



# Capitalizing on the success of romantic partners: A laboratory investigation on subjective, facial, and physiological emotional processing



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## ABSTRACT

Receiving a constructive, supportive response from romantic partners after sharing good news has been shown to magnify the positivity of events and predict healthy relationship outcomes. We conducted a laboratory social interaction to determine whether supportive responses to success led to changes in facial expressions, sympathetic arousal, and felt emotions. Our methodology allowed us to break down the sequence of capitalization support. In 69 romantic couples, we recorded emotional processing before, during, and after the task in both partners. Person A received performance feedback on a computer task and shared their success via text messages with Person B, who then reacted to this success. Supportive capitalization responses led to greater felt positive emotions and a trend for fewer negative emotions; effects were similar for givers and receivers of supportive responses. Facial expressions were also happier for people receiving supportive capitalization responses. Results suggest the importance of addressing the giving and receiving of capitalization support within the same social situation.

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## 1. Introduction

For decades, scientists have studied how people respond with social support when another person experiences stress and crises. Only recently, however, have scientists started to explore the importance of being supportive when another person shares their accomplishments and positive life events. Receiving a supportive response following the sharing of a positive event leads to an increase in positive emotions above and beyond the positive emotion attributable to the event itself (Gable, Reis, Impett, & Asher, 2004; Kleiman, Kashdan, Monfort, Machell, & Goodman, *in press*; Lambert et al., 2013; Langston, 1994). Supportive responses can be motivated by the desire to foster a reciprocal relationship wherein both individuals feel that they have high-quality support available, which is linked to well-being and relationship health

(Gable, Gosnell, Maisel, & Strachman, 2012; Reis, Clark, & Holmes, 2004). Strikingly, researchers have found that being supportive when people share positive events is more predictive of relationship satisfaction, love, and commitment than being supportive during difficult times (Gable, Gonzaga, & Strachman, 2006). Receiving an enthusiastic response to a shared positive event becomes behavioral evidence that one is cared for, understood, and valued. This in turn results in a greater willingness to trust and share more personal information, increasing the flow of support between both individuals (Reis et al., 2010). Taken together, a decade of research suggests that responses to the disclosure of a positive event has important implications for personal and social well-being.

The process of positive event disclosure provides an opportunity to retell and relive the event, and to revive related emotions. One of the difficulties in studying capitalization support is that there are three parts to this interpersonal strategy, each of which has the potential to increase positive emotions. First, a positive event occurs, second, this event is shared with another person in hopes that they are equally enthusiastic and third, if supportive, this response might increase the initial person's already positive

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mood. In an attempt to understand how capitalization support influences emotion, we created a social interaction task where there was a clear temporal sequence from the (1) presence of a positive event (induced in the laboratory) to the (2) disclosure of this event to one's partner (capitalization attempt), and finally, to the (3) clear communication of a capitalization response that could range from destructive ("I thought you would do even better") to enthusiastic, supportive, and constructive ("That's fantastic news!"). Only two prior studies have examined the real-time occurrence of a positive event, the subsequent sharing of this positive event, and how an enthusiastic capitalization response impacts the person experiencing the positive event—fostering an increase in positive emotions (Study 5, Lambert et al., 2013) and greater closeness with the giver of capitalization support (Study 3, Reis et al., 2010).

The purpose of this study was to conduct a fine-grained analysis of the emotion generated in both partners of a social interaction where one party shared good news to the other and following this disclosure, responds in a constructive or destructive manner. To our knowledge, this is the first study to explore the emotional experiences of both the giver and receiver of capitalization support in the same social interaction. To capture the full range of emotional impact, we simultaneously measured experiential (subjective feelings), behavioral (e.g., facial-motor activity), and physiological (e.g., skin conductance) outputs. Prior research suggests that there is only a weak correspondence between these three emotion properties (see Barrett, 2006a,b for reviews) and thus, it remains to be seen whether capitalization support will result in greater convergence between subjective feelings, facial-motor activity, and physiological reactivity.

Studies involving capitalization can benefit from including facial expressions in the scope of investigation. Spontaneous changes in facial expressions offer a non-obtrusive source of information about the emotional meaning of a person's actions during a social interaction (Ekman, 1992). Smiling in response to success has been linked with reward responsiveness and approach motivation, such as bowlers that look at others immediately after scoring a spare or strike to amplify their pleasure and retain their momentum (Kraut & Johnston, 1979). Because facial expression researchers stress that these behaviors are signals of emotions and social intention, we might expect happy/positive facial expressions to result from receiving objective support from one's romantic partner.

Studies addressing immediate affective responses to capitalization can also benefit from the inclusion of physiological measures such as skin conductance. Skin conductance levels (SCL) and responses (SCR) are sensitive measures of sympathetic arousal (Nagai, Critchley, Featherstone, Trimble, & Dolan, 2004). Both have been used in research to index a variety of emotional, cognitive, and physical processes, including reactions to stress (Nikula, 1991), emotional processing (Waugh, Thompson, & Gotlib, 2011) and cognitive engagement (Frith & Allen, 1998; Pecchinenda, 1996). SCR in particular has been shown to be sensitive to transient changes in mood and emotional arousal (Sores & Ohman, 1993). Consequently, SC can be sensitive for the detection of negative emotional reactions to partner and destructive responses to capitalization attempts.

By using an experiment where people sequentially get positive news on their successful task performance, share this information with their romantic partner, and then that partner has an opportunity to respond, we were able to study the consequences of giving and receiving capitalization responses. With baseline data, we could confidently study temporal changes in emotional processing following capitalization responses. By including romantic couples, we could focus on both the partner that experiences success and the partner responding to news of that success. By investigating effects of sharing success over the course of three laboratory interactions, we could be confident in the stability of effects.

We hypothesized that supportive (versus unsupportive) capitalization responses would predict increases in happy facial expressions and positive emotions, decreases in sympathetic nervous system activity (skin conductance response), and fewer negative emotions. Effects were expected to be stronger for the person receiving (rather than giving) supportive capitalization responses.

## 2. Method

This study involved 69 romantic couples with a mean age of 21.72 years ( $SD = 1.91$ ) and mean relationship length of 24.34 months ( $SD = 16.04$ ). Participants were recruited through university campus fliers in Poland. Romantic partners arrived and were randomly assigned to the role of Person A or Person B. Person A performed a challenging cognitive interference task using Navon (1977) stimuli. A series of large letters made up of closely-spaced smaller letters were presented on a computer screen. Participants were instructed to hit a key corresponding to the small component letters as fast and as accurately as possible and to ignore the larger letter. The difficulty of the task stems from a conflict between global and local cues: the large and small letters were randomly congruent or incongruent.

Couples were separated into cubicles with no eye-contact or talking. Baseline questionnaires and recording of facial expressions and physiological activity were followed by Navon task instructions.

*"For Person A:* You will perform a certain task. [Person B] will accompany you. There will be three rounds of this task. You will receive \$1.50 in each round after a successful performance. [Person B] will not see your doing the task.

*For Person B:* [Person A] will perform a certain task. You will accompany him/her. There will be three rounds of this task. [Person A] will receive \$1.50 in each round after a successful performance. You will be informed about [Person A's] stage in the experiment, but you will not see him/her doing the task."

Subsequently, Person A was instructed how to perform the task and completed practice trials. After a five minute habituation period, Person A performed the Navon task for 94 s, received feedback about their performance, and given the opportunity to communicate with their partner. Participants then completed the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988). Couples repeated this process three times with a five minute break between each trial (Fig. 1). For each trial, regardless of their true performance, participants were told that they were successful, earning \$1.50. After the positive feedback, Person A was asked to send information about the outcome to Person B:

[Person B] will receive information about your success now. If you were successful at this round please press '1' to send the following message: "<SUCCESS! I made it! \$1.50 is in my account.>". If you failed please press '2' to send the following message: "<I FAILED. I did not make it and did not earn any money.>".

As a manipulation check, we asked about motivation, difficulty, and sense of failure after each round. The task was viewed as highly motivating ( $M = 7.70$ ,  $SD = 1.18$ ), moderately difficult ( $M = 4.34$ ,  $SD = 1.43$ ), and provided almost no sense of failure ( $M = 1.53$ ;  $SD = .99$ ).

### 2.1. Capitalization attempts and responses

After receiving the success message from Person A, Person B was asked to respond by selecting a response from a list of four dif-

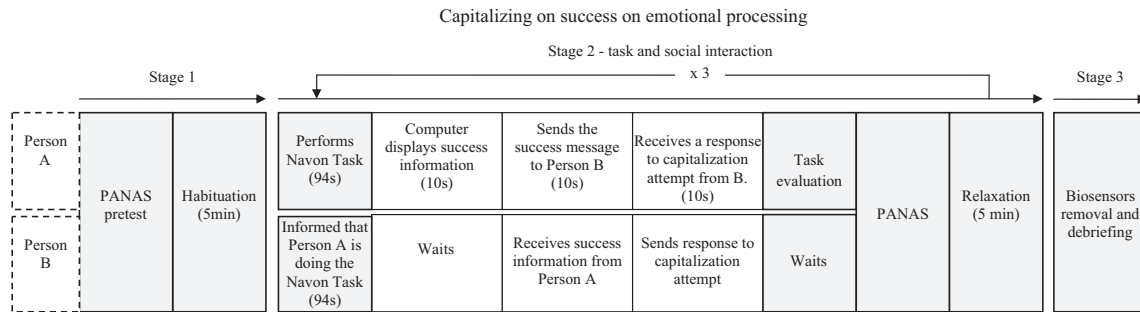


Fig. 1. Phases of experimental procedure (from left to right). Boxes in white represent consecutive moments of social interaction.

ferent options. These options included messages corresponding to each of the four types of capitalization responses: active-constructive (e.g., “Wonderful! You did a great job!”), passive-constructive (e.g., “Ok. Good.”), active-destructive (e.g., “I bet the task wasn’t very hard”) or passive-destructive (e.g., “Not much happening here”). Person B selected one of these responses, which were presented in a random order.

## 2.2. Measuring facial and physiological responses

We continuously recorded facial expressions of each participant using two cameras mounted on their computers and *FaceReader 5.0* software. *FaceReader* detects and classifies facial expressions by comparing 500 key points on the target face against existing data corresponding to six basic emotions (Viola & Jones, 2004). *FaceReader* then calculates a compound index of facial behavior, i.e., valence. The valence is calculated as the intensity of happy expression minus the intensity of the negative emotions (sadness, fear, anger, and disgust) with the highest intensity at a given moment. Prior research suggests that this software is reliable and valid (Chentsova-Dutton & Tsai, 2010; Den Uyl & van Kuilenburg, 2005). To capture overall valence, each frame was averaged for 10-s periods to reflect distinct moments of interest. For Person A this included (1) receiving information about success, (2) sending texts to partners, and (3) receiving feedback. For Person B this included (1) receiving partner information and (2) sending feedback.

To continuously measure skin conductance of each participant, SCL was recorded via a pair of electrodes taped on digits II and III of the non-dominant hand. SCR was calculated as the number of skin conductance responses greater than 0.02  $\mu$ S during each moment of interest.

## 3. Results

### 3.1. Preliminary analyses

Based on prior work (Lambert et al., 2013), our analyses compared two types of destructive, unsupportive responses (passive and active) against two types of supportive, constructive capitalization responses (passive and active). We found sufficient variability in the frequency of supportive responses during interaction one (37.1%) and two (67.1%), and less so in three (85.7%). To ensure that relationship satisfaction did not represent a confound in choosing capitalization responses, we correlated Person B’s self-reported relationship satisfaction with their average choice of capitalization response. This relationship was nonsignificant,  $r(67) = -.003$ ,  $p = .98$ .

### 3.2. Primary analyses

Our primary question was whether constructive capitalization responses led to more positive emotional responding, and if this

depended on whether the person was giving or receiving support. Data were conceptualized as a multilevel structure, with social interactions at Level 1 ( $n = 414$ ) nested within people at Level 2 ( $n = 138$ ) nested within couples at Level 3 ( $n = 69$ ). Analyses were conducted with HLM 6.08 (Bryk, Raudenbush, & Congdon, 2004). In analytic models, capitalization response at Level 1 ( $-1 =$  destructive,  $1 =$  constructive) predicted changes in emotion processing (positive and negative emotions, happy facial expressions, skin conductance levels). We included the measurement period preceding the capitalization response as a covariate. We added role ( $-1 =$  receiver,  $1 =$  giver) as a Level 2 moderator.

Results suggested that supportive capitalization responses by Person B predicted greater subjective positive emotions in Person A ( $B = .77$ ,  $SE = .31$ ,  $t[416] = 2.46$ ,  $p = .015$ ). There was also a trend for fewer negative emotions ( $B = -.29$ ,  $SE = .15$ ,  $t[416] = 1.93$ ,  $p = .054$ ), with similar effects for givers and receivers of capitalization support ( $ps > .20$ ). The benefits of supportive capitalization responses were stronger when examining the influence on the ratio of positive to negative emotions ( $B = .12$ ,  $SE = .03$ ,  $t[416] = 4.20$ ,  $p < .001$ ), with supportive capitalization responses predicting a higher ratio of positive to negative emotions. There were no effects of supportive capitalization responses on skin conductance levels or responses ( $ps \geq .20$ ).

Role moderated the effect of supportive capitalization responses on changes in happy facial expressions ( $B = -.05$ ,  $SE = .02$ ,  $t[410] = -2.84$ ,  $p = .005$ ). To calculate the simple effects, we recentered the role variable so that zero reflected the receiver role in one case and the giver role in another case. We then recomputed the multilevel models, including the new recentered variables (Cohen, Cohen, West, & Aiken, 2003). For receivers, supportive capitalization predicted an increase in happy facial expressions ( $B = .05$ ,  $SE = .02$ ,  $t[410] = 2.08$ ,  $p = .038$ ) and for givers, a decrease in happy facial expressions ( $B = -.04$ ,  $SE = .02$ ,  $t[410] = -2.02$ ,  $p = .043$ ).

### 3.3. Time-lagged effects

Because each participant either gave or received three capitalization responses consecutively (one per trial), we tested potential lag effects whereby earlier capitalization responses might influence emotional/physiological responses to subsequent capitalization responses. To this end, a new time-lagged capitalization response variable was created that represented the capitalization response sent/received during the previous interaction. All of the previously described analyses were repeated with this variable at Level 1, as well as with a new interaction term between Previous Capitalization response and Current Capitalization Response (both with  $-1 =$  destructive,  $1 =$  constructive).

A few noteworthy effects arose. First, for negative affect: there was a marginally significant three-way interaction between previous capitalization response, current capitalization response, and role, ( $B = -.14$ ,  $SE = .08$ ,  $t[416] = -1.81$ ,  $p = .071$ ), whereby receivers

of constructive capitalization support reported lower negative affect if they had previously received another constructive capitalization response. That is, receiving repeated constructive capitalization support had a mounting effect on dampening negative affect. There was also a significant two-way interaction between previous capitalization response and role on happy facial expressions, ( $B = -.024$ ,  $SE = .011$ ,  $t[410] = 2.16$ ,  $p = .032$ ), which mirrored the effects of current capitalization response on facial expression described earlier. That is, constructive capitalization predicted an increase in happy facial expressions for receivers and a decrease in happy facial expressions for givers. Previous capitalization response did not have a significant impact on any other interaction outcome metric.

#### 4. Discussion

Despite research showing the beneficial effects of capitalization support, there has been an absence of research on the temporal sequence of giving and receiving capitalization support. In the laboratory, we controlled the flow of capitalization with a procedure that structured capitalization into three steps: receiving information about success (from a motivating, stressful task), sharing this information with a partner, and receiving feedback. We arranged three consecutive episodes of capitalization for a more robust snapshot of this phenomenon. Partners generated a number of non-enthusiastic responses that allowed us to understand the consequences of capitalization attempts on a subjective (felt emotion), behavioral (facial expression) and physiological (skin conductance) level. Results suggested that supportive capitalization responses led to greater positive emotion, less negative emotion, and for the receiver (but not the giver) there was an increase in positive facial expressions. Our results also suggest that the effects of constructive capitalization support are more than fleeting, lasting long enough to augment the negative emotion-dampening effects of subsequent constructive capitalization support responses. Importantly, these effects emerged at the moment of receiving feedback rather than learning of their task success.

Our results are consistent with a prior experiment with romantic couples that attempted to separate the causes and consequences of capitalization support (Study 5; Lambert et al., 2013); the researchers found that partners receiving supportive responses sent more positive emotionally toned emails afterwards. The current study goes a step further by directly measuring positive emotional reactivity to capitalization support. Additionally, we showed that positive and negative emotional changes occur in both the receiver and giver, but there is greater positive emotional processing in receivers. In fact, when it comes to facial expressions, sending negative feedback was often accompanied by a smile on the face of the sender. This counterintuitive effect (smiling while sending a negatively valenced message) was not previously described in the literature and we therefore did not expect it in this study. The incongruity between subjective (facial expression) and behavioral (response) emotional expression may suggest that smiling while sending negative feedback is a self-regulatory strategy that down-regulates negative arousal (Fredrickson & Levenson, 1998), or that the negative capitalization response, along with the grin, was more playful than malicious. Givers of constructive capitalization support may also smile less because they are channeling their positive emotion through text rather than in person. However, this result was ultimately unexpected and should therefore be interpreted with caution.

We found that the subjective and behavioral responses were not accompanied by clear directional physiological effects. Although we selected physiological measures that have been shown to be robustly associated with social emotion (Porges, 2001), and we designated a considerable amount of the procedure

to their measurement, the results indicated that the physiology of interacting romantic couples was unpredictable. Null results arose despite clear patterns in subjective experience and facial expression. As it is generally not recommended to draw conclusions from null effects, we present these findings merely as a caution that the physiological effects of capitalization may be fleeting during a performance-oriented activity involving romantic couples.

The results of the current study provide important insight into the process of giving and receiving capitalization support, suggesting that the greatest emotional impact associated with this process occurs immediately after receiving support. Importantly, research suggests that positive events experienced toward the end of stressful ones can facilitate with speedy emotional recovery (Fredrickson, Mancuso, Branigan, & Tugade, 2000), and may also positively bias the emotional memory formed of the event (Kleiman et al., in press; Pinquart & Forstmeier, 2012; Reis et al., 2010). Among romantic partners, capitalization support thus appears to offer both an immediate incentive to continue an interaction and when repeated over time, may even serve to strengthen existing relationships.

There are caveats to interpreting these results. The sample involved couples with high relationship satisfaction. It remains to be seen whether findings generalize to couples dissatisfied with their relationship. It is possible that individuals in less satisfactory relationships may be more skeptical of the authenticity of constructive capitalization support. Furthermore, some participants in the support-providing position may have perceived the reward as a benefit to be shared. The mutual positive response to task success may have been augmented among individuals intending to share the profit.

Future investigations should also consider the role of moderating individual differences. For example, a recent study provided evidence that socially anxious people fail to capitalize on sharing good news with their romantic partners (Kashdan, Ferrissidis, Farmer, Adams, & McKnight, 2013). Individuals with low self-esteem may also fail to exchange capitalization support, as they are more likely to experience ambivalence following success compared to individuals with higher self-esteem (Brown, Andrews, Harris, Adler, & Bridge, 1986; Wood, Heimpel, Newby-Clark, & Ross, 2005). Ambivalence about successes may prevent both the active recruitment of capitalization support as well as the benefits associated with it. Lastly, we instructed participants to freely choose from a list of potential capitalization responses. These choices were therefore likely representative of a 'typical response.' What remains unclear is how receivers of support would perceive an atypical capitalization response; that is, one that is rarely presented by their partner. Some research suggests that individuals trained to present more constructive feedback reap similar benefits to those who naturally favor them, but that these benefits are attenuated somewhat (Wood, Lambert, Brown, Fincham, & May, in press). This attenuation is consistent with our finding that there are time-lagged effects of capitalization support: habitually destructive responses might take time to overcome.

Our study represents a controlled and practical demonstration of benefits associated with individuals providing constructive capitalization responses. By separately examining the positive event, the capitalization attempt, and the capitalization response, our segmented design furthers our understanding of the capitalization process and its importance in romantic relationships.

#### Author contributions

T.B. Kashdan and S. Monfort developed the conceptual framework for the paper, devised and executed the data analytic plan, and interpreted the results. T.B. Kashdan and S. Monfort wrote the paper, with assistance from L.D. Kaczmarek and D. Drążkowski.

L.D. Kaczmarek developed the study. L.D. Kaczmarek, D. Drążkowski, P. Guzik, and A. Gracanic contributed to the study design. Testing and data collection were performed by D. Drążkowski and M. Kosakowski. L.D. Kaczmarek, D. Drążkowski, M. Kosakowski, P. Guzik, T. Krauze, and A. Gracanic performed the reduction of physiological and facial expression data. All authors approved the final version of the paper for submission.

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