Impression Formation in Online Social Networks

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Abstract

The current study tried to investigate the manner in which participants inspect profiles of persons in an online social network, such as Facebook. Furthermore, the question was assessed, which of three information categories (‘Music’, ‘Books, and ‘Political View’) have most impact on the impression that is formed based on a profile. The third main question was, whether participants are able to form a correct impression based on information that is presented in the single categories. Therefore a program with an interface, that resembles a profile in an online social network, was written. After inspecting every profile, participants had to complete a short measure of the Big Five personality dimensions, based on the information they received in the foregoing profile. Results indicate that there is a loose order of inspection, while the category ‘Music’ contributes most to an impression. Furthermore, participants seemed not to be able to infer correct traits based on the presented information.

Introduction

Social Network Sites

Nowadays, social network sites (SNS) are used by millions of users on a daily basis. Possibly the most popular SNSs are MySpace with 114,6 million total users (Huang, 2009) and Facebook with about 100 million daily and about 200 million total users (Zuckerberg, 2009) respectively. But these are only prominent examples of a very wide spectrum of social network online services. This spectrum may be defined by features of the service or by characteristics of the user group.

What most of them have in common is a profile, which lists a number of characteristics of the user and displays a list of friends who are also members of the service. The public visibility of information in the profile may be restricted by the user, which means that depending on the service, individual users can decide which types of information about themselves are visible for all users. This issue will be discussed later in this paper. Additionally most SNSs enable users to leave messages for users on their profile, thus publicly visible messages, and e-mail like private messages (Boyd & Ellison, 2008).

Beyond these common characteristics, there are wide differences with regard to service features. Some SNSs are for example more specialized in photo-sharing like Flickr, or video-sharing like YouTube. Others are distinct with respect to their user base. Here one can think of many different dimensions, for example geographical region. Some SNSs are primarily popular in one single country or region, for example Orkut in Brazil and Mixi in Japan (Boyd & Ellison, 2008). Others are directed towards users of different sexual orientation, like the gay community (McGlottten, 2001). Even nonhuman species are represented in SNSs, or in this case so called ‘petworks’. Dogster, Catster and Hamsterser enable pet owners to create profiles of their pets and to make contact with each other (Zheleva, Getoor, Goldbeck, & Kuter, 2008).

Despite many differences between various SNSs, Boyd & Ellison (2008) defined a SNS as having to incorporate three aspects. First, it allows individuals to construct public or semi-public profiles within a bounded system. Second, it allows individuals to make a list of other users to whom they share a connection. And third, it allows individuals to view and traverse own and others' lists of connections.

Profiles and Users

In this study, the information in profiles, and the users of SNSs are of interest. So, who uses SNSs? According to Hargittai (2008) this depends on the SNS that is actually used. In her sample, Hispanic students were significantly less likely to use Facebook than other ethnic groups, while White and Asian students were significantly more likely to use Facebook than other groups. A converse pattern was observed for MySpace use. But when one takes a look at overall SNS use, the typical user is female, white, and has at least one parent with a college degree.

According to the definition (Boyd & Ellison, 2008), an important part of a SNS is the profile of a user. Earlier, Boyd and Heer (2006) defined a profile on a SNS as a representation of identity. Extending this definition, Gross, Acquisti and Heinz (2005) described profiles as a representation of the selves of the users to others to peruse, with the intention of contacting or being contacted by others. The last part of the definition should be treated with caution, because it implies that 'others' are primarily strangers, and that SNSs are mainly used for making initial contact with a person. According to Lampe, Ellison and Steinfield (2006), the main use of SNSs is to contact people, that were met offline earlier and to learn more about them. This is in contrast to the thesis that SNSs are primarily used for making contact with strangers. So the first part of the definition should be retained.

Information in Profiles

Gross, Acquisti and Heinz (2005) added to the definition of a profile, that 'others' peruse them. So what is there to peruse? What makes profiles unique and worth to browse them? The obvious answer is the information about the profile owners. But not all of this information is universally visible to all users of a given SNS, which can be called a restriction of visibility. MySpace and Facebook for example enable the user to restrict visibility of his or her profile to profiles marked as 'friends' (Tufekci, 2008). Because the current study centers on evaluation of unknown persons, it is important to indentify information that is disclosed to everyone in a network and not only to 'friends', because it is probable, that individuals who have marked each others' profiles as 'friends' already know each other. Jones and Soltren (2005) downloaded the profiles of all students of MIT, Harvard, New York University and the University of Oklahoma, that are visible to everyone. In this sample 60.0% of the students disclosed their favorite books, favorite music and interests. Later Stutzman (2006) found that 83.2% of freshmen Facebook users of North Carolina University, Chapel Hill, disclosed information about their relationship status and 74.7% information about their political views. In a sample of 704 students enrolled at a US university, about 90% were users of Facebook and 40.2% of the users made their profile publicly visible. Among the users of Facebook, many disclosed their real name (94.9%), their birthday (96.2%), and their favorite movies (77.7%). The level of visibility was found not to be related to the type of disclosed information (Tufekci, 2008). The photo of any given user is visible to everyone, even for persons without a Facebook account. Because of relatively high public visibility and disclosure rates, a part of these categories is used in the current study (Table 1).

So there is a number of information categories that are revealed quite generously. The next question is, how an individual, who comes across a profile with all these categories

freely visible, handles and treats the information with regard to forming an impression of the profile owner. Here, many specifications are possible. For example, is there a general order of inspecting categories? Intuitively this reflects the order of perceived importance for the goal of the viewer. Does this order reflect the impact, which each category exerts on the impression made by the viewer? Stecher & Counts (2008) addressed these questions by asking for the perceived utility and diagnosticity of different profile information categories. Therefore participants were shown sets of three Facebook profiles containing no information. Step by step, they had to select an information category and rate the profile owner on basis of their willingness to make friends with him or her. Per trial these two steps were repeated five times, so that five information categories could be selected by the participants. The perceived utility score of a category represented the likelihood that it was selected for inspection (Table 2). So this score could be treated as an indicator for how important participants think categories are for their task of evaluating profile owners. The diagnosticity score was based on the change in rating that was caused by uncovering a category. So this could be interpreted as impact of a category on the overall impression of a profile owner. Table 3 contains a list of the diagnosticity value for each category.

Based on these results, two hypotheses can be stated about the categories (Table 1; 2; 3) used in this study:

1. The perceived utility of the categories in descending order is: Photo, Interests, Movies, Music, Books, Political Views, Birthday and Name with same score. So viewing order, which supposed to reflect perceived utility, may be just in this sequence.

2. The diagnosticity of the categories in descending order is: Photo, Political Views, Birthday, Books, Movies, Name, Interests, and Music. So Photo will contribute most and Music least to the impression a viewer forms of a profile owner.

Impression Formation

A profile in a SNS does not only consist of bare categories, but these categories are filled with information, which is the fundament for an impression, the viewer of a profile forms about the owner. So is it possible to predict the impression, that is build, based on the specific information contained in the categories? Therefore a theory on impression formation must be considered. Kunda and Thagard (1996) described impression formation as taking place in a connectionist network. In this network, known and assumed characteristics of others are represented in form of nodes, which are interconnected to other nodes. These represent constructs, such as 'extraversion', so how outgoing a person is. Associations between nodes can be positive or negative, which means that activation of a characteristic node can lead to higher or lower association in a construct node. Which nodes actually are connected, whether the association is positive or negative, and the strength of the connection depends on prior knowledge of the person forming the impression.

So in case of incoming descriptive information, an activation of the node, that represents this information occurs. Then, this activation spreads to connected nodes, resulting in more positive or more negative activation, depending on the type of connection between the nodes. The stronger the connection between the nodes, the more activation spreads from the characteristic node to the construct node. This construct node activation determines the degree or extremity of a trait in an impression (Figure 1)

Transferring this to the profiles in SNSs, the information contained in the different categories should activate nodes, that represent the different pieces of information. This activation should spread to associated nodes, that represent traits. For example, the piece of information "Interested in: Party" could activate the node "parties often". This activation might spread to the node "extravert", resulting in a higher activation of this node. So the viewer of the profile adds the aspect "person is extravert" in a given extremity to his impression.

An important question is which characteristic nodes and trait nodes are connected. As already said, the connections depend on preexisting knowledge (Kunda & Thagard, 1996), which might vary between individuals. But the degree of this variation can be quite small, as viewers are able to form accurate impressions of a person based on a profile in a SNS (Gosling, Gaddis, & Vaizre, 2007). Based on this it might be adequate to assume that viewers of a profile are able to correctly infer traits based on the presented information. Which connections between characteristic and trait are correct is derived from different studies, that found correlational relations between a number of characteristics and the strength of traits (Table 4).

To summarize, the following hypotheses were tested:

1.The perceived utility of often disclosed categories of information in order of descending importance is: Photo, Interests, Movies, Music, Books, Political Views, Birthday and Name. This simultaneously reflects the order of viewing.

2. The diagnosticity of the categories in descending order is: Political Views, Books, and Music. So Political View will contribute most and Music least to the impression a viewer forms of a profile owner. Here, only these three categories were used, because they scored relatively high on diagnosticity, while the impact of the content of these categories on impression formation could be predicted based on findings in previous studies (Table 4).

3.Viewers will infer ‘correct’ traits based on the presented information in SNS profile categories, which means that their inferences will reflect scientific findings about associations between specific characteristics and traits of profile owners.

The current study checked the validity of these hypotheses by letting participants inspect 24 profiles, each followed by the Ten-Item Personality Inventory (TIPI), a short ten item measurement of the Big Five personality dimensions. The participants were asked to complete this questionnaire based on the impression they had about the person, that was presented in the preceding profile. These profiles contained the categories 'Name', 'Birthday', 'Movies', 'Interests', 'Books', 'Music', and 'Political View', reflecting often publicly visible categories. Half of the profiles contained female and half contained male names and photos. In one single profile, only one of the categories 'Books', 'Music', and 'Political View' was filled with information. This applied to 'male' as well as 'female' profiles. One 'male' and one 'female' profile contained no information in the just mentioned categories and served as baseline profiles. These baseline profiles were compared to those profiles that were filled with different information in the categories 'Books', 'Music', and 'Political View'. For 'Books' and 'Music' there were three different fillings, each assumed to have different effects on trait ratings on the TIPI. The category 'Political View' had five different fillings. In order to test whether there is a common sequence of inspecting categories, reflecting perceived utility, participants had to click on every category to reveal its content. The order of clicks was recorded for each profile. To investigate the diagnosticity of each of the three categories with varying fillings, an extremity score based on ratings on the TIPI was computed for each profile. This score contains information about how extreme a profile owner was rated on the seven point Likert scales. Going back to the model proposed by Kunda & Thagard (1996), the score reflects the strength of the overall activation of trait nodes in the network. The third hypothesis states that viewers can correctly infer traits based on the presented information. Therefore the ratings given by viewers were compared to baseline profiles that contained no information in the categories 'Music', 'Books', and 'Political View'. The outcomes were compared to the results of studies, which investigated the relationships between favorite

music, favorite books, political view, and the Big Five personality traits. Therefore see Table 4.

Methods

Participants

A total of 30 persons, 11 males and 19 females, participated in this study. They were all recruited using the participants pool of the University of Twente, the Netherlands. The mean age of the participants was 20,91 years. The only restriction for participation was good proficiency in the Dutch language, in order to be able to read and understand the written content of the computer program which is described in the next section.

Apparatus

To conduct this study, a computer program was written, that should mimic a profile in a SNS. It consisted of two files, 'profile.exe' and 'daten', while the first one was the executive file and the second one contained information about the content and order of the 24 profiles, which are described later. The 'daten' file was created separately for every participant in order to be able to vary the order in which the profiles were presented to the participants randomly. Therefore an online service was used, which generates random number sequences within given limits (Haahr, 2009). This was done to prevent any order effects. In order to start the program, both files, 'profile.exe' and 'daten' had to be in the same folder and 'profile.exe' to be executed.

The user interface of the program consisted of a simple window with a breadth of 17,6 cm and a height of 15,6 cm (Figure 2). The right third of the window contained the already mentioned information categories 'Name', 'Birthday', 'Books', 'Music', 'Movies', 'Interests', and 'Political View' in descending order. Adjacent to the names of the categories,

in the right quarter of the window, drop-down menus were placed, which contained the content of the categories. For all profiles, the content of the categories ‘Birthday’, Movies’, and ‘Interests’ was held constant, while ‘Name’ only differed between male and female profiles (Table 5). As already described, the content of the categories ‘Books’, ‘Music’, and ‘Political View’ was varied (Table 6). In the left third of the window, a button, 6,2 cm wide and 4,4 cm high, was placed. A click on this button revealed a photo of either a male or a female. Beneath the button and the categories, two buttons were placed in order to allow abort of the process, or progress to the next window which contains the TIPI questionnaire belonging to the previous profile. This window was 26,2 cm broad and 24,9 cm high (Figure 3). It contained the 10 items of the TIPI Big Five questionnaire and the corresponding 7-point Likert scale. The participants could answer every item by selecting a response field corresponding to one of the Likert scale points. Like in the previous window, there were two buttons at the base of the window, enabling the participant to progress to the next profile or cancel the process.

Task

In an introductory text the participants were asked to download the ‘profile.exe’ and the ‘daten’ file from their email account, and to place them in the same folder on their computer. Before they were asked to start the program, it was made clear that they had to select the categories within a profile in an order that reflects the relative importance they think a category might have for their task to judge the personality of a person. This already sketches their second task, namely to judge the individual that is presented in the profile using the TIPI Big Five questionnaire.

Procedure

After registration, participants were contacted via email and asked to reveal their email address. This enabled the researcher to send three files to the participant: ‘profile.exe’, ‘daten’, and an introductory text file, they were asked to read before starting the program. Starting the program was followed by the presentation of the profile window. Here, the content of the categories was not readily visible, and could only be revealed by clicking on the drop-down menus next to the category names, and the button on the left to reveal the photo of the presented individual. As already described, participants were asked to reveal the content of the categories according to their perceived importance. When all categories were inspected, the participants could proceed to the next window, to answer all 10 items of the TIPI Big Five questionnaire.

After finishing a profile and the corresponding questionnaire, the program created a text file, containing information about the number of the profile, the order in which the categories have been inspected, and the answers on the items of the TIPI questionnaire (Figure 3). So in total there were 24 text files per participant. In the introductory text, the participants were asked to send all 24 text files via email back to the researcher.

Analysis

The main data in this study were the average rank of inspection of a category, and the responses on the TIPI questionnaire. Both can be expressed in numbers, which is very straightforward in case of the average rank of inspection, ranging from 1 (inspected first) to 8 (inspected last). The responses on the Likert scale of the TIPI questionnaire could be recoded into numbers indicating the score on each item, ranging from 1 to 7. These values could be used to compute scores on each of the five Big Five personality dimensions: Extraversion, Agreeableness, Openness, Conscientiousness, and Emotional Stability. Here, only these scores could be designated as dependent variable, because they are assumed to depend on the

content and type of the categories, which are both varied independently. The order of opening, or the mean rank of the category is dependent on the category.

In order to answer the question whether there are differences between categories concerning perceived importance, the mean rank of each category was computed and a one factor repeated measures analysis of variance conducted. Additionally a pair wise comparison was run. To reveal possible effects of participant gender on the mean rank of a category, a one-way ANOVA analysis was conducted.

The second research question was about the relative contribution of a category to the impression one holds about the individual, presented in the profile. Therefore an extremity score was computed, which is based on the scores on every subscale of the TIPI, of every profile. So, for every profile the difference between the scores on the subscales and 4 was computed. The score of 4 corresponds to a neutral response on a single item or a subscale. This resulted in a set of values for every profile that indicated the extend of the difference between the scores on every subscale and a neutral response. To test the impact of categories and not only of single fillings, these difference scores were averaged over profiles, which contained information in the same categories (‘Books, ‘Music’, and ‘Political View’, see Table 6). Finally, there were three scores for every participant, indicating the degree of impact of single categories on the impression. To answer the question about the relative contribution of every of the three tested categories, a repeated measures analysis of variance with two factors, category and gender of profile, was conducted. The second factor -gender- was added to reveal differences between male and female profiles.

To answer the question whether traits are correctly inferred from presented information, profiles with content in one of the three varied categories were compared to the baseline profiles. More specifically, only the scores on those subscales of the TIPI were compared, that were predicted to be related to the particular filling of the category (Table 4). Therefore repeated measures analyses of variance were conducted.

Results

Perceived Importance

For all profiles, so without taking gender of the participant into consideration, there was a significant main effect of category on the rank of a category, $F(7, 487) = 148.21$, $p < .00$. The mean rank of every category is displayed in Table 7. Pair wise comparisons revealed that the order of the categories, with regard to perceived importance was not quite sharp, because only two pairs of adjacent category ranks differed significantly from each other. The difference between 'Photo' and 'Name', so the first and the second rank, was significant. Additionally, 'Movies' and 'Political View' differed significantly. All other categories did not differ significantly from their respective ranking neighbors. But considering categories that are separated by one rank, for example rank three ('Music') and five ('Interests'), the differences in average rank showed significance. So there were indeed some categories that were perceived as more important than others. Comparing Table 7 with the order that was hypothesized, it can be stated that the first hypothesis was largely rejected. Only 'Photo' ranked first as predicted.

Table 8 and 9 show the mean ranks of categories in inspection for female and male participants. Here, the only significant difference in mean rank was found for the category 'Interests' ($F[81, 685] = 20.20$, $p < .00$). The mean ranking value for female participants was 4.51 ($SD = 1.98$), while male participants showed an average rank of 5.17 ($SD = 1.56$). So females perceived 'Interests' as more important for their impression than males.

Impact of Categories on Impression

A two-factor repeated measures analysis of variance revealed a main effect of category ($F[2, 27] = 3.97$, $p = .03$), and a main effect of profile gender, $F(2, 28) = 14.43$, $p = .00$. Table 10 shows the mean extremity values for the three varied categories. Here, pair wise

comparisons found only one significant difference between ‘Music’ and ‘Political View’, while ‘Music’ (M = 0.92, SD = .06) scored higher than ‘Political View’ (M = 0.88, SD = .05). The mean score of ‘Books’ was 0.96 (SD = .06). So hypothesis two can be rejected, because the results show a pattern exactly contrary to the hypothesized relative impacts.

The main effect of profile gender shows that females with a mean extremity score of 1.01 (SD = .037) were judged more extreme than males with a mean of 0.87 (SD = .05).

Inference of Traits

Here, one-factor repeated measures analysis of variance revealed only one connection between filling and inferred trait as predicted. And that only for female profiles. The rest of the profiles with different fillings did not show significant differences between baseline and filled profiles in the predicted manner. So, hypothesis three (see Table 4) was rejected.

Discussion

It was found that there was an order of perceived importance of categories of importance. But this order seemed to be not very sharp, which means that the mean ranks of orderly adjacent categories did not differ significantly with only two exceptions (Table 7). Only the mean ranks of the first (‘Photo’) and the second (‘Name’) category differed significantly. The same holds for the last (‘Movies’) and penultimate (‘Political View’) categories. However, there seemed to be a loose order of perceived importance because when categories are compared that are separated by one rank, all differences between mean ranks were found significant. What are possible explanations for such a ranking? Considering the first ranked category (‘Photo’), it was found that impressions are formed quite rapidly based on the physical appearance of a target person (Brehm, Kassin, & Fein, 2005). So, this seems to happen largely effortless. Furthermore, the physical appearance of a target person can be a

rich source of information for impression formation. This is reflected by the fact that many characteristics of a person, that can be readily seen on a photo (e.g. height, weight, skin color, hair color, eye glasses, facial attractiveness) influence the impression that is formed (Alley, 1988; Hermann, Zanna, & Higgins, 1986; Rhodes & Zebrowitz, 2002). Even more subtle aspects, such as facial features play a role in the inference of traits (Hassin & Trope, 2000). To underscore the importance of physical appearance, impressions that are based on the aforementioned, seem to be quite accurate (Zebrowitz & Collins, 1997). In general, physical appearance seems to provide much information to form an impression quite accurately, and that without much effort. This might be generalizable to all other categories. Consequently, categories, that are perceived as less important may reveal less information for forming an impression. This might also be combined with more effort to form an impression based on the particular category.

The only significant participant gender difference that was found, revealed a higher ranking of the category 'Interests' for female participants than for male participants. In accordance with the just stated theorizing, female participant might have perceived 'Interests' as revealing more information about a person. Furthermore, they might have spent less effort to make connections between information contained in this category and particular traits.

A factor that might have confounded the measurement of the perceived importance of the categories might have been the invariant order, and the manner in which the categories were presented to the participants (Figure 2). The button to reveal the photo of the person represented in the profile was much more prominent than the buttons to reveal the content of the other categories. So, this might have led to the effect of revealing the photo before the remaining categories with textual information. These textual categories were also presented in an invariant order, so that there might have been a tendency to reveal the content sequential from top to end.

The results for the relative impact of particular categories on the impression show that there was a significant main effect of category and profile gender. Further analysis revealed that the category ‘Music’ had significantly more impact on the impression than ‘Political View’. The difference between ‘Music’ and ‘Books’, and ‘Books’ and ‘Political View’ was not significant. This means that profiles containing information in the category ‘Music’ led to scores on the TIPI subscales, representing the Big Five personality dimensions, that were more extreme in either directions. Stated differently, the scores were more distant from a neutral response. So the diagnosticity of the category ‘Music’ was higher than the diagnosticity of the category ‘Political View’. In the context of the connectionist theory of impression formation (Kunda & Thagard, 1996), the impact on an impression or the diagnosticity of a category can be interpreted as the number of connections between information in these categories and trait concepts or nodes (see Figure 1). Also, these connections might be stronger, leading to activation of trait nodes, that is either more or less distant from the baseline activation. Consequently, information in a category that leads to activation of a higher number of trait nodes, that is more distant from the baseline, has more impact on an impression. In the context of this study, it means that ‘Music’ has more impact on impression than ‘Political View’, because information in this category activates more trait nodes and leads to activation that is more distant from baseline activation.

The profiles, that contained information in the categories ‘Music’, ‘Books’, and ‘Political View’ partly covered the whole spectrum of information available for these categories. This means that the three ‘Music’-profiles covered three of the four music genres, that are said to account for all available music (Rentfrow & Gosling, 2003). The information in the three ‘Books’-profiles covered the whole body of literature genres (Kraaykamp & van Eijck, 2005), and ‘Political View’-profiles covered the whole political spectrum in Germany, which is comparable to the Dutch one (Schoen & Schumann, 2007). When this is considered to be true, this difference in impact cannot be due to the possibility that one category

contained information that has a higher number and stronger connections by chance, because in all profiles, the three varied categories contained all information available for this category. Consequently the impact reflects the impact of a category as such, and not of specific information in this category.

The question of why the predicted outcome was not confirmed cannot be answered definitely. So why does 'Music' seem to have greater impact on impression than 'Political View', contrary to the finding of Stecher and Counts (2008)? One possible explanation lies in the mean age of the samples used in the studies, which is about 21 years in this study and 48 years in the Stecher and Counts study. Participants born around 1960 grew up in an highly politicized era, with many social and political changes. Prominent examples of these are the protest movement of 1968 and the efforts in the USA towards the end of racial segregation. Growing up in such a society may result in an identity that is strongly defined through political attitudes. Consequently, political attitudes may have stronger impact on an impression about another person, which is reflected in the Stecher and Counts study. The participants in this study on the other hand may not have witnessed such a high degree of politicization, resulting in an identity that is less strongly defined through political attitudes. Such a pattern may be reflected by the fact, that political participation and political knowledge is very low in younger generations, compared to older ones (e.g. Milner, 2007). Instead, music is very dominant in the lives of young people. Rentfrow and Gosling (2006) found that a dominant topic of conversation among strangers is music. Furthermore they found that impressions are formed accurately based on music preferences. Their samples had mean ages of 18.4, and 18.9 years, so the same generation as the sample used in the current study.

Another possible explanation for the deviant results of the current study may be that the computed extremity score does not measure the same construct as the diagnosticity score in the Stecher and Counts study. They measured the diagnosticity construct by presenting 3 profiles and letting participants reveal one information category at a time. The participants

had to indicate the extent to which they would be interested in a friendly contact with each of the presented profile owners. After each revelation of a category, the participants had to rank the presented persons from 1 (interested in a friendly contact) to 3 (not interested in a friendly contact). The diagnosticity score in the Stecher and Counts study was based on the change in ranking that accompanied the revelation of a particular category. So, a category that produces strong change in the ranking of the profiles has much influence on the impression that a participant has of a profile owner. The difference between the Stecher and Counts study, and the current study lies in the measurement of the diagnosticity, or impact on impression construct. As already mentioned, Stecher and Counts asked their participants to judge a profile owner based on the extent to which they would be interested in a friendly contact with the owner. This might be a confounding factor, because the judgment is based on personal preferences and consequently less objective than the evaluation of a profile owner using a valid personality assessment inventory, like the TIPI. Furthermore, it might be questionable, that evaluations of SNS profile owners in the real world are primarily conducted with the goal of appraising the suitability of a person for friendly contact. The current study, on the other hand, did not induce a specific intention in the participants, except for forming an accurate impression, which might be a goal that is more predominant when people inspect profiles in SNSs. Furthermore, Stecher and Counts used real Facebook profiles of 30 users. So the content of the single categories might not have covered the whole spectrum of available information in these categories. This might have led to confounded diagnosticity scores, because parts of available information in a given category, that were missing by chance, might have contributed to the impact of a category on the impression. In the current study, this factor was controlled by presenting all available information in the categories of interest. To summarize, the measurement of diagnosticity, or impact of a given category on an impression seems to be more objective and better controlled for confounding factors in the current study than in the Stecher and Counts study.

The second significant effect found in this aspect of the study was a main effect of gender, meaning that female profiles received higher extremity scores than male profiles. This might be due to the difference in the category 'Name' and 'Photo', because male and female profiles contained different photos and different names, to make the gender difference obvious to the participants. So either the different name or the different photo might have led to higher extremity scores for female profiles, activating more trait nodes and/or activating the trait nodes stronger, either in a positive or in a negative direction.

The results in this study show that the traits are not inferred as predicted from the information contained in the varied categories. One explanation for this might be, that the participants were not able to form an accurate impression based on the presented information. This would be in contrast to earlier findings that implicate the presence of the ability to form an accurate impression based on information like favorite books, or music (Gosling, Gaddis, & Vaizre, 2007; Rentfrow & Gosling, 2006). The absence of correct inferences might be primarily due to the limited accuracy of the TIPI measure of the Big Five personality dimension. Here, only two items constitute one dimension of the personality factors, leading to relatively low Cronbach's alphas for the subscales ($\alpha = .68$; $\alpha = .40$; $\alpha = .50$; $\alpha = .73$; $\alpha = .45$). The TIPI was chosen despite relatively low alphas, because a measure with more items would have led to exhaustive length of the experiment, because the measure had to be completed after every of the 24 profiles.

Another possible reason for the absence of correct inferences might be the relatively low sample size in the current study (n=30), which might not have been sufficient to reveal small differences between single subscale scores of baseline profiles and profiles containing information in one of the critical categories.

Limitations

In future studies it might be helpful to eliminate the confounding variable of invariant category ranking, and the prominence of the photo button in the interface of the program. This seemed to have disturbed the measurement of perceived importance in an not negligible extend. So, it would be recommendable to randomize the order in which the categories are presented to the participant. The prominence of the photo button should also be adjusted to make it more similar to the prominence of the buttons, that reveal the content of the other categories.

Another shortcoming of the current study is the low accuracy of the TIPI Big Five personality measure. The use of a more extended instrument might lead to clearer results for the question about the inference of traits. This might be realized by means of a two-part study to avoid effects of exhaustion. Also a sample bigger than 30 persons should be used.

What also would be recommendable for future studies, is the measurement of previous experience of the participants in using online social networks. This would be very easy to realize, for example by asking participants if they are members of an online social network. The extend of experience could be assessed by asking for the amount of time participants use the services per week, or day. Previous experience might have an effect on the way, users handle the information in profiles, for example regarding the order of inspecting the different categories. Frequent use might lead to the development of a routine of inspection, and evaluation. Future research will show, whether these speculations can be supported by data.

Future Research

Online social network sites offer a rich body of possible research. Until now, this relatively new form of socializing is only sketchily understood, although it spreads rapidly among many groups. What is there left to say about online social networks? In the face of the

vast amount of possible lines of research, this question cannot be answered extensively in this paper. Nonetheless a few suggestions will follow.

The analysis of the perceived importance of single categories in the current study revealed that the photo of a profile owner seems to be of high importance for the viewer of the profile in an attempt to make an impression. But what might happen if a profile owner did not include a photo in his profile? In how far does this affect the impression, a viewer of the profile forms? Might the absence of a photo trigger explicit or implicit assumptions, for example about the physical appearance or attractiveness of a profile owner? Similar questions may come to mind in the case that the photo of a profile owner is replaced by an avatar of some kind (for example see Figure 4).

Another aspect, which was not dealt with in the current study is the display of 'friends' in a profile. In most online social networks, the user is able to indicate a relation with or connection to other users in the same network. These connections are then listed in the profile of the user. How might this listing affect the impression, a viewer of the profile forms? Here one could think of number of friends, as an example.

What should also be considered in future research is the group function of some online social networks. The group function enables every user to create and join groups. The spectrum of groups is very divers, ranging from groups with humorous titles and without further functions, to groups that express the political attitude of the members and serve as discussion platforms. In any case, it seems to be obvious that the publicly visible group memberships of a particular user, do convey much information about the profile owner. In the German SNS 'StudiVZ' a group with the title 'My group list says more about me than my profile' exists (Büchs, 2007). So do the group memberships of a profile owner contribute more than the rest of the profile to the impression that is formed of the owner?

To summarize, many questions still remain unanswered with regard to impression formation in online social networks.

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Appendix

Table 1.

Visibility in Samples of Users

Category	Visibility
Photo	100%
Name	94,9%
Birthday	96,2%
Books	60,0%
Music	60,0%
Movies	77,7%
Interests	60,0%
Political View	74,7%

Note. The percentage indicates the portion of the sampled profiles, in which a particular category of information was visible.

Table 2.

Perceived Utility

Category	Utility
Photo	55,6%
Interests	35,5%
Movies	24,1%
Music	23,6%
Books	21,1%
Political Views	18,2%
Birthday	9,0%
Full Name	9,0%

Note. The 'perceived utility' score represents the likelihood that a particular information category was selected for inspection. For example the category 'Photo' was selected in approximately the half of all trials, which resulted in a relatively high likelihood for inspection for every single trial. For each single trial a total number of 5 out of 29 categories could be revealed.

Table 3.

Diagnosticity

Category	Diagnosticity
Photo	2,55
Political Views	2,34
Birthday	2,30
Books	2,27
Movies	2,09
Full Name	2,05
Interests	2,04
Music	2,04

Note. The diagnosticity score ranged from 0 to 4, because there were 3 profiles, while each individual profile could change by two ranks maximally. The denoted values are the mean overall change in rating, that is accompanied by the revelation of a particular category.

Table 4.

Correlations between Characteristics and Traits

Domain	Characteristic	Trait	Study
Book reading	Literary novels	O+ ; A+ ; C-	Kraaykamp & van Eijck, 2005
	Literature in foreign language	O+ ; A-	
	Romantic novels	O- ; A+ ; C+ ; ES-	
Music listening	Intense & Rebellious	O+	Rentfrow & Gosling, 2003
	Upbeat & Conventional	A+ ; E+ ; C+ ; O-	
	Energetic & Rhythmic	A+ ; E+	
Political view	right liberal	O- ; A-	Schoen & Schumann, 2007
	moderate right	O- ; A- ; C+	
	moderate left	O+ ; A+ ; C- ; ES-	
	green	O+ ; A+ ; C- ; ES-	
	left	O+ ; C- ; ES-	

Note. O = Openness; A = Agreeableness; C = Conscientiousness; E = Extraversion; ES = Emotional Stability
A plus indicates a significantly higher score on the particular personality dimension than the rest of the sample.
A minus indicates a significantly lower score on the particular personality dimension than the rest of the sample.

Table 5.

Fillings of Constant Categories

Category	Filling
Name (female)	Linda de Jong
Name (male)	Mark de Vries
Birthday	19.11.1985
Movies	Comedy, Adventure, Drama
Interests	Watching TV, Friends, Sports

Note. Linda and Mark were the most popular names for boys and girls in the Netherlands during the eighties. Also, the average student, enrolled in the Netherlands in 2009, was born in this time. 'De Jong' and 'de Vries' are the most common surnames in the Netherlands, and Comedy, Adventure and Drama are the most popular movies genres in the Western World. Interests were chosen randomly.

Table 6.

Fillings of Varied Categories

Profile Number	Profile Gender	Category	Filling
1	male	Books	thrilling things in mother tongue (=literary novels)
2	male	Books	books in English language (=literature in foreign language)
3	male	Books	romantic books (=romantic novels)
4	male	Music	Alternative, Rock, Heavy Metal (=Intense & Rebellious)
5	male	Music	Country, Pop, Religious, soundtracks (=Upbeat & Conventional)
6	male	Music	Rap/Hip-Hop, Soul/Funk, Electro/Dance (=Energetic & Rhythmic)
7	male	Political View	left
8	male	Political View	green
9	male	Political View	moderate left
10	male	Political View	moderate right
11	male	Political View	right liberal
12	male	Baseline Profile	
13	female	Books	thrilling things in mother tongue (=literary novels)
14	female	Books	books in English language (=literature in foreign language)
15	female	Books	romantic books (=romantic novels)
16	female	Music	Alternative, Rock, Heavy Metal (=Intense & Rebellious)
17	female	Music	Country, Pop, Religious, soundtracks (=Upbeat & Conventional)
18	female	Music	Rap/Hip-Hop, Soul/Funk, Electro/Dance (=Energetic & Rhythmic)
19	female	Political View	Left
20	female	Political View	Green
21	female	Political View	moderate left
22	female	Political View	moderate right
23	female	Political View	right liberal
24	female	Baseline Profile	

Note. These fillings are translations from the Dutch original fillings.

Table 7.

Mean Ranks of Categories

Category	Mean	Std. Deviation
Photo	1,88	2,05
Name	4,02	2,78
Music	4,49	1,49
Birthday	4,82	2,14
Interests	4,85	1,99
Books	4,89	1,63
Movies	5,14	1,36
Political View	6,02	2,28

Table 8.

Mean Ranks of Categories for Male Participants

Category	Mean	Std. Deviation
Photo	1,44	1,43
Name	4,08	2,86
Music	4,46	1,56
Books	4,89	1,69
Movies	5,04	1,36
Birthday	5,17	2,23
Interests	5,35	1,67
Political View	5,88	2,31

Table 9.

Mean Ranks of Categories for Female Participants

Category	Mean	Std. Deviation
Photo	2,11	2,27
Name	3,99	2,74
Music	4,51	1,45
Interests	4,60	2,10
Birthday	4,64	2,07
Books	4,90	1,61
Movies	5,19	1,35
Political View	6,10	2,27

Table 10.

Mean Extremity Scores

Category	Mean	Std. Error
Music	,97	,06
Books	,96	,06
Political View	,88	,05

Note. The mean extremity scores indicate that profiles containing information in the particular categories were scored higher on the TIPI subscales to an extend that is reflected by the mean values.

Figure 1.

Connectionist theory of impression formation (Kunda & Thagard, 1996)

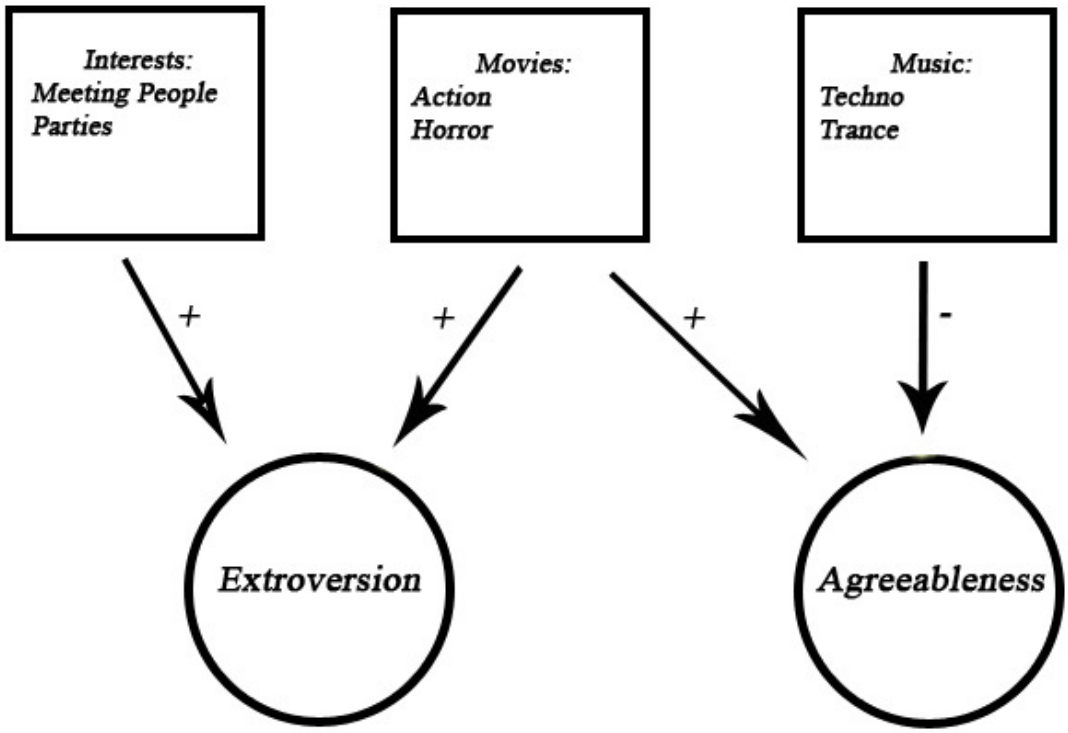

Figure 2.

Research program (profile)

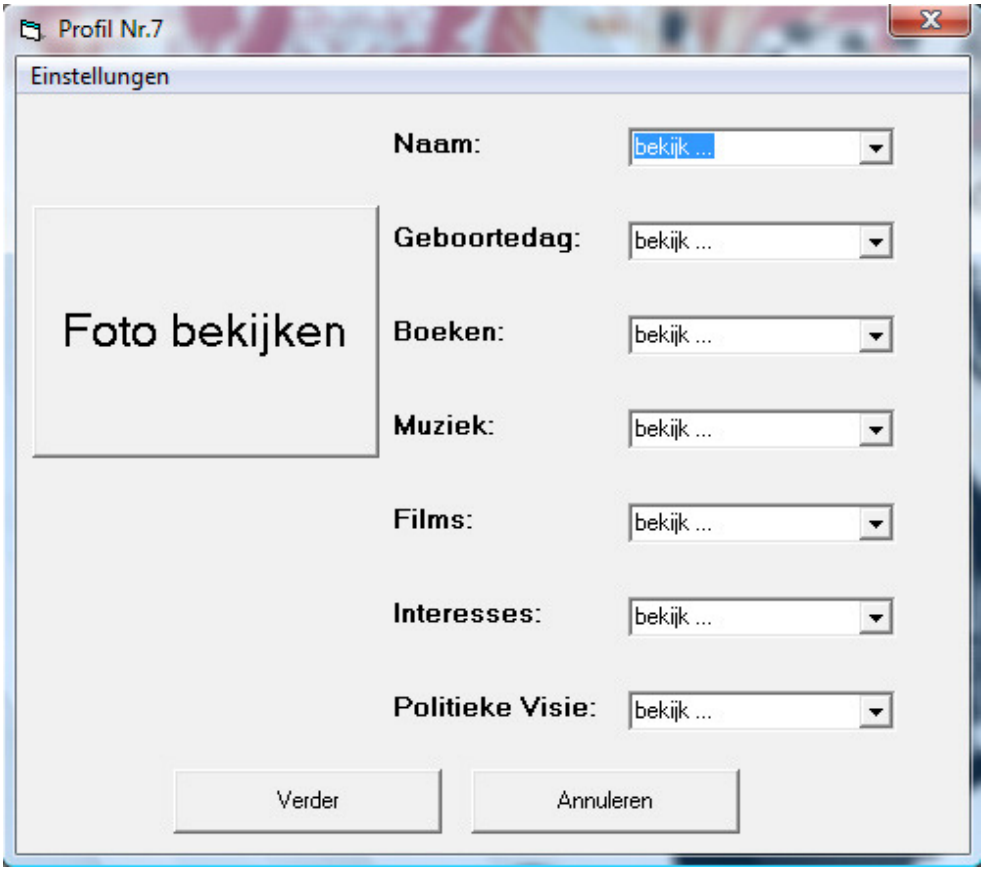

Figure 3.

Research program (TIPI)

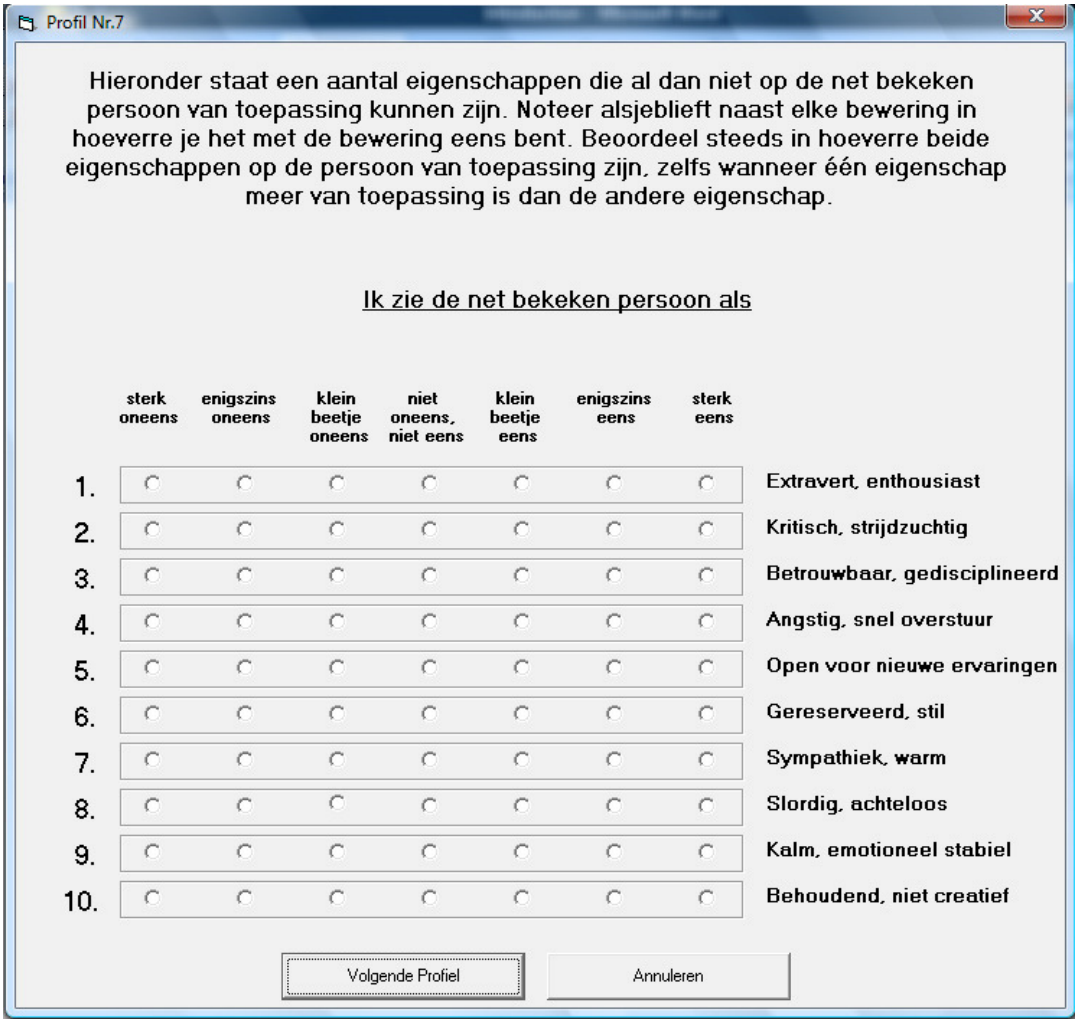

Figure 4.

Example of an avatar