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Your Mind Online: The Influence of Contingent Self-Esteem on Confirmation Bias

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Your Mind Online: The Influence of Contingent Self-Esteem on Confirmation Bias

A Thesis

Presented in

Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

By

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Department of Psychology

College of Science and Health

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Thesis Committee

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Biography

The author was born in Chicago, on October 5th, 1995. He graduated from Oak Lawn Community High School, in Oak Lawn, 2014. He received his Bachelor of Arts in Psychology from Northeastern Illinois University in 2018.

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Abstract

Scholars have speculated on the effects of social media on our self-esteem, but research has resulted in mixed findings (e.g., Valkenburg et al., 2006). One area that has yet to be investigated thoroughly is how social media use relates to self-esteem pursuit (Crocker & Park, 2004). Self-esteem pursuit has negative outcomes for learning, relatedness, and autonomy (Crocker & Park, 2004), but research has yet to determine whether pursuing self-esteem on social media results in similar negative outcomes. The current study investigated whether social media engage users in self-esteem pursuit by priming existing self-esteem contingencies. Additionally, we investigated whether these contingencies lead to preoccupation with the self or impact rational information processing. Using a selective exposure paradigm, we assessed whether heightened awareness of self-esteem contingencies on social media motivates one to bolster their self-view by engaging in biased motivational reasoning (i.e., confirmation bias) and whether the proposed relationship can be explained by an increase in self-focused attention. Results showed that engaging with Instagram (relative to Wikipedia) did not produce increases in contingent self-esteem or biased motivational reasoning behavior. These findings suggest that brief exposure to varied content on social media does not prime existing self-esteem contingencies. Implications of these results with respect to improving the current methods for future investigation of this research question are discussed.

Keywords: Social media; self-esteem; confirmation bias; self-focused attention

Your Mind Online: The Influence of Contingent Self-Esteem on Confirmation Bias

While the proverbial jury is still out on how social media influence our psychological well-being, one thing can be said with certainty; peoples' lives on social media are not always an accurate representation of real life. People often meticulously tailor their profiles to display a rosier and more ideal version of their lives (Rosenberg & Egbert, 2011) and omit negative or mundane information about themselves. As a result, users frequently report comparing themselves to others on social media as stressors in their lives (Fox & Moreland, 2015), but feel a social obligation to maintain use (Fox & Moreland, 2015) and even report that they believe that other users are happier and more successful than themselves (Chou & Edge, 2012). Certainly, these constant comparisons can leave people feeling like they are inferior to their peers (Lup et al., 2015; Vogel et al., 2017; Alfasi, 2019), but could the constant pressure to live up to others' most ideal moments have consequences beyond just our psychological well-being and self-esteem? More research is needed to explore how social media use relates to self-esteem, our unhealthy obsession with the unrealistic standards set by others, and the resultant downstream consequences social media have on our behavior. The current research focuses on how social media encourage self-esteem contingencies and how preoccupation with these domains of contingency can impact information processing. Specifically, this paper asserts that preoccupation with the self in the context of social media is a cognitively demanding endeavor that may contribute to heuristic processing of information, such as confirmation bias, in decision-making.

Self-esteem has received some of the most thorough investigation of all psychological constructs and its history extends back to William James (1890) during the

inception of psychology as a scientific discipline. James (1890) initially posited that people strive to feel good about themselves and that maintaining a positive view of oneself is fundamental to human nature. As a result, much of the research has focused on self-esteem as a global affection for the self and has been theorized that self-esteem facilitates goals (Bednar et al., 1989), serves as a monitor of social dominance (Barkow, 1980), as well as buffers fears of one's own death (Solomon et al., 1991). However, each of the previously mentioned theoretical perspectives have been subjected to both empirical and conceptual criticism (Leary, 1999), resulting in a murkier understanding of the function of self-esteem to human behavior. Drawing on James's (1890) observations about the role of self-esteem in a different light, Leary and Baumeister's sociometer theory (2000) suggests that self-esteem serves as a monitor for social acceptance, allows an individual to interpret social cues to devaluation and acceptance, and prompts people to change their behavior accordingly. Despite mixed evidence for the behavioral imperatives of sociometer theory, the theory's position that self-esteem functions as a gauge for social acceptance has been soundly demonstrated (Mahadevan et al., 2016).

While this function of self-esteem would have undoubtedly been adaptive for our evolutionary predecessors, having a monitor for self-esteem may not always be ideal. For example, Crocker and Park's (2004) theoretical perspective of self-esteem pursuit and contingent self-esteem offers insight into the darker side of self-esteem. They suggest that although trait self-esteem is an important element of psychological well-being, the way in which one pursues self-esteem and the domains from which they derive their self-esteem is equally, if not more, important. Particularly, people who primarily derive their self-esteem from external sources (i.e., contingent self-esteem) are prone to deleterious

consequences such that the short-term benefits of pursuing self-esteem are often outweighed by long-term costs (Crocker & Park, 2004). Consequences of highly contingent self-esteem generally include threats to learning, autonomy, and self-regulation and many of these effects are attributed to the biased motivational reasoning associated with pursuing self-esteem (Crocker & Park, 2004). Additionally, self-esteem that is highly contingent on external sources (e.g., physical appearance or the approval of others) is associated with further negative outcomes such as lower self-esteem (Kernis et al., 2008) and lower psychological well-being (Crocker et al., 2003; Park & Crocker, 2008), among other problems (Schöne et al., 2015; Crocker, 2002). Although Crocker and Park (2004) provide numerous examples of the consequences of self-esteem pursuit, they do not offer a specific explanation for why self-esteem pursuit engenders these consequences. However, Crocker and Park's (2004) descriptions of the consequences of self-esteem pursuit commonly hinge on an increase in negative, self-focused attention, also referred to as self-preoccupation in the literature (Sakamoto, 1998). Based on this observation, self-preoccupation may be a theoretically important psychological mechanism to explore in the context of self-esteem pursuit.

Self-preoccupation is thought to be a contributing factor in the development of depression (Ingram, 1990), and is a key factor in social anxiety (Smith et al., 1983). It is characterized by cognitions of self-doubt, self-derogation, and, most importantly, anticipation of drops in self-esteem (Sarason, 1975) related to fear of being negatively evaluated by others (Kocovski & Endler, 2000). Furthermore, self-preoccupation has been found to interfere with performance on cognitive tasks such as the Stroop test (Arnold & Cheek, 1986) and these findings are reasoned to be the result of intrusive

negative self-appraisals, which interrupt task-oriented attention (Sarason, 1984). Though not universally, social media environments are rich with content that encourages these negative thoughts and beliefs about the self via social comparison (Lup et al., 2015; Vogel et al., 2017; Alfasi, 2019). And while research has not directly examined the relationship between contingent self-esteem and self-preoccupation, links between contingent self-esteem and fear of negative evaluation have been found (Biolcati, 2017). These findings demonstrate promise for the relationship between contingent self-esteem and self-preoccupation considering that fear of negative evaluation and self-preoccupation can be coactivated (Junghans-Rutelonis et al., 2015; Junghan-Rutelonis et al., 2017) for people who are high in social anxiety (Kocovski & Endler, 2000), which many frequent social media users are (Dobrea & Pasarelu, 2016).

Despite the applicability of self-preoccupation and contingent self-esteem to the realm of social media, much of the research on self-preoccupation (Sarason, 1975; Smith et al., 1983; Ingram, 1990) and contingent self-esteem (Crocker et al., 2003; Crocker & Park, 2004; Park & Crocker, 2008; Kernis et al., 2008) was published with the advent of social media still on the horizon. As a result, there is little to no commentary on how social media contribute to self-esteem pursuit and motivational goals. More recent research has demonstrated that social media users do engage in self-evaluation online (Chou & Edge, 2012; Fox & Moreland, 2015) and that self-esteem contingencies are influential in online settings (Stapleton et al., 2017). These findings raise an important question; given that social media constitute an environment with triggers to self-esteem pursuit and the limitations to the cognitive system that result from this endeavor (Crocker & Park, 2004), might people be even more susceptible to information that confirms their

biases when interacting with social media than in other settings that do not trigger self-esteem pursuit? If social media use does increase a person's susceptibility to biased reasoning, then critical evaluation of information received on social media may be compromised by self-esteem pursuit. Moreover, in what ways are the limitations to the cognitive system a product of heightened awareness of and preoccupation with one's self?

One commonly used paradigm to study confirmation bias that is useful in answering these central questions is to present participants with additional information about a topic after they have already made a decision about that topic (Frey, 1986; Hart et al., 2009). The notion behind the selective exposure to information paradigm is that psychological inconsistency can be created by forcing participants to make a choice and then presenting them with both consistent and inconsistent information. Even arbitrary, preliminary decisions can influence the way that one looks at information; Aronson (1969) suggested that inconsistencies related to a decision that one has made engender a threat to self-competence and the resulting dissonance motivates one to seek congenial information—reaffirming the self as competent in the process. For instance, when presented with such an inconsistency, people often selectively attend to information that suggests the decision that they have made is correct and ignore information that argues otherwise (Frey, 1986). Jonas et al. (2006) had participants imagine that they had won a vacation, presented them with five destination options, and asked them to choose one of the trips and rank the remaining four trips. Participants were presented with summary statements that highlighted positive or negative aspects of their chosen trip and their second-best alternative. For each piece of information, participants indicated whether

they would like to read the whole statement as well as how relevant each piece of information was to their decision. Confirmation bias was then assessed by evaluating the difference in the mean number of pieces of consonant and dissonant information chosen by the participant. This example highlights the utility of the selective exposure paradigm in studying confirmation bias: Not only is it useful for instantiating psychological inconsistency, but it can easily be implemented in a factorial design to examine differences in confirmation bias between diverse experimental manipulations. Despite its utility in studying various threats to the self (Frey, 1986; Lavine et al., 2005), no research to our knowledge has used the paradigm to study confirmation bias in the context of self-esteem contingencies or self-preoccupation.

Rationale. The goal of the current study was to explore how contingent self-esteem (as primed by social media use) influences peoples' interest in and evaluation of information using a selective exposure paradigm. Additionally, the current study examined the extent to which the relationship between contingent self-esteem and confirmation bias is partially transmitted through the mechanism of self-preoccupation. Participants made a preliminary decision about a topic ("Should the voting age be lowered to 16?") and were then randomly assigned to browse either their own Instagram account or Wikipedia/News (hereafter "Wikipedia") articles on the same topic. After spending 10 minutes with either medium, participants read 16 fabricated summary statements from political scientists: half that argued for and half that argued against lowering the voting age. For each piece of information, participants chose whether they would like to read the full statement (if given the opportunity) and also rated how relevant each piece of information was to their decision. Following their ratings of

relevance, participants indicated whether or not they intended to stick with their preliminary decision. Confirmation bias was assessed by comparing participants' preference for summary statements that either supported or opposed their decision and by examining participants' stay/change decisions. More specifically, bias was defined as choosing to read more confirming than disconfirming statements.

Hypothesis I. Overall, participants will prefer decision consistent information over decision inconsistent information. However, participants in the Instagram condition (compared to the Wikipedia condition) will have a greater preference for information that supports their decisions than for information that opposes their decision.

Hypothesis II. Participants in the Instagram condition (compared to the Wikipedia condition) will rate information that supports their decision as more relevant than information that opposes their decision.

Hypothesis III. Participants in the Instagram condition (compared to the Wikipedia condition) will have a greater tendency to stick with their initial decision.

Hypothesis IV. Self-preoccupation is a partial mediator to the relationship between online content type and confirmation bias such that having highly contingent self-esteem (assumed to be activated in the Instagram condition) causes a person to have more preoccupation about the self which is cognitively demanding and leads people to engage in more confirmation bias behavior.

Pilot Study

Method

A pilot study was conducted to assess convergent, discriminant, and concurrent validity of contingent self-esteem, as well as to assess the ability of the Instagram/Wikipedia manipulation to influence contingent self-esteem scores.

Participants

Participants ($N = 91$, $M_{age} = 19.64$ years, $SD = 1.49$, see Table 1 for additional demographic information) were sampled from the Introduction to Psychology subject pool at DePaul University. A recruitment ad was posted on the SONA system and participants self-selected to participate in the study by signing up for the study on SONA. Participants were only able to participate in the study if they had access to a personal Instagram account for use in the study and were compensated with course credit for participating.

Table 1
Demographic Characteristics of Participants in Pilot Study and Main Study

Factor	Total sample	
	Pilot Study	Full Study
Gender		
n	91	214
% female	92.31%	74.30%
% male	7.69%	24.77%
Race		
% Asian or Asian-American	10.99%	10.75%
% Black or African-American	3.30%	7.50%
% Hispanic or Latino/a	24.18%	21.03%
% European American/non-Hispanic White	52.74%	48.13%
% Mixed race	3.30%	7.48%
% Other	5.49%	5.14%

The study employed a single-factor (Online content type: Instagram vs Wikipedia) between-participants design. In accordance with IRB requirements, all participants received information on the study procedure and provided informed consent prior to participating. Following the completion of all tasks, participants were debriefed and compensated accordingly.

Materials

Below are descriptions of each of the stimuli/measures used in the pilot study, but the Supplemental Materials documents provides a comprehensive outline of the experimental procedure.

Online Content Type Manipulation. Participants were randomly assigned to engage with one of two different types of online content: their personalized Instagram account ($N = 48$) or a pre-selected Wikipedia article ($N = 43$) about the iPod. The

Instagram condition was intended to prime participants' existing self-esteem contingencies and the Wikipedia condition served as a control group.

Instagram Condition. Based on previous research findings that Instagram use mediates the relationship between contingent self-worth and self-esteem (Stapleton et al., 2017), participants browsed their personal Instagram accounts for 10 minutes to prime existing self-esteem contingencies. For the first five minutes, participants looked at their personalized content feed where they can only view content from people that they follow. For the last 5 minutes, participants switched to viewing their “explore” feed, which has content that is curated for them based on the people that they follow and their algorithmically determined interests.

Wikipedia Condition. As a control, participants in the Wikipedia condition browsed two sources of information about the history of the iPod: a pdf version of the Wikipedia page for the iPod and a pdf version of a blog article about the same topic. Exactly like the Instagram condition, participants spent five minutes reading the Wikipedia page and then they switched to the blog article for an additional five minutes. These documents are provided as supplemental materials to this proposal. Both versions of the document contained no social content and only provided factual information about the topic and thus should not have primed self-esteem contingencies.

Manipulation Check. Following both conditions, participants had three minutes to respond to a free response question that asks them to recall as many specific details about the content that they saw. Participants also responded to a “select all that apply” question with categories that applied to the different kinds of content they engaged with. The categories that participants could select were “travel”, “technology”, “family”,

“music”, “memes”, “history”, and “other”. Responses of the “travel”, “family”, “memes”, or “other” category with reference to Instagram feed content were considered correct for participants in the Instagram condition and responses of “technology”, “music”, or “history” were considered correct for participants in the Wikipedia condition.

Contingencies of Self-Worth Scale. The “others’ approval”, “appearance”, and “competition” subscales from Crocker et al.’s (2003) Contingencies of Self-Worth Scale (CSWS) were used to measure participants’ contingent self-esteem. The “others’ approval” subscale consists of five items in total with sample items such as “I don’t care what other people think of me” and “What others think of me has no effect on what I think about myself”. The “appearance” subscale consists of five items in total with sample items such as “My self-esteem does not depend on whether or not I feel attractive” and “My sense of self-worth suffers whenever I think I don’t look good”. The “competition” subscale consists of five items in total with sample items such as “Doing better than others gives me a sense of self-respect” and “Knowing that I am better than others on a task raises my self-esteem”. Each item was measured on 7-point scales ranging from 1, *Strongly disagree*, to 7, *Strongly agree*. The full text of all scale items is available in the Appendix section.

Contingent Self-Esteem Scale. Paradise and Kernis’ (1999) Contingent Self-Esteem Scale (CSE) was used as an additional measure of participants CSE and was used to assess convergent validity of the manipulation. The scale is unidimensional and consists of 15 items with sample items such as “My overall feelings about myself are influenced by how much other people like and accept me”, “If I get along well with somebody, I feel better about myself overall.”, and “My overall feelings about myself are

heavily influenced by what I believe other people are saying or thinking about me.” The full text of all scale items is available in the Appendix section. Each item was measured on 7-point scales ranging from 1, *Strongly disagree*, to 7, *Strongly agree*.

Social Self-Esteem Scale. Lawson et al.’s (1979) unidimensional Social Self-Esteem (SSE) Inventory was administered and scores were compared to participants’ responses on the previously discussed measures of CSE to assess discriminant validity. Being able to demonstrate the theoretical distinction between CSE and SSE with the proposed manipulation is very important because it would show that contingencies are being specially targeted, and participants’ resultant self-esteem is due to evaluations of the self in relation to others and not simply due to evaluations of the self in social contexts more globally. The Social Self-Esteem consists of 30 items with sample items such as “I find it hard to talk to strangers.”, “I lack confidence with people.”, “I am socially effective.”, “I feel confident in social situations.”, and “I get along well with other people.” The full text of all scale items is available in the Appendix section. All items were measured on 6-point scales ranging from 1, *completely unlike me*, to 6, *completely like me*.

Fear of Negative Evaluation. The revised version of Leary’s (1983) Brief Fear of Negative Evaluation Scale (BFNE; Carleton et al., 2006) was used to measure participants’ fear of negative evaluation following the manipulation. Based on the relationship between CSE and FNE in the literature (Biolcati, 2017), scores on the CSWS (Crocker et al., 2003) were used to predict scores on the BFNE (Carleton et al., 2006) to assess the concurrent validity of the manipulation. The scale is unidimensional and consists of 12 items with sample items such as “I worry about what other people will

think of me even when I know it doesn't make any difference", "It bothers me when people form an unfavorable impression of me", and "I am frequently afraid of other people noticing my shortcomings". The full text of all scale items is available in the Appendix section. All items were measured on 5-point scales, ranging from 1, *not characteristic of me at all*, to 5, *completely characteristic of me*.

Procedure

The pilot study was conducted in an online format using Qualtrics. Participants were randomly assigned to either the Instagram or Wikipedia condition and read that the study focuses on how engaging with online content influences memory and how memory is related to self-esteem. Depending on the condition to which they were randomly assigned, participants learned that they were to spend 10 minutes engaging with their own Instagram account or with a Wikipedia/blog article. In the Instagram condition, participants spent five minutes browsing their personalized Instagram feed and five minutes browsing their "explore" feed which contains curated content based on their algorithmically determined interests. In the Wikipedia condition, participants spent five minutes reading the Wikipedia page for the history of the iPod and five minutes reading a blog article about the same topic. In both conditions, a bell sound effect played after five and ten minutes to ensure that participants adhered to the timing instructions. After the 10 minutes elapsed, participants were given three minutes to answer the free response memory questions, "What kind of content do you remember seeing?" and "Can you recall any specific details of the content that you engaged with?" Participants also answered the

“select all that apply” manipulation check question with categories that applied to the types of content they engaged with.

After the manipulation check, participants responded, in order, to the Contingencies of Self-Worth Scale (Crocker et al., 2003), the Contingent Self-Esteem Scale (Paradise & Kernis, 1999), the Social Self-Esteem Inventory (Lawson et al., 1979), and the revised Brief Fear of Negative Evaluation Scale (Carleton et al., 2006). Finally, participants provided their age, gender, ethnicity, what they thought the study was about, and if they experienced any technical difficulties during the survey.

Results

Manipulation Check. Across the two conditions, participants engaged with their assigned online content type. Participants in the Instagram condition selected at least one of the appropriate categories with relatively high frequency (52.08% Travel; 60.42% Family; 72.92% Memes; 43.75% Other with reference to Instagram feed content like fashion/beauty (12.5%), food (8.33%), celebrities (6.25%), sports (2.1%), politics (2.1%)). There were similarly high relative frequencies of selecting at least one of the correct categories in the Wikipedia condition (100% Technology; Music 86.05%; History 81.4%; 74.42% answered all three of Technology, Music, and History).

Evaluation of Psychometric Properties and Composite Scores. Confirmatory factor analyses were conducted using the ‘lavaan’ package (Rosseel, 2012) in RStudio to assess factor structure and psychometric properties of all scale measures. Results of the confirmatory factor analyses for each scale are presented in Table 2.

Table 2
Goodness-of-Fit Summaries for Confirmatory Factor Analyses in Pilot Study

Scale Measure	χ^2	<i>df</i>	CFI (> .9)	RMSEA (< .06)	SMSR (< .08)
1. Contingencies of Self-worth Scale	200.35*	87	0.837	0.12	0.121
2. Contingent Self-Esteem Scale	310.49*	90	0.501	0.164	0.148
3. Social Self-Esteem Scale	1201.49*	405	0.63	0.147	0.103
4. Revised Brief Fear of Negative Evaluation Scale	103.28*	54	0.945	0.101	0.04

Note. CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SMSR = squared mean square residual.

* $p < .001$

The overall psychometric properties of the scales did not meet traditional threshold values to create composite scores with the original factor structures of the scales, although the CSWS (Crocker et al., 2003) and the revised BFNE (Carleton et al., 2006) were more psychometrically sound than the CSES (Paradise & Kernis, 1999) and SSES (Lawson et al., 1979). Composite scores were created for each of the scale measures by averaging participants' responses to all items (after reverse-coding items where appropriate). Subscale structures were ignored due to unreliability of the subscales in the data. Reliability estimates for each of the full scales is reported in Table 3. For all scales, higher scores indicate more of the construct in question (e.g., higher CSWS scores correspond with more highly contingent self-esteem).

Evidence for Validity of Measures. Table 3 shows the bivariate correlations between composite scores on all of the scales used in the pilot study.

Table 3
Bivariate Correlations Between Global Composite Scores in Pilot Study

	Average CSWS	Average CSE	Average SSE	Average BFNE
Average CSWS	.85			
Average CSE	0.84**	.81		
Average SSE	-0.28*	-0.28*	.96	
Average BFNE	0.66*	0.66**	-0.44**	.96

Note. CSWS = Contingencies of Self-Worth Scale (Crocker et al., 2004); CSE = Contingent Self-Esteem Scale (Paradise & Kernis, 1999); SSE = Social Self-Esteem Scale (Lawson et al., 1979); BFNE = revised Brief Fear of Negative Evaluation Scale (Carleton et al., 2006). Values on the diagonal represent scale alphas.

* $p < .05$

** $p < .001$

Convergent Validity. The correlation between participants' composite scores on the CSWS (Crocker et al., 2003) and the CSES (Paradise & Kernis, 1999) was positive and strong ($r = .84, p < .001$). Participants with higher scores on the CSWS tended to have high scores on the CSES. The strong positive correlation between these two scales suggests that both scales are measuring contingent self-esteem and provide evidence for convergent validity.

Discriminant Validity. The correlation between participants' composite scores on the CSWS (Crocker et al., 2003) and the SSES (Lawson et al., 1979) was weakly negative ($r = -.28, p = .02$). Participants with more highly contingent self-esteem tended to have lower social self-esteem. However, the weak relationship between scores on these two scales indicates the discriminability of contingent self-esteem and social self-esteem as constructs.

Concurrent Validity. Participants' standardized composite scores on the revised BFNE (Carleton et al., 2006) were regressed on participants' standardized composite scores on the CSWS (Crocker et al., 2003) using a simple regression analysis. CSWS

scores significantly predicted scores on the revised BFNE (standardized $\beta = .67, p < .001$). More highly contingent self-esteem corresponded with greater fear of negative evaluation. These findings support the concurrent validity of the CSWS and the theorized relationship between contingent self-esteem and fear of negative evaluation.

Condition Differences in Contingent Self-Esteem. An independent samples *t*-test was conducted to analyze differences in contingencies of self-worth scores between the Instagram and Wikipedia/News conditions. The difference between the Instagram ($M = 4.40, SD = .862$) and Wikipedia ($M = 4.23, SD = .911$) conditions was in the predicted direction but was not statistically significant; $t(89) = .61, p = .55, d = .20$. Additionally, exploratory independent samples *t*-tests were conducted for each of the individual items on the CSWS. No independent *t*-tests for differences between the individual items on the scale approached significance.

Another independent samples *t*-test was conducted on participants' Contingent Self-Esteem Scale scores between the two conditions. Participants in the Instagram condition did have slightly higher CSES scores ($M = 4.75, SD = .73$) than participants in the Wikipedia condition ($M = 4.65, SD = .82$), but the difference was not significant, $t(89) = .90, p = .37, d = .13$. Additional independent *t*-tests were computed for individual items on the CSE for exploratory purposes. Only the "My feelings of self-worth are basically unaffected when other people treat me badly" item yielded a significant difference, $t(89) = 2.07, p = .04, d = .44$. Participants in the Instagram condition indicated that their feelings of worth are more affected ($M = 4.75, SD = 1.60$) when people treat them badly than participants in the Wikipedia condition ($M = 4.09, SD = 1.41$).

Independent samples *t*-tests were also carried out to examine condition differences in social self-esteem and fear of negative evaluation. Results of these *t*-tests showed no difference in social self-esteem (Instagram: $M = 4.21$, $SD = 0.94$; Wikipedia: $M = 4.17$, $SD = 0.94$; $t(89) = .22$, $p = .82$, $d = .06$) or fear of negative evaluation (Instagram: $M = 3.42$, $SD = 0.98$; Wikipedia: $M = 3.18$, $SD = 1.13$; $t(88) = 1.07$, $p = .29$, $d = .23$) by condition.

Discussion

The results of the pilot study provide evidence for the convergent, discriminant, and concurrent validity of the contingent self-esteem measures, but the results of the independent *t*-tests suggest that the experimental manipulation was not strong enough to elicit significant differences between conditions on self-report measures of contingent self-esteem. Taken together, these results suggest that engaging with Instagram (compared to Wikipedia) did not strongly prime self-esteem contingencies or strongly influence fear of negative evaluation. Despite these results, the similarity in social self-esteem between conditions is encouraging because it supports the idea that the manipulation did not tap into social self-esteem instead of contingent self-esteem. However, this support for the manipulation should be interpreted cautiously given that the manipulation did not effectively produce differences for any of the constructs of interest and contingent self-esteem and social self-esteem were significantly, albeit weakly, correlated. Although the manipulation did not produce strong enough differences to be detected in the self-report measures, all but one of the items on the CSWS (Crocker et al., 2003) trended in the predicted direction. Sensitivity analyses indicated that a much larger effect ($d = .6$) would be necessary to give 80% power to detect significant mean

differences at the $\alpha = .05$ level with the current sample size. However, it is quite possible that participants easily identified the true purpose of the study and, as a result, responded in ways that could have unexpectedly influenced their scores. For instance, participants who were aware of the true purpose of the study may have responded in a way that either aligned with (i.e., reported higher contingent self-esteem) or opposed (i.e., reported lower contingent self-esteem) the intended effect of the manipulation.

In participants' responses to what they thought the study was about, 39 (81%) participants in the Instagram condition and 3 (7%) participants in the Wikipedia condition correctly described the purpose of the study with no reference to the memory cover story¹. A more subtle outcome measure may be helpful to mask the true purpose of the experiment given the number of participants' who were aware of the true purpose of the study. For this reason, incorporating items from the CSWS (Crocker et al., 2003) into a more discreet measure of self-preoccupation that is presented to participants as a "rumination questionnaire" may offer a better approach to measuring contingent self-esteem following the manipulation. Additionally, the optimal method for evoking the self-evaluative implications of other people's social media activity is unclear based on these data. Varying the feed that participants in the Instagram condition see first (personal feed vs. explore feed) may offer insight into this issue and could provide useful information for further development of the online content type manipulation. Taken

¹ Given the stark contrast in awareness of the true purpose of the study by condition, exploratory 2 (Online Content Type) \times 2 (Awareness of Study Purpose: yes, no) ANOVAs were conducted to test whether awareness of the study purpose interacted with condition to influence any of the outcomes of interest. These analyses yielded no significant main effects or interactions, suggesting that awareness of the purpose of the study did not systematically influence participants' responses to the scale measures as a product of experimental condition.

together, these revisions to the study design may improve the efficacy of the manipulation in producing the previously expected results, despite the lack of evidence in the validation data for the effect of social media on contingent self-esteem

Main Study

Though the pilot study showed little evidence for the effect of social media use on contingent self-esteem, these data cannot speak to the relationship between contingent self-esteem, self-preoccupation, and confirmation bias as the latter two constructs were not measured. For this reason, the main study used the same online content type manipulation as the pilot study, but with a few key changes to provide a more complete test of the originally proposed theoretical model. Firstly, the feed that participants in the Instagram condition see first (personal feed vs. explore feed) was varied to assess whether either order of presentation is more effective at evoking contingent self-esteem. Additionally, the main study included a selective exposure task and added a measure of self-preoccupation to measure confirmation bias and self-preoccupation, respectively. Including these elements will provide a more complete test of the originally proposed theoretical model and serve to answer the questions central to this thesis.

Method

Participants

The study employed a 3 (Online Content Type: Instagram personal feed first, Instagram explore feed first, Wikipedia) \times 2 (Information Type Interest: Consistent vs Inconsistent), mixed design with information type interest as the within-participants factor. A meta-analysis (Hart et al., 2009) on selective exposure to information found an average effect size of $d = 0.36$ for the effect of preference for consistent information.

Assuming a correlation among repeated measures of 0.5 and that the interaction effect is smaller than the average effect in the meta-analysis but still small ($d = 0.1$) to medium ($d = 0.3$) in size, a total sample size of 250 would give 80% power to detect a small-to-medium interaction effect ($d = 0.2$) with a type I error rate of $\alpha = 0.05$.

Participants were sampled from the Introduction to Psychology subject pool ($N = 214$, $M_{age} = 19.77$ years, $SD = 3.08$, see Table 1 for additional demographic information) at DePaul University and compensated with course credit for their participation. Due to time and participant availability limitations, the target sample size indicated by the power analysis was not reached. Considering this information and depending on the size of the true effect, the sample that was recruited for this study may be considered underpowered to detect the theorized effects.

All participants self-selected to participate in the study by signing up for the study on SONA. Participants were only able to participate in the study if they had access to a personal Instagram account for use in the study and were compensated with course credit for participating. In accordance with IRB requirements, all participants received information on the study procedure and provide informed consent prior to participating. Following the completion of all tasks, participants were debriefed and compensated accordingly.

Materials

Below are descriptions of each of the stimuli/measures used in the current study, but the Supplemental Materials document provides a comprehensive outline of the experimental procedure.

Preliminary Decision Task. The selective exposure paradigm involved participants making a decision at two points in time: once before they have any supplementary information about the decision topic and then again after having received additional information about the decision topic. The first part of the decision-making task involved participants making a yes/no decision on the question “should the voting age be lowered to 16?” Sixty participants (28.03%) indicated that they believe the voting age should be lowered to sixteen whereas the remaining 154 participants (71.97%) indicated that they believed the voting age should remain at 18. Participants then wrote a few sentences explaining their decision and answered five rating scale questions about their decision (“How difficult / important / comfortable was the decision?” and “How at ease / pleased are you with the decision?”). These five questions were presented with 9-point bipolar rating scales from 1, *very easy / not at all important / comfortable / at ease / pleased* to 9, *very difficult / important / uncomfortable / uneasy / displeased*.

Online Content Type Manipulation. Participants were randomly assigned to one of the three online content type conditions and the procedure of the manipulation was the same as in the validation study except participants were given two additional minutes to browse the content (Instagram: one minute extra for each feed; Wikipedia: one minute extra for each article). The Instagram conditions were intended to prime participants with self-esteem contingencies and the Wikipedia condition served as a control group.

Participants also completed the same “select all that apply” manipulation check question from the validation study in each condition.

Contingent Self-Esteem. Only the “others’ approval” subscale from the Contingencies of Self-Worth Scale (CSWS; Crocker et al., 2003) was used to measure participants’ contingent self-esteem as these items most accurately represent the part of the construct that is expected to be active on social media. Overall, the subscale demonstrated acceptable reliability in the full sample ($\alpha = .82$) and in the confirmatory factor analysis (CFI = .946; RMSEA = .153; SRMR = 0.064)² participants’ responses to the five questions were averaged to create a composite score on the subscale.

Self-Focus vs Task Focus. Due to the lack of state measures of self-preoccupation in the literature, 10 new items (five items per subscale) were created to evaluate participants’ focus on the self ($\alpha = .78$) and their focus on the task ($\alpha = .91$) following the online content type manipulation. Sample items for focus on the self are “During the task, I was thinking about myself” and “I found myself focusing more on “me” than on the task” and sample items for focus on the task are “I felt focused on the task” and “I felt that it was easy to keep my attention on the task”. The full text for all items is available in the Appendix section. All items were measured with 7-point rating scales ranging from 1, *Strongly disagree*, to 7, *Strongly agree*.

Confirmation Bias and Post Information Search Decision. To measure confirmation bias, participants completed the second portion of the selective exposure decision-making task. Participants were told that they would receive 16 pieces of

²The RMSEA value did not reach the conventional cutoff to be considered reliable (RMSEA < .06), but considering the other two metrics suggested good reliability, the overall reliability as indicated by the CFA was deemed acceptable.

information related to the decision that they made at the beginning of the study (“Should the voting age be lowered to 16?”). Before they were presented with the information, participants read a short statement telling them that the information they were about to receive were summaries of political scientists’ responses about whether the voting age should be lowered to 16 that were taken from a recent special edition Op-Ed of a political science journal. In reality, the statements were fabricated to suggest positive and negative information about either side of the argument. The full text of the 16 statements can be read in the Supplemental Materials document.

Of the 16 statements, half argued *for* lowering the voting age to 16 and half argued *against* lowering the voting age. Within each set of 8 statements, half discussed advantages of the chosen alternative and half discussed disadvantages of the unchosen alternative. For example, a statement discussing the advantages of lowering the voting age to 16 was “Lowering the voting age to 16 would increase voter turnout” and a statement discussing the disadvantages of maintaining the voting age at 18 was “Since 16-year-olds can be emancipated from their parents in many states they should also be able to vote.” (See Supplemental Materials for more examples.) Each summary statement was randomly presented on a separate survey page and participants answered whether they would like to read the full statement (if given the opportunity) and how relevant each piece of information was (even if they have indicated that they would not like to read the whole statement) on a 7-point scale ranging from 1, *not at all relevant*, to 7, *very relevant*.

Following participants’ responses to all 16 statements, they answered whether they intended to stick with their initial decision and they also responded to the same five

rating scale questions that they were asked about their decision at the beginning of the study (“How difficult / important / comfortable was the decision?” and “How at ease / pleased are you with the decision?”). Confirmation bias scores were calculated by taking the mean value of consistent pieces of information chosen and inconsistent pieces of information chosen and taking the difference between these means for each participant (e.g., the confirmation bias score for a person selecting 5 consistent pieces and 3 inconsistent pieces would be given by $5/8 - 3/8$). Higher positive scores reflected a greater interest in information that was consistent with the participant’s choice and, therefore, more confirmation bias.

Procedure

This study took place online using the Qualtrics survey platform. Upon visiting the survey link, participants learned that the research was focused on how engaging with online content influences basic cognitive processes and emotions and that they would complete a two-part decision-making task and a memory task. The first part of the decision-making task involved participants making a yes/no decision on the question “should the voting age be lowered to 16?” Participants then wrote a few sentences explaining their decision and answered the five rating scale questions about their decision. Participants then read that they would receive some additional information about the decision topic, but it would take some time to prepare this information and, in the meantime, they were to complete a short memory task related to engaging with online content (either Instagram personal feed first, Instagram explore feed first, or Wikipedia, depending on random assignment) and answer a short questionnaire about their current

feelings. The procedure for this manipulation was the same as in the validation study, but with an added two minutes of engagement for each condition.

Following the memory task, participants completed the “rumination questionnaire” which consisted of the 10 new self and task focus items and the “others’ approval” subscale from the CSWS (Crocker et al., 2003). After the memory task, participants read that they would now receive additional information about the decision they made at the beginning of the study. Participants were randomly presented with 16 summary statements that they were led to believe came from a recent Op-Ed of a political science journal where political scientists wrote in about whether the voting age should be lowered to 16. In reality, the statements were constructed to suggest positive and negative information for either side of the argument. For each statement, participants selected whether they would like to read the full statement (if given the opportunity) and how relevant each piece of information was to their decision. After participants responded to all 16 statements, they stated whether they intended to stick with their initial decision and answered the same five rating scale questions they were asked about their decision at the beginning of the study. Participants then provided their age, gender, race/ethnicity, frequency of social media use (approximate number of Instagram accounts they follow, number of Instagram followers they have, hours per week spent on Instagram, and approximate percentage of influencers that they follow), what they thought the study was about, and if they experienced any technical difficulties.

Results

Reliability Checks for Self-Focus and Task Focus. Separate exploratory factor analyses using Varimax rotation were carried out on the five self-focus and five task focus items (Table 4) and suggested that both sets of items loaded reliably (*i.e.*, factor loadings greater than .3) onto their respective factors. The respective factors captured 44.5% of the variance in self-focus scores and 67.4% of the variance in task focus scores. Based on these findings, separate composite scores were created for self-focus and task focus to be used in further analyses.

Table 4

Exploratory Factor Analyses for Self-Focus and Task Focus Items

Item	Self-Focus	Loading
During the task, I was thinking about myself		.777
I found myself focusing more on “me” than on the task		.753
I felt absorbed in thinking about myself		.637
My focus on the task was interrupted by thoughts about myself		.711
I found myself comparing myself to others		.379
	Task Focus	
I felt focused on the task		.869
I felt engaged with the task		.756
I felt distracted during the task ^a		.769
I felt that it was easy to keep my attention on the task		.855
I found it hard to concentrate on the task ^a		.849

^aItem was reversed for scoring

Manipulation Check. Across the three conditions, participants engaged with their assigned online content type. Participants in the two Instagram conditions selected at least one of the appropriate categories with relatively high frequency (33.78% Travel; 37.16% Family; 68.92% Memes; 70.27% Other with reference to Instagram feed content like fashion/beauty (18.24%), food (7.43%), celebrities (4.73%), sports (9.46%), politics (10.81%)). There were similarly high relative frequencies of selecting at least one of the correct categories in the Wikipedia condition (90.9% Technology; Music 83.33%; History 78.79%; 65.15% answered all three of Technology, Music, and History).

Confirmation bias. There were three outcomes of interest for confirmation bias: participants' mean scores for interest in reading consistent and inconsistent information in each of the conditions, ratings of relevance for consistent and inconsistent information, and their decision to stick with or change their preliminary decision.

Information interest. A 3 (Online Content Type: Instagram explore feed first vs Instagram personal feed first vs. Wikipedia) \times 2 (Information Type Interest: consistent vs inconsistent) mixed-factorial ANOVA with information type serving as the within-participants factor was used to analyze participants' interest in consistent and inconsistent information between conditions. The ANOVA revealed a main effect of information type. Overall, participants chose to read more consistent ($M = .59$, $SD = .32$) than inconsistent information ($M = .53$, $SD = .34$); $F(1, 211) = 10.71$, $p = .001$, $d = 0.22$. However, there was no main effect of online content type or Online Content Type \times Information Type Interest interaction ($F_s < 1.2$). Figure 1 displays the means of consistent and inconsistent information preference for each of the three conditions.

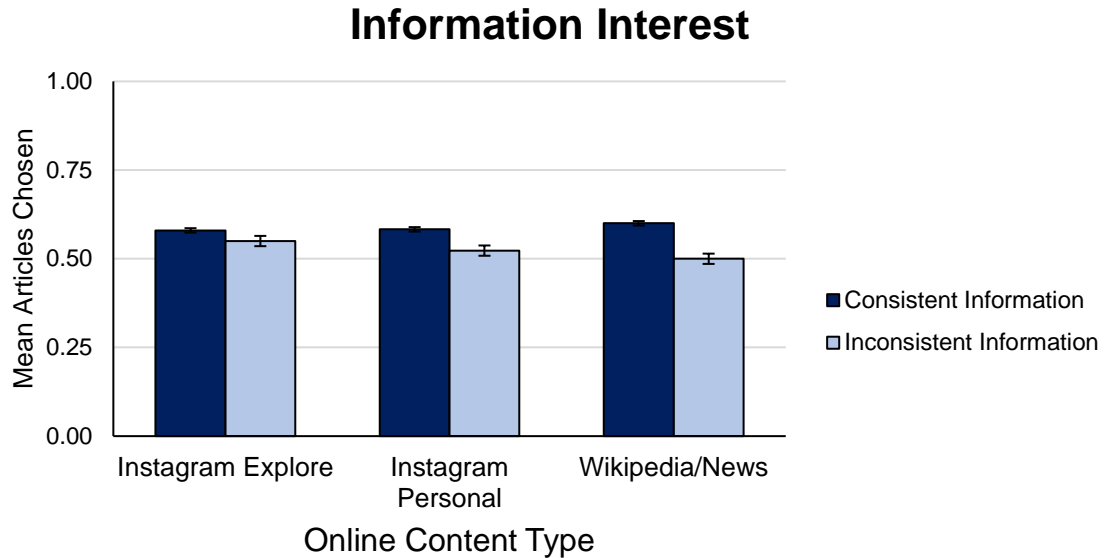


Figure 1. Means of consistent and inconsistent information chosen by Online Content Type condition. Overall, participants preferred to read more consistent than inconsistent information.

Note. The only difference between the Instagram explore and personal conditions was the order of the feed that participants viewed first. Instagram explore = explore feed first; Instagram personal = personal feed first.

Information relevance. Another 3 (Online Content Type) \times 2 (Information Type) mixed-factorial ANOVA with information type serving as the within-participants factors was used to analyze relevance ratings for consistent and inconsistent information by condition. Again, there was a main effect of information type. Participants rated consistent information ($M = 5.12$, $SD = .85$) as more relevant than inconsistent information ($M = 4.43$, $SD = 1.13$); $F(1, 211) = 77.04$, $p < .001$, $d = 0.60$. There was no main effect of condition or Condition \times Information Type interaction ($F_s < 1.4$). Figure 2 shows the relevance rating means of each type of information between the three conditions.

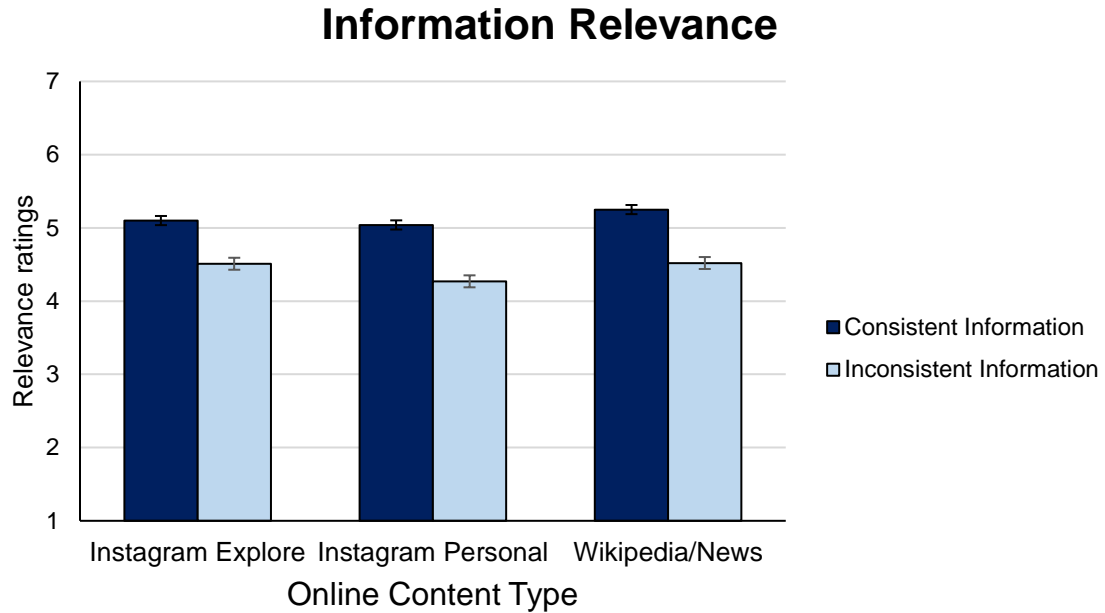


Figure 2. Means ratings of information relevance for consistent and inconsistent information by condition. Overall, participants rated consistent information as more relevant than inconsistent information.

Note. The only difference between the Instagram explore and personal conditions was the order of the feed that participants viewed first. Instagram explore = explore feed first; Instagram personal = personal feed first.

Stay/change decisions. A two-way chi-square test of independence was conducted to analyze participants' final stay/change decisions cross-tabulated against online content type. Results of this analysis suggested no difference in proportions of stay/change decision patterns between the three conditions (Instagram explore: 93.3% stay/6.67% change; Instagram personal: 94.52% stay/5.48% change; Wikipedia: 93.94% stay/6.06% change; $\chi^2(2, N = 214) = 0.09, p = .955$).

Self-Focus and Task Focus. Two additional one-way ANOVAs were conducted to evaluate whether any of the online content type conditions differed in self-focus or task focus. There were no condition differences in focus on the self during the task, $F(2, 210) = 0.57, p = .57$, with each condition reporting similar focus on the self (Instagram explore: $M = 3.45, SD = 1.22$; Instagram personal: $M = 3.25, SD = 1.11$; Wikipedia: $M = 3.39, SD = 1.32$). The ANOVA for task focus did, however, reveal a significant difference between the conditions, $F(2, 210) = 19.83, p < .001$. A follow-up Tukey's HSD post hoc test indicated that participants in the Wikipedia condition were significantly less focused on the task ($M = 3.36, SD = 1.29$) than participants in both the Instagram explore ($M = 4.76, SD = 1.37, p < .001, d = 1.05$) and the Instagram personal ($M = 4.30, SD = 1.30, p < .001, d = .73$) conditions.

Contingent Self-Esteem and Self-preoccupation as Mediators. A serial mediation model was constructed where others' approval scores and self-focus scores sequentially mediated the relationship between online content type and information interest difference scores. This analysis was conducted using the 'Lavaan' (Rosseel, 2012) and 'mediation' packages (Tingley et al., 2014) in RStudio. All continuous predictors were mean centered and Monte Carlo estimation with 5000 repeated samples was used to produce estimates for the direct, indirect, and total effects of the model. Considering the lack of difference between the Instagram conditions, online content type was recoded to a binary dummy factor with the Wikipedia condition serving as the referent category and the combined Instagram conditions serving as the treatment group. The model showed no total effect of online content type on information interest scores ($\beta = -.05, p = .18$) and online content type did not predict either of the mediators [others' approval ($\beta = -.20, p = .30$); self-focus ($\beta = -.05, p = .79$)]. Neither mediator predicted information interest scores [others' approval ($\beta = -.008, p = .59$); self-focus ($\beta = .003, p = .85$)] and there was no direct effect of online content type on information interest score after accounting for the mediators ($\beta = -.06, p = .18$). Additionally, there was no indirect effect of either mediator on information interest scores [others' approval ($\beta = .001, p = .78$); self-focus ($\beta = .00004, p = .99$)], nor a combined indirect effect of both mediators ($\beta = .002, p = .893$). There was, however, a significant relationship between the two mediators – others' approval significantly predicted self-focus ($\beta = .24, p < .001$). The model, along with all path estimates, is shown in *Figure 3*.

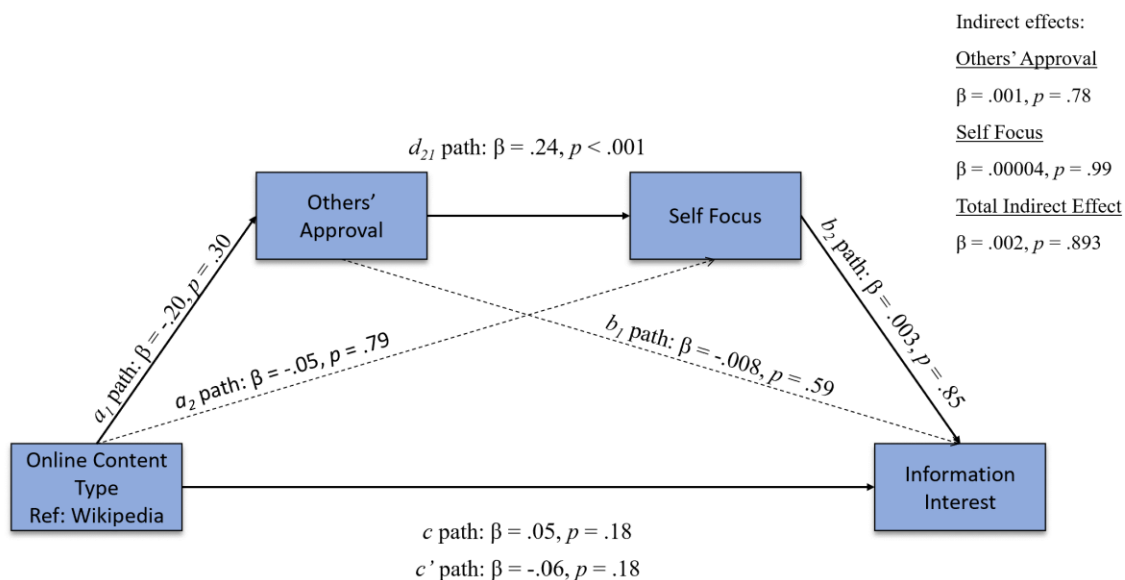


Figure 3. Path model of theorized mediation effect. The relationship between online content type (Instagram vs Wikipedia) and information interest was not sequentially mediated by self-esteem contingent on others' approval and self-focus. Others' approval did significantly predict self-focus with higher others' approval scores predicting more self-focus.

General Discussion

Selective Exposure Task and Confirmation Bias. The analyses for both information interest and information relevance revealed significant main effects of information type such that information consistent with participants' preliminary decisions (relative to inconsistent information) was selected more frequently and was rated as more relevant, overall. These findings indicate that the newly constructed selective exposure task with the decision about voting age was successful in replicating previous patterns of findings that have been produced with other selective exposure tasks (Frey, 1986; Hart et al., 2009). The information interest effect size ($d = 0.22$) was smaller than the average effect size found by Hart and colleagues' (2009) meta-analysis ($d = 0.36$) but given the novelty of the current selective exposure task and the fact that the experiment was run in

an online rather than lab context may account for this attenuation. In any case, this evidence supports the use of the current selective exposure paradigm in future research.

Online Content Type Manipulation. The current study did not find any differences between the online content type conditions on the others' approval subscale of the Contingencies of Self-Worth Scale (CSWS; Crocker et al., 2003), the relevant confirmation bias outcomes, nor any condition by information type interactions. Taken together, these findings suggest that the online content type manipulation was not effective in eliciting differences in self-esteem contingent on others' approval, which in turn makes it difficult to interpret the null findings on the confirmation bias outcomes. The lack of differences between conditions on the self-focus measure also supports the interpretation that the manipulation was ineffective at eliciting differences in contingent self-esteem or in attention placed on the self. It is clear from the manipulation check question responses that participants in the Instagram conditions engaged with a very wide variety of content. The inconsistency of participants' experiences with their Instagram feeds likely contributed additional noise to the data, making it unclear what constructs were activated by the manipulation.

Further complicating the efficacy of the manipulation are the findings on task focus. The results showed that participants in the Wikipedia condition (relative to both Instagram conditions) were less focused on the memory task. This difference in engagement with the manipulation could have been influential to the results in a variety of ways, but additional analyses found no Online Content Type by Task Focus interactions for information interest, information relevance ratings, or total number of

articles chosen³, which somewhat limits concern. Nonetheless, future attempts at investigating differences in contingent self-esteem when interacting with social or non-social media should pay careful attention to potential differences in participants' engagement with the experimental and control tasks.

A more effective manipulation may yet produce the predicted pattern of results, but it is apparent that further attempts would benefit from an approach that more specifically targets contingent self-esteem and self-preoccupation in the context of social media. For instance, participants' interaction with the online content was passive in both the experimental and control conditions. It may be the case that contingent self-esteem and self-preoccupation require more active engagement with social media, such as posting or sharing content, to become activated. Future attempts at manipulating these constructs would likely benefit from adopting an approach that pays mind to active social media use, as differences between the experimental and control conditions would be more pronounced. For example, asking participants to take a photo of themselves and post it on their Instagram (versus taking a photo of themselves and saving it to their phone) would likely elicit a reaction in which the participant is concerned about their self-presentation and visibility to others. In addition to potential concern about increasing their visibility, participants may also be inclined to feel excitement or anxiety about others' reception of the photo that they have just posted and begin to worry about what

³ Separate moderated regression analyses were performed where information interest, information relevance, and total number of articles chosen were regressed on task focus (mean centered), online content type (reference = Wikipedia), and their interaction. None of these analyses yielded mean level differences on any of the outcomes by condition, nor any task focus by condition interactions, suggesting that task focus did not differentially affect any of these outcomes by condition.

others may think or say. In this example, it may be the case that active engagement on social media resembles the “spotlight effect,” – an egocentric bias where one overestimates the salience of their appearance and behavior to others (Gilovich et al., 2000). This state of increased self-focused attention and anticipation of potential feedback about oneself could also be useful in eliciting the predicted patterns of confirmation bias theorized throughout this paper. As outlined in the introduction, heightened activation of contingent self-esteem and increased self-focused attention could bear cognitive costs that limit one’s ability to process information in an unbiased manner. For these reasons, future consideration should be given to experimental manipulations where participants actively interact with their social media in a way that increases their visibility to others, as these types of manipulations are likely to be more effective at priming self-esteem contingencies and eliciting self-preoccupation.

Contingent Self-Esteem and Self-Preoccupation. Although there were no indirect or direct effects of either contingent self-esteem or self-preoccupation on information interest difference scores, increased contingent self-esteem was significantly related to increased self-focus following the manipulation. This finding is promising for future research, and a more effective manipulation may prime contingent self-esteem and in turn lead to differential focus on the self. Additionally, heightened self-focused attention has been shown to predict negative affect and rumination-based self-focus magnifies this effect (Mor & Winquist, 2002). Therefore, a manipulation that elicits self-preoccupation, whether rumination based or not, may also be effective at producing negatively valenced emotional states, each with unique action tendencies that could be relevant to information processing. Furthermore, heightened negative affect does lead to selective attention toward negative information (Matthews & McLeod, 1994) and it may be the case that heightened negative affect influences other cognitive processes related to attention to and selection of information, such as those implicated in the current study. Though this remains to be determined, it is certainly an exciting direction for future investigation.

Conclusions and Future Directions

The findings of the current study did not support the hypothesis that engaging with social media (compared to Wikipedia) primed existing self-esteem contingencies nor influenced confirmation bias behavior. However, we did find that more strongly basing one's self-esteem on the approval of others predicted increased self-focus. And while self-focus did not influence confirmation bias in the current study, it is possible that future experimental paradigms that emphasize active engagement with social media

(where heightened visibility to others and concerns about self-presentation are salient) will be effective at eliciting differences in confirmation bias as a product of differential focus on the self. Given the connection between contingent self-esteem and self-focus, manipulations that are effective at priming self-esteem contingencies will likely also be effective at heightening self-focused attention. However, the current study only measured the others' approval domain of contingent self-esteem and therefore it is yet to be determined whether holding self-esteem contingencies in other domains (e.g., appearance, competition, competency) is related to heightened self-focused attention. Future research may benefit from understanding how self-esteem contingencies in other domains of self-worth are related to self-focused attention in specific social media contexts, as there is likely to be great variability in the self-esteem contingencies of social media users and the motivational goals that they pursue. For instance, it is likely that deriving self-esteem from one's appearance (but not from one's competency) would be influential to self-focus when posting a picture of oneself online. There may be similar patterns of self-focus across each domain of contingency, but the stimuli that are likely to elicit these patterns require further investigation.

Another interesting avenue for future research could be to explore the other end of the preoccupation spectrum: individuals who are strongly motivated by inclusive goals that involve both the self and others (see Crocker & Park, 2004, *Shifting Goals* section). By shifting one's motivation from a subordinate goal (e.g., sharing a post to obtain "likes" from followers) to a superordinate goal (e.g., sharing a post to inform others about a topic), the focus is shifted away from validating self-worth and toward a more stable basis of self-esteem. From this perspective, we might expect people in pursuit of

superordinate goals to be *less* likely to engage in confirmation bias behavior as their motivation is focused away from the self. In turn, this could offer an interesting contrast in future experiments where participants are explicitly asked to adopt either the motivational goal to validate self-worth or a goal that is more inclusive of others. Demonstrating that superordinate goals facilitate openness to information whereas self-worth validation goals facilitate self-centered information processing would contribute evidence for the central argument of this thesis—that an overly self-focused individual is likely to selectively prefer information that supports their pre-existing beliefs and attitudes. Considering that people are naturally oriented to focus on the self, disinhibiting self-preoccupation by encouraging one to focus on superordinate goals may be a strategy that is just as effective at revealing the behaviors that are associated with a baseline or elevated state of self-focused attention. In other words, understanding one’s behavior when focus on the self is low is just as informative as examining situations where focus on the self is high because it allows for comparisons of cognitive, emotional, and behavioral processes when the self is not the center of attention. Future research should pay careful attention to the factors that underlie effective superordinate goals as these elements are likely to be the most helpful with respect to reorienting the focus of individuals who are overly self-focused toward a more robust method of pursuing self-esteem.

Throughout this thesis, the focus has been placed more heavily on the possible cognitive and motivational consequents of self-esteem contingencies and social media use. However, self-esteem contingencies and social media do not only affect our cognition and motivation, but also our emotions and behaviors in a broader sense.

Though beyond the scope of this paper, unpacking the cognitive, emotional, and behavioral consequences of self-esteem contingencies and self-focused attention on social media is absolutely a worthwhile pursuit. By understanding the psychological constructs that are activated by engagement with social media content and the psychological processes that result from the activation of these constructs, we will be better equipped to combat negative outcomes related to social media use. Whether we like it or not, social media are poised to become increasingly more interweaved into our lives; keeping up with the resulting cognitive, social, and emotional phenomena that are likely to follow, however, is up to us.

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Appendix A: Measures

Contingencies of Self-Worth Scale (Crocker et al., 2003)

Others' Approval

- I don't care what other people think of me
- What others think of me has no effect on what I think about myself
- I don't care if other people have a negative opinion about me
- My self-esteem depends on the opinions others hold of me
- I can't respect myself if others don't respect me

Appearance

- My self-esteem does not depend on whether or not I feel attractive
- My self-esteem is influenced by how attractive I think my face or facial features are
- My sense of self-worth suffers whenever I think I don't look good
- My self-esteem is unrelated to how I feel about the way my body looks
- When I think I look attractive, I feel good about myself

Competition

- Doing better than others gives me a sense of self-respect"
- Knowing that I am better than others on a task raises my self-esteem
- My self-worth is affected by how well I do when I am competing with others
- My self-worth is influenced by how well I do on competitive tasks
- I feel worthwhile when I perform better than others on a task or skill

Responses made on 7-point rating scale (1 = *Strongly disagree*, 7 = *Strongly agree*)

Contingent Self-Esteem Scale (Paradise & Kernis, 1999)

My overall feelings about myself are influenced by how much other people like and accept me

If I get along well with somebody, I feel better about myself overall

An important measure of my worth is how physically attractive I am

My overall feelings about myself are heavily influenced by what I believe other people are saying or thinking about me

If I am told that I look good, I feel better about myself in general

An important measure of my worth is how well I perform up to the standards that other people have set for me

Even on a day when I don't look my best, my feelings of self-worth remain unaffected

My overall feelings about myself are heavily influenced by how good I look

An important measure of my worth is how competently I perform

Even in the face of failure, my feelings of self-worth remain unaffected

A big determinant of how much I like myself is how well I perform up to the standards that I have set for myself

My feelings of self-worth are basically unaffected when other people treat me badly

If I know that someone likes me, I do not let it affect how I feel about myself

When my actions do not live up to my expectations, it makes me feel dissatisfied with myself

Even in the face of rejection, my feelings of self-worth remain unaffected

Responses made on 7-point rating scale (1 = *Strongly disagree*, 7 = *Strongly agree*)

Social Self-Esteem Inventory (Lawson et al., 1979)

- I find it hard to talk to strangers.
- I lack confidence with people.
- I am socially effective.
- I feel confident in social situations.
- I am easy to like.
- I get along well with other people.
- I make friends easily.
- I am lively and witty in social situations.
- When I am with other people I lose self-confidence.
- I find it difficult to make friends.
- I am no good at all from a social standpoint.
- I am a reasonably good conversationalist.
- I am popular with people my own age.
- I am afraid of large parties.
- I truly enjoy myself at social functions.
- I usually say the wrong thing when I talk with people.
- I am confident at parties.
- I am usually unable to think of anything interesting to say to people.
- I am a bore with most people.
- People do not find me interesting.
- I am nervous with people who are not close friends.
- I am quite good at making people feel at ease with me.
- I am more shy than most people.
- I am a friendly person.
- I can hold people's interest easily.
- I don't have much "personality".
- I am a lot of fun to be with.
- I am quite content with myself as a person.
- I am quite awkward in social situations.
- I do not feel at ease with other people.

Responses made on 6-point rating scale (1 = *completely unlike me*, 6 = *completely like me*)

Revised Brief Fear of Negative Evaluation Scale (Carleton et al., 2006)

I worry about what other people will think of me even when I know it doesn't make any difference.

It bothers me when people form an unfavorable impression of me.

I am frequently afraid of other people noticing my shortcomings.

I worry about what kind of impression I make on people.

I am afraid that others will not approve of me.

I am afraid that people will find fault with me.

I am concerned about other people's opinions about me.

When I am talking with someone, I worry about what they may be thinking about me.

I am usually worried about what kind of impression I make.

If I know someone is judging me, it tends to bother me.

Sometimes I think I am too concerned with what other people think of me.

I often worry that I will say or do the wrong things.

Responses made on 5-point rating scale (1 = *completely uncharacteristic of me*, 5 = *completely characteristic of me*)

Self-Focus vs Task Focus**Self-focus**

During the task, I was thinking about myself

I found myself focusing more on “me” than on the task

I felt absorbed in thinking about myself

My focus on the task was interrupted by thoughts about myself

I found myself comparing myself to others

Task focus

I felt focused on the task

I felt engaged with the task

I felt distracted during the task

I felt that it was easy to keep my attention on the task

I found it hard to concentrate on the task

Responses made on 7-point rating scale (1 = *Strongly disagree*, 7 = *Strongly agree*)