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Does Increasing Interactions Involving Less Frequent Contact, Low Emotional Intensity, and Limited Intimacy Impact Happiness?

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Previous research suggests that increasing weak tie interactions increases an individual's rating of his/her subjective well-being and belonging. The purpose of this study was to see whether increasing weak tie interactions increases happiness levels. Participants were given a worksheet to keep track of their weak tie interactions in week 1 and completed the Oxford Happiness Questionnaire (OHQ). In week 2, participants increased their weak tie interactions by two each day and took the OHQ again. Researchers found that participants did not differ significantly in their happiness levels from week 1 to week 2. These results indicate that increasing weak tie interactions does not impact overall happiness levels.

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Increasingly, policymakers and leaders are measuring the progress of our country through human wellbeing and happiness (Organization for Economic Co-operation and Development, 2013). Happiness offers immense benefits to an individual as well as to a society, such as staying married longer and obtaining more success in business and in life (Gunderman, 2008). Additionally, happiness has been linked to greater achievement in the classroom, less risky behaviors, more financial stability, and more positive contributions to

society (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). Positive psychology research has found that happy people perceive the world as safer and are more confident, decisive, and cooperative (Myers, 2015). It has also been found that happy people tend to savor their positive past experiences without dwelling on the negative, and feel more socially connected with others (Myers, 2015).

Previous research has demonstrated that people report more positive affect when they are engaged in social rather than non-social activities (Pavot, Diener, & Fujita, 1990). Social activities may involve interactions and relationships among strong ties, which include close family and friends, or weak ties. The theory of weak ties was founded by Granovetter in 1973 and states that without weak tie interactions we would be deprived of new information from distant parts of the social system and would be confined to the views of only our close friends. According to Sandstorm and Dunn (2014), weak ties are defined as relationships involving less frequent contact, low emotional intensity, limited intimacy, and are linked to subjective well-being and belonging. In their study, they rated the amount of interactions students had with other students and found that the more weak tie interactions, the higher they rated their subjective well-being and belonging. Weak tie interactions were assessed by having participants carry a clicker to record the number of social interactions per day.

Additionally, there have been multiple studies that demonstrate the benefits of weak tie interactions beyond well-being and belonging. Baer (2010) has found that weak tie

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interactions, as measured through surveys asking participants to rate their closeness, duration, and frequency of relationships, improved creativity in the workplace. The participants' creativity levels were rated by their supervisors using three items derived from Subramaniam and Youndt (2005) asking about employees' breakthrough ideas and ideas that make existing knowledge about current products/services obsolete. Similarly, Hansen (1999) has found weak tie interactions improve the transfer of knowledge across organizational subunits.

Most social psychology literature has focused on the interactions among close friends and family but there are relatively few studies on the importance of weak tie interactions. Additionally, a review of the literature suggests that there are no studies to date that look at whether increasing the amount of weak tie interactions increases happiness.

Our study attempted to examine whether increasing weak tie interactions improves overall happiness. We distributed the Oxford Happiness Inventory to undergraduate students from the University of Minnesota to record baseline information regarding their level of happiness. The participants were told to record the number of weak tie interactions they took part in over the course of three days. We defined weak ties as interactions such as short conversations or comments lasting less than two minutes with people they have never met before, not including casual greetings. The next week, they were told to increase the number of weak tie interactions they engaged in and the Oxford Happiness Inventory was taken again after they increased the number of weak tie interactions. Higher scores on this questionnaire indicated higher levels of happiness. Based on the findings from the previous literature, we hypothesized that people would be happier after increasing the number of weak tie interactions throughout their week, regardless of how many weak tie interactions they typically engage in.

METHOD

Participants

We collected data from 20 University of Minnesota undergraduate students using convenience sampling of friends, roommates, and acquaintances of the researchers. Participants were approached by the researchers, informed about the study, and asked if they were interested in participating. The participants' ages ranged from 18–24 years old ($M = 20.45$, $SD = 1.43$). Seventy percent of participants identified as female and 30% identified as male. Eighty-five percent of participants self-reported as Caucasian and 15% of participants self-reported as Pacific Islander/Asian. There was no compensation for completing this study.

Materials

We used two questionnaires for our study. The first was a demographic questionnaire that we developed asking about the race and gender the participants identified with (see

Appendix A). The second was the Oxford Happiness Questionnaire (OHQ), which was used to measure happiness (Hills & Argyle, 2002). This was a 29-item questionnaire asking participants to respond to happiness statements using a rating scale that ranged from 1 to 6, with 1 representing strongly disagree with the statement and 6 for strongly agree with the statement (See Appendix C). An example of one question on the questionnaire is, "I do not think that the world is a good place."

In order for the participants to keep track of their weak tie interactions for the first week, we distributed a sheet with the directions "Please mark the number of weak tie interactions, defined as short conversations, or comments, lasting less than two minutes with people you have never met before, on the appropriate table for the corresponding day" (see Appendix A). Participants were instructed to tally the number of interactions throughout Tuesday, Wednesday, and Thursday and circle their final total weak tie interactions for these three days. This sheet was collected and a new sheet was given to participants for the following week. This sheet was also used to keep track of participants' weak tie interactions, and it provided participants with a reminder to increase the amount of weak tie interactions by two each day (see Appendix B).

Procedure

We included a written informed consent paragraph at the beginning of the study to inform participants their participation was voluntary and they were able to withdraw at any time from the study. Next, participants were given the demographics questionnaire. After, the participants were given an explanation about what weak ties are and instructions on how to use the worksheet to keep track of their interactions (see Appendix A). After completing this sheet, the participants were given the OHQ while a researcher explained how to complete this questionnaire. A researcher provided participants with a new worksheet and asked them to add two additional weak tie interactions per day than their amount from the previous week (see Appendix B). After the second week, the OHQ was taken again. Finally, the researchers provided the participants with a written debriefing statement explaining the purpose of the study, and answered any remaining questions the participants had.

RESULTS

Level of happiness was scored by taking the average of 29 items on the OHQ. The items 1, 5, 6, 10, 13, 14, 19, 23, 24, 27, 28, and 29 needed to be reverse-scored before they were added to the total. We then conducted a paired *t*-test to determine whether increasing weak-tie interactions increases happiness levels. Analyses showed that participants did not differ significantly ($t(19) = -0.7354$, $p = 0.4711$) on happiness levels between week 1 ($M = 4.44$, $SD = 0.653$) and week 2 ($M = 4.40$, $SD = 0.573$).

DISCUSSION

The results of this experiment did not support our hypothesis that increasing weak tie interactions improves overall happiness as measured by the OHQ. Our results are not consistent with the findings of previous studies, such as Sandstrom and Dunn (2014) who found that the more weak tie interactions people had, the higher they rated their subjective well-being and belonging.

There were several methodological problems in this study that may have contributed to the insignificant results. Sandstrom and Dunn’s (2014) participants recorded the number of weak tie interactions they had by using a clicker, allowing them to record interactions at that moment. In the present study, participants recorded the number of weak tie interactions on a sheet of paper, which they may not have had with them at the time of interaction or forgot to write down. Additionally, it is uncertain whether each participant adhered to the directions of the study completely. There was no way to detect whether a participant actually engaged in the number of weak tie interactions as stated on their papers. Furthermore, our operational definition may have been insufficient for the purposes of the experiment. Increasing weak tie interactions by two each day may not have been enough to produce a significant difference in overall happiness.

Future research should look at weak tie interactions involving conversations of five minutes or more and the effect, if any, they have on happiness. A larger sample size would increase the strength of such a test. In addition, improved measures for keeping track of weak tie interactions are needed, as well as a measure to control for other factors in the participants’ current situation. Although we did not find any significant results, recognizing these limitations can promote future research on the effect of weak tie interactions and happiness in order to benefit from all of the advantages happiness provides.

APPENDIX A

Gender You Identify As:

- Female
- Male

Race You Identify With:

- Caucasian
- African American
- Chicano/Latino
- American Indian
- Pacific Islander/Asian
- Other

Please mark the number of weak tie interactions, defined as such as short conversations or comments, lasting less than two minutes with people you have never met before, on the appropriate table for the corresponding day.

Day 1 Tuesday Weak Ties	1	2	3	4	5	6
	7	8	9	10	11	12
	13	14	15	16	17	18

Day 2 Wednesday Weak Ties	1	2	3	4	5	6
	7	8	9	10	11	12
	13	14	15	16	17	18

Day 3 Thursday Weak Ties	1	2	3	4	5	6
	7	8	9	10	11	12
	13	14	15	16	17	18

APPENDIX B

Please mark the number of weak tie interactions, defined as such as short conversations or comments, lasting less than two minutes with people you have never met before, on the appropriate table for the corresponding day.

* Don’t forget to add **TWO** additional weak tie interactions per day this week!

Day 1 Tuesday Weak Ties	1	2	3	4	5	6
	7	8	9	10	11	12
	13	14	15	16	17	18

Day 2 Wednesday Weak Ties	1	2	3	4	5	6
	7	8	9	10	11	12
	13	14	15	16	17	18

Day 3 Thursday Weak Ties	1	2	3	4	5	6
	7	8	9	10	11	12
	13	14	15	16	17	18

APPENDIX C

Oxford Happiness Questionnaire

Below are a number of statements about happiness. Please indicate how much you agree or disagree with each by entering a number in the blank after each statement, according to the following scale:

- 1 = strongly disagree, 2 = moderately disagree, 3 = slightly disagree,
- 4 = slightly agree, 5 = moderately agree, 6 = strongly agree

Please read the statements carefully, some of the questions are phrased positively and others negatively. Don’t take too long over individual questions; there are no “right” or “wrong” answers (and no trick questions). The first answer that comes into your head is probably the right one for you. If you find some of the questions difficult, please give the answer that is true for you in general or for most of the time.

The Questionnaire

1. I don’t feel particularly pleased with the way I am. (R) _____
2. I am intensely interested in other people. _____
3. I feel that life is very rewarding. _____
4. I have very warm feelings towards almost everyone. _____
5. I rarely wake up feeling rested. (R) _____
6. I am not particularly optimistic about the future. (R) _____
7. I find most things amusing. _____
8. I am always committed and involved. _____

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9. Life is good. _____
 10. I do not think that the world is a good place. (R) _____
 11. I laugh a lot. _____
 12. I am well satisfied about everything in my life. _____
 13. I don't think I look attractive. (R) _____
 14. There is a gap between what I would like to do and what I have done. (R) _____
 15. I am very happy. _____
 16. I find beauty in some things. _____
 17. I always have a cheerful effect on others. _____
 18. I can fit in (find time for) everything I want to. _____
 19. I feel that I am not especially in control of my life. (R) _____
 20. I feel able to take anything on. _____
 21. I feel fully mentally alert. _____
 22. I often experience joy and elation. _____
 23. I don't find it easy to make decisions. (R) _____
 24. I don't have a particular sense of meaning and purpose in my life. (R) _____
 25. I feel I have a great deal of energy. _____
 26. I usually have a good influence on events. _____
 27. I don't have fun with other people. (R) _____
 28. I don't feel particularly healthy. (R) _____
 29. I don't have particularly happy memories of the past. (R) _____

Calculate your score

Step 1. Items marked (R) should be scored in reverse:

For example, if you gave yourself a "1," cross it out and change it to a "6."

Change "2" to a "5"

Change "3" to a "4"

Change "4" to a "3"

Change "5" to a "2"

Change "6" to a "1"

Step 2. Add the numbers for all 29 questions. (Use the converted numbers for the 12 items that are reverse scored.)

Step 3. Divide by 29. So your happiness score = the total (from step 2) divided by 29.

Your Happiness Score: _____

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Beauty is in the iPhone of the Beholder: The Effects of Instagram on Perceived Attractiveness and Self-Esteem

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Previous research has indicated that there is a significant positive correlation between perceived attractiveness and self-esteem. In order to determine perceived attractiveness (i.e., how attractive a person perceives themselves), individuals compare themselves to others. The emergence of Instagram and other social media sites has created new opportunities for individuals to interact with and compare themselves to people. This study attempted to determine whether viewing a popular Instagram profile, compared to an unpopular profile, had a negative impact on self-esteem ratings. Participants were asked to examine either a popular or unpopular Instagram profile and then complete a questionnaire on their self-esteem. There was not a significant difference in self-esteem between the participants who viewed the popular or unpopular profile. The results may indicate that individuals do not compare themselves to other users on Instagram in order to determine their own perceived attractiveness and self-esteem.

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Previous research has indicated that there is a significant positive correlation between the perception of one's own attractiveness and self-esteem (Bale & Archer, 2013). Specifically, individuals are happier with themselves when they believe they are attractive, and they feel worse about themselves when they feel unattractive. Self-esteem is important for various social and existential functions in that a high self-esteem may help individuals interact with others and live a meaningful life (Vogel, Rose, Roberts, & Eckles, 2014). On the other hand, low self-esteem has been associated with

more emotional and behavioral disorders, including anxiety, depression, and suicidal behaviors (Vogel, Rose, Roberts, & Eckles 2014). There is evidence that adolescence is a crucial time regarding changes in self-esteem. This is, in part, because the time period is compounded by both cognitive and physical growth and development (Quatman & Watson, 2001). Therefore, it is important to understand what factors contribute to an individual's perception of their own attractiveness and how this perception influences self-esteem.

One component to examine is the process by which individuals compare themselves to others. Individuals make comparisons between themselves and others as a mechanism of evaluating self-worth (Lee, 2014). These factors can also influence an individual's perceived attractiveness. In order to further investigate how individuals compare themselves to others, it is necessary to examine what vehicles are used for comparison, such as the role of social media.

One such study (Lee, 2014) was conducted on the relationship among Facebook use, self-esteem, comparison between self and others, and self-consciousness in young adults. This research showed that there was a positive relationship between the frequency of social comparison and frequency of having a negative reaction from Facebook profile comparisons. The researchers also noted that self-esteem was negatively correlated with a higher frequency of social

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comparison, while an individual's self-consciousness was positively correlated with social comparison.

Another factor that research has focused on is the comparisons individuals made about themselves when viewing the Facebook profiles of others, and how this affected their self-esteem and self-evaluations (Vogel, Rose, Roberts, & Eckles, 2014). The findings from the first part of the study suggested that the participants who had a greater amount of exposure to Facebook tended to report having a poorer self-evaluation. This also showed that participants made more social comparisons (both negative and positive) between themselves and others when they had more exposure to Facebook. In the second part of their study, the researchers also created Facebook profiles with differing levels of positive and negative content material. The results indicated that individuals who had been shown a profile with a greater amount of positive content reported having poorer self-esteem and self-evaluations than the participants who were shown profiles with a higher amount of negative content.

The emergence of numerous social media platforms has created new opportunities for individuals to interact with and compare themselves to other people. Sites such as Facebook offer users the ability to construct profiles of themselves for billions of other users to see (Fox & Rooney, 2015). These profiles consist of personal details, interests, friends, pictures, and more.

Social media users utilize other-generated and system-generated cues on profiles in order to gauge self-perception of attractiveness (Antheunis & Schouten, 2011). System-generated cues are pieces of information stemming from the design on the website's lay out. For example, while viewing a Facebook profile, users view the number of friends that the profile has, a feature that is built into the design of the website. Other-generated cues are not regulated by the design of the site and include the content of the messages on a profile and the physical attractiveness of friends. Antheunis and Schouten (2011) reported findings which indicate that individuals with Facebook profiles consisting of positive other-generated and system-generated cues were perceived as more attractive than users with negative or neutral cues on their profiles. Although there are individual differences for how physically attractive the profiles are initially judged, the system-generated and other-generated cues cause individuals to perceive them as more or less attractive than their initial judgment. Studies have examined the effects of Facebook on perceived attractiveness and self-esteem, but despite recent popularity, the social media site Instagram has not been thoroughly researched.

Instagram currently has over 200 million users (Fox & Rooney, 2015). What distinguishes Instagram from other social media is a picture-oriented focus that consists of users posting photos for all of their followers to see. While Instagram is more visually based than Facebook, Instagram profiles still have several other-generated and system-generated cues. The system-generated cues include captions and the number of likes on a photo. The other-generated cues are the comments for the photo and the physical attractiveness of the people in the photo.

The combination of pictures, other-generated cues, and system-generated cues allow users to compare themselves to others.

Our study explored the effects that other-generated and system-generated cues can have on the perceived attractiveness of the user of an Instagram profile. In order to do this, participants were given one of two Instagram profiles to evaluate. While the profiles had the same pictures, the other-generated and system-generated cues were altered to make the user seem more or less popular. Profiles were adjusted by changing the number of likes a picture had and by adding positive comments on the picture from other Instagram users. After viewing the profiles, the participants filled out surveys about the profile they viewed and their self-esteem after viewing the profile. We predicted that self-esteem and perceived attractiveness would be negatively related to viewing popular Instagram profiles.

METHOD

Participants

Fifty-six participants were involved in this study. Of the 56 participants, 23 identified as male and 33 identified as female. All of the participants were students at the University of Minnesota. The participants in the study were selected using convenience sampling of students in an introductory research methods class. Participants were contacted and informed of the study in their lab section and were asked if they wanted to participate. The ages of the participants ranged from 18 to 32 ($M = 20.75$, $SD = 2.30$). Forty of the participants identified themselves as Caucasian, three as African American, seven as Asian, three as Latino/Chicano, and three marked their race as other. No compensation for participation was offered.

Materials

Participants were given fake Instagram profiles to view. Profiles were printed out and viewed on pieces of paper instead of on the computer. These profiles included pictures of either a male or a female. Both male and female profiles included two pictures and were printed in black and white ink. The male profile included a picture of a young brunette-haired Caucasian male wearing a sweatshirt and smiling in front of a wooded background. The male profile also had a picture of the same male with two other shirtless young males in front of an ocean. The female profile featured a black-haired young woman wearing a bikini in front of an ocean. The female profile also included a picture of the same woman with two other young women wearing bikinis in front of an ocean.

In order to determine whether the system-generated and other-generated effects of Instagram profiles influence self-esteem and perceived attractiveness, the number of likes and comments were altered on the two profiles. Both system-generated and other-generated effects were manipulated to better understand the underlying potential effect. A popular and unpopular profile was created for both the male and the female. Although the popular and unpopular profiles featured the same pictures, the number of likes and comments on the pictures

were changed in order to make the individual seem more or less popular. For example, on the popular profile, the picture is shown to have 142 likes and feature positive comments such as “This is so cute!” Meanwhile, on the unpopular profile, the same photo is shown to have only 18 likes and presents the neutral comment “nice.” Specific comments and quantity of likes were chosen to highlight the stereotypical “popular” and “unpopular” Instagram account.

In order to determine whether there was an effect on participants’ judgments of themselves, participants completed the Rosenberg Self-Esteem Scale immediately after viewing the profiles (RSES; Rosenberg, 1965). The questionnaire tested how the individual felt about himself or herself. A sample question included “I feel that I’m a person of worth, at least on an equal plane with others.” Participants judged their self-esteem on a four-point scale with “1” being strongly agree and “4” being strongly disagree. After the RSES, participants were also asked to provide information on their age, race, and gender. Participants completed the questionnaires on the computer. The questionnaire was consistent for all experimental conditions. (The complete set of items is shown in the Appendix.)

Procedure

If the participants expressed interest in the study, they were randomly assigned to receive either a popular or unpopular Instagram profile. Participants only viewed profiles of people of the same gender. Therefore, male participants viewed male profiles and female participants viewed female profiles. Participants were given a paragraph of informed consent before beginning the study, which notified the participants that their responses would remain anonymous and that they had the option to stop answering, withdraw answers, or skip questions at any time during the survey. The participant viewed the Instagram profile and completed the RSES survey. After completing the survey, participants were given a written debriefing statement that described the purpose, variables, and goals of the study.

RESULTS

Self-esteem was the dependent variable measured on the questionnaire. The response of the participants to each item of the RSES was evaluated on a four-point scale. Each participant’s total self-esteem scores was computed by summing the responses across all items.

A two-way ANOVA was conducted that examined the effect of profile (popular, unpopular) and gender (male, female) on self-esteem ratings. The main effect of profile yielded a *F* ratio of $F(1,52) = 412, p = 0.52$, indicating that the mean score was not significantly different for a popular profile ($M = 22.5, SD = 0.83$) and an unpopular profile ($M = 21.7, SD = 0.89$). The main effect of gender yielded an *F*-ratio of $F(1,52) = 1.42, p = 0.24$, indicating that mean score did not differ significant for males ($M = 22.8, SD = 0.93$) and

females ($M = 21.4, SD = 0.77$). There was no significant interaction between profile and gender on self-esteem ratings, $F(1,52) = 240, p = 0.63$.

DISCUSSION

The results of this experiment did not support our hypothesis that viewing a popular Instagram profile would negatively influence self-esteem. In addition, the results were inconsistent with the findings of past research. Vogel *et al.* (2014) found that users on the social networking site Facebook compare the profiles of other users to themselves and form self-evaluations. Also, the study by Antheunis and Schouten (2011) found that individuals on Facebook perceived other users as more attractive when the profiles of the users were filled with positive system-generated and other-generated cues. However, this study failed to extend the influence of individuals comparing themselves to others using system-generated and other-generated cues to Instagram.

There are multiple methodological problems with this experiment that could cause the lack of significant results. One issue is that participants did not complete a baseline self-esteem test before the experiment. As a result, it was impossible to determine how viewing the profiles impacted self-esteem ratings. Participants did not begin the experiment with equivalent self-esteem ratings. Therefore, it cannot be determined that participants with low self-esteem ratings were influenced from the profiles they viewed. Future research should include a baseline self-esteem test to compare self-esteem scores before and after viewing profiles.

Although the pictures on the profiles highlighted physical characteristics, the participants were given a questionnaire that evaluated self-esteem. Results may have indicated an effect if the participants completed a survey of body image instead of self-esteem. Body image measures the way individuals judge the way they look and it is more closely linked to perceived attractiveness than self-esteem. Self-esteem is further removed than body image because individuals use their perceptions of their bodies to determine how they feel about themselves. So, if individuals completed a body image survey, the results may have displayed a relationship between the profile type and an individual’s perceived attractiveness.

The results of Vogel’s (2014) survey measured the specific hours the participants spent comparing themselves to other people. Instead of using real Instagram profiles, the participants in our study viewed fake profiles. Viewing a fake Instagram account may not be as influential to self-esteem as viewing a personal account. Because the participants did not know the individuals depicted in the fake profiles, they may not have compared themselves to them as much as the friends and acquaintances the participants normally compare themselves to on their personal Instagram accounts. However, it is common for users of Instagram to follow individuals they have never met before. In addition, the accounts only consisted of two pictures. This small sample of pictures may not have been

enough to affect the self-esteem of the participants. Overall, the experiment may not have accurately simulated the normal experience of using Instagram.

The profiles used in the experiment may also explain the lack of significant results. There were not any focus groups conducted in order to determine if the positive comments were actually perceived as positive. The same is true for the neutral comments. Therefore, although one profile was designed to have positive comments, the participants may not have thought of the comments as positive. Similarly, the participants may not have perceived the account with a high number of likes as being popular. Additionally, the profiles were printed out in black and white. Normally, individuals use Instagram on a computer or a mobile device.

The results did not indicate a correlation between gender and self-esteem ratings, regardless of profile. The popular and unpopular profiles for men and women had the same number of likes and comments. However, men and women might perceive the number of likes on a profile differently. Being perceived as popular from a man's perspective might be different than being perceived as popular from a woman's perspective. It is possible that one gender might need a higher number of likes than the other to be considered popular. Future research should explore the average number of likes for male and female Instagram accounts and the possibility for different standards of beauty for different genders. Additionally, the study only addressed the binary genders of male and female. None of the participants identified as a gender other than male or female. Future studies should explore how individuals who do not identify as male or female compare themselves to others and the impact Instagram has on their self-esteem.

Further research can determine whether or not there is a connection between the content individuals view on Instagram and its relationship with their self-esteem and perceived attractiveness. A continued focus on this topic can help determine if the impact of Instagram use relates to the results of previous research on other social media sites in connection with self-esteem and perceived attractiveness, or if the image-centered site Instagram makes an even larger impact. With Instagram centered on the posting of edited and filtered images striving to attain a high level of beauty, research is needed to determine how this change in the primary content of social media affects those individuals who use it.

The prevalence of mobile devices and social media sites will continue to grow in the future. Therefore, it is important to explore the potential effects of social media use on self-esteem and other qualities of an individual's health.

APPENDIX

Items from the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). Participants responded 1 = "strongly agree", 2 = "agree", 3 = "disagree", or 4 = "strongly disagree" to each statement.

- 1) I feel that I'm a person of worth, at least on an equal plane with others.
- 2) I feel that I have a number of good qualities.
- 3) All in all, I am inclined to feel that I am a failure.
- 4) I am able to do things as well as most other people.
- 5) I feel I do not have much to be proud of.
- 6) I take a positive attitude toward myself.
- 7) On the whole, I am satisfied with myself.
- 8) I wish I could have more respect for myself.
- 9) I certainly feel useless at times.
- 10) At times I think I am no good at all.

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The Effect of Types of Lyrical Music on Reading Comprehension

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Previous research suggests that the presence of background music may lead to a decrease in performance on mentally demanding tasks. This study sought to determine which specific quality of background music is responsible for such adverse effects by investigating the effect of lyrics in background music on performance in reading comprehension tests. Participants were asked to complete a set of reading comprehension questions while either music without lyrics, with English-lyrics, or with foreign-language-lyrics was played. Overall, a significant difference in the number of correct answers on the task under different experimental conditions was observed. A pairwise comparison showed that participants perform significantly better in the presence of non-lyrical background music than with the presence of English-lyrics. The significant findings suggest that the lyrical quality of music has a significant effect on decreasing task performance, but that the effect of semantic meaning, which was only present in the English-lyrics music in this experiment, is not significant.

Pages: 9-13

The relationship between distraction and task performance has been thoroughly examined. It is reasonable to anticipate that a student will perform better in tasks such as reading comprehension or memorization when the amount of distraction is at a minimum. Research findings have been consistent with this prediction, with auditory and visual stimuli as the distractors. Pool, Koolstra, and van der Voort (2003) conducted a study in which they played either soap operas or music videos while students performed reading comprehension and memorization tasks. They found a significant decline in performance while soap operas were playing in the background. However, they did not observe any such decline when music videos were played. This study reinforced the conclusion of Pool, van der Voort, Beentjes, and Koolstra (2000), in which they found no decrease in homework performance while music videos were playing in the background, regardless of the difficulty of the homework tasks; the presence of soap operas in the background only had significant influence when a difficult homework task was

assigned. These results suggest that there are certain significantly distracting factors present in soap operas but not in music videos.

Provided that these factors are auditory, is it justified to assume that music does not distract students from performing mentally demanding tasks? The result of research conducted by Anderson and Fuller (2010) did not reinforce this prediction. The researchers found that adolescents tend to perform worse in reading comprehension tasks when lyrical background music is played compared to when the environment is quiet. Notably, the music administered in the experiment was lyrical, which, like soap operas, possibly contained semantic contents.

Indeed, task performance may vary with the semantic content of the background music—that is, musical lyrics may also cause performance in mental tasks such as reading comprehension to deteriorate. Furnham and Allass (1999) found that background music had no significant effects on performance in reading comprehension, regardless of its lyrics. This research finding conflicts with the data of Anderson and Fuller (2010). What may explain such conflict was that Anderson and Fuller studied adolescents, whereas Furnham and Allass studied undergraduate students; therefore, the effect of lyrical background music on task performance may only be significant among adolescents. Moreover, Anderson and Fuller observed that subjects tend to experience the greatest decrease in performance while hearing the music they personally preferred. This may suggest that the presence of familiar and

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avored background music has negative effects on memorization task performance. The authors brought up the importance of music type in the experiment as one of the factors that contributes to the effect of music on task performance. This factor was not considered by Furnham and Allass (1999) in their research.

Other studies have focused on the potential distracting effect of auditory stimuli on performance in activities that would also involve memorization and comprehension, such as studying. Anderson and Fuller (2010) found that students who report frequently studying with music in the background perform worse at reading comprehension than those who do not.

These studies do not indicate that music will always adversely affect performance in cognitively demanding tasks. It remains to be determined which quality of music is responsible when an adverse effect is observed. According to a physiological study done by Besson, Faïta, Peretz, Bonnel, and Requin (1998), the human brain processes the melody and the lyrics separately while listening to music. Could this finding indicate that the decrease in performance on mentally demanding tasks is due to the additional attention required to comprehend the lyrics in background music? By expanding this inquiry, the present study will investigate the effect of lyrics in background music on performance of reading comprehension tasks. Moreover, this research will examine whether the language of the lyrics in background music has an effect on the result as well. The hypothesis of this study is that, if comprehending lyrics consumes an individual's limited attention, the performance of an English-speaking individual in comprehending words and literature will decline with the presence of English-language lyrical music in the background, but not with foreign-language lyrical music. If it is indeed the lyrical quality of music that is responsible for decreased performance, it was also expected that the same individual will perform better when non-lyrical music is played in the background.

METHOD

Participants

Twenty-one participants were observed, including six males and 15 females. The participants were selected by using convenience sampling from a discussion session of an undergraduate research methods class at the University of Minnesota. All of the participants were English speakers; 86% were native English speakers. The age range of the participants was 18 to 23 ($M = 20.43$, $SD = 1.21$). Participants volunteered to be in the study and no compensation was offered.

Materials

The independent variable in this experiment was the type of background music played while the participants were completing their tasks. The three levels of the independent variable were: English language lyrical music ("I Will Wait", by Mumford and Sons), non-lyrical music ("Winter Winds:

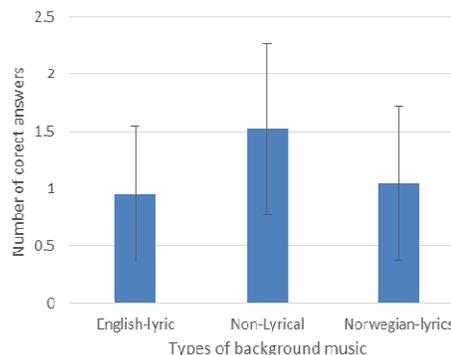


FIGURE 1. Mean number of correct answers while English-lyrics, non-lyrical and Norwegian-lyrics background music was present. The error bars represent standard deviation.

Instrumental Version", by Mumford and Sons) and Norwegian language lyrical music (Sjå Attende, by Gåte). To hold the musical style constant, all background music material was chosen from the same musical genre. The study was conducted in a small study room, which helped eliminate other environmental distractors. The reading comprehension questions were selected from a practice version of the SAT literature subject test, a standardized and widely used college admission examination that allows students to demonstrate their ability to critically read and comprehend literature. All of the reading comprehension questions were provided by CollegeCountdown.com and Collegeboard.com. The complete set of questions is provided in the Appendix.

Procedure

After obtaining their informed consent, the participants were given the verbal instruction that they would have the duration of the background music to complete each of the three reading comprehension passages, and that they may only start on a new passage when told to do so. When the participants were told to start each passage, a different type of background music was played. Every participant listened to the different background music in the same order, although the assigned order of the reading passages was randomized to avoid order effects. All responses from the participants were recorded by scoring one for a correct answer and zero for incorrect answers, with the maximum possible score for each test being three. Upon completion of the last experimental condition, the participants were told that they were free to leave and each was given a debriefing statement.

RESULTS

The results of the experiment were assessed by performing a repeated-measures ANOVA where task performance was measured as the number of correct answers on the task. A significant effect of the background music type on number of correct answers was found, $F(2,20) = 4.706$, $p = 0.015$. This indicates that the participants scored significantly differently depending on whether English-lyrics music ($M = 0.95$, $SD = 0.59$), non-lyrical music ($M = 1.52$,

TABLE 1. Pairwise comparisons between different levels of the independent variable.

Factor 1	Factor 2	Mean Difference (Factor 1 vs. Factor 2)	Standard Error	Significance (<i>p</i>)
English lyrics	non-lyrical	-0.571	0.190	0.012
English lyrics	Norwegian lyrics	-0.095	0.181	1.000
non-lyrical	Norwegian lyrics	0.476	0.225	0.141

$SD = 0.75$) or Norwegian-lyrics music ($M = 1.05$, $SD = 0.67$) was played in the background. The differences are shown in Figure 1. In order to determine which pairs of means were responsible for this significant result, a pairwise comparison was conducted, and we found that the only significant mean difference in the number of correct answers was between the English-lyrics music condition and the non-lyrical music condition, with the mean difference being -0.571 , $p = 0.021$; the pairwise comparison between English and Norwegian-lyrics music did not yield significant differences. See Table 1 for the complete set of comparisons.

DISCUSSION

The results support the hypothesis that the participants would perform significantly better in the presence of non-lyrical background music than in the presence of English-lyrics music. This result supports the idea that English-lyrics background music may act as a distractor for the subjects while they are completing tasks that require significant attention. These results are consistent with those obtained by Anderson and Fuller (2010), who found that English-speaking individuals perform worse with English-lyrics music played in the background, compared to when there are no semantic distractors.

The results of this experiment did not support the hypothesis that the performance of an English speaking would decline in the presence of English language lyrical music, but not with foreign language lyrical music. No significant difference in task performance was found between these two experimental conditions.

Multiple factors in the experimental design could possibly contribute to the lack of significant results between the pairwise comparison in the effect of English and Norwegian-lyrics music. The background music employed in order to manipulate the independent variable was selected randomly from a playlist. Although the selected songs belonged to the same music genre; the uniformity of other musical qualities, such as tempo and rhythm were not carefully maintained among the selections of background music. Thus, one of the experimental conditions may be more disruptive than the others. Also, the mean difference between the non-lyrical and Norwegian-lyrics conditions was almost as large as the difference between the non-lyrical and English-lyrics

conditions, which was significant. It is possible that the Norwegian lyrics are as distracting as the English lyrics but that we failed to find a significant effect due to our small sample size and the resulting low statistical power.

Another factor to be considered is that because the experiment was held in a relatively small room, the situation may have created a social facilitation effect, such that the presence of the participants' peers influenced their performance in the task (Bond & Titus, 1983). Some of the participants were able to complete the task relatively quickly. This may have created a certain social pressure on those still performing the assignment to "speed up", and thus possibly led to a decrease in performance. This may have affected our results in a complex way (perhaps having a differential effect on different experimental conditions) such that differences between some means were reduced to the point of statistical non-significance.

Additionally, the experimental results may have exhibited an order effect. Although the order of the passages in the reading comprehension test was randomized, all participants listened to the exact same order of the background music while they were completing the tasks. It is possible that the participants improved in performance during the last experimental condition due to repeated practice with the task, not the independent variable. Furthermore, a floor effect may have been produced by the difficulties in the reading comprehension task. The test materials were taken from a practice test of of the SAT; most of the participants reported that they had not completed such challenging tasks in a fairly long period of time. Uniformly low accuracy in the response might be responsible for the lack of significance in mean differences among the pairwise comparisons.

The overall findings suggest that the lyrical quality of music has a significant effect in decreasing task performance, though the meaningfulness of the lyrics was not significant. The results shed light on the potential distracting effect of musical lyrics. Further experiments should choose larger samples and maintain the uniformity in the selections of experimental material. Additional research will be beneficial in exploring the main effect of the lyrical quality in music on performance of various other tasks besides reading comprehension, such as mathematics or puzzle-solving. The research findings may reveal if verbally related distractors such as musical lyrics will only significantly decrease performance in verbally related tasks such as reading comprehension. Further studies in examining the effect of different types of stimuli in a testing or studying environment will serve the practical purpose of identifying the most efficient and effective ways to learn.

APPENDIX

PASSAGE 1: Read the passage carefully and answer the questions that follow.

SILVIA. O Eglamour, thou art a gentleman—
Think not I flatter, for I swear I do not—
Valiant, wise, remorseful, well accomplish'd.
Thou art not ignorant what dear good will
I bear unto the banish'd Valentine;

Nor how my father would enforce me marry
 Vain Thurio, whom my very soul abhors.
 Thyself hast lov'd; and I have heard thee say
 No grief did ever come so near thy heart
 As when thy lady and thy true love died,
 Upon whose grave thou vow'dst pure chastity.
 Sir Eglamour, I would to Valentine,
 To Mantua, where I hear he makes abode;
 And, for the ways are dangerous to pass,
 I do desire thy worthy company,
 Upon whose faith and honour I repose.
 Urge not my father's anger, Eglamour,
 But think upon my grief, a lady's grief,
 And on the justice of my flying hence
 To keep me from a most unholy match,
 Which heaven and fortune still rewards with plagues.
 I do desire thee, even from a heart
 As full of sorrows as the sea of sands,
 To bear me company and go with me;
 If not, to hide what I have said to thee,
 That I may venture to depart alone.
 (1590-91)

Question 1: What does Sylvia assure Eglamour that he knows?

- A. how much she respects her father
- B. how much she loves Thurio
- C. how much he resembles Valentine
- *D. how much she cares for Valentine
- E. how sorry she is that he loves her

Question 2: What did Eglamour decide upon his lady's death?

- A. that he now loves Sylvia
- *B. that he would never love another
- C. that he would stay near her grave
- D. that he could not grieve any longer
- E. that he would act like a gentleman

Question 3: What does Sylvia think of the marriage her father has proposed for her?

- A. She prefers Eglamour.
- B. She was caught by surprise at the announcement.
- *C. It would be sinful.
- D. It is unjust.
- E. She compares it to a plague.

PASSAGE 2

I doubt not God is good, well-meaning, kind,
 And did He stoop to quibble could tell why
 The little buried mole continues blind,
 Why flesh that mirrors Him must some day die,
 Make plain the reason tortured Tantalus
 Is baited by the fickle fruit, declare
 If merely brute caprice dooms Sisyphus
 To struggle up a never-ending stair.
 Inscrutable His ways are, and immune
 To catechism by a mind too strewn
 With petty cares to slightly understand
 What awful brain compels His awful hand.
 Yet do I marvel at this curious thing:
 To make a poet black, and bid him sing!
 (1925)

Question 1: "Immune" in line 9 means

- A. free of disease.
- B. can't be found guilty.
- C. beyond comprehension.
- *D. not subject to.
- E. obliged

Question 2: When the poet uses the word "awful" twice in line 12, which of the following statements most accurately explains the effect of the repetition?

- *A. The word means "awe-inspiring" in both cases.
- B. In the first instance the word means "full of awe" and in the second it means "horrible."
- C. In the first instance the word means "terrifying" and in the second it means "dangerously powerful."
- D. In the first instance the word means "behaving meanly" and in the second it means "of poor quality."
- E. The word means "inferior" in both cases.

Question 3: What is implied in the poem's final two lines?

- A. The speaker is angry that he is black.
- B. The speaker is proud of his beautiful voice.
- *C. The speaker sees his poetic talent as one of God's inexplicable decisions.
- D. Writing poetry can make a person feel better about life's unfair conditions.
- E. Even though he was born into poverty, the poet made a good life for himself by exploiting his ability.

PASSAGE 3

Against that time (if ever that time come)
 When I shall see thee frown on my defects,
 When as thy love hath cast his utmost sum,
 Called to that audit by advised respects—
 Against that time when thou shalt strangely pass,
 And scarcely greet me with that sun, thine eye,
 When love, converted from the thing it was,
 Shall reasons find of settled gravity—
 Against that time do I ensconce me here
 Within the knowledge of mine own desert,
 And this my hand against myself uprear,
 To guard the lawful reasons on thy part.
 To leave poor me thou has the strength of laws,
 Since why to love I can allege no cause.
 (1609)

Question 1: The speaker of the poem is addressing

- A. an unspecified general audience
- B. a friend of the speaker's beloved
- *C. a lover
- D. a former lover
- E. a legal adviser

Question 2: In line 5, the adverb "strangely" means:

- A. oddly
- B. be even more deeply in love
- *C. in a distant manner
- D. eerily
- E. haltingly

Question 3: The "reasons" mentioned in line 8 are best characterized as:

- A. scientific explanations for a natural force
- B. arguments against rationality itself
- C. arguments for the importance of loving
- *D. logical explanations for the absence of love
- E. counterarguments to the speaker's propositions

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The Effect of Smiling on Men's Perceptions of Women's Attractiveness

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This study aims to examine the effect smiling has on men's perceptions of women's attractiveness. Two versions of a questionnaire were created, both with a picture of a female and questions on her attractiveness, work ethic, sociability, helpfulness, and adventurousness, although we focus only on the attractiveness ratings. Male participants were randomly given one of the two versions, either with a smiling picture or a not smiling picture. The results suggested that women who smile are not perceived to be more attractive to males than women who do not smile.

Pages: 14-16

A good impression is the start of everything. Understanding the factors that lead an individual to be perceived as more attractive is the first step in making a good impression. Research studies have examined multiple aspects of leaving good impressions in life: emotions (Mehrabian, 1997), bodily capital, the value generated from appearance, attractiveness, and physical ability (Hutson, 2013), appearance (Park & Harwin, 2010), female facial beauty (Cunningham, 1986), and components of facial attractiveness (Terry & Davis, 1976).

If popular culture is to be believed, smiling leads to better first impressions. However, research has not conclusively indicated that smiling has an influence on social impressions, the impressions that others have on an individual based on his or her bodily capital, appearance, or emotions,

etc. (Hutson, 2013; Park & Harwin, 2010; Mehrabian, 1997). Additionally, the impacts of gender and race have not been examined in relationship to the effects of smiling on attractiveness. Despite the prevailing general consensus that smiling makes people appear more attractive, more research is necessary to understand the exact nature of the relationship.

Several studies have been performed to examine the physical elements of a face that could possibly make individuals appear more attractive. Overall ratings of attractiveness were found to have a positive correlation with individual ratings of attractiveness of the parts of the face. The mouth seemed to have the greatest influence, followed by the eyes, the hair, and the structure of the face (Terry & Davis, 1976). The greatest influence of mouth on the perceived level of attractiveness suggested that smiling might be a critical factor of the perceived attractiveness.

Rodrigues and colleagues (2009) examined participants' perceptions of smile attractiveness based on the exposure of teeth when smiling. The researchers showed participants photographs and asked them to evaluate the attractiveness of different kinds of smiles, which varied in the degree of exposed teeth; they also showed participants a picture of the smiling teeth instead of a picture of a smiling face to test if the framing of photographs matters. The results indicate that, with the exception of the smile with a diastema, which is a 1-mm-wide gap between the two front teeth, all smile types received positive ratings. Also, showing participants either the face or the smile had no effect on the attractiveness ratings of the smile. Given the result of this study, we designed our experiment to further examine the effect of smiling on the attractiveness ratings.

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Ellis and Das (2011) conducted a study on gender differences in the amount of smiling and the perceptions of smiles in males and females. They examined a large sample of high school yearbook photographs and gathered ratings on several physical traits of students, their physical attractiveness, and assessed the degree of smiling. The results indicated that females not only smile more than males do when being photographed, it also indicated that women's smiling was positively correlated with physical attractiveness. This study concluded that gender influences the relation between smiling and physical attractiveness; however, it was unclear which gender gave the ratings on physical attractiveness.

Existing research fails to examine the effect of smiling on women's perceived attractiveness as rated by male participants. Our study aims to address this gap in the literature by investigating the impact of a smile on male participant's perceptions of a woman's attractiveness. We hypothesize that women, when smiling, are perceived to be more attractive by men.

METHOD

Participants

Thirty participants, all males, were involved in this study. All participants were recruited from a Psychology class at the University of Minnesota using convenience sampling. The ages of the participants ranged from 18 to 26. Among the 30 participants, 66.7% of them identified themselves as white, 30% as Asian or Pacific Islander, and 3.33% as other. The study was offered as one of several for-credit options in the students' psychology class, and those who participated were thanked for their time spent in the study.

Materials

The surveys included three parts: instructions explaining the task, one of the two photographs, and a questionnaire about participants' opinions of the photo provided. (The questionnaire is shown in the Appendix.)

The photographs were selected from *A Photo Series That Captures a Range of Human Emotions* on *Lifhack.org*. The photographs were both the identification photo of the same female with the same haircut, same make-up and same gesture; one was taken when she was smiling, the other one when she was not smiling.

There were two versions of questionnaires that participants could receive. Version I was a questionnaire and a photo of the smiling female, while Version II was the same questionnaire and a photo of the non-smiling female. In order to prevent the participants from making biased decisions about the photo, our research group created the questionnaire with one target question and four irrelevant questions to conceal the true nature of the study. There were five questions in the questionnaire, one of which was "on a scale from 1-5 how attractive do you think this person is?" and provided five choices from 1 being "not at all attractive", to 5 being "very

attractive". The rest of the questions asked participants to rate the female in the photo on her work ethic, sociability, helpfulness, and adventurousness.

In this way, the only difference between two versions of the questionnaires was the photo with or without a smile. Every other thing being held constant, we want to see if smiling does make the female in the photo receive a higher rating on attractiveness.

Procedure

To recruit participants, we asked students in the Research Methods class at the University of Minnesota if they would be willing to participate in the study. The students who agreed were randomly given either Version I of the survey or Version II of the survey.

The instructions were placed on the top of the surveys, directing participants to answer five questions regarding the photograph of the woman. Participants then saw the picture of the female and the questionnaire underneath it. Participants then were asked to provide basic demographic information, including age, gender, ethnicity, and student status.

RESULTS

The dependent variable – the rating of the women's attractiveness – was measured by one of the questions in the questionnaire. A one-tailed independent-groups *t*-test was performed to compare the mean attractiveness ratings of the groups that saw the smile and no-smile pictures.

Analyses showed that the attractiveness ratings of the group receiving the picture of the women with a smiling face ($M = 3.33$, $SD = 0.90$) were not significantly higher than the group that received the picture of the woman with a neutral face ($M = 3.00$, $SD = 0.76$), $t(28) = 1.10$, $p = 0.281$.

DISCUSSION

The results of this study indicate that there is no significant difference between men's perceptions of females' perceived attractiveness in the two conditions, as measured by the questionnaires we created. Thus, we reject our hypothesis that smiling women are perceived to be more attractive to males.

Our results are not consistent with the findings of previous studies. Rodrigues *et al.* (2009) showed that many types of smiling were positively correlated with people's ratings of attractiveness.

The failure to replicate previous results might be due to too few photographs of models. Characteristics of the photographs such as the race of the model were not varied. Using photographs of a female in another race group could lead to different results.

Moreover, in their study on the gender differences in perceived attractiveness, Ellis and Das (2011) suggested that gender moderates the relation between smiling and physical attractiveness. Since our study indicated that women who were smiling and not smiling were perceived to be equally attractive to men, but did not examine the effect of a smile on women's perception of men's attractiveness, it is possible that the presence of a smile has an effect on men's attractiveness.

Another reason for our insignificant result might be the specific sample we had. First, a sample of 30 participants might be too small to represent the true variance of the population. Second, as this experiment was conducted using a convenience sample of undergraduate students from a psychology class, it is possible that the ratings of this sample were biased in one way or the other.

The third limitation we had was that only one question was used to evaluate the level of attractiveness. The experiment might produce a more generalizable and potentially robust result if we were to use multiple questions assessing the level of attractiveness of the model. Thus, a more rigorous and holistic scale could be adopted to examine the relationship between smiling and perceived attractiveness.

Further studies are needed to explore the exact nature of the influence of smiling on perceived attractiveness. For example, more studies can be done to examine if smiling makes males appear more attractive to females. Alternatively, it would also be interesting to see how smiling would change the perceived attractiveness of females towards females, or the perceived attractiveness of males towards males. Also, a larger and more generalizable sample is desired in future studies. What is more, a more holistic scale to measure the perceived attractiveness of the model could be developed.

In conclusion, although we failed to show the effect of smiles on the perceived attractiveness of women as rated by men, leaving a good impression is still essential in most situations in life. Thus, the factors leading to desirable impressions are of high interest. Smiling, as a known factor of attractiveness (Rodrigues *et al.*, 2009), should be studied more extensively to explore its relationship with good impressions. With more studies devoted to examining this relationship, we could then discover the role smiling has in making a good impression in critical situations in life.

APPENDIX

Please answer the following questions about the person on the photograph.
Circle your answer.

On a scale from 1-5 how attractive do you think this person is?

1	2	3	4	5
not at all attractive				very attractive

On a scale from 1-5 how hardworking do you think this person is?

1	2	3	4	5
not at all hardworking				very hardworking

On a scale from 1-5 how sociable do you think this person is?

1	2	3	4	5
not at all sociable				very sociable

On a scale from 1-5 how helpful do you think this person is?

1	2	3	4	5
not at all helpful				very helpful

On a scale from 1-5 how adventurous do you think this person is?

1	2	3	4	5
not at all adventurous				very adventurous

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