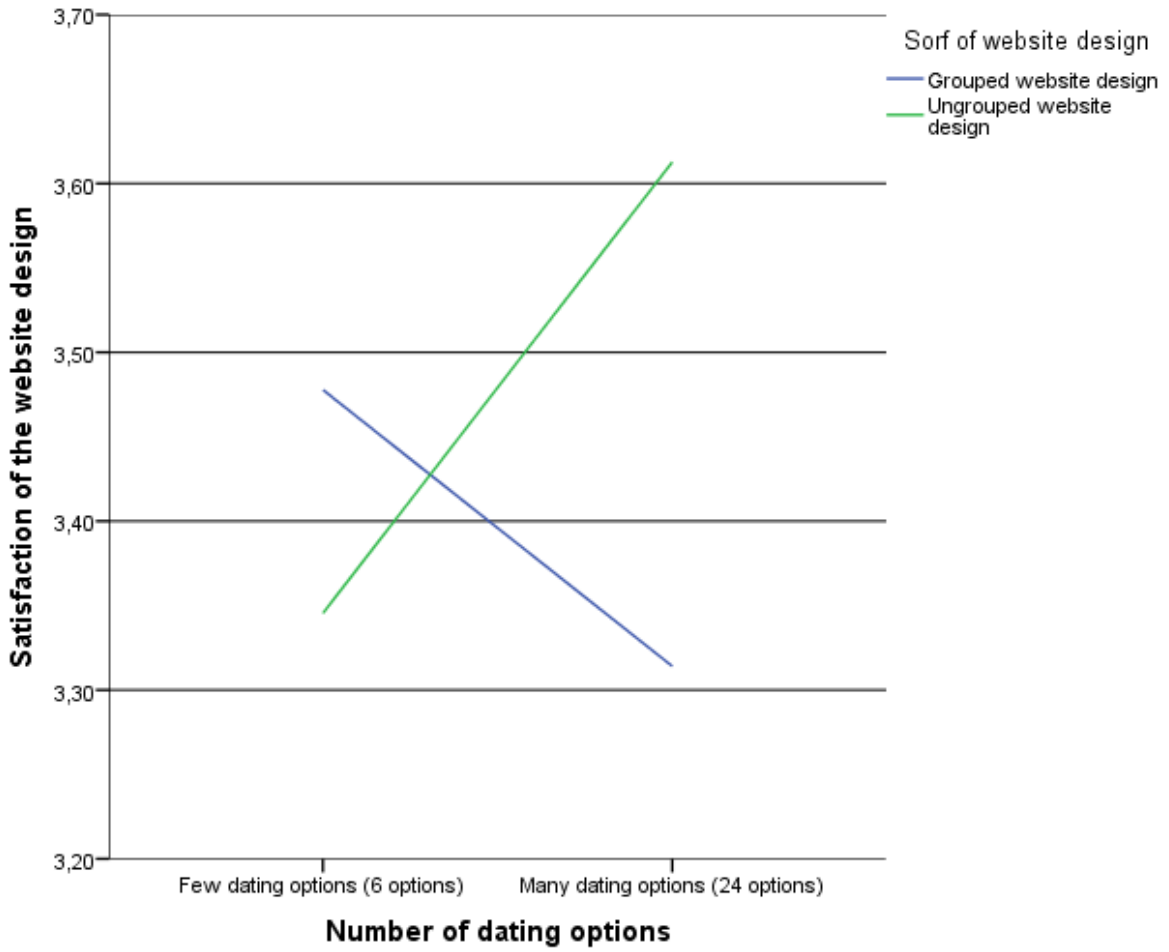

Figure 7. Interaction effect of number of options and website design on Website Usability
All other interactions did not had a marginal or significant effect (F<1, ns).

Partner choice motivation

The difference between little and much information of a dating option did not have a significant effect on post-decision regret, satisfaction and on website usability. Nevertheless, looking at information-based decisions as partner choice motivation there is a significant main effect between people who saw dating options with little or much information ($F(1,182)=13.37$, $p<.01$) showing that people with much information made their choice based on information more than people who saw little information of their dating option ($M=3.14$, *SD* 1.10 for little information versus $M=3.72$, *SD* .96 for much information). As can be seen in Figure 8.

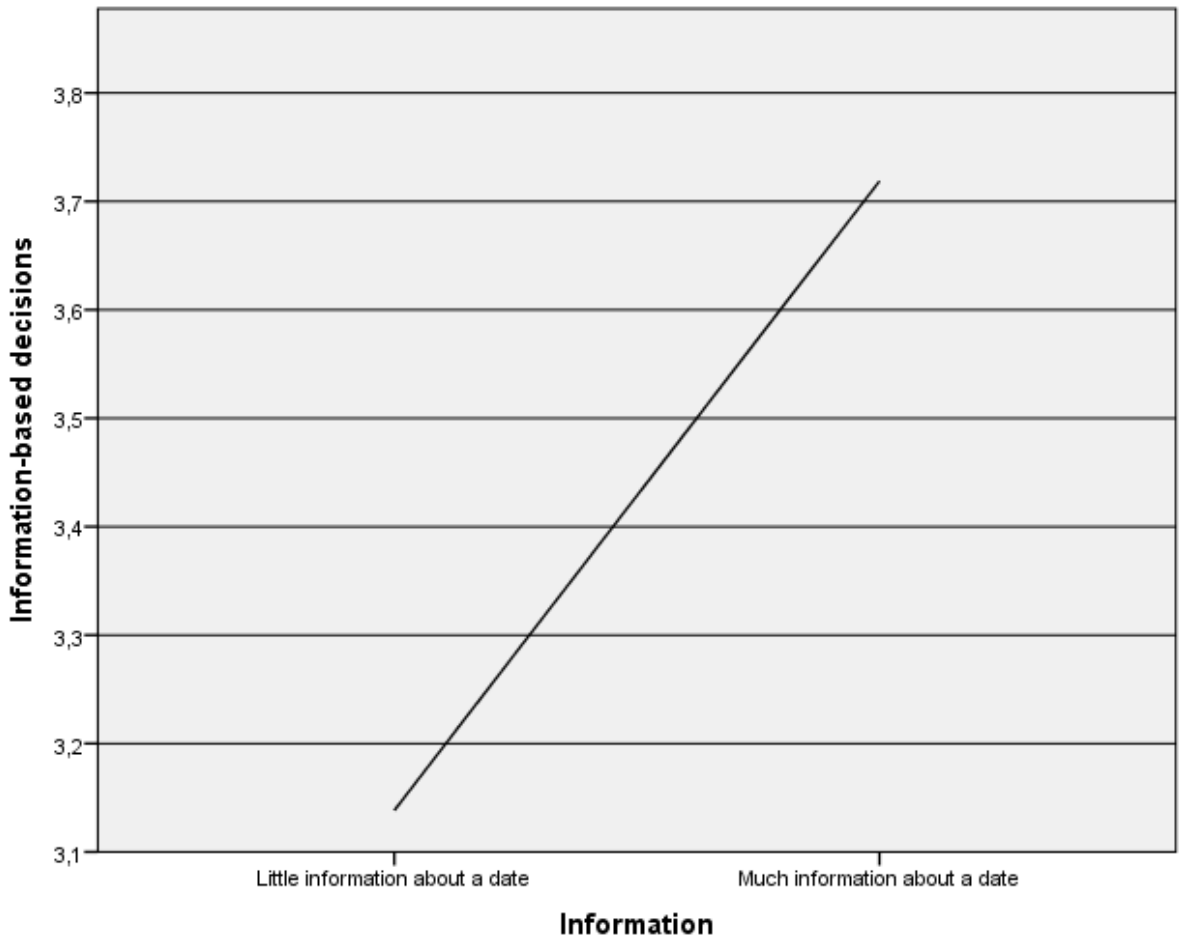

Figure 8. Main effect of information on Information-based decisions

Furthermore based on the ANOVA with information-based decisions there were no other main or interaction effects obtained ($F<1$, ns).

Focussing on the partner choice motivation that the decision was based on the looks of a person, there is a marginal main effect ($F(1,182)=3.13$, $p=.08$), showing that people with little information made their choice based on looks more than people who saw much information of their dating option ($M=3.81$, *SD* 1.00 for little information versus $M=3.56$, *SD* .96). As can be seen in Figure 9.

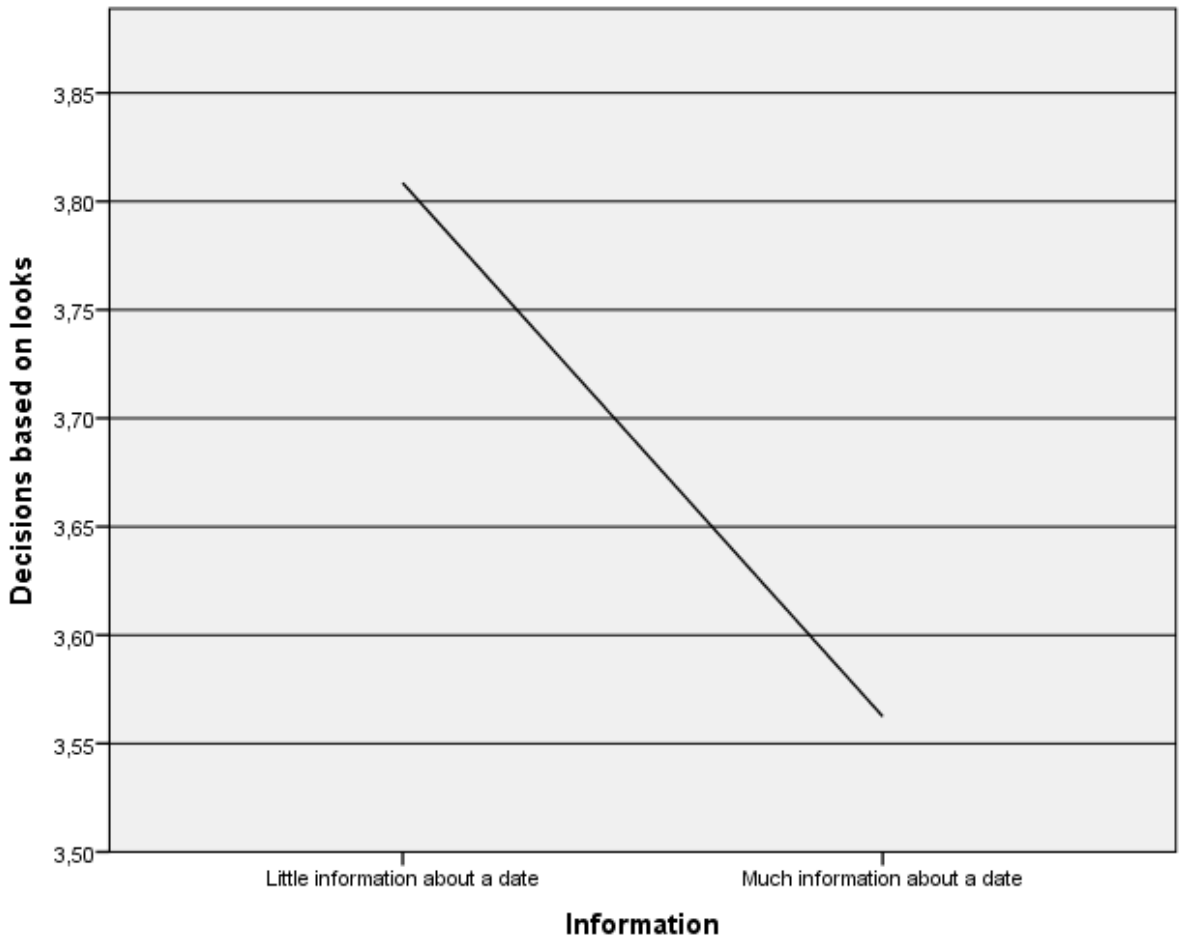

Figure 9. Main effect of information on Decision based on the looks of a person

Furthermore based on the ANOVA with decision based on the looks of a person there were no other main or interaction effects obtained (F<1, ns).

Website evaluation

The difference between little or much information about a date also showed significant differences on the perception people have about dating websites. A significant main effect is founded between people who saw dating options with little or much information ($F(1,182)=9.23$, $p<.01$), showing that people who saw little information about the dating option thought the website was focussed on getting one-night stands more than people who saw much information about the dating option ($M=2.91$, $SD=.86$ for little information versus $M=2.48$, $SD=.85$ for much information). As can be seen in Figure 10.

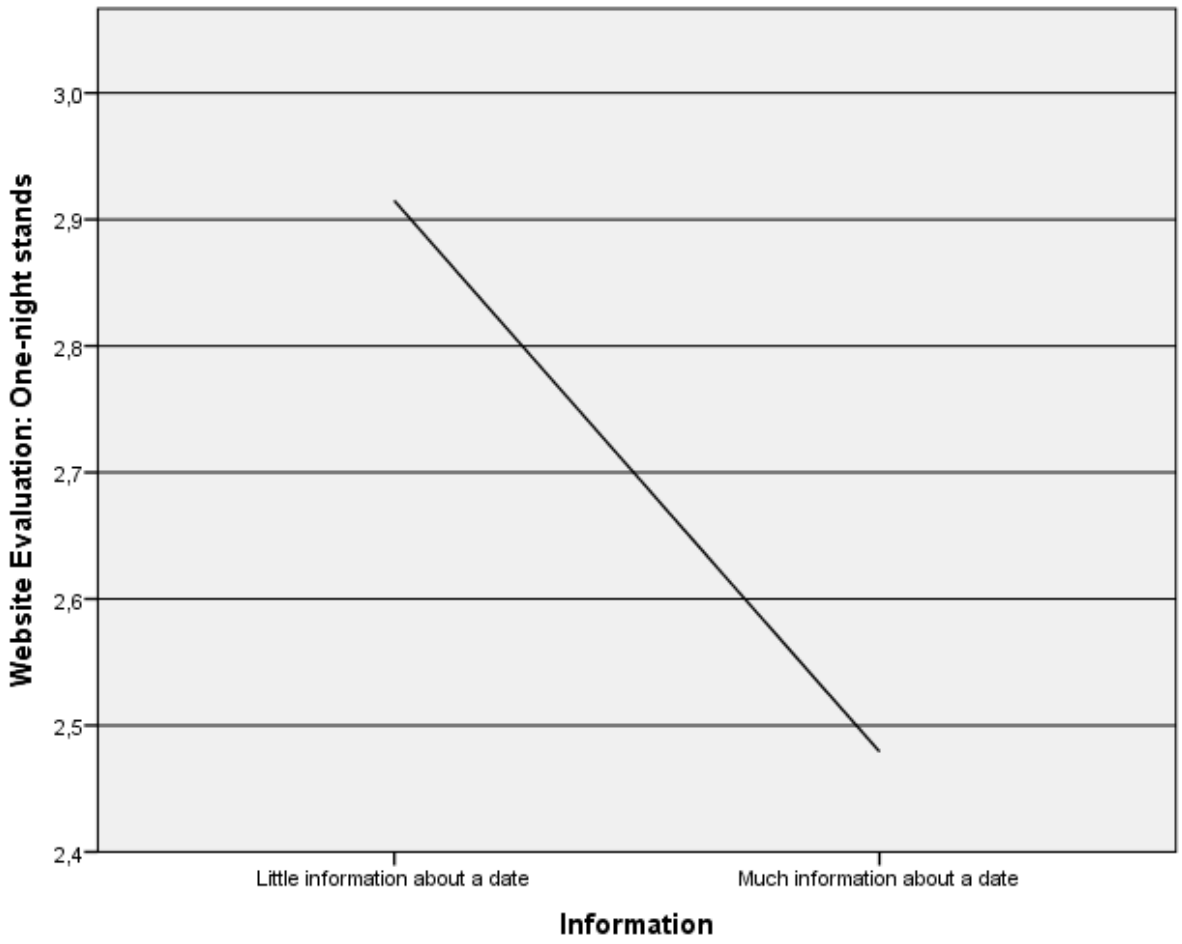

Figure 10. Main effect of information on Website evaluation focussing on one-night stands
Furthermore based on the ANOVA with the website evaluation focused on one-night stands there were no other main or interaction effects obtained ($F<1$, ns).

When participants thought that the website is more focussed on getting a serious relationship, the effect is the other way around compared with the website evaluation focussed on one-night stands. In this case a marginal main effect was obtained on information ($F(1,182)=3.25$, $p=.07$), showing that people with much information about the dating option thought getting a serious relationship was the case more than people who saw little information about the dating option ($M=3.01$, $SD=.85$ for little information versus $M=3.23$, $SD=.88$ for much information). As can be seen in Figure 11.

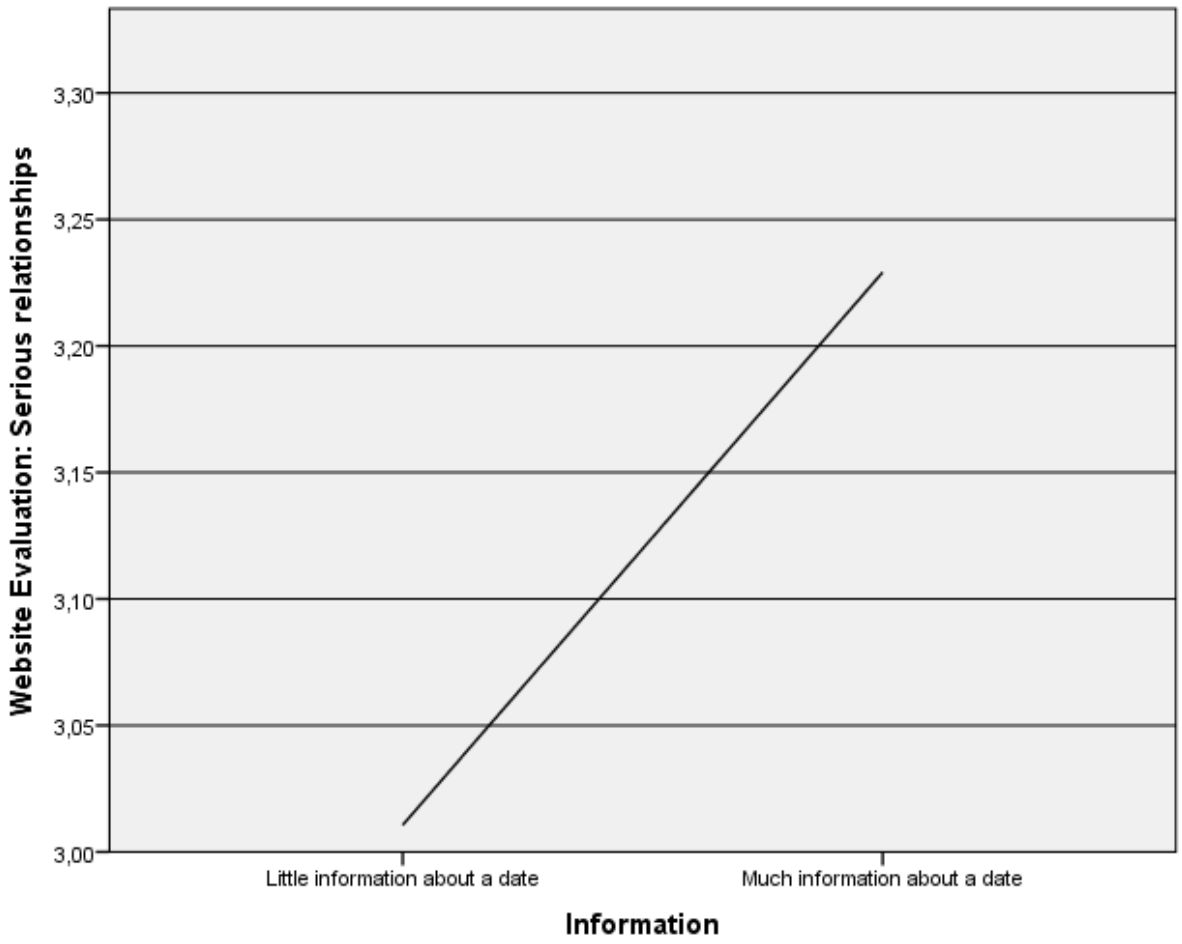

Figure 11. Main effect of information on Website evaluation focussing on getting serious relationships

Furthermore based on the ANOVA with the website evaluation focused on serious relationships there were no other main or interaction effects obtained (F<1, ns).

Elaboration needed for partner characteristics

According to test the memory of participants on partner characteristics, participants used different amounts of words to describe the final partner choice based on appearance and information. Based on an ANOVA, which revealed a main effect of number of options ($F(1,182)=7.65$, $p<.01$) showing that people with only a few dating options used significantly more words to describe their final choice than people with many dating options (M=6.65, *SD* 4.04 versus M=5.15 *SD* 3.65). As can be seen in Figure 12.

Figure 12. Main effect of choice on memory on partner characteristics, focusing on words used to describe partner

Based on the ANOVA focused on words used to describe the partner, there were no other main or interaction effects obtained related to choice, information and design ($F<1$, ns).

Furthermore, there were no significant main or interaction effects with correctness of the remembered information ($F<1$, ns).

Discussion

The findings presented clearly show that the number of options may have an influence on post-decision regret and satisfaction; main effects were obtained of number of options on post-decision regret and satisfaction. These findings are in line with the research of Thai and Yuksel (2017), which showed that the possibility of regret might be a reason why people prefer smaller choice sets in searching a vacation destination. Furthermore, these findings are also in line with the research of Sela, Berger and Liu (2009) and Scheibehenne, Greifeneder and Todd (2010) showing that a large set of options makes it harder to justify the final choice. Focusing on online dating, the research of D'Angelo and Toma (2016) tested regret after one week instead of directly after the choice, nevertheless it is still in line with this research, because people who choose from a smaller pool can reduce regret better after one week. In this research people with a higher number of options experienced more post-decision regret than people with lower number of options to choose from.

Looking at the results, the number of options presented also obtained main effects related to choice-process satisfaction and the elaboration needed to describe a partner. Participants with few dating options to choose from were more satisfied with the choice-process. This finding is contradictory with the research of Finkel et al. (2012) who stated that the process of choosing showed no influence on choice set size conditions. Focussing on the elaboration needed to describe a partner, participants who saw only a few dating options used more words to describe the information and appearance of the final dating option than participants who saw many dating options. Based on this finding, it could be the case that people with many dating options can harder focus on the dating options than people who saw only few dating options leading to a choice- and information overload effect in the condition with many dating options.

The results announced also an interaction effect between number of options and sort of website design. People who saw few dating options preferred a grouped website design, while people with many dating options preferred an ungrouped website design. To go more in details, people who already see many dating options may feel overpowered when they first have many options to choose from and next to that also see them in different groups. This is supported by the research of Bawden and Robinson (2009) showing that overload is related to a loss of control over the situation. When people see less options to choose about, the overload will be lower and a grouped website design will help people better to make a choice without regret, because there is more control over the situation. Based on this finding there

can be stated that grouping is not meaningful for websites that present many dating options at the same time. To go more in details, people who see many dating options may already filter this big amount of people by themselves based on other characteristics, which makes the extra grouping based on lifestyle unnecessary.

Independently of this interaction effect, there were no other effects that support that grouped website designs lead to higher satisfaction or less post-decision regret than ungrouped website designs. Focusing on the Dutch online dating market this result was unexpected, because the three best scored dating websites (Lexa, Parship and Elite) use grouped designs. The expectation was that grouped website designs would have higher satisfaction and less post-decision regret scores based on the scores given by top10nederlandsedatsites.nl (2017).

Next to these most important findings of this research. Results of this study have important theoretical implications for researchers. This study showed that different see-and-screen formats (grouped or ungrouped) do not have an influence on post-decision regret or satisfaction. However, researchers can still check if this is also the case for other designs (e.g. algorithm designs or blended designs). Furthermore, the research of Haynes (2009) also stated that time could have an influence on post-decision regret and satisfaction in another context than online dating. This construct is not measured in this research.

Furthermore, the results showed that there were no effects supported by much or little information about a date related to post-decision regret and satisfaction. Nevertheless, when somebody saw much information about a person people would earlier choose a person based on information than when people see little information about a person. This finding leads to a practical implication for online dating websites that want members for a serious relationship, because much information about a person leads to a perception that the profiles are focusing more on serious relationships than showing little information about the person. When an online dating website is fully focussed on getting one-night stands and no serious relationships the recommendation is that they need to show little or no information. When people see little or no information, people will make a choice based on looks instead of information about the person.

Finally, future research could further zoom in on the effects measured with one item. In this research the findings about information-based decisions, decisions made based on the looks and website evaluation were only measured with one item. More reasons why and when looks are more important than information about the person and vice versa is a research gap that is not researched before. In addition, the focus in this research was based on created

stimuli from the internet. In order to measure the effects even better researchers can start with offering a realistic situation where people first have to choose a date and afterwards also meet the date in real-life. Furthermore, looking at the participants of this research, there can be concluded barely no one used online dating websites weekly or monthly. This means that future research can also test the effects from this research for this special target group that use online dating websites weekly or monthly. At last, this research focussed as first research in online dating on different website designs in relationship with limited and extensive choice. Next to limited and extensive choice other effects of website designs may also play a role, like commercial banners or the use of colours in the website design that also have an effect on the perception of the online dating website related to satisfaction and post-decision regret of users.

Concluding this research showed that choice overload and information overload occurs in online dating and that it has an influence on satisfaction with the dating option, choice-process satisfaction, website usability, elaboration needed to describe a partner, partner choice motivation, website evaluation and post-decision regret. Next to these main conclusions researchers can use the extra information of sort of website design and little versus much information about a person as input for new research.

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Appendix 1 Pretest results

Below the mean, number of respondents and standard deviation of the pretest are presented. Figure 9 shows 59 profiles of women selected on attractiveness by man. Green means that the option is selected for the research, red means too attractive and yellow means too unattractive.

	Mean	N	Std. Deviation
Option 1	1,40	5	,548
Option 2	2,20	5	,837
Option 3	4,40	5	,548
Option 4	2,60	5	,894
Option 5	3,20	5	1,095
Option 6	1,80	5	,837
Option 7	4,40	5	,548
Option 8	1,80	5	,837
Option 9	2,00	5	1,000
Option 10	2,20	5	1,304
Option 11	4,40	5	,548
Option 12	1,00	5	,000
Option 13	1,00	5	,000
Option 14	1,00	5	,000
Option 15	4,60	5	,894
Option 16	1,60	5	,548
Option 17	3,60	5	,548
Option 18	4,40	5	,548
Option 19	2,00	5	,707
Option 20	4,40	5	,548
Option 21	3,00	5	,707
Option 22	4,20	5	,837
Option 23	1,20	5	,447
Option 24	2,20	5	,837

Option 25	1,80	5	,447
Option 26	3,40	5	,548
Option 27	3,80	5	,447
Option 28	4,40	5	,894
Option 29	3,40	5	,894
Option 30	3,60	5	,894
Option 31	2,20	5	,837
Option 32	1,60	5	,548
Option 33	5,00	5	,000
Option 34	1,60	5	,548
Option 35	2,20	5	1,095
Option 36	3,20	5	,837
Option 37	1,20	5	,447
Option 38	1,40	5	,548
Option 39	4,60	5	,548
Option 40	3,20	5	,447
Option 41	2,00	5	,000
Option 42	3,00	5	,000
Option 43	2,80	5	1,095
Option 44	4,40	5	,894
Option 45	3,60	5	,894
Option 46	5,00	5	,000
Option 47	2,20	5	,447
Option 48	4,60	5	,548
Option 49	5,00	5	,000
Option 50	3,40	5	,548
Option 51	4,60	5	,548
Option 52	3,20	5	,837
Option 53	2,80	5	,447

Option 54	2,00	5	,000
Option 55	1,00	5	,000
Option 56	5,00	5	,000
Option 57	1,20	5	,447
Option 58	3,60	5	,894
Option 59	4,40	5	,548

Figure 9. *Results Pretest Attractivenes Women*

Below the mean, number of respondents and standard deviation of the pretest are presented. Figure 10 shows 59 profiles of men selected on attractiveness by women. Green means that the option is selected for the research, red means too attractive and yellow means too unattractive.

	Mean	N	Std. Deviation
Option 1	3,20	5	,837
Option 2	2,20	5	,837
Option 3	4,60	5	,548
Option 4	2,00	5	,707
Option 5	2,40	5	1,140
Option 6	4,60	5	,548
Option 7	3,40	5	,894
Option 8	1,40	5	,894
Option 9	1,40	5	,548
Option 10	3,00	5	1,581
Option 11	1,40	5	,894
Option 12	3,40	5	,894
Option 13	3,00	5	2,000
Option 14	3,80	5	1,304
Option 15	1,80	5	,837
Option 16	3,80	5	1,095
Option 17	3,60	5	1,140
Option 18	1,60	5	,894
Option 19	4,40	5	,894
Option 20	2,20	5	1,095
Option 21	3,60	5	1,140
Option 22	2,00	5	1,225
Option 23	2,20	5	1,095
Option 24	1,20	5	,447

Option 25	2,00	5	1,414
Option 26	4,00	5	1,000
Option 27	5,00	5	,000
Option 28	2,20	5	1,304
Option 29	3,40	5	,894
Option 30	4,00	5	1,000
Option 31	2,60	5	,894
Option 32	3,40	5	,894
Option 33	4,20	5	,837
Option 34	3,00	5	1,000
Option 35	2,40	5	,894
Option 36	3,60	5	1,140
Option 37	4,40	5	,894
Option 38	3,20	5	,837
Option 39	1,60	5	,548
Option 40	5,00	5	,000
Option 41	2,20	5	1,304
Option 42	2,80	5	,837
Option 43	1,20	5	,447
Option 44	3,00	5	,707
Option 45	2,40	5	1,140
Option 46	3,40	5	1,140
Option 47	4,80	5	,447
Option 48	4,80	5	,447
Option 49	3,80	5	,837
Option 50	1,60	5	,894
Option 51	1,40	5	,548
Option 52	1,20	5	,447
Option 53	2,80	5	,837

Option 54	3,60	5	1,342
Option 55	3,40	5	1,342
Option 56	1,20	5	,447
Option 57	4,00	5	1,000
Option 58	4,00	5	1,000
Option 59	4,00	5	,707

Figure 10. *Results Pretest Attractivenes Men*

Figure 11. Example of card-sord approach on attractiveness