The influence of glasses on the perception of professionals from different cultural backgrounds

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ABSTRACT,

A lot of different stimuli might affect how individuals perceive the faces of other individuals. Examples of these stimuli are the cultural background of an observer, but also facial accessories, such as glasses. To find out if and in what way glasses affect the perception of other individuals, 31 marketing professionals judged a total of 66 photos of 22 individuals on the basis of 5 criteria. These criteria are attractiveness, likability, successfulness, intelligence, and trustworthiness. Successfulness is defined as the expected successfulness in a marketing business of an individual in the photo. This is the reason why this research has been conducted among marketing professionals. In order to find out if culture influences the perception of individuals wearing glasses, this research has been conducted in the Netherlands and Serbia. In both the Netherlands and Serbia no significant differences could be found between individuals not wearing glasses, individuals wearing rimless glasses, and individuals wearing full-rim glasses. There were however significant differences when comparing the results from the two countries. It became apparent that professionals from Serbia perceive individuals wearing rimless and full-rim glasses to be significantly more successful than professionals from the Netherlands did. It furthermore turned out that Serb professionals perceive individuals without glasses and individuals wearing rimless glasses to be significantly more intelligent than Dutch professionals do. It can therefore be concluded that there are some differences in perception between professionals from different cultures, although when the results of one culture are compared there are no significant differences.

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Keywords

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1. INTRODUCTION

A lot of individuals wear eyeglasses these days. This might be because they are not able to read very well without them, or because they need them while driving their cars or look at their computer screen. Individuals can thus wear glasses for many reasons, however not all individuals wear glasses because their eyesight deteriorates. Some individuals wear glasses purely as a fashionable item and thus wear them, although they are not prescribed to them.

It is estimated by the European Council of Optometry and Optics (ECOO), that around Europe almost half of the population wears glasses. This number however varies greatly among countries in Europe, since in Slovakia 85 percent of the inhabitants wear glasses, whereas in Croatia a mere 15 percent of inhabitants wear glasses (European Council of Optometry and Optics, 2017). Unfortunately, no reason for this phenomenon is found or described, however it does give an insight in how great the variation is between different countries.

Glasses will not only influence our eyesight, but will also have an influence on how other individuals perceive us while we are wearing glasses. It turns out that individuals are capable of deciding whether they think someone is attractive, likable, and/or trustworthy within the first 100 milliseconds we observe another individual (Willis & Todorov, 2006). Further research also concluded that facial features and expression influence perceived attractiveness, pleasantness, intelligence and social skills (Warner & Sugarman, 1986). It also became clear that individuals tend to make favorable assumptions about someone when they first meet them (Rogers & Biesanz, 2015), so we tend to attribute positive traits to others when we first meet them.

One thing that influences our perception of other individuals might be the fact that the other individual is wearing glasses. Everyone has heard of the stereotype that individuals wearing thick glasses are perceived to be more intelligent, however they are also perceived to be less attractive. It turns out that individuals wearing glasses are indeed perceived to be more intelligent (Hellström & Teckle, 1994) and less attractive (Lundberg & Sheehan, 1994) than individuals not wearing glasses. Glasses also have an effect on perceived successfulness, trustworthiness, and likability of an individual (Forster, Gerger, & Leder, 2011).

It is of course clear that not only glasses have an influence on how we perceive other individuals. However, the influence of glasses might differ between several countries. No research so far has been conducted to find out whether or not individuals from different countries react differently to individuals wearing glasses, however, a lot of research has already been conducted in the field of cultural differences. Hofstede already concluded that culture has an impact on the perception of individuals as well as on systems (Hofstede, 2001). It might therefore be the case that people from different cultural backgrounds perceive individuals who are wearing glasses differently, for the sole reason that they have different cultural backgrounds.

The goal of this research is to find out whether or not there is a difference in how we perceive an individual when he or she is wearing glasses in comparison to when he or she is not wearing glasses. Furthermore, this research will look into whether or not the cultural background of the observer influences the way an individual with or without glasses is being perceived. The research question that will be answered throughout this report will therefore be:

Do professionals from different cultural backgrounds perceive people with glasses differently?

In other words, do individuals attribute certain personal traits to another individual differently when he or she is wearing glasses in comparison to when he or she is not wearing glasses? To answer this research question, in this research, marketing professionals observe individuals in photos. The reason why this research is being conducted among marketing professionals is because one of the goals is to find out whether or not perceived successfulness of individuals is influenced by the fact that an individual is wearing glasses, and if the presence of glasses influences how the quality of the services provided by this individual are perceived. Successfulness will be defined as how successful an individual is perceived within a marketing agency, according to the marketing professionals. Marketing professionals are best able to indicate whether or not they believe an individual is successful within a marketing agency. Other personal traits that are being looked in to are attractiveness, likability, intelligence, and trustworthiness. These traits can all have relevance in a business context. Attractiveness might be important in a business, since research showed that attractive people are more positively perceived (Warner & Sugarman, 1986). This means that an attractive individual automatically is perceived to be more likable, successful, intelligent, and trustworthy than an unattractive individual. This phenomenon is known as the halo effect. Furthermore, in a business context, intelligence and trustworthiness are important traits to have for an individual. When another individual wants to make use of certain services, he will most likely use services from other individuals that appear to be intelligent and trustworthy. If you are somehow able to appear more intelligent and trustworthy, you as a business professional, might get more customers. Wearing glasses is a way to appear more successful, intelligent, and trustworthy (Forster, Gerger, & Leder, 2011), which thus might be beneficial for you when you want to be perceived by others in a certain way.

In order to answer the research question, this research tries to answer the following set of sub questions. The first sub question is about the level of attractiveness of the individual that is being observed.

SQ1: In what way does perceived attractiveness differ when an individual is wearing glasses in comparison to when he is not wearing glasses?

The second sub questions is about the perceived likability of the individual that is being observed.

SQ2: In what way does perceived likability differ when an individual is wearing glasses in comparison to when he is not wearing glasses?

The third sub question is about the perceived successfulness of an individual that is being observed.

SQ3: In what way does perceived successfulness differ when an individual is wearing glasses in comparison to when he is not wearing glasses?

The fourth sub question is about the perceived intelligence of individuals.

SQ4: In what way does perceived intelligence differ when an individual is wearing glasses in comparison to when he is not wearing glasses?

The final sub question deals with the trustworthiness of individuals that are being observed.

SQ5: In what way does perceived trustworthiness differ when an individual is wearing glasses in comparison to when he is not wearing glasses?

This research is being conducted in both Serbia, as well as in the Netherlands, and thus will also provide an insight in the

differences between those two countries. Therefore, one final sub question will be answered throughout this report.

SQ6: Is there a difference in how professionals from Serbia perceive individuals wearing glasses in comparison with when they are not wearing glasses, compared to professionals from the Netherlands?

Over time, there has not been much research conducted in the subject of glasses and their influence on perception of characteristics. The research that has been conducted so far concludes that individuals wearing glasses are perceived to be less attractive (Lundberg & Sheehan, 1994) and likable (Forster, Gerger, & Leder, 2011) than individuals not wearing glasses. Forster, Gerger & Leder (2011) also concluded that individuals wearing glasses are perceived to be more successful and trustworthy. Also individuals wearing glasses are perceived to be more intelligent than individuals that are not wearing glasses (Brown, Henriquez, & Groscup, 2008). Furthermore, the goals of other researches are mainly to find out whether or not there are differences in how individuals are being perceived with or without glasses. This research, however, will compare two different cultures, but will also be conducted among marketing professionals. This means that this research is set in a business context, rather than it being a solely psychological research. The results of this research can also be used for marketing purposes. Furthermore, this research will contribute to existing literature, since it might provide others with new insights of the influence of glasses on the perception of other individuals, or might enable a discussion if conclusions from this research contradict other conclusions. On the other hand, the influence of culture on perception, but also on a lot of other subjects has been studied thoroughly. However, cultural background has not been used as a variable to predict and describe the influence of glasses on the perception of other individuals. Therefore, this result will also contribute in the way of comparing two different cultures with each other.

In the beginning of this report we will provide an overview of the existing theory about perception, glasses, and the influence of culture on perception. After this, the methodology of this research will be discussed. In this section there will be a description of how this research is being conducted. The next section will give an overview of the results of this research and an elaboration on them. Then there will be a brief discussion and conclusion, and at the end of the report, there will be an overview of the references.

2. THEORY

In this section, different conclusions and outcomes of other researches are being discussed. There is more theory available about the influence of glasses on perception, however they do not provide other insights than discussed in this section. The researches referred to are mainly published in high quality journals.

2.1 Perception of Faces

In social psychology, the term person perception refers to the different mental processes that we use to form impressions of other individuals. It already became clear that individuals are able to make judgments about some characteristics of other individuals within the first 100 milliseconds we observe them (Willis & Todorov, 2006). We often base our opinion of other individuals on the roles and social norms we expect from those other individuals. Also the way an individual dresses influences our perception of this person (Cherry, 2017). The choice between wearing glasses and wearing contact lenses is also a choice of how an individual dresses.

When it comes to the perception of faces, research shows that eye movements plays a critical role during human face learning (Henderson, Williams, & Falk, 2005). The effect that glasses have on how the human face is perceived, however, has not been studied thoroughly. It might be the case that with glasses the eye region becomes more prominent, however it might also be the case that some important facial features for perception are being disguised by the glasses (Leder, 1996). This means that it might be the case that the eyes of the observer are being attracted to the glasses, however it might also be the case that the observer is not able to observe the other individual well, since the glasses hinder the observer to see the complete face.

Wearing glasses hinders facial recognition (Terry, 1993) and also makes individuals appear to be more intelligent (Hellström & Teckle, 1994), and less attractive (Lundberg & Sheehan, 1994) than individuals that are not wearing glasses. This holds true for both males and females (Harris, 1991), however the effect is stronger for females (Terry & Hall, 1989). It also became apparent that individuals that wear glasses are perceived to be more intelligent. However, individuals that wear glasses are not perceived to be less attractive or friendly than individuals that do not wear glasses (Brown, Henriquez, & Groscup, 2008).

Further research concluded that individuals wearing glasses were linked with a lower perceived forcefulness, but they were also perceived to be more competent (Terry & Krantz, 1993) and have a higher professional status (Guégen, 2015). There has also been research conducted about glasses and how they are perceived in LinkedIn portraits. This research showed that the pictures of those individuals wearing glasses were less appealing than pictures of individuals that were not wearing glasses (Tifferet & Vilnai-Yavetz, 2017). In table 1, a clear overview is provided of positive and negative outcomes from former researches regarding individuals wearing glasses in comparison with individuals not wearing glasses.

Table 1: Overview of positive and negative outcomes from other researches for individuals wearing glasses

Positive	Negative
Appear more intelligent *(Hellström & Teckle (1994))*	Hinders facial recognition *(Terry (1993))*
Appear more intelligent *(Brown, Henriquez, & Groscup (2008))*	Appear less attractive *(Lunberg & Sheehan (1994))*
Appear more competent *Terry & Krantz (1993)*	Lower perceived forcefulness *(Terry & Krantz (1993))*
Higher professional status *(Guégen (2015))*	Less appealing in pictures *(Tifferet & Vilnai-Yanetz (2017))*

2.2 The Stereotype

Individuals tend to engage in the act of social categorization. Social categorization is thinking about other individuals in terms of the group they belong to. This might be a man versus a woman, old versus young, and many more. Once we have done this, we start to respond to those individuals as a member of the group they belong to instead of as the individuals they are (Jhangiani & Hammon, sd). This social categorization occurs spontaneously (Crisp & Hewstone, 2007). This means that almost every individual engages in the act of stereotyping.

There has already been some research conducted in the field of the influence of glasses on perception. How well a face can be

recognized is largely determined by the distinctiveness of it (Dewhurst, Hay, & Wickham, 2005). Glasses add an element to the face and thus make it more distinctive. On the other hand, glasses might prevent an individual to be able to see certain facial traits, which make it harder to be recognized (Terry R. L., 1993). This effect might of course differ between full-rim and rimless glasses, since full-rim glasses "hide" more of the face. When a face scores low on distinctiveness, it tends to score high on averageness (Light, Hollander, & Kayra-Stuart, 1981). Averageness is a main determinant of attractiveness in faces (Langlois & Roggman, 1990), so faces that score low on distinctiveness will be perceived as attractive. As stated in paragraph 2.1, individuals wearing glasses are perceived to be less attractive and more intelligent. Also, individuals with glasses are perceived to be more competent and thus might be more successful. Researchers tested this by taking photos of individuals without glasses, individuals wearing rimless glasses, and individuals wearing full-rim glasses (Forster, Gerger, & Leder, 2011). These photos were then shown to 76 observers that had to judge the individual in the photo on basis of six dimensions. These dimensions were: successfulness, intelligence, trustworthiness, attractiveness, likability, and cooperativeness. The results of this research made it clear that individuals that did not wear glasses were perceived to be more attractive and more likable than individuals that were wearing full-rim glasses. There was no difference between individuals wearing rimless glasses and individuals that did not wear glasses regarding attractiveness and likability. The results furthermore showed that individuals wearing glasses, both full-rim and rimless, were perceived to be more successful and more intelligent than individuals that did not wear glasses. Furthermore, individuals wearing rimless glasses were perceived to be significantly more trustworthy than individuals that did not wear glasses. Regarding the dimension "cooperativeness" there were no differences between individuals that were wearing glasses and individuals that were not wearing glasses (Forster, Gerger, & Leder, 2011). It can thus be concluded that not all researches agree on how glasses influence the perception of individuals regarding the several tested personality traits, but overall, individuals wearing glasses are perceived to be more intelligent and successful, but less attractive than individuals that do not wear glasses..

2.3 Cultural Backgrounds

Culture is defined as the collective programming of the mind (Hofstede, 2001) and influences how we think and act in a lot of different ways. It is argued that nowadays, countries should be compared in terms of their culture and civilization, rather than politics and economics (Huntington, 1993). It turns out that European North Americans are analytic in their way of thinking. This means that they focus more on an object itself, and rely more on rules and formal logic. East Asians, on the other hand, are holistic in their way of thinking. They tend to focus on the field and to relationships between objects in the field and rely more on intuition and experience than European North Americans (Nisbett, Peng, Choi, & Norenzayan, 2001). Chinese individuals also considered past information as more important and remembered it in greater detail than did Canadians. Chinese individuals also indicated that past events felt closer to the present in comparison with Canadians (Ji, Guo, Zhang, & Messervey, 2009).

These are just a few examples of how culture influences how we perceive the world around us and how this differs among various cultures. Culture does not only influence how we perceive the world around us, but also how we perceive other individuals. When we look into the way individuals detect emotions from other individuals, we see that the face is one of the most important media to express emotions. Some cultures focus more on the background in front of which the individual is standing while making judgments about the emotions of an individual, whereas other cultures do not (Masuda, et al., 2008). This is in line with the findings of Nisbett et al. (2001). It furthermore turns out that the way how we look at faces differs among cultures. Some cultures focus mainly on the central region of the face, whereas other cultures produce a scattered triangular pattern of fixations for faces (Blais, Jack, Scheepers, Fiset, & Caldara, 2008). So some cultures focus on the center of the face, whereas others cultures focus on several parts of the face sequentially. It therefore becomes clear that the way individuals perceive others and others' faces is influenced by their cultural background.

To analyze differences between different countries and cultures, Hofstede developed a six dimension model which can be used to show differences among national cultures. These six dimensions are power distance, individualism, masculinity, uncertainty avoidance, long term orientation, and indulgence (Hofstede Insights, sd). Hofstede's model will be used, since the model is based on an extensive research of which data covered over 70 countries around the world and produced 116,000 questionnaires. Through theoretical reasoning and statistical analysis, the dimensions of Hofstede's model were revealed (Hofstede, 2001). Hofstede's model, however, can solely be used for making judgments about and compare different cultures. The model is not able to predict behavior of individuals, since other factors such as personality and personal wealth are not being accounted for. Furthermore, scores given to countries on the several dimensions do not really mean anything. The scores are there to indicate if a country leans more towards, for example, collectivism than individualism. It also indicates if a country leans strongly towards one extreme instead of the other extreme.

When we compare the Netherlands and Serbia, it becomes clear that there are several differences among the six dimensions (see figure 1).
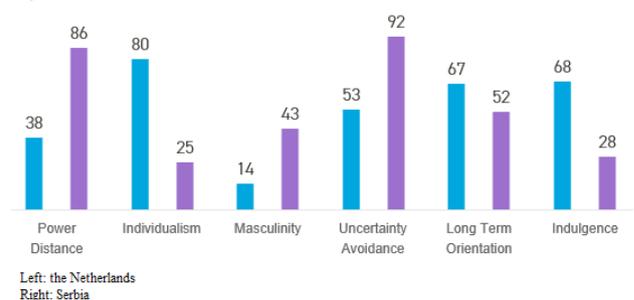

Left: the Netherlands
Right: Serbia

Figure 1: Country comparison. Source: https://www.hofstede-insights.com/country-comparison/the-netherlands,serbia/

The first dimension, power distance, shows a score of 38 out of 100 for the Netherlands, and 86 for Serbia. This means that individuals from Serbia are more expecting and accepting that there is an unequal distribution of power within organizations than individuals from the Netherlands. Furthermore it turns out that individuals from the Netherlands are much more individualistic than individuals form Serbia. Also on the other dimensions there are some striking differences (Hofstede Insights, sd), which clearly shows that within Europe there are quite some differences while comparing different cultures.

Individuals from Serbia also are proud of their country and language. Therefore, there is a high sense of national pride among individuals from Serbia. Individuals from Serbia also tend to be open and are font of personal relationships (Rijksdienst voor Ondernemend Nederland, sd). In the Netherlands, there is also some sort of national pride, however, since individuals from

the Netherlands are individualistic, this pride is not as great as in Serbia. Also individuals from the Netherlands are not really into personal relationship while doing business. To them it does not matter whether contact is via e-mail or phone call instead of a face to face meeting.

2.4 Hypotheses development

2.4.1 Main hypothesis

Throughout this report, it already became clear that when an individual is wearing glasses, he or she will be perceived differently, than when this individual is not wearing glasses. However, the scope of this phenomenon might vary between different cultures. There are multiple reasons for this. This research will look into the perception of Serb and Dutch individuals, since it became clear that in Serbia more individuals wear glasses than in the Netherlands, and therefore Serbs might be more used to individuals wearing glasses. Also, the way how individuals from different cultures look at faces is different among various cultures. It furthermore became clear that there are differences between the Dutch and Serb culture (see figure 1). Because of the cultural differences, it might be the case that individuals from the different countries react differently to individuals wearing glasses. The main hypothesis therefore is:

H1: Scores given by professionals from Serbia to individuals with and without glasses will be more equal than scores given by professionals from the Netherlands.

Because in Serbia, it is more common to wear glasses (European Council of Optometry and Optics, 2017), it is expected that they are more used to individuals wearing glasses. Therefore, the scores given by Serb professionals to individuals not wearing glasses, wearing rimless glasses, and wearing full-rim glasses, is expected to vary less than the scores given by Dutch professionals to the same individuals.

2.4.2 Attractiveness hypotheses

The Oxford dictionary defines attractiveness as "the quality of being appealing or sexually alluring to look at". In this research, attractiveness refers to the physical attractiveness of an individual. It already became apparent that individuals that do not wear glasses are perceived to be more attractive than individuals that wear full-rim glasses. Individuals that wear rimless glasses are perceived equally attractive in comparison to individuals that do not wear glasses (Forster, Gerger, & Leder, 2011). Furthermore, Serbs are more used to other individuals wearing glasses and are therefore expected to react milder to the presence of them. For attractiveness, this means that they will perceive individuals wearing glasses more equal to individuals not wearing glasses, than Dutch professionals will. Therefore, regarding the attractiveness dimension, it is expected that the following hypotheses hold true:

Hypothesis 2a: Individuals that do not wear glasses are perceived to be more attractive than individuals that wear full-rim glasses.

Hypothesis 2b: Individuals that do not wear glasses are perceived to be equally attractive in comparison to individuals that wear rimless glasses.

Hypothesis 2c: Professionals from Serbia will find individuals wearing full-rim glasses more attractive than professionals from the Netherlands will.

2.4.3 Likability hypotheses

The hypotheses in this section will be about the dimension "likability". Likability in this research will be defined as how pleasing an individual is. In other words, it is about the kindness of an individual, rather than the physical appearance. Research

concluded that individuals who do not wear glasses are perceived to be more likable than persons who wear full-rim glasses. Again, no difference was found between individuals not wearing glasses and individuals wearing rimless glasses (Forster, Gerger, & Leder, 2011). It is therefore expected that the following hypotheses hold true:

Hypothesis 3a: Individuals that do not wear glasses are perceived to be more likable than individuals that wear full-rim glasses.

Hypothesis 3b: Individuals that do not wear glasses are perceived equally likable in comparison with individuals that wear rimless glasses.

Hypothesis 3c: Professionals from Serbia will find individuals wearing full-rim glasses more likable than professionals from the Netherlands will.

2.4.4 Successfulness hypotheses

About the dimension successfulness, it became apparent that individuals that wear glasses are perceived to be more successful than individuals that do not wear glasses (Terry & Krantz, 1993). This was the case for both full-rim as rimless glasses (Forster, Gerger, & Leder, 2011). Successfulness will be defined, not as general successfulness, but as the successfulness within the marketing business. It is therefore expected that the following hypotheses hold true:

Hypothesis 4a: Individuals that wear rimless glasses are perceived to be more successful than individuals that do not wear glasses.

Hypothesis 4b: Individuals that wear full-rim glasses are perceived to be more successful than individuals that do not wear glasses.

Hypothesis 4c: Individuals that wear rimless glasses are perceived to be more successful than individuals that wear full-rim glasses.

Hypothesis 4d: Professionals from the Netherlands will find individuals wearing rimless glasses more successful than professionals from Serbia will.

Hypothesis 4e: Professionals from the Netherlands will find individuals wearing full-rim glasses more successful than professionals from Serbia will.

2.4.5 Intelligence hypotheses

Intelligence is defined as the ability of an individual to learn and acquire knowledge and skills. About the perceived intelligence, researchers concluded that individuals that wear glasses are perceived to be more intelligent than individuals that do not wear glasses (Forster, Gerger, & Leder, 2011) (Brown, Henriquez, & Groscup, 2008). It is therefore expected that the following hypotheses hold true:

Hypothesis 5a: Individuals that wear rimless glasses are perceived to be more intelligent than individuals that do not wear glasses.

Hypothesis 5b: Individuals that wear full-rim glasses are perceived to be more intelligent than individuals that do not wear glasses.

Hypothesis 5c: Individuals that wear rimless glasses are perceived to be more intelligent than individuals that wear full-rim glasses.

Hypothesis 5d: Professionals from the Netherlands will find individuals wearing rimless glasses more intelligent than professionals from Serbia will.

Hypothesis 5e: Professionals from the Netherlands will find individuals wearing full-rim glasses more intelligent than professionals from Serbia will.

2.4.6 Trustworthiness hypotheses

The final dimension this research looks into is the trustworthiness of individuals. Trustworthiness is defined as how easily an individual can be trusted. It is as well about the dependability and reliability of a certain individual. From former research, it can be concluded that individuals that are wearing rimless glasses were perceived to be more trustworthy than individual without glasses (Forster, Gerger, & Leder, 2011). Therefore, it is expected that the following hypotheses hold true:

Hypothesis 6a: Individuals that wear rimless glasses are perceived to be more trustworthy than individuals that do not wear glasses.

Hypothesis 6b: Individuals that wear full-rim glasses are perceived to be more trustworthy than individuals that do not wear glasses.

Hypothesis 6c: Professionals from the Netherlands will find individuals wearing rimless glasses more trustworthy than professionals from Serbia will.

Hypothesis 6d: Professionals from the Netherlands will find individuals wearing full-rim glasses more trustworthy than professionals from Serbia will.

3. METHODOLOGY

3.1 Research Design

In order to test the aforementioned hypotheses, an offline survey has been created. This survey consists of a set of 66 photos of 22 Dutch individuals. Of each individual there is a photo once without glasses, once with rimless glasses, and once with full-rim glasses. The photos of these individuals are placed in a random order and then showed to the participants. In this way, the participants might recognize the individuals in the photos, however they are not able to recall the previous given scores. The participants then have a look at the photos and have to judge the individuals in the photos on the five before mentioned dimensions, attractiveness, likability, successfulness, intelligence, and trustworthiness. To enable the participants to give scores regarding the dimension "successfulness", it was made clear to them that successfulness is about the perceived successfulness in the marketing business. The participants were ordered to give scores on a 5-point Likert scale, where 1 means "very negative" and 5 means "very positive" For example, for attractiveness, a score of 1 means "not attractive at all" and a score of 5 means "very attractive". The time it took for one participant to finish the survey was about 25 minutes. After the survey is finished, the scores of the several dimensions was averaged per type of glasses. So, for attractiveness, the scores given to the individuals when they were not wearing glasses was averaged, the scores given to the individuals when they were wearing rimless glasses was averaged, and the scores given to the individuals when they were wearing full-rim glasses was averaged. This was also done for the other dimensions. Per participant there then is an average of every dimension in combination with every type of glasses, so a total of 15 average scores (3 per dimension). This process was done for every participant, which allowed to give an average score of all participants for every dimension in combination with every type of glasses. The three average scores per dimension (no glasses, rimless glasses, and full-rim glasses), were then compared to see whether or not there is a difference between the scores.

To compare different cultural backgrounds this research is being conducted in Serbia, as well as in the Netherlands. In Serbia it is estimated that 70 percent of the population wears glasses, and in the Netherlands, this is 13 percent less, namely 57 percent (European Council of Optometry and Optics, 2017). The scores of all participants from Serbia are averaged, and compared to the average scores from participants from the Netherlands. Therefore a clear overview of the scores can be provided, which gives the opportunity to compare the two countries.

3.2 Participants

As stated before, this research has been conducted in both Serbia and in the Netherlands. Therefore there are two categories of participants, namely Serbian professionals and Dutch professionals. Being a professional in this research means that the participants are employed by marketing agencies and provide marketing services to their clients. The work of a marketing professional might thus vary from copyrighter to creative designer. The participants thus are all employed in marketing agencies in Serbia or in the Netherlands. In total there were 11 participants from Serbia, of which 5 were male and 6 were female. The participants' ages varied from 28 to 46. In total there were 20 participants from the Netherlands, of which 12 were male and 8 were female. The participants' ages varied from 21 to 49.

3.3 Survey Development

To create the survey, a local optical store was contacted and asked if they were willing to cooperate in the survey. Since opticians have a greater understanding of what type of glasses fit what type of individual they were in charge of choosing the right glasses for the separate individuals. Then several individuals that walked by the optical store were asked if they were willing to collaborate with a survey. These individuals all had the Dutch nationality. They were told it would take about two minutes and that they only needed to pose for photos. The optician would then pick suiting glasses for them and then three photos were made, one photo in which the individual was not wearing glasses, one in which the individual wore rimless glasses, and one in which the individual wore full-rim glasses. Since people in general are highly sensitive to small variations in expressed emotions, individuals in the photos were asked to look as neutral as possible to prevent them from showing emotions and thereby biasing the survey. In total, 25 individuals were willing to collaborate, of which 12 were male and 13 were female. For two males (N=2), one of the photos was vague and therefore their photos could not be included in the survey. Another male turned out to be to appear too young to be an marketing professional and therefore his photos were also not included in the survey (N=1). The survey thus consisted of a total of 66 photos of 22 individuals of which 9 were male and 13 were female. All individuals in the photos had the Dutch nationality and were white. There were no other criteria for the selection process regarding clothes etcetera, since only the face of the individuals was being photographed. Except for gender, no personal characteristics or traits were known and therefore participants were only able to judge the photos based on appearance of the individuals in the photos. To erase background effects as a threat to the survey, all individuals in the photos were asked to stand in front of the same white wall. Furthermore, all photos were made with the use of the same camera each time and therefore the quality of the photos is consistent across all of them. The photos were then put in a random order.

The 5-point Likert scales were created in Microsoft Excel, so a standard answer form could be provided to all the participants. This answer form consisted of a table with 6 columns and 66 rows. The first column stated the number of the photo, and the

66 rows in this column thus state 1 to 66. The other 5 columns are for the 5 dimensions the individuals in the photos have to be judged upon. The rows are to be filled in by the participants according to the earlier described 5-point Likert scale and their impression of the individual regarding the 5 dimensions.

3.4 Data Collection

The data for this research will be gathered by letting the survey be filled in by marketing professionals from Serbia as well as from the Netherlands. The photos are being showed to the marketing professionals from both countries on the same computer, so the quality of the pictures will be the same in Serbia as well as in the Netherlands.

On the left hand side of the screen the standard answer form is provided to the participants. On the right hand side of the screen the photos of the individuals are being shown. A participant starts with the first photo and gives scores about the individuals' attractiveness, likability, successfulness, intelligence, and trustworthiness. When the participant filled in the scores for the first individual, the next photo is shown and the participant has to give scores for this individual. These actions will repeat themselves until the participant has given scores to all individuals.

4. RESULTS

The survey was thus conducted among individuals working in marketing businesses in the Netherlands and Serbia. For a clear overview of the results for both the Netherlands as well as for Serbia, see the appendices (8.1 – 8.5). In these appendices, an overview of the average scores for the multiple dimensions is provided.

For the dimension attractiveness, it becomes clear that Dutch professionals find individuals without glasses the most attractive. After a One-Way ANOVA test was conducted, the sig. score for attractiveness between the three groups (no glasses, rimless glasses, and full-rim glasses) is .908. For likability this was .939, for successfulness .756, for intelligence .481, and for trustworthiness .957.

Table 2: Overview of sig. scores comparing the three types of glasses for Dutch professionals

Dimension	Sig. Score
Attractiveness	.908
Likability	.939
Successfulness	.756
Intelligence	.481
Trustworthiness	.957

As can be seen in table 1, all sig. scores are larger than 0.05, which means that there are no significant differences found among the results from Dutch professionals. For the multiple comparisons overviews see appendix 8.6 – 8.10.

Also for the data collected among Serbs a One-Way ANOVA test has been conducted. This resulted in a sig. score of .892 for the dimension attractiveness. For the dimension likability, a sig. score of .990 was calculated. For successfulness, the sig. score was .394. A sig. score of .619 was calculated for the dimension intelligence. Finally, for the dimension trustworthiness a sig. score of .746 was calculated.

Table 3: Overview of sig. scores comparing the three types of glasses for Serb professionals

Dimension	Sig. Score
Attractiveness	.892
Likability	.990
Successfulness	.394
Intelligence	.619
Trustworthiness	.746

As can be seen in table 2, the sig. scores for all dimensions are larger than 0.05 and thus no significant differences are found while comparing the results from Serb professionals regarding the presence of rimless and full-rim glasses and the absence of glasses.

Again, for an overview of the multiple comparisons for every dimension, see appendix 8.11-8.15.

To compare the results from the Netherlands with the results from Serbia, for every type of glasses a One-Way ANOVA test has been conducted in order to compare the different dimensions in combination with the different type of glasses. For attractiveness without glasses, the calculated sig. score was .465. For attractiveness of individuals while wearing rimless glasses, the sig. score was .153. Finally for attractiveness while wearing full-rim glasses, a score of .187 was calculated. For likability, the sig. score were respectively .987, .920, and .675. For successfulness these scores were .063, .026, and .017. The scores for intelligence were .021, .015, and .056. Finally, the scores for trustworthiness were .301, .334, and .431 (see table 3).

Table 4: Overview of sig. scores indicating differences between the Netherlands and Serbia

	Without glasses	Rimless glasses	Full-rim glasses
Attractiveness	.465	.153	.187
Likability	.987	.920	.675
Successfulness	.063	.026	.017
Intelligence	.021	.015	.056
Trustworthiness	.301	.334	.431

5. CONCLUSION & DISCUSSION
5.1 Conclusion

The results gained from this research give the opportunity to make several conclusions about the influence of glasses on perception by professionals. First, there were a few significant differences obtained by performing the One-Way ANOVA. The first one is that perceived successfulness while wearing rimless glasses differs between Dutch and Serb professionals (.026<.05). It was hypothesized that Dutch were more likely to react stronger to an individual that is wearing glasses than were Serbs, since Serbs are more used to individuals wearing glasses. However, the mean score for perceived successfulness while wearing rimless glasses was higher for Serb professionals than for Dutch professionals, meaning that Serb professionals perceive individuals with rimless glasses significantly more successful than Dutch professionals. Furthermore, the mean score for successfulness while wearing full-rim glasses was also higher for Serb professionals than for Dutch professionals. This difference was also significant (.017<.05), meaning that Serb professionals perceive individuals wearing full-rim glasses as more successful

than Dutch professionals do. This also contradicts what was hypothesized.

For the dimension intelligence also two significant differences were found. Individuals not wearing glasses were perceived to be more intelligent by Serb professionals than by Dutch professionals. Since this difference is significant (.021<.05), it can be concluded that individuals who do not wear glasses are perceived to be more intelligent by Serb professionals than by Dutch professionals. Also the difference in perceived intelligence while wearing rimless glasses is significant (.015<.05). Again the mean score for Serb professionals was higher than for Dutch professionals, indicating that individuals wearing rimless glasses are perceived to be more intelligent by Serb professionals than by Dutch professionals, which also contradicts what was hypothesized.

Of course there were also differences in the results from the other dimensions, however these were not significant (score > .05). This means that the difference in scores might be explained by chance rather than that is a fact that this difference exists.

Although not a lot of significant differences were discovered by the execution and analysis of this research, it does provide some new insights. This research is the first to compare the influence of glasses on perception of professionals among different countries. Therefore, the outcomes of the comparison between the countries have not been discovered earlier. It furthermore shows that professionals from both countries do not perceive individuals with or without glasses differently in a lot of different ways. This is shown by the outcomes of the comparison of the two countries where 11 out of 15 outcomes were not significantly different.

When comparing the results of the Dutch professionals it becomes clear that there are no significant differences at all. This means that individuals that do not wear glasses, individuals that wear rimless glasses, and individuals that wear full-rim glasses are all perceived the same by Dutch professionals. This is not completely in accordance with the findings of other research. Also when comparing the results of Serb professionals, it becomes clear that there are no significant differences in any of the 5 dimensions. Since in both countries no significant differences are found while comparing individuals not wearing glasses, wearing rimless glasses and wearing full-rim glasses, further research should be conducted in order to find out whether or not individuals not wearing glasses, wearing rimless glasses, and wearing full-rim glasses are perceived differently.

Throughout this report it is described what was already known about the influence of glasses on perception. This report wanted to find out if what is already known about the influence of glasses on perception still holds true today. It furthermore tried to find out whether or not the influence of glasses on perception differs among countries. In order to find this out, the research has been conducted in both the Netherlands as in Serbia. Since it was already known that individuals from different cultural backgrounds look at other individuals differently, and that the number of individuals wearing glasses varies greatly among different countries in Europe, it was hypothesized that there are differences in the perception of individuals wearing glasses by professionals. In the beginning of this report it was expected that Dutch professionals would react stronger to the presence of glasses than would Serb professionals, since in Serbia more individuals wear glasses, and therefore they are more used to it. The results of this report however show that there are no differences in perception regarding the dimension attractiveness, likability, and trustworthiness. Regarding the dimensions successfulness and intelligence, there were differences. However, it turned out that Serb professionals reacted stronger to

the presence of glasses that Dutch professionals. Therefore, hypothesis 2c, 3c, 4d, 4e, 5d, 5e, 6d, and 6e have to be rejected. This means that, according to this research, the cultural background of Serb and Dutch professionals have almost no influence on how individuals with and without glasses are being perceived.

Regarding the attractiveness hypotheses, hypothesis 2a should be rejected, and hypothesis 2b should be accepted. Professionals from both countries perceive individuals without glasses equally attractive compared to individuals with full-rim or rimless glasses. Earlier research showed that individuals with full-rim glasses are perceived to be less attractive than individuals not wearing glasses. However, this research concluded that both groups are equally attractive. Also, it was already concluded that individuals wearing rimless glasses are perceived to be equally attractive to individuals not wearing glasses. This research confirms these earlier findings, and therefore hypothesis 2b should be accepted.

Furthermore it can be concluded that individuals not wearing glasses are perceived to be equally likable compared to individuals wearing rimless and full-rim glasses. The conclusion that individuals wearing full-rim glasses and individuals not wearing glasses are equally likable is not in line with earlier findings and hypothesis 3a. Therefore this hypothesis should be rejected. The conclusion that individuals that do not wear glasses and individuals wearing rimless glasses are equally likable is in line with earlier findings and the hypothesis. Hypothesis 3b should therefore be accepted.

Hypotheses 4a, 4b, and 4c should be rejected as well. In neither of the countries a significant difference was found between individuals not wearing glasses, wearing full-rim glasses, and wearing rimless glasses regarding the dimension successfulness. This is not in line with what earlier research has found.

Regarding the dimension intelligence, there were also no significant differences found in neither of the countries. This means that the presence of any type of glasses does not have an influence on your perceived intelligence. This is not in line with conclusions from other researches, which state that the presence of both rimless and full-rim glasses make an individual perceive to be smarter. Hypotheses 5a, 5b, and 5c also are not in line with the findings of this research, and therefore should be rejected.

The results of the final dimension, trustworthiness, also did not show any significant differences between the perception of individuals not wearing glasses, wearing rimless glasses, and wearing full-rim glasses. It was already concluded that the presence of glasses on an individual's face made it to be perceived more trustworthy, however this research does not confirm this effect. Therefore, hypotheses 6a and 6b should be rejected.

5.2 Discussion

The reason why so many hypotheses are not being accepted, as well as the fact that most of the results are not in line with earlier findings might be that this research is based on a limited amount of data. Due to a lack of time in Serbia, this research had to be performed in two afternoons. Therefore, only 11 professionals from Serbia were able to give their opinion about the individuals in the photos. The results from Serbia might therefore not represent all professionals from Serbia. This means that, in order to get more reliable outcomes, further research should be performed among Serb professionals.

It was also intended to get more Dutch professionals to fill out this survey. However, when several marketing agencies and marketing departments were contacted, most of them responded that they did not want to invest the amount of time necessary to

perform the survey. Eventually only 3 marketing agencies were willing to participate in the survey and therefore only 20 Dutch professionals filled out the survey. This is of course already better than 11 respondents, however it is not very likely that these results are representative for all Dutch marketing professionals.

Although the results from this research might not be representative for all marketing professionals in the Netherlands and Serbia, it does provide some insight in what effect the presence of glasses have on the perception of individuals. This is especially true, since a lot of the outcomes are not in line with what earlier research concluded. This might mean that the attitude towards glasses has changed over time. Apparently, individuals wearing glasses are not perceived differently anymore compared to individuals not wearing glasses. According to this research this holds true for multiple countries, however when comparing the two countries there are a few significant differences. Therefore, the results of this research open up the door for new discussions and researches in this field. However, in order to get a more complete view and more reliable results, it is strongly recommended that follow up research is being performed in both the Netherlands and Serbia.

6. ACKNOWLEDGMENTS

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8. APPENDICES

8.1 Attractiveness results

Table 5: Results for the attractiveness dimension

	Without glasses	Rimless glasses	Full-rim glasses
The Netherlands	2,566	2,460	2,485
Serbia	2,744	2,814	2,835

8.2 Likability results

Table 6: Results for the likability dimension

	Without glasses	Rimless glasses	Full-rim glasses
The Netherlands	3,364	3,363	3,430
Serbia	3,360	3,343	3,335

8.3 Successfulness results

Table 7: Results for the successfulness dimension

	Without glasses	Rimless glasses	Full-rim glasses
The Netherlands	2,891	3	3,044
Serbia	3,322	3,421	3,504

8.4 Intelligence Results

Table 8: Results for the intelligence dimension

	Without glasses	Rimless glasses	Full-rim glasses
The Netherlands	2,945	3,179	3,230
Serbia	3,483	3,607	3,562

8.5 Trustworthiness Results

Table 9: Results for the trustworthiness dimension

	Without glasses	Rimless glasses	Full-rim glasses
The Netherlands	3,353	3,440	3,383
Serbia	3,583	3,653	3,541

8.6 Multiple Comparisons Overview Attractiveness

Table 10: Multiple comparisons overview for attractiveness according to Dutch professionals

(I) Glasses	(J) Glasses	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Without	Rimless	,106306	,251276	,907	-,56406	,77668
	Full-rim	,080700	,251276	,945	-,58967	,75107
Rimless	Without	-,106306	,251276	,907	-,77668	,56406
	Full-rim	-,025606	,251276	,994	-,69598	,64476
Full-rim	Without	-,080700	,251276	,945	-,75107	,58967
	Rimless	,025606	,251276	,994	-,64476	,69598

8.7 Multiple Comparisons Overview Likability

Table 11: Multiple comparisons overview for likability according to Dutch professionals

(I) Glasses	(J) Glasses	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Without	Rimless	,000800	,215504	1,000	-,57414	,57574
	Full-rim	-,066200	,215504	,950	-,64114	,50874
Rimless	Without	-,000800	,215504	1,000	-,57574	,57414
	Full-rim	-,067000	,215504	,948	-,64194	,50794
Full-rim	Without	,066200	,215504	,950	-,50874	,64114
	Rimless	,067000	,215504	,948	-,50794	,64194

8.8 Multiple Comparisons Overview Successfulness

Table 12: Multiple comparisons overview for successfulness according to Dutch professionals

(I) Glasses	(J) Glasses	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Without	Rimless	-,108970	,250921	,902	-,77839	,56045
	Full-rim	-,189300	,250921	,737	-,85872	,48012
Rimless	Without	,108970	,250921	,902	-,56045	,77839
	Full-rim	-,080330	,250921	,945	-,74975	,58909
Full-rim	Without	,189300	,250921	,737	-,48012	,85872
	Rimless	,080330	,250921	,945	-,58909	,74975

8.9 Multiple Comparisons Overview Intelligence

Table 13: Multiple comparisons overview for intelligence according to Dutch professionals

(I) Glasses	(J) Glasses	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Without	Rimless	-,233294	,242787	,614	-,88102	,41443
	Full-rim	-,284031	,242787	,492	-,93175	,36369
Rimless	Without	,233294	,242787	,614	-,41443	,88102
	Full-rim	-,050737	,242787	,976	-,69846	,59699
Full-rim	Without	,284031	,242787	,492	-,36369	,93175
	Rimless	,050737	,242787	,976	-,59699	,69846

8.10 Multiple Comparisons Overview Trustworthiness

Table 14: Multiple comparisons overview for trustworthiness according to Dutch professionals

(I) Glasses	(J) Glasses	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Without	Rimless	-,086998	,297022	,954	-,87941	,70542
	Full-rim	-,029550	,297022	,995	-,82196	,76286
Rimless	Without	,086998	,297022	,954	-,70542	,87941
	Full-rim	,057448	,297022	,980	-,73497	,84986
Full-rim	Without	,029550	,297022	,995	-,76286	,82196
	Rimless	-,057448	,297022	,980	-,84986	,73497

8.11 Multiple Comparisons Overview Attractiveness 2

Table 15: Multiple comparisons overview for attractiveness according to Serb professionals

(I) Glasses	(J) Glasses	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Without	Rimless	-,070248	,198605	,934	-,55986	,41937
	Full-rim	-,090909	,198605	,891	-,58052	,39871
Rimless	Without	,070248	,198605	,934	-,41937	,55986
	Full-rim	-,020661	,198605	,994	-,51028	,46895
Full-rim	Without	,090909	,198605	,891	-,39871	,58052
	Rimless	,020661	,198605	,994	-,46895	,51028

8.12 Multiple Comparisons Overview Likability 2

Table 16: Multiple comparisons overview for likability according to Serb professionals

(I) Glasses	(J) Glasses	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Without	Rimless	,016529	,178488	,995	-,42349	,45655
	Full-rim	,024793	,178488	,989	-,41523	,46482
Rimless	Without	-,016529	,178488	,995	-,45655	,42349
	Full-rim	,008264	,178488	,999	-,43176	,44829
Full-rim	Without	-,024793	,178488	,989	-,46482	,41523
	Rimless	-,008264	,178488	,999	-,44829	,43176

8.13 Multiple Comparisons Overview Successfulness 2

Table 17: Multiple comparisons overview for successfulness according to Serb professionals

(I) Glasses	(J) Glasses	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Without	Rimless	-,099174	,131359	,733	-,42301	,22466
	Full-rim	-,181818	,131359	,362	-,50565	,14202
Rimless	Without	,099174	,131359	,733	-,22466	,42301
	Full-rim	-,082645	,131359	,805	-,40648	,24119
Full-rim	Without	,181818	,131359	,362	-,14202	,50565
	Rimless	,082645	,131359	,805	-,24119	,40648

8.14 Multiple Comparisons Overview Intelligence 2

Table 18: Multiple comparisons overview for intelligence according to Serb professionals

(I) Glasses	(J) Glasses	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Without	Rimless	-,123967	,126979	,597	-,43700	,18907
	Full-rim	-,078512	,126979	,811	-,39155	,23453
Rimless	Without	,123967	,126979	,597	-,18907	,43700
	Full-rim	,045455	,126979	,932	-,26758	,35849
Full-rim	Without	,078512	,126979	,811	-,23453	,39155
	Rimless	-,045455	,126979	,932	-,35849	,26758

8.15 Multiple Comparisons Overview Trustworthiness 2

Table 19: Multiple comparisons overview for trustworthiness according to Serb professionals

(I) Glasses	(J) Glasses	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Without	Rimless	-,070248	,146718	,882	-,43195	,29145
	Full-rim	,041322	,146718	,957	-,32038	,40302
Rimless	Without	,070248	,146718	,882	-,29145	,43195
	Full-rim	,111570	,146718	,730	-,25013	,47327
Full-rim	Without	-,041322	,146718	,957	-,40302	,32038
	Rimless	-,111570	,146718	,730	-,47327	,25013