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Do instrumental goal pursuits mediate feelings of envy on Facebook and Happiness or subjective well-being?

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ABSTRACT

Different goal pursuits influence the valence of social networking sites (SNS) use, with some uses being more adaptive than others (e.g., aimless scrolling vs. communicating with friends). We use a model of happiness-increasing strategies on happiness and consider the mediating effect of Instrumental Goal Pursuit on the relationship of Envy to Happiness, or subjective well-being, in SNS use. Participants were drawn from an urban English college-level population. Partial least squares structural equation modeling was used to model relationships. Findings show that, in the context of SNS use, instrumental goal pursuit may not mediate the relationship between envy and happiness. Varying goal features may have a confounding effect on goal instrumentality in increasing happiness. Life satisfaction, purpose, personal circumstances, and personality differences likely have mediating effects on happiness and SNS use. Future studies should explore a more complete model that accounts for other antecedent factors including personality differences and life circumstance that have been shown to influence subjective wellbeing and likely mediate the relationship of instrumental goal pursuit relation to happiness.

1. Introduction

1.1. Social networking sites

Social Networking Sites (SNS) have reshaped how we connect to each other, and the initial promise of bringing people closer together has counter productively led to the atomization of the public sphere into filter bubbles (Bozdag & van den Hoven, 2015; DiFranzo & Gloria-Garcia, 2017) and increased insularity as we associate with like-minded people and become disconnected from people who think differently from us (Turkle, 2011). FOMO, or the fear of missing out in internet speak, has been attributed to heightened feelings of depression and isolation as users are inundated with picture-perfect lives that create unattainable standards of happiness. Using social comparison theory, researchers (Krasnova, Widjaja, Buxmann, Wenninger, & Benbasat, 2015) have demonstrated that social media consumption is related to higher feelings of envy, defined as "unpleasant and often painful blend of feelings caused by a comparison with a person or group of persons who possess something we desire" (Smith & Kim 2007, p. 49). In her review, Fiske (2010) writes: "Related to jealousy, resentment, and injustice, envy is directed up, toward the rich, professional, and entrepreneurial but also toward peers and allies doing better than the self. Envy is dangerous, dividing people in a different way than scorn does (p.703)." In the current context, it is salient to ask exactly what is the link between envy, happiness, or subjective well-being, and SNS use. However, studies have shown that the link is somewhat more complicated by the nature of the SNS use, as some uses may be more adaptive than others, as in the difference between passively viewing and actively participating, as two main modes of activity (Krasnova et al., 2015). Depression, loneliness, life satisfaction, anxiety personality differences have been connected to differences in SNS usage (Sheldon & Bryant, 2016; Krasnova et al., 2015). Barnett, Pearson, Pearson, and Kellermanns (2015) demonstrated that of the big five personality dimensions, conscientious, neuroticism, and extraversion were related to different perceptions and uses of an online course management system. Indeed, neuroticism is related to higher incidence of anxiety and depression.

User SNS interactions take myriad forms. They vary by the type of platform, the frequency of posting, time connected, and life factors which may influence the kind of use and ultimately, subjective feelings of wellbeing (Ahn, 2011). Valenzuela, Park, and Kee (2009) examined Facebook usage among college students and found it positively correlated to life satisfaction, social trust, and civic engagement. Although, Goodman-Deane, Mieczakowski, Johnson, Goldhaber, and Clarkson

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(2016), comparing SNS to ten other forms of communication, found SNS negatively correlated with life satisfaction. However, the strength of satisfaction with relationships depended on the type of relationship, whether parent or friend. Others have shown that social media use is related to feelings of jealousy and dissatisfaction in relationships (Halpern, Katz, & Carril, 2017).

Instrumental goal pursuit—acting as an agent attempting to change her situation (e.g., "Strive to accomplish things") or herself (e.g., "Attempt to reach full potential" (Tkach & Lyubomirsky, 2006, p. 211)—may influence users' subjective feeling of wellbeing and mitigate feelings of envy and more maladaptive uses that lead to heightened feelings of life dissatisfaction and loneliness, but this has not been extensively studied. However, feelings of loneliness appear to be reduced, while happiness and life satisfaction are increased, by the use of an image-based social network platform (e.g., Snapchat, Instagram) versus text-based platforms (e.g., Twitter, Facebook) that prove ineffectual on these measures (Pittman & Reich, 2016). While Davis (2013) explored the mediating effect of friendships, online communication, and self-concept clarity, and found that friendship quality mediated the relationship between online communication and self-concept, and online communication influenced both self-concept clarity and friendship quality. Thus, it appears that different goal pursuits could influence the valence of SNS use, with some uses more adaptive than others (e.g., aimless scrolling vs. communicating with friends).

In SNS use, the link between envy and happiness is likely mediated by user personal characteristics and pattern of engagement. We focus on the mediating effect of instrumental goal pursuit on the relationship between envy and happiness. Studies have shown that positive affect and subjective well-being are linked to goal setting and achievement (Ehrlich, 2012; Páez, Martínez-Sánchez, Mendiburo, Bobowik, & Sevillano, 2013; Tkach & Lyubomirsky, 2006). Thus, we inquire whether the link between envy and happiness using SNS is mediated by instrumental goal pursuit.

1.2. Trait and state happiness

Happiness, or subjective well-being (Ehrlich, 2012; Lauriola & Iani, 2017; Nima, 2012; Páez et al., 2013; Steel, Schmidt, & Shultz, 2008; Tkach & Lyubomirsky, 2006), is influenced by traits such as personality and mood and affect regulating strategies such as goal pursuit. We generally accept that traits can influence affect. Yet, we observe that some individuals seek out situations and adopt strategies to induce positive affect. McCrae and Costa (1991) proposed two paths: temperamental and instrumental. Temperamental such that neuroticism increases unhappiness and extraversion, happiness. In this view, traits predispose to certain moods. Tkach and Lyubomirsky (2006) found support for both instrumental and temperamental paths in the use of happiness-promoting strategies. Notably, extroversion appears influenced by a number of happiness-promoting strategies, whereas neuroticism, tends to make less use of strategies, focusing on mental control, and appears to have the opposite effect.

In the instrumental perspective, traits influence instrumental behaviors that in turn produce congruent affect, such as extroverts seeking out social activities that positively influence mood. Indeed, research has shown how particular volitional behaviors, such as happiness-increasing strategies, appear to moderate the relation between dispositions and well-being (Tkach & Lyubomirsky, 2006). Further, Lyubomirsky, Sheldon, and Schkade (2005) noted that up to 40% of the variance in individual differences in happiness is not accounted for by traits and instead may result from individual strategies and behaviors. Strategies for self-regulation of moods have been documented as well as their consequences on well-being and satisfaction (Páez et al., 2013; Tkach & Lyubomirsky, 2006).

Tkach and Lyubomirsky (2006) derived eight factors of happiness strategies among college students. These factors were social affiliation, partying and clubbing, mental control, instrumental goal pursuit, passive leisure and active leisure, religion, and direct attempts. All positively correlated with happiness except passive leisure (none) and mental control (negative). Their regression analyses showed that happiness-increasing strategies accounted for a sizeable portion of the variance in individual differences in happiness levels. Strategies accounted for more variance (52%) than personality traits (46%) and accounted for an important amount of variance in happiness (16%) after controlling for the contribution of personality. The strongest predictors of happiness, controlling for other strategies, were mental control (inversely related), direct attempts, social affiliation, religion, partying, and active leisure. In the multiple regression model, passive leisure and instrumental goal pursuit did not contribute independently to happiness. The majority of the mediation models showed significant improvement with the inclusion of the happiness-promoting strategies, except partying that appeared to negatively moderate the relationship between extraversion and happiness. Neuroticism was least affected by strategies, except the inversely related mental control. Their findings on happiness-promoting strategies among a college student population mirrors work conducted on affect and mood regulation (Páez et al., 2013).

1.3. Research question

As mentioned earlier, there are multiple factors of happiness strategies. We elected to focus on and test for instrumental goal pursuit as this factor appears to be the most frequently used strategy by college students (Tkach & Lyubomirsky, 2006, p. 195). Thus, the purpose of this study was to explore how instrumental goal pursuit influenced happiness through envy on SNS (Facebook) use. Our research question was phrased as follows: Does instrumental goal pursuit mediate feelings of envy on Facebook on users' subjective well-being?

2. Method

2.1. Research model

The research model was developed using Tkach and Lyubomirsky's

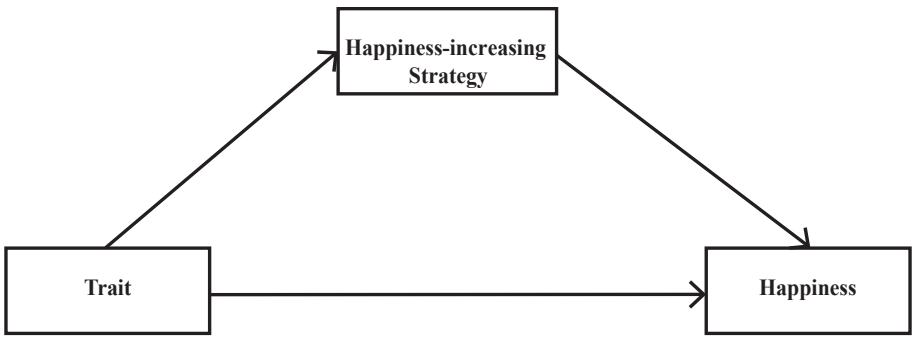

Fig. 1. Tkach and Lyubomirsky's (2006) process model of the relation of a trait to happiness mediated by happiness-increasing strategy.

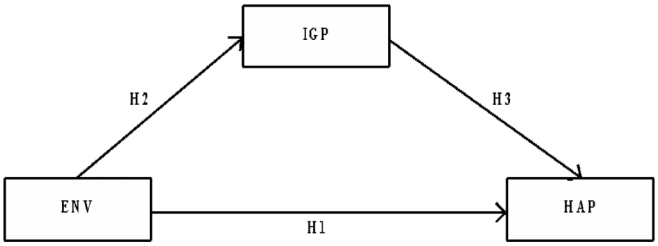

Fig. 2. Research model.

(2006) process model for studying the mediating effect of happiness-increasing strategies on happiness controlling for personality traits (Fig. 1). Tkach and Lyubomirsky's (2006) process model provides an accessible framework to test for a mediating happiness-inducing strategy on the link between Trait (Envy on Facebook) and Happiness, instead of simply examining the direct link between Envy on Facebook and Happiness. Their empirically-derived model provides a theoretical basis to explain the potential mediating role of a happiness increasing strategy on the relationship between envy on Facebook and Happiness. Their inventory of happiness-inducing strategies among college students provides a baseline comparison for our present study.

In this study, we consider the mediating effect of Instrumental Goal Pursuit (IGP) on the relationship of Envy on Facebook (ENV) to Happiness (HAP). Our research model is depicted in Fig. 2 below. Our four hypotheses were:

H1. ENV is negatively related to HAP

H2. ENV is negatively related to IGP

H3. IGP is positively related to HAP

H4. IGP mediates the relationship between ENV and HAP

2.2. Participants

Participants were drawn from an urban English college-level population, $N = 119$ (77 female and 42 male). The average age was 17.96 ($SD = 1.14$).

2.3. Instruments

A questionnaire (see Appendix) was adapted from three instruments, one for each construct: envy (Krasnova et al., 2015), happiness (Lyubomirsky & Lepper, 1999), and instrumental goal pursuit (Tkach & Lyubomirsky, 2006). The envy questionnaire was based on a workplace questionnaire for examining situational envy.

2.4. Calculation

A partial least squares structural equation modeling (PLS-SEM; Hair, Ringle, & Sarstedt, 2011) approach was used and analyses were carried out using the WarpPLS software (Kock, 2015a, 2015b). The standard two-step modeling process was followed: measurement model and structural model (Hair et al., 2011; Henseler, Hubona, & Ray, 2016; Kock, 2015b), and the psychometric properties were examined using guidelines for conducting PLS analyses (Hair et al., 2011; Henseler et al., 2016; Kock, 2015b).

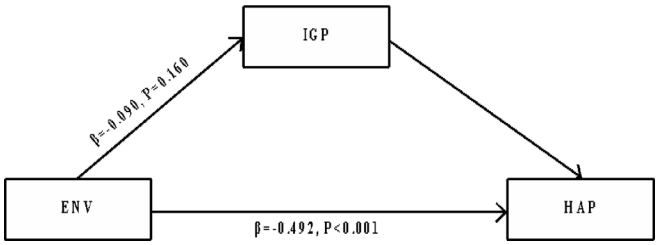

Fig. 3. PLS results.

3. Results

3.1. Measurement model

There was acceptable fit of the data (Table 1) to the model (Kock, 2015b).

After dropping the loadings below 0.70 (Hair et al., 2011), the remaining loadings, which demonstrate the instrument's reliability, are presented in Table 2. In Table 3 the composite reliability coefficients of the different measures all exceeded the threshold value of 0.70 and the Cronbach's alpha coefficients of the different measures all exceeded the threshold value of 0.70, establishing the reliability of the indicators (Kock, 2015b). Convergent validity, assessed using the average variance extracted (AVE) test on the variables, was supported as all AVEs exceeded the recommended threshold value 0.50 (Henseler et al., 2016).

Discriminant validity was assessed using the Fornell-Larcker criterion (Fornell & Larcker, 1981). In Table 4, the diagonal values (square roots of AVEs) are all greater than the off-diagonal numbers in the corresponding rows and columns, and in doing so, exhibit discriminant validity.

3.2. Structural model

The full collinearity variance inflation factors (VIFs) were below the suggested threshold of 5, thus indicating that there was no multicollinearity and no common method bias (Kock, 2015b). Additionally, the predictive relevance, that is, Q^2 coefficient values were greater than zero, demonstrating an acceptable level of predictive relevance (Kock, 2015b).

The path estimation results are presented in Fig. 2. According to Hair et al. (2011), R^2 (coefficient of determination) values of 0.75, 0.50, and 0.25 are considered substantial, moderate, and weak, respectively. With an R^2 of 0.317 (moderate) for HAP, the latent variables (ENV and IGP) explain 31.7% (weak) of the variance in HAP.

The path coefficients (β) and path significance (p-value) were examined to reveal the relationships between the constructs in the research model. The results of the hypotheses testing including effect sizes (f^2) are presented in Table 5. Values of 0.35, 0.15, and 0.02 are deemed as large, medium, and small, respectively (Cohen, 1988). (see Fig. 3).

3.3. Mediation analysis

To test the mediation hypotheses (H4), the guidelines for conducting mediation analysis using PLS suggested by Nitzl, Roldan, and Cepeda (2016) were followed. According to Nitzl et al. (2016), "testing the indirect effect a × b provides researchers with all information for testing mediation" (p. 1852); here "a" refers to the path between the independent variable and the mediatory variable, while "b" represents the path between the mediator variable and the dependent variable.

Testing the significance of the indirect effect, we find that the indirect link between envy on Facebook and happiness was not significant ($\beta = -0.023$, $P = 0.359$, $f^2 = 0.012$); thus, instrumental goal pursuit did not mediate the relationship between envy on Facebook and happiness.

4. Discussion

Findings support the view that envy on Facebook negatively influences happiness. Further, we find that instrumental goal pursuit is only slightly related to happiness. These findings are congruent with previous research, notably in Tkach and Lyubomirsky's (2006) work on happiness-promoting strategies where instrumental goal pursuit was not found to be related to happiness when other variables were

Table 1
Model fit statistics and quality indices.

Measure	Values	Recommended Criterion
Average path coefficient (APC)	0.281, $P < 0.001$	Acceptable if $P < 0.05$
Average R-squared (ARS)	0.163, $P = 0.017$	Acceptable if $P < 0.05$
Average adjusted R-squared (AARS)	0.153, $P = 0.022$	Acceptable if $P < 0.05$
Average block VIF (AVIF)	1.001	Acceptable if < = 5
Average full collinearity VIF (AFVIF)	1.239	Acceptable if < = 5
Tenenhaus GoF (GoF)	0.336	small > = 0.1, medium > = 0.25, large > = 0.36
Sympson's paradox ratio (SPR)	1.000	acceptable if > = 0.7
R-squared contribution ratio (RSCR)	1.000	acceptable if > = 0.9
Statistical suppression ratio (SSR)	1.000	acceptable if > = 0.7
Nonlinear bivariate causality direction ratio (NLBCDR)	0.667	acceptable if > = 0.7

Table 2
Loadings of measurement items.

	HAP	IGP	ENV	P value
HAP1	**0.907**	−0.003	−0.013	< 0.001
HAP2	**0.882**	−0.091	0.101	< 0.001
HAP3	**0.849**	0.098	−0.091	< 0.001
IGP2	0.017	**0.778**	−0.041	< 0.001
IGP3	−0.091	**0.739**	−0.106	< 0.001
IGP4	−0.050	**0.828**	−0.093	< 0.001
IGP5	−0.035	**0.818**	0.162	< 0.001
IGP6	0.165	**0.747**	0.072	< 0.001
ENV1	−0.167	0.057	**0.780**	< 0.001
ENV3	0.132	−0.021	**0.806**	< 0.001
ENV4	0.083	−0.039	**0.873**	< 0.001
ENV5	−0.057	0.008	**0.869**	< 0.001

Table 3
Measurement scale characteristics.

Construct	Composite reliability (CR)	Cronbach's alpha	Average variance extracted (AVE)
HAP	0.911	0.854	0.774
IGP	0.888	0.841	0.613
ENV	0.901	0.852	0.694

Table 4
Discriminant validity check.

	HAP	IGP	ENV
HAP	**0.880**	0.261	−0.453
IGP	0.261	**0.783**	−0.033
INV	−0.453	−0.033	**0.833**

Table 5
Hypothesis testing.

Hypothesis	Path	Path coefficient (β)	*P value*	Effect size (f^2)	Result
H1	ENV→HAP	−0.492	$P < 0.001$	0.246	Supported
H2	ENV→IGP	−0.090	$P = 0.160$	0.008	Not Supported
H3	IGP→HAP	0.260	$P = 0.002$	0.071	Supported
H4	Mediation	−0.023	$P = 0.359$	0.012	Not Supported

included in the regression equation. Tkach and Lyubomirsky (2006) reasoned that the items included in the factor may not have been fine-grained enough to capture the variability inherent in goal pursuit. Indeed, the literature on motivation has identified many factors that can be considered instrumental. Whether in terms of achievement goals, or expectancy-value theory, instrumental goals can be categorized in terms of their utility value, in terms of outcome value, ability or self-efficacy, and performance goals, among others. Thus, instrumentality may reveal some complexity not captured by a limited number of items. For example, Ehrlich (2012) discussed the effect of goal orientations on subjective well-being and found a significant association between goal orientations and subjective well-being.

4.1. Happiness, fulfillment, and purpose

In the context of SNS use, instrumental goal pursuit may not mediate the relationship between envy and happiness because varying goal features may have a confounding effect on goal instrumentality in increasing happiness. Concretely, the Japanese concept of *ikigai*, or having purpose in life, has been found to be strongly related to well-being among various age groups (Czekierda, K., Banik, A., Park, C. L., & Luszczynska, 2017; Ho, Cheung, & Cheung, 2010; Ishida & Okada, 2006; Krok, 2017; Zhang, Chan, Niu, Liu, Zou, Chan & Wong, 2018). In a Canadian survey of life satisfaction, respondents who reported a higher level of involvement with their community reported higher levels of life satisfaction (Branch-Allen & Jayachandran, 2016). A purpose can include family, passion, and professional goals, but what many instrumental goals share is a commitment to something outside of one's self and a belief that the goal is worth the expense (cost, pain or suffering). Someone who works toward a deeply held goal may be willing to accept much difficulty and may still report high levels of happiness. Indeed, this echoes the somewhat contradictory finding that parents report less happiness but higher levels of fulfillment (Nelson, Kushlev, English, Dunn, & Lyubomirsky, 2013). Thus, if the instrumental goal is the reduction of feelings of envy on SNS—as affect—it may not be surprising that instrumental goal pursuit does not mediate the relationship between envy and happiness. However, if the instrumental goal is related to a purpose, like child rearing, we may indeed find that instrumental goal pursuit is related to happiness, confounding such a relationship.

Tkach and Lyubomirsky (2006) explained the lack of instrumental goal pursuit contributing to happiness over the contribution of other factors in the multiple regression by pointing to possible confounding interactions with other happiness-inducing strategies as individuals who actively pursue goals tend to socialize, exercise, and use direct attempts to maintain or increase happiness. As they suggested, it is likely that other dimensions exist, and the six items may not be sufficient to adequately represent instrumental goal pursuit as a construct. Indeed, goals can be classified among many different types, each type likely to have its own relation to the persistence of traits and moods like envy and happiness, and life satisfaction.

4.2. Limitations

This study is limited by its cross-sectional nature and its use of a convenience sample. We did not control for possible influences such as

level of activity, or number of friends (Krasnova et al., 2015). We did not inquire about life satisfaction, purpose, personal circumstances, and personality differences, although these factors likely have mediating effects on happiness and SNS use as reported in the literature.

4.3. Conclusions

We find support for the view that envy on Facebook negatively influences happiness. Further, we find that instrumental goal pursuit is only slightly related to happiness. We argue instrumental goal pursuit may be mediated by perceptions of purpose and fulfillment.

Research in affect and SNS use has implications for policymakers, and for software designers. Recent events have demonstrated the unwanted effects of SNS design decisions. Large internet platforms have become media companies and their algorithms appear to have had undue effects on election integrity and have been blamed for the deterioration of public discourse in the intervening period of SNS ascension to its dominant position in the social and public spheres. It seems increasingly necessary to develop a set of policy recommendations that can support the original aspirational goal of SNS for bringing people together, rather than increasing isolation and negative affect among SNS users and creating filter bubbles with the concomitant erosion of public discourse.

Future studies ought to explore a more complete model that accounts for other antecedent factors, to establish to what extent the effect of instrumental goal pursuit relation to happiness may be influenced by individual differences and life circumstance.

Conflicts of interest

None.

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None.

Appendix

Subjective Happiness Scale (Lyubomirsky & Lepper, 1999).

In general, I consider myself:	not a very happy person	1	2	3	4	5	6	7	a very happy person
Compared with most of my peers, I consider myself:	**less happy**	1	2	3	4	5	6	7	**more happy**
Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?	**not at all**	1	2	3	4	5	6	7	**a great deal**
Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?	**not at all**	1	2	3	4	5	6	7	**a great deal**

Instrumental Goal Pursuit (Tkach & Lyubomirsky, 2006).

How often do you use the following strategies to increase or maintain your happiness?	Never	Rarely	Occasionally	Sometimes	Frequently	Usually	Every time
Pursue career goals	1	2	3	4	5	6	7
Attempt to reach full potential	1	2	3	4	5	6	7
Study	1	2	3	4	5	6	7
Strive to accomplish things	1	2	3	4	5	6	7
Try to do well academically/raise grades	1	2	3	4	5	6	7
Organize life and goals	1	2	3	4	5	6	7

Envy on Facebook (Krasnova et al., 2015).

When using Facebook, how often are you thinking that:	Never	Rarely	Occasionally	Sometimes	Frequently	Usually	Every time
Most of my Facebook friends have it better than I do	1	2	3	4	5	6	7
The posts of my Facebook friends get more attention (e.g., “likes”, comments) than mine	1	2	3	4	5	6	7
I do not know why, but I feel like an underdog on Facebook	1	2	3	4	5	6	7
It is somewhat annoying to see on Facebook how successful some of my Facebook friends are	1	2	3	4	5	6	7
It is somewhat disturbing to see how popular some of my friends are on Facebook	1	2	3	4	5	6	7
It is somehow disturbing when I see on Facebook how much traveling others can afford	1	2	3	4	5	6	7

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