

Flow as a Function of Affect and Coping in the Workplace

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ABSTRACT - Drawing from the broaden-and-build theory of positive emotions (Fredrickson, 1998), it was hypothesized that flow in the workplace would be positively associated with positive affect and negatively associated with negative affect. It was also hypothesized that adaptive coping would predict more flow through the partially mediating factor of positive affect, and maladaptive coping would predict less flow through the partially mediating factor of negative affect. A sample of 152 workers who have experienced flow completed the SDFS-2 (Jackson, Martin & Eklund, 2008) flow scale, the I-PANAS-SF (Thompson, 2007) affect scale, and the COPE-R (Zuckerman & Gagne, 2003) coping scale. Multiple mediator modeling revealed that positive affect predicted more flow and negative affect predicted less flow, supporting the first hypothesis. Positive affect partially mediated the relationship between approach coping and flow but not accommodation coping and flow, and negative affect partially mediated the relationships between avoidance coping and flow and self-punishment and flow, supporting the second hypothesis for three of the four investigated coping strategies. The implications of the findings for future research are discussed.

Flow is a state of profound task absorption (Csikszentmihalyi, 1990) that involves being at one with the activity in which the person is engaged (Moneta, 2004) and incites feelings of enjoyment, interest and absorption (Bakker, 2005). This term is used to describe optimal experience across a range of activities including work, sport and leisure (Delle Fave & Massimini, 2003), and has been experienced in a wide range of job profiles including music teachers (Bakker, 2005), physicians (Delle Fave & Massimini, 2003) and research scientists (Quinn, 2005). Flow in work is linked to improved job performance (Demerouti, 2006) and job task interest (Bakker, 2005). This study will examine whether flow is influenced by affect in work and the coping strategies adopted in work situations.

Antecedents and Consequences of Flow

Considerable research has been conducted to identify the antecedents of flow. A predominant characteristic for initiating flow is a balance between workers' perceived high challenge of a work situation and their perceived level of skill for handling this challenge (Csikszentmihalyi, 1990). Since these conditions are most commonly met in

work and structured leisure, flow is thought to occur more frequently in these contexts (Moneta, 2004). Classical motivating job characteristics from the job characteristics model have also been linked with frequency of flow at work (Hackman & Oldham, 1975). These include employee autonomy in determining the schedule and process of work tasks, the extent of performance feedback, and the degree of variety of activities and skills to perform tasks.

Flow has been found to be associated with positive emotions, particularly in work (Eisenberger, Jones, Stinglhamber, Shanock, & Randall, 2005). Flow is correlated with organizational spontaneity and task interest (Eisenberger et al., 2005), and reduced levels of exhaustion (Mäkikangas, Bakker, Aunola, & Demerouti, 2010). Flow is theorized to have a direct impact on subjective well-being by creating the experience of happiness in the here and now and an equally important indirect effect on subjective well-being by motivating people to master difficult tasks and promoting lifelong personal growth (Ceja, 2011). However, whilst many studies have conceptualized affect as a result of flow, numerous theories of emotions indicate that affect is an antecedent to flow.

Affect as Antecedent of Flow

Affect represents a spectrum of valenced feeling states, moods and attitudes, with positive affect representing the pleasant side and negative affect representing the unpleasant side. Theorists have argued that experiencing positive affect facilitates approach behavior (Davidson, 1993) or continued action (Carver & Scheier, 1990). People experiencing positive affect have been found to show patterns of thought that are flexible (Isen & Daubman, 1984) and creative (Isen, Daubman, & Nowicki, 1987). The broaden-and-build theory of positive emotions (Fredrickson, 1998) expanded these ideas to postulate that whereas negative emotions narrow cognition and behavior in order to confront a real and immediate threat, positive emotions broaden attention (Gasper & Clore, 2002), cognition (Fredrickson & Joiner, 2002), and behavioral repertoires (Johnson & Fredrickson, 2005).

The broaden-and-build theory states that positive emotions, by broadening thought-action repertoires, build enduring personal resources to deal with adversity and allow for greater flexibility and creativity in thinking. If we link these concepts to flow theory, it follows that by cultivating a positive emotional state and hence an expanded repertoire of thinking, positive affect should lead to enhanced frequency and intensity of flow, whereas by cultivating a negative emotional state and hence a limited repertoire of thinking, negative affect should lead to a reduced frequency and intensity of flow. Therefore, the following hypothesis is posited:

(H1) (a) Positive affect will positively predict flow, whereas (b) negative affect will negatively predict flow.

Coping as Antecedent of Flow

Coping is an individual's constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding a person's resources (Lazarus & Folkman, 1984). Coping strategies are either adaptive or maladaptive. Adaptive coping involves efforts to reduce stress levels, such as seeking emotional support from others (emotion-focused coping) or attempting to control

the cause of the stress (problem-focused coping). Maladaptive coping involves reacting to a stressor in such a way as the stress level decreases only temporarily, before returning to and often exceeding its original level.

Zuckerman and Gagne's (2003) model of coping has five coping strategies: two are maladaptive (avoidance coping and self-punishment) and three are adaptive (approach coping, accommodation coping, and self-help). Looking at the maladaptive strategies, avoidance coping involves denial, blaming others and mental and behavioral disengagement, and self-punishment involves self-blame and self-focused rumination. Focusing on the adaptive strategies, approach coping involves planning and active coping, accommodation coping involves optimism and positive reframing of the situation, and self-help coping involves seeking support and expressing and understanding emotion. This study will consider two maladaptive strategies and two of the adaptive ones, approach coping and accommodation coping. Self-help will be excluded from the study because it does not necessarily constitute problem-focused coping, and hence no hypothesis could be stated for it concerning flow.

The core tenet of flow theory is that flow is more likely to occur if the perceived challenges from the activity and the perceived skills in performing the activity are both high and in relative balance with each other. If we link this concept to Lazarus and Folkman's (1984) transactional model of stress, it follows that flow is more likely to occur if the demands of the activity are perceived as challenge (i.e., a person is confident to overcome the stressor) rather than as threat (i.e., a person anticipates to be harmed by the stressor). In turn, the adoption of adaptive coping strategies is likely to foster primary appraisal (when the stressor is encountered for the first time) and secondary appraisal (when the stressor is evaluated relative to one's own success in coping with it) of the demands of the activity as challenge, whereas the adoption of maladaptive coping strategies is likely to foster appraisals of the demands of the activity as threat. As such, adaptive coping strategies should foster a perception of challenge/skill balance and hence make flow more frequent and intense, whereas maladaptive coping strategies should foster a perception of challenge/skill imbalance and hence make flow less frequent and intense. Therefore, the following hypothesis is posited:

(H2) (a) Adaptive coping will positively predict flow, whereas (b) maladaptive coping will negatively predict flow.

Affect as Mediator of the Relationship between Coping and Flow

Many studies link adaptive coping to positive affect and favorable outcomes, even in highly stressful situations. The appraisal of the resolution of a stressful encounter as favorable or successful induces pride and happiness (Folkman & Lazarus, 1985), and the termination of aversive conditions causes positive emotions such as relief (Taylor, Helgeson, Reed, & Skokan, 1991) and the perception of growth related to stress (Holahan & Moos, 1987).

Since adaptive coping has been found to increase positive affect and maladaptive coping has been found to increase negative affect, coping may also foster or hinder flow indirectly, through its regulatory effects on affect. The effect of coping on emotions should carry on to flow because coping-dependent emotions are inherently linked to the stressor task. Adaptive coping should foster emotions that motivate one to engage in the

task, whereas maladaptive coping should foster emotions that motivate one to disengage from the task. If positive affect broadens thinking, then adaptive coping, through fostering positive affect, will also increase levels of flexible thinking in relation to the task, which in turn will lead to increased flow. If negative affect narrows thinking, maladaptive coping, through fostering negative affect, will also decrease levels of flexible thinking in relation to the task, which in turn will lead to decreased flow. The following is therefore hypothesized:

(H3) (a) Positive affect will partially mediate the relationship between adaptive coping and flow, whereas (b) negative affect will partially mediate the relationship between maladaptive coping and flow.

Goals of the Study

In all, the three hypotheses posited in this study state that adaptive coping promotes positive affect and maladaptive coping promotes negative affect, and that both adaptive coping and positive affect promote flow, whilst maladaptive coping and negative affect hinder flow. The goal of the study is to test these hypotheses on a sample of adult workers who have experienced flow.

Method

Participants

A convenience sample of 193 adults took part in this study. Participants were recruited through personal contacts. All participants were required to be in full-time or part-time employment at the time of the study. Since this study sought to analyze flow as a function of affect and coping in the workplace, it made sense to analyze data only from those participants who claimed to have experienced flow at some point in their lives (Moneta, 2012). The first question relating to flow on the questionnaire asked participants to read three quotations describing the flow experience (e.g., “I am so involved in what I am doing ... I don’t see myself as separate from what I am doing”) that Csikszentmihalyi (2000) had gathered through in-depth interviews, and to state whether had ever felt similar experiences with a single “yes” or “no” answer.

The subsample used in this study consisted of 152 participants who all claimed to have experienced flow, of which 70 males and 82 females between the ages of 18 and 77, with a mean age of 39; 61% were UK nationals; 72% had earned an undergraduate degree and 37% a postgraduate degree; 17% of participants were self-employed, 7% owned their own business, and the remaining 76% participants were employed by a company or business; 65% of participants worked full-time, with a mean of 42.29 hours per week spent working, and 35% of participants worked part-time with a mean of 19.59 hours per week spent working. Participants had spent on average 5 years working in their current positions. Some examples of the positions occupied by participants included doctor, lecturer, translator, carpenter, chief executive, singer, and plumber. The demographics of the subsample of 152 workers who claimed to have experienced flow were similar to those of the full sample of 193 workers.

Measures

The Short Dispositional Flow Scale-2 (SDFS-2). The 9-item Short Dispositional Flow Scale-2 (SDFS-2; Jackson, Martin & Eklund, 2008) was employed to measure flow. Participants were asked to think about how often they experience each of the listed flow characteristics (e.g., “I am completely focused on the task at hand”) during their work, and select the one number that best matches their experience on a scale ranging from 1 (*Never*) to 5 (*Always*). Scores for each participant were calculated as the mean of all responses. Higher scores indicated greater levels of flow at work. The SDFS-2 has been found to be reliable, with a Chronbach’s alpha score of .81 and cross-validation data sets yielding .74, and has been found to have a strong correlation with the longer version of the scale across samples (mean $r = .76$) (Jackson et al., 2008).

The Positive and Negative Affect Scale Short Form (I-PANAS-SF). The 10-item International Positive and Negative Affect Scale Short Form (I-PANAS-SF; Thompson, 2007) was used to measure positive and negative affect, operationalized as independent dimensions of affect. Participants were asked to read the listed adjectives (e.g., “determined” as indicator of positive affect and “ashamed” as indicator of negative affect) in detail and think if they have those feelings when they work. They were asked to select the number that corresponds most closely to their choice on a scale ranging from 1 (*None*) to 5 (*Very much*). Subscale scores were created by calculating the mean of relevant item ratings. Higher scores indicated greater levels of either positive or negative affect. The Chronbach’s alpha reported in the original validation study is .78 for positive affect and .76 for negative affect (Thompson, 2007).

The Revised Cope Scale (COPE-R). The 40-item Revised COPE scale (COPE-R; Zuckerman & Gagne, 2003) was used to measure coping strategies. The questionnaire consists of eight items measuring each of the five coping factors of approach coping (e.g., “I try to come up with a strategy about what to do”), accommodation coping (e.g., “I get used to the idea that it happened”), self-help coping (e.g., “I talk to someone about how I feel”), avoidance coping (e.g., “I pretend that it hasn’t really happened”), and self-punishment coping (e.g., “I brood over my problem constantly”). Participants were asked to indicate what they usually do when they experience stress at work. For each item they were asked to select the one appropriate number, ranging from 1 (*I usually don’t do this at all*) to 4 (*I usually do this a lot*). Subscale scores were created by calculating the mean of relevant item ratings. Higher scores indicated greater frequency of use of a particular coping strategy in the workplace. The Chronbach’s alpha for the five subscales ranges from .81 to .92 (Zuckerman & Gagne, 2003).

Results

Data Description

Table 1 shows the descriptive statistics, reliabilities, and intercorrelations of the study variables. Chronbach’s alpha coefficients of the study variables exceeded the threshold for internal consistency of .7 that Nunnally (1978) regards as satisfactory, and were in line with those of the original validation studies.

A significant positive correlation was found between positive affect and flow, and a significant negative correlation was found between negative affect and flow. This is consistent with hypothesis 1.

Significant positive correlations were found between approach coping and flow, and accommodation coping and flow. This is consistent with hypothesis 2(a). Significant negative correlations were found between self-punishment and flow. This is consistent with hypothesis 2(b). The second maladaptive coping strategy, avoidance coping, did not yield a significant correlation with flow. This is not consistent with hypothesis 2(b).

Significant positive correlations were found between positive affect and the adaptive coping strategies of approach coping and accommodation coping. This is consistent with hypothesis 3(a). Moreover, a significant negative correlation was found between positive affect and avoidance coping.

Finally, significant positive correlations were found between negative affect and the two maladaptive coping factors, avoidance coping and self-punishment. This is consistent with hypothesis 3(b). Moreover, a significant negative correlation was found between negative affect and accommodation coping.

Table 1
Means, Standard Deviations, Intercorrelations and Cronbach's Alpha Coefficients (in parentheses) of the Study Variables

Variables	<i>X</i>	<i>SD</i>	1.	2.	3.	4.	5.	6.	7.
1. Flow	3.61	.47	(.75)						
2. Positive Affect	3.63	.65	.44**	(.76)					
3. Negative Affect	1.73	.58	-.34**	.06	(.77)				
4. Approach Coping	3.00	.50	.34**	.38**	.01	(.80)			
5. Accommodation Coping	2.88	.53	.35**	.24**	-.17*	.49**	(.78)		
6. Avoidance Coping	1.61	.49	-.16	-.19*	.34**	-.13	.05	(.74)	
7. Self-Punishment	2.12	.67	-.28**	-.07	.57**	.02	-.08	.45**	(.87)

Note. $n = 152$. * $p < .05$, ** $p < .01$.

Mediation Modeling

The hypothesized mediation model was estimated using Preacher and Hayes' (2008) regression modeling approach to multiple mediation. This approach was chosen as it provides a robust estimation of the indirect effects in a single model run and without making the assumption of the normality of the indirect effects. It is therefore superior to the Sobel test, which assumes normality. Bootstrap estimation with bias corrected confidence intervals of the indirect effects was used.

Table 2 shows the standardized direct and indirect effects of the hypothesized mediation model. Looking at the direct effects of the predictor variables on the mediators, approach coping was a positive and significant predictor of positive affect. Self-punishment was a positive and significant predictor of negative affect, and accommodation coping was a negative and significant predictor of negative affect.

Looking at the direct effects of the mediators on the criterion variable, positive affect was a positive and significant predictor of flow, and negative affect was a negative and significant predictor of flow, which supports hypothesis 1.

The adaptive coping factors of approach coping and accommodation coping both were positive and significant direct predictors of flow, which supports hypothesis 2(a). The maladaptive coping factor self-punishment was a negative and significant predictor of flow, but avoidance coping was not a negative and significant predictor of flow. Therefore, hypothesis 2(b) is supported only for self-punishment.

Turning attention to the indirect effects, positive affect significantly mediated the relationship between approach coping and flow, in that the lower bound of its 95% confidence interval did not include the 0 value. However, this was not the case for the other adaptive coping factor, accommodation coping. Therefore, hypothesis 3(a) is supported only for approach coping. Negative affect significantly mediated the relationships between both maladaptive coping strategies and flow, supporting hypothesis 3(b).

Table 2
Direct Effects and Indirect Effects (with bootstrap bias corrected and accelerated 95% confidence intervals) of the Multiple Mediator Model of the Standardized Score of Flow (criterion variable) as a Linear Function of the Standardized Scores of Affect (mediator variables) and Coping Strategies (predictor variables)

<i>Adjusted R-Square</i>		.149	
<i>Outcome Variable</i>	<i>Direct Effects of Predictor Variable on Mediators</i>		
	Positive Affect	Negative Affect	
Approach Coping	.321**	.124	
Accommodation Coping	.088	-.203*	
Avoidance Coping	-.152	.152	
Self-Punishment	.005	.495***	
<i>Predictor Variable</i>	<i>Direct Effects of Mediators on Criterion Variable</i>		
Positive Affect	.461***		
Negative Affect	-.361***		
<i>Predictor Variable</i>	<i>Direct Effects of Predictor Variables on Criterion Variable</i>		
Approach Coping	.232**		
Accommodation Coping	.216*		
Avoidance Coping	-.031		
Self-Punishment	-.250**		
<i>Predictor Variable</i>	<i>Mediator</i>	<i>Indirect Effects of Predictor Variables on Criterion Variable through Mediators</i>	
Approach Coping	Positive Affect	.118 (.04 to .21)	
Accommodation Coping	Positive Affect	.032 (-.04 to .10)	
Avoidance Coping	Positive Affect	-.055 (-.12 to .01)	
Self-Punishment	Positive Affect	.002 (-.06 to .06)	
Approach Coping	Negative Affect	-.035 (-.09 to .02)	
Accommodation Coping	Negative Affect	.057 (.01 to .12)	
Avoidance Coping	Negative Affect	-.043 (-.10 to -.00)	
Self-Punishment	Negative Affect	-.140 (-.23 to -.06)	

Note. $n = 152$. * $p < .05$, ** $p < .01$, *** $p < .001$.

Discussion

The findings from mediation modeling provide full support to hypothesis 1 and support to hypotheses 2 and 3 for three of the four investigated coping strategies. The findings highlight the importance that affect in work and the coping strategies adopted in work situations have for the occurrence of flow at work.

Affect and Flow

Positive affect predicted more flow, and negative affect predicted less flow, which supported hypothesis 1. These findings are consistent with the broaden-and-build hypothesis (Fredrickson, 1998) and the findings by Isen and co-workers (1984, 1987) in that positive affect might foster flow by broadening thought-action repertoires and increasing creativity and flexible thinking. Similarly, in line with the broaden-and-build theory, negative affect might prevent flow by narrowing thought-action repertoires, thereby hindering task absorption.

The broaden-and-build theory also predicts that positive emotions and the broadened thinking they initiate lead to upward spirals in which each influences the other reciprocally, leading to increases in emotional well-being over time (Aspinwall, 1998). Positive emotions trigger these upward spirals by building resilience and changing the ways that people cope with adversity. This study suggests that positive affect is an antecedent to flow, but previous studies show that it is also a consequence of flow (e.g., Eisenberger et al., 2005). Therefore, a possibility that needs to be addressed in future research is that affect and flow have reciprocal relationships. Experiencing some positive affect might increase the likelihood of flow, which in turn might increase the likelihood of experiencing more positive affect, which might then create an upward spiral of positivity. In a similar vein, experiencing negative affect might decrease the likelihood of experiencing flow, which might lead to an increased likelihood of experiencing even more negative affect, and hence a downward spiral of negativity would be created. These hypothetical spirals can only be tested using an experimental design.

Coping and Flow

Looking at the adaptive coping strategies, both approach coping and accommodation coping were significant and positive direct predictors of flow, supporting hypothesis 2(a). Positive affect was found to partially mediate the relationship between approach coping and flow, but not accommodation coping and flow, which supported hypothesis 3(a) only for approach coping. The mediation model highlighted the fact that whilst both adaptive coping strategies increase flow, the process by which they do so differs. Approach coping increased flow by increasing the mediating factor of positive affect, whereas accommodation coping increased flow by decreasing the mediating factor of negative affect. The finding that positive affect mediates the relationship between approach coping and flow is congruent with existing studies where the termination or resolution of aversive conditions have been found to lead to feelings of relief (Taylor et al., 1991), pride, and happiness (Folkman & Lazarus, 1985). This suggests that positive affect may occur in stressful situations as a result of feelings of success from problem solving, and this is more likely to occur if approach coping is adopted. By reappraising a negative situation as a positive one and emotionally accommodating to a problem, accommodation

coping may simply prevent the disturbance of negative affect on flow, rather than building positive affect.

Focusing on the maladaptive coping strategies, negative affect partially mediated the relationships between avoidance coping and flow and self-punishment and flow, supporting hypothesis 3(b). Self-punishment was a negative direct predictor of flow whereas avoidance coping was not, which supports hypothesis 2(b) only for self-punishment. This suggests that self-punishment may have a negative impact on flow in ways other than simply increasing negative affect. Perhaps this could be due to the importance of perceived job challenge and perceived job skill for achieving flow: if individuals blame themselves for their problems, they are less likely to believe that they have the skills necessary to tackle challenges.

Potential Applications

The findings of this study highlight the importance of positive affect and adaptive coping strategies to enable workers to get into flow more easily. This in turn increases employee well-being as well as productivity and job performance, which benefits both employers and employees. Employers could implement a number of strategies to attempt to increase positive affect in the workplace, such as providing improved feedback and positive reinforcement for good work. Despite these suggestions, it may be difficult for employers to control the affect of their employees, whereas coping can be manipulated in a more direct way through training and altering the workplace environment. Employers could provide training in approach and accommodation coping to ensure that employees know how to effectively deal with stressors that arise in their daily lives.

Limitations and Future Improvements

Whilst this study highlighted the influence of affect and coping on flow, it did not measure work environment and therefore cannot explain whether affect and coping were caused by factors internal or external to the individual. Positive and negative affect are experienced by individuals every day, which would suggest that some environmental components are important to their onset. Nevertheless, affect has been linked to personality: extraverted individuals were found to experience more positive affect whereas neurotic individuals were found to experience more negative affect (Costa & McCrae, 1980). This suggests that certain personalities are more likely to experience positive affect, and consequentially flow, than are others. If this is the case then the impact of changing the work environment on affect may be limited.

There is much debate as to whether certain coping strategies are favored as a result of environmental factors or disposition. There is evidence of both temporal stability (Holahan & Moos, 1987) and cross-situational consistency (Terry, 1994) in coping strategies, which may suggest a predisposition to particular strategies regardless of the context. However, other studies have shown changes in preferred coping strategies across different stressors (Dolan & White, 1988), suggesting an environmental cause. If this is the case then company-wide training programs on coping strategies may prove effective in increasing flow. Coping may however be constantly evolving in individuals and adapting to the environment. In this case, individuals who have been in their jobs for longer may have had more time to develop adaptive coping strategies to face their

stressors than those who are new to the role. This would highlight the importance of incentivizing staff to stay in their roles for longer. Future studies should investigate these antecedents of coping in order to provide employers with more direct applications of these findings.

Finally, as for any correlational study, the findings can only be suggestive of causal relations. As such, the model of the present study should be corroborated longitudinally measuring the study variables at least at three points in time, appropriately spread in order to allow for any causal effect to become observable. This would also allow examining reverse causal paths among the variables as well as upward and downward spirals in which each variable influences the other reciprocally.

Conclusion

Despite its limitations, this preliminary study revealed the importance of experiencing more positive affect and less negative affect for increasing flow at work. A part of these was found to be due to coping strategies used at work. These findings raise a number of questions: what causes affect and coping strategies, and how might work environment moderate the relationships identified in this study? Future research should investigate these areas in order to provide employers and employees with practical ways for increasing flow through positive affect and adaptive coping coaching in the workplace. This would benefit not only the employees by improving their overall well-being, but also organizations by improving job performance.

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