

Social Comparisons at Your Fingertips: The Importance of Ingroup/Outgroup Status

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ABSTRACT

An online experiment tested predictions on online users' selective viewing of social information. It was hypothesized that selections are affected by users' ingroup minority-versus-majority status, valence of portrayals, and ingroup and outgroup membership of featured individuals, specifically among users with low or moderate self-esteem. A sample of 113 women, 30-45 years old, served to test hypotheses. Examined numeric minority groups were stay-home mothers and working women without children as, as well as working mothers as numeric majority. As predicted, the majority group avoided positive ingroup member portrayals, whereas both minority groups preferred them.

Categories and Subject Descriptors

D.3.3 [Programming Languages]: MS Silverline.

General Terms

Experimentation, Human Factors, Theory

Keywords

Selective exposure, social comparison, optimal distinctiveness, ingroup, outgroup, self-categorization, self-esteem

1. INTRODUCTION

The Internet is often said to allow people to connect with others more easily. The present investigation sheds light on the question whether social encounters occur more freely online. Online social interactions entail social comparisons as "almost inevitable element of social interaction"^[1]. Platforms like Facebook may derive enormous popularity from these automatic social-psychological processes and their implications for self-evaluations. To examine these processes, we draw on theories on social comparison^[2], self-categorization^[3], and optimal distinctiveness theory^[4].

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1.1 Social Comparison Theory

Social comparison theory by Festinger^[2] has inspired much psychological research in the past sixty years. Social comparison is defined as "the process of thinking about information about one or more other people in relation to the self"^[5]. The online media, so-called social media in particular, provide an endless array of choices for social comparison targets. To the extent to which consuming such social information online may facilitate self-enhancement, it can be viewed as a modern variation of mood management processes^[6] that were originally suggested to explain choices of traditional media messages motivated by mood optimization. Nowadays, online users may often turn to social portrayals on the WWW to find opportunities for so-called downward comparisons. More specifically, Wills^[7] suggested in his downward comparison theory, an extension of Festinger's social comparison theory, that comparing oneself to someone with lower performance or in otherwise worse circumstances will result in self-enhancement for the onlooker. Evidently, the ease with which social information can be accessed and selected online lends this context to seeking downward comparisons that may help online users to feel better about themselves and to improve their moods. As Wills^[7] downward comparison theory suggests that in particular individuals with low self-esteem favor downward comparisons to boost their self-regard, the present investigation focuses on individuals with low or moderate self-esteem. Yet more recent theorizing suggests additional factors beyond self-esteem moderate these processes.

1.2 Self-Categorization Theory

Turner and colleagues^[3] introduced self-categorization theory and distinguished between self-categorization through in-group-outgroup differentiations (social identity) and self-categorization as individual, unique relative to other members of an ingroup (personal identity). The differentiation between social and personal identity is relevant for the distinction between intergroup and interpersonal social comparison, which then function as basis for self-evaluations. When social identity is salient, individuals engage in intergroup comparisons—as a result, self-evaluations depend on relative position of the ingroup compared to relevant outgroups^[8]. On the other hand, individuals evaluate themselves through interpersonal comparison with the performance of similar ingroup members when personal identity is salient.

Brewer and Weber^[8] summarized consequences of group membership for social comparison and self-evaluations as follows.

“When the in-group provides the frame of reference for interpersonal comparisons, information about exceptionally high or exceptionally low performance by an in-group member should result in contrasting self-evaluations. [...] when social identity is engaged, intergroup comparisons are activated and self-evaluations should be assimilated to information about in-group performance. High performance by an in-group member has positive implications for self-ratings, whereas low performance has negative consequences.”

1.3 Identity Salience

This postulation then leads to the question what renders personal identity versus social identity salient. Online interface design could affect this greatly, because the distinctiveness of the ingroup within the intergroup comparison is said to determine this salience^[4]. Members of a mathematical minority are more likely than majority members to activate social identity. Brewer's^[4] optimal distinctiveness theory suggests that being a member in a large majority will instigate a need for differentiation from other majority members, rendering interpersonal, ingroup comparisons salient. In contrast, being a member of a minority is said to satisfy the need for distinctiveness, as intergroup comparisons fulfill it, and to induce intragroup assimilation. Accordingly, representation of social groups on an online platform should greatly contribute to what social group memberships are activated in the user's mind and whether one's social group is presently perceived as majority or minority. Simple mathematical proportions of pictures or references to social groups featured by an online platform would thus influence subsequent social comparison processes.

1.4 Hypotheses

Based on these considerations, the following hypotheses will be subject to empirical test. H1: Online users from a majority group with low or moderate self-esteem avoid positive ingroup member portrayals. H2: Online users from a minority group with low or moderate self-esteem prefer positive ingroup member portrayals.

2. METHOD

2.1 Overview

An experimental design examined women's selections of online portrayals of women shown in working contexts or parenting contexts. Ingroup and outgroup membership was defined based on a participant's own work and parental status. In a two-session online quasi-experiment, 113 women (29-49 yrs of age, predominantly white, either stay-home mothers or working mothers) first indicated personal self-esteem embedded in questions on satisfaction with various life domains, which served as distracters, and general life situation aspects (incl. occupation status and number of children). To avoid sensitizing participants to the focus of this research, these characteristics of their work and family life and their self-esteem were ascertained in a separate session. In the second session, participants browsed online messages portraying white females associated with either work or parenting, with either positive or negative valence of these portrayals. These social comparison opportunities were offered with photos of women portrayed either in a work situation or in a parenting situation to convey whether the comparison target would be an outgroup member. For instance, a working woman without children would consider a stay-home mother to be an outgroup member.

2.2 Respondents

The online recruitment (see 'Procedure') obtained 234 respondents with complete data entries. They were all female and between 29 and 49 years old (average age was 36.51, $SD = 5.19$). Ethnicity was White for 78%, Asian-American for 9%, African-American for 7%, and Hispanic for 4%, the rest checked other ethnicities. A few had a high school degree (5%); many had some college education (26%) or had graduated from college (41%); 9% had taken some graduate classes; 20% had completed graduate or professional school. Half of the sample indicated to be employed (50%); 28% were stay-home mothers; 10% were self-employed; 4% students (others on sick/parental leave, laid off, or unemployed were not included in the analyses for hypotheses testing). Regarding hours of paid work per week, 31% indicated zero; 20% reported 1-20 hours; 39% indicated 21-40 hours; 11% worked more than 40 hours per week. The majority had children (69%; with 20% one child, 27% two children). The marital status was married for 66%; 11% were single, 17% in a relationship, 7% were divorced/widowed, and 4% were dating.

2.3 Procedure

The recruitment was posted on Craigslist.org in the volunteers category, for various cities across the U.S. for 10 days. The recruitment stated that female participants (30-45 yrs, residing in the U.S.) were sought for a study about online women's magazines conducted by <name> University and would receive \$20 per PayPal or Amazon gift card. Participation was described as consisting of two online sessions (approx. 10 and 15 min).

The online application was specifically programmed with MS Silverlight for this study. The first session started with instructions on avoiding any distractions and interruptions. After a set of distracter items, individuals' self-esteem was ascertained, again embedded in distracter items. The last part collected information about demographics, work and family status. Fifteen media use questions with an emphasis on magazine reading were presented to support the cover story of online magazine reading research. Finally, participants were informed that they had completed session 1 and that they would receive an email invitation for session 2 within one week.

Four days later, participants received an email invite for session 2. The setup was similar to session 1, with instructions to avoid distractions and interruptions. The first task was browsing an online magazine prototype. For four minutes, participants perused ten articles compiled in an online magazine embedded in the research software, while reading selections were unobtrusively logged. Finally, participants were thanked and debriefed.

2.4 Experimental Online Magazine

The online magazine featured a masthead on top and a (disabled) navigation bar. The background frame, decorative elements, headlines, and image frames were displayed in shades of deep pink and magenta. Within the main frame, ten article leads with photos were shown. The positioning of article leads on the overview page was randomized per participant to avoid sequence effects. All lead texts were 28 to 31 words long, with five-word headlines. Headlines and the word "Article" at the end of leads were hyperlinks to article texts. The article pages featured the scrollable article text and the same photo as on the overview page but also a caption to reinforce the experimental variations—for example, "Works as Sales Team Leader" or "Mother of Two." While article pages were viewed, the masthead and frame

remained the same as for the overview page. A “Back to Overview” button took readers back to the overview, which allowed selecting another article or going back to a page that had already been viewed.

The articles had been compiled from various Internet outlets and edited for equal length, so that all of them consisted of 600 words including the article lead. Of the ten articles, two were distracter articles that did not focus on an individual and for which the associated photo was not portrait style. The other eight articles included four articles with positive circumstances and four with negative circumstances, with two health articles and two relationship articles within each set. The topics on health and relationships were chosen to keep the stories homogenous with regard to topics and because these are known to be of high interest to women^[9]. These characteristics had been established in the stimuli pretest (see below). Text editing ensured that occupation and parental status of the portrayed females were neither mentioned nor implied. Thus the texts could be rotated across portrayals of women in work and parenting context to avoid that confoundings from text characteristics could bias exposure patterns. The associations of images with these articles were randomized per participant.

A set of 16 images (see examples in Figure 1), with eight women being shown either in a work or family context, was used to illustrate these eight articles. The images had been created and digitally altered so that each individual was shown in the different contexts. However, each participant saw four images with women shown in occupation contexts and four images with women in family contexts together with children, but not the same model twice. Four of the eight individuals had a negative facial expression in both contexts; these photos were always associated with articles about negative circumstances. The other four individuals had a positive facial expression in both contexts; these photos were always associated with articles about positive circumstances.

2.5 Stimuli Texts Pretest

Preliminary data from 18 female undergraduate students served to establish the valence of the stimuli texts. Twelve article leads were presented on a paper-pencil questionnaire. An ANOVA with repeated measures showed that the articles utilized as positive texts received significantly higher ratings (i.e., more positive) than those utilized as negative texts ($M = 5.21, SD = .32$, vs. $M = 1.83, SD = .24$; $F(1, 17) = 40.17, p < .001, \eta^2 = .703$), corroborating successful variation of these stimuli. Another ANOVA with repeated measures demonstrated that the article groups did not differ (*n.s.*) in how interesting they were perceived to be. To balance the article topics, the selected set consisted of the same number of health articles as relationship articles.

2.6 Stimuli Photos Pretest

Thirty-seven undergraduate students (18 women and 19 men) participated in a preliminary data collection regarding the stimuli images that served to select 16 images of 8 models in which the displayed person was clearly perceived as a mother or as being in a working context and that the valence of the person’s expression was clearly positive or negative. As pretest participants were not presented with different photo versions featuring the same model, the pretest was conducted in two separate sessions to show different image versions of the same model to different respondents.

Images of thirteen different women in work or family contexts were displayed per projector while respondents provided information on paper questionnaires. For each image, respondents classified the featured adult with regard to gender, occupation status, and ethnicity. They also rated likeability and how positive or negative the current circumstances of the depicted adult were, which served to assess portrayal valence.

The featured individuals were uniformly categorized as female. Categorizations of the featured women as employed/working or as homemaker played out as desired. An ANOVA with repeated measures showed that the images utilized as having negative valence received higher ratings (i.e., more negative) than those for positive valence ($M = 4.00, SD = .12$, vs. $M = 2.16, SD = .19$), demonstrating successful variation of the stimuli images.



Figure 1: Examples of Stimuli Photos, Featuring Portrayed Individuals in Parenting versus Work Contexts, with Negative versus Positive Valence

2.7 Measures

2.7.1 Self-Categorizations

Self-categorizations were ascertained in line with procedures by Markus¹⁰. Thirty descriptors concerning social categorizations and were displayed on separate screens, with the adjective displayed in the center, and “Me” and “Not me” shown at the right and left bottom of the screen, respectively. Participants were instructed that the key with the symbol “/” indicated that the characteristic applied to them, equaling “ME”. The key with the symbol “Z” indicated that the characteristic did not apply to them, equaling “NOT ME”. Once a participant pressed “/” or “Z,” a new screen was automatically uploaded. First, six practice items such as “daughter” or “neighbor” were presented in a randomized sequence. Then 24 descriptors were shown, including “mother,” “employee,” and “stay-home mom” were shown in randomized order.

2.7.2 Self-Esteem

Five target items ‘your self-confidence,’ ‘your self-respect,’ ‘your influence,’ ‘your prestige,’ and ‘respect you get’ served to assess. To veil the actual interest of the study, these items were embedded in 20 evaluations of various life aspects, such as ‘your

housing situation,' 'your health' etc.^[11] While these items were presented in randomized sequence, it was ensured that the first six items did not include any of the target items. The target items embedded in distracter items were rated with 7-point Likert scales with *displeased/pleased* as anchors. This approach served to avoid sensitizing participants to the relevance of self-esteem, as this could have biased their subsequent responses.

2.7.3 Selective Exposure

While participants browsed the online articles, each hyperlink click was logged. The software also recorded which text was associated with which image in the particular session. Hence, the reading times (a) for positive texts associated with positive images of working women, (b) for negative texts associated with negative images of working women, (c) for positive texts associated with positive images of mothers with a child, and (d) for negative texts associated with negative images of mothers with a child were all recorded. The exposure times for a, b, c, and d consisted of reading times for two articles each.

3. Results

3.1 Preliminary Analyses

3.1.1 Group Categorizations

Participants' own occupational/parental status determined their majority-versus-minority status. Thus for stay-home mothers, half of the portrayed women were ingroup members and half were outgroup members; this salient presentation of an outgroup was to render the minority status of their groups salient. But no differentiating characteristics were evident for working mothers, as they shared either occupational or parental status with portrayed individuals and thus were presented with ingroup member portrayals only to render their majority status salient.

Table 1: Group Categorizations and Self-Categorizations (M, SD in parentheses)

	Majority Working Mothers (n = 71)	Minority 1: Stay-Home Mothers (n = 76)	Minority 2 Working Women (n = 47)
Number of children	2.18 ^a (1.30)	2.34 ^a (1.15)	0.00 ^b (.00)
Number of hours of paid work /week	39.37 ^a (13.91)	2.45 ^b (5.09)	40.51 ^a (10.31)
Self-Categorizations (1=not me, 2= me)			
"Stay-Home Mother"	1.15 ^a (.36)	1.97 ^b (.16)	1.06 ^a (.25)
"Employee"	1.90 ^a (.30)	1.20 ^b (.40)	1.89 ^a (.31)
"Colleague"	1.83 ^a (.38)	1.34 ^b (.48)	1.94 ^a (.25)
"Mother"	1.93 ^a (.26)	1.99 ^a (.12)	1.43 ^b (.50)
"Parent"	1.93 ^a (.26)	1.99 ^a (.12)	1.36 ^b (.49)

Note: Means in a row with different superscripts differ at $p < .05$.

The participants were grouped into three groups based on work hours and parental status. Seventy-six Individuals with children and less than 20 work hours per week were classified as "stay-home mothers." Seventy-one mothers with 20 or more work hours were categorized as "working mothers." Forty-seven women without children and 20 or more work hours were classified as "working women." As Table 1 reflects, the categorizations based on socio-demographics converged with participants' self-categorizations into social groups. Forty women did not fit in any of these categories (they were mostly unemployed, temporarily laid off, or employed/self-employed with few work hours and without children) and were excluded from further analyses.

3.1.2 Self-Esteem

The reliability for the self-esteem measure was Cronbach's alpha = .90. The average self-esteem mean score was $M = 5.28$ ($SD = 1.34$). To focus subsequent analyses on individuals with low or moderate self-esteem, 81 individuals with scores in the top-boxes range of the 7-point scale, thus 6.0 or higher, were excluded. The hypotheses testing was then based on the 113 participants with low or moderate self-esteem.

3.2 Hypotheses Testing

3.2.1 Majority Group's Avoidance of Positive Ingroup Portrayals Online

The first hypothesis was tested with a paired one-sided t test among working mothers to compare their levels of exposure to positive versus negative portrayals. H1 was supported, as this majority group indeed showed significantly shorter exposure to positive ingroup portrayals ($M = 58$, $SD = 49$) than to negative portrayals ($M = 84$ seconds, $SD = 61$), $t(33) = 1.70$, $p < .05$.

3.2.2 Minority Group's Preference for Positive Ingroup Portrayals Online

An analysis of variance addressed the second hypothesis, using the type of minority group as two-step between-group factor (stay-home mothers, vs. working women) and reading times as repeated measures. The following selective exposure measures in seconds were utilized: (a) reading positive texts associated with positive images of working women, (b) reading negative texts associated with negative images of working women, (c) reading positive texts associated with positive images of mothers with a child, and (d) reading negative texts associated with negative images of mothers with a child. Thus there were two within-group factors, pertaining to portrayal valence (positive vs. negative) and portrayal context (work vs. parenting).

This analysis yielded an effect of portrayal context, $F(1, 77) = 8.60$, $p = .004$, $\eta^2 = .010$, as the parenting context generally attracted longer exposure ($M = 96$, $SD = 59$, vs. $M = 60$, $SD = 54$). Furthermore, an interaction between portrayal context and occupation/parental status emerged, $F(1, 77) = 7.21$, $p = .009$, $\eta^2 = .086$: If one of the contexts of parenting or work was prevalent in participants' lives, they were likely to spend more time on articles associated with those contexts. Stay-home mothers spent 112 seconds on average ($SD = 55$) on articles associated with images of women in parenting contexts and only $M = 50$ ($SD = 48$) on articles linked to women in working contexts, while working women allotted $M = 75$ ($SD = 59$) to texts about individuals associated with parenting versus $M = 72$ ($SD = 59$) to texts associated with working women. Another interaction, $F(1, 77) = 4.23$, $p = .043$, $\eta^2 = .052$, resulted from the fact that the

overall greater preference for articles linked to individuals shown in parenting contexts was particularly pronounced for the negative articles, with $M = 53$ ($SD = 48$) versus $M = 44$ ($SD = 47$) for positive articles.

Most importantly, an interaction between portrayal valence, portrayal context, and minority group was significant, $F(1, 177) = 6.52$, $p = .025$, $\eta^2 = .028$. As Figure 2 illustrates, both minority groups show the preference for positive ingroup portrayals suggested in the second hypotheses. Pertaining to the first hypothesis, Figure 2 furthermore illustrates how the majority group of working women exhibited low exposure for any positive social information about ingroup members.

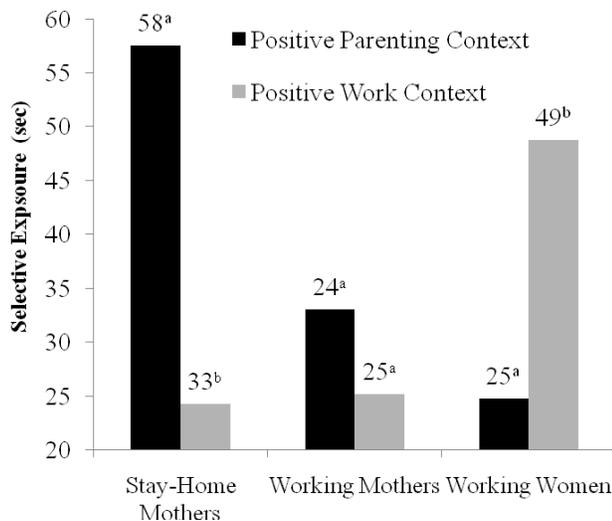


Figure 2: Avoidance among Minority Members (Working Mothers) and Preference among Minority Members (Stay-Home Mothers and Working Childless Women) Regarding Positive Ingroup Member Portrayals

Note: Means within a group with different superscripts indicate significant difference, $p < .05$.

4. Discussion

The findings of the present online quasi-experiment show how social-psychological processes play out in an online context. As the World Wide Web has advanced to a dominant social context in which Americans invest 23% of their online time on social networking sites^[12], we need to understand this grand attraction and its implications. Certain social-psychological processes may be amplified online, given that this context allows choosing social information and even relationships with great ease.

The current results demonstrate that group distinctions are very influential for selective exposure to parts of an online social environment. In line with the first hypothesis, a relative majority exhibited an avoidance of positive portrayals of ingroup members, whereas both examined minority groups showed a preference for positive ingroup portrayals. These patterns are thought to result from contrasting effects that occur when interpersonal comparisons are more likely due to membership in a salient majority group, as well as assimilation effects fostered by

intergroup comparisons resulting from being part of a salient minority group.

Online interfaces inevitably reference social groups, in explicit or implicit forms, which will in turn render certain social identity aspects more salient. What kind of information is then selected thus depends on the design of an online interface. While the present study did not demonstrate impacts on self-evaluations, psychological research implies that the resulting social comparisons will affect self-evaluations and, in the long run, possibly impact the chronic accessibility of social identities and well-being based on self-regard.

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