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Does positive climate moderate the relationship of strengths use and knowledge with flow at work? A three year study

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ABSTRACT

The dynamics of flow occurrence – an experience of absorbed attention and joyful engagement in ongoing activity – over time needs further exploration, especially in educational settings. To this purpose, data were collected across three years among school staff (baseline $N = 327$) in New South Wales, Australia, with the aim to test perceived strengths use, strengths knowledge, and positive climate as predictors of flow at work, and positive climate as a moderator of the relationship between strengths use/knowledge and flow. Findings showed that strengths use/knowledge and positive climate consistently predicted more flow at work, but the moderation effect was non-significant. We suggest that while perceived positive climate reflects the macro-contextual conditions helpful for flow to occur, individual level contextual factors that might synergistically interact with strengths use/knowledge are yet to be identified. Future research should include both macro and micro contextual factors that impact upon the flow experience.

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Work-related flow; strengths use; strengths knowledge; positive climate; systems informed positive psychology

> The most influential teachers – those who are remembered, who made a difference in the way we see ourselves, and who revealed unexpected strengths in us … are usually the ones who love what they are doing, who show by their dedication and their passion that there is nothing else on earth they would rather be doing (Mihalyi Csikszentmihalyi, 1982, p. 178).

The quote above describes the fundamental characteristics of the flow experience, a state of consciousness associated with highly creative and optimal behaviour, which Mihaly Csikszentmihalyi encountered through investigating the process of teaching and learning among educators and their students (Csikszentmihalyi, 2014). Throughout his life, Csikszentmihalyi (1975/2000, 1996; 2014) devoted remarkable attention to understanding the conditions facilitating 'good teaching', defined as the process of sustainably 'changing the learners' cognitive structures and more importantly, their goal structures' (Csikszentmihalyi, 1982, p. 18). His studies suggest that this process is supported by the opportunities offered to teachers and school staff to engage in frequent flow experiences during their daily job tasks.

In this article, we first delve deeper into the processes and behaviours associated with flow activities, or 'sequences of action that make it easy to sustainably achieve optimal [flow] experiences' (Csikszentmihalyi, 1988, p. 31, text added), particularly among school staff and over extended periods of time (Csikszentmihalyi, 1996, Nakamura & Csikszentmihalyi, 2003). In contexts where teachers 'love what they are doing', they often also report flow experiences (Basom & Frase, 2004; Bassi & Delle Fave, 2012; Beard & Hoy, 2010; Csikszentmihalyi, 1997; Delle Fave et al., 2003, 2011; Rodríguez-Sánchez et al., 2011) or 'enjoyed absorption' (Nakamura & Csikszentmihalyi, 2003, p. 88), derived from finding ever increasing challenges in their work, which align with the development of increasingly complex skills (Csikszentmihalyi, 1997, 2014). We then propose that flow experiences are more likely to occur over months and years within positive climates and when one knows about and uses one's strengths. We propose that optimal behaviour arises from the long-term interaction of one's personal strengths knowledge and strengths use with environmental challenges and opportunities for action (cf. Annas, 2008), such that there is a synergistic relationship between the person and their ecosystem. Strengths are specific forms of skilfulness (cf. Linehan, 1993, 2015), or set of competences that allow an individual 'to do well or at their personal best' (Wood et al., 2011, p. 6). This approach is broader, though aligned with the definition of skill in flow theory, as the 'capacity to cope with the demands imposed by the environment' (Csikszentmihalyi, 1975/2000, p 50.). Previous research (Ignjatovic et al., 2021), showed the role of strengths use as predictors of flow at work among school staff. The

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current study aims at extending this evidence by testing over a three-year period strengths knowledge and use, and positive climate as predictors of flow at work, as well as positive work climate as a moderator of the relationship between strengths use/knowledge and flow. This study is based on a systems informed positive psychology (SIPP) perspective (Kern et al., 2020), which takes into account the synergistic interaction between contextual and personal characteristics in impacting upon flow experiences. Finally, the implications of these findings for research and real-world applications are discussed.

The ontological and epistemological assumptions of good teaching and learning

The ontological assumption inherent within Csikszentmihalyi's notion of good teaching, as a process aimed to enable students to 'enjoy learning' through 'teachers who are intrinsically motivated to learn' (Csikszentmihalyi, 1982, p. 15), is arguably consistent with the functional contextualism espoused in applied and contextual behaviour psychologies (cf. Ciarrochi et al., 2013), as well as with a SIPP perspective (Kern & Taylor, 2021; Kern et al., 2020). Unlike mechanistic approaches to school administration and teaching practices (Basom & Frase, 2004), these perspectives consider psychologically informed education processes – broadly defined – as aimed at promoting expanded awareness, meaningful and virtuous contribution to surrounding society and culture, as well as education-related flow experiences (Swenson, 2016) in both students and teachers (Bakker, 2005).

While delving into the philosophical underpinnings of Csikszentmihalyi's view of education is beyond the scope of this article, here we focus on the dynamics underlying optimal contexts (cf. Ciarrochi et al., 2013), which foster flow experiences of school staff, taking into account the interactional nature of the challenges characterizing teaching and learning. Following Csikszentmihalyi (1975/2000), we acknowledge that flow experiences, as intrapsychic events arising spontaneously and relatively short-lived, cannot be intentionally generated. However, we argue that activities that support optimal experiences through strengths knowledge and use are promising, yet still neglected facilitating contexts, which deserve further investigation (Ignjatovic & Kern, 2023; Ignjatovic et al., 2021).

The identification of flow antecedents has intrigued researchers, starting from the seminal model of experience fluctuation (Massimini et al., 1987; Moneta & Csikszentmihalyi, 1996), providing evidence of the central role of perceived challenge/skill balance in fostering flow onset (Kawabata & Mallett, 2011; Keller et al., 2011). Other psychological aspects of the interaction with an activity, such as perceiving clear goals and unambiguous feedback, emerged as potential antecedents of flow (Hektner et al., 2007). At the individual level, personality and trait-like dimensions facilitating flow onset were also identified (Bassi et al., 2014; Baumann & Scheffer, 2011; Tse et al., 2021; Ullén et al., 2012).

Individual, contextual and situational antecedents and consequences of flow were explored within the unfolding of daily activities through real-time procedures, such as the Experience Sampling Method (ESM; Csikszentmihaly & Csikszentmihalyi, 1988; Csikszentmihalyi & Larson, 1987). Several ESM studies were conducted to understand the dynamics of flow onset, both across domains and specifically at work (Ceja & Navarro, 2009, 2011; Peifer & Wolters, 2021; Peifer & Zipp, 2019). Attention was also paid to the role of individual and collective efficacy beliefs as antecedents of flow at work (Salanova et al., 2014).

Despite these achievements, the specific 'how', 'what' and 'when' of contexts and behaviours that promote the occurrence and sustain the frequency of flow experiences in everyday life are yet to be fully understood. From a SIPP perspective (Kern et al., 2020), contextual factors ranging from the micro to the macro level, subjectively perceived or objectively measured, can interact with individual factors to impact upon flow experiences in a dynamic manner. For instance, a flourishing classroom (Allison et al., 2020) represents an objectively measured macro level context, which might promote flow experiences, whereas the sense of belonging to the school (Allen et al., 2021) represents a subjectively perceived micro level contextual factor, which might promote flow experiences. A systematic functional analysis of the antecedents, consequences, and ongoing interactional dynamics between behaviour and experience within flow activities would represent a useful contribution, as well as a source of suggestions to design user-friendly protocols of teaching and modelling flow promoting contexts and behaviours.

Preliminary evidence looking at dynamic interactions was obtained through studies conducted across cultures and countries, which highlighted the preferential association of specific activities and domains, namely work and learning, with flow experience, as well as their relationship with personal life challenges and long-term goals (Delle Fave & Bassi, 2009; Delle Fave et al., 2011). Related findings suggest a set of culturally meaningful and interactional mechanisms that can support optimal experiences during the engagement in constructive information exchanges with the environment (Delle Fave, 2009; Delle Fave & Massimini, 2015). Similarly, research conducted among career innovators, scientists,

and lifelong practitioners of martial arts led to the conceptualization of 'vital engagement' in activities that were perceived as intrinsic sources of meaning, even when not frequently associated with flow experiences (Nakamura & Csikszentmihalyi, 2003). More specifically, these studies showed that the practice of flow activities over time can be sustained during both periods characterized by frequent flow experiences, and periods of great personal suffering (Nakamura, 2011, Nakamura et al., 2016).

Based on these findings, further research is needed to delve into the 'easy sequences of action' alluded to by Csikszentmihalyi (1997) that can assist in the relatively seamless transitions into flow experiences across the lifespan. Consistent with a functional contextualism perspective, we propose that a virtuous intersection between the context (Massimini & Delle Fave, 2000) and intrapersonal and behavioural variables (Ignjatovic et al., 2022) fosters the practice of flow activities over time. From a behavioral perspective, it is necessary to explore how individuals access flow experiences within their daily activities, in ways that are sustainable and aware of 'creative response functions' (cf. Hayes, 2013).

To understand this process, investigation is needed into the set of optimal behaviours that contribute to shape activities, making them suited to promote flow experiences. These optimal behaviours may represent an operational and functional platform to sustain flow experiences over time. This investigation approach could offer some in-depth insight to guide psychological interventions based on 'a contextual behavioural [skilfulness] that is firmly rooted in principles of applied behavioural analysis' (Ciarrochi et al., 2013, p. 2), with the aim to assist individuals in the identification and sustainable practice of flow activities, by manipulating the antecedents and consequences.

The current study

Based on these premises, the present study aimed to provide an initial analysis of the interaction between individual factors (strengths use and strengths knowledge) and a macro level contextual factor (subjectively perceived school climate) which may predict flow experiences at work. Data were collected at five time points over a 3-year period, in a kindergarten through year 12 (i.e. primary and secondary) private school in New South Wales, Australia, where a positive education intervention was implemented between the time 1 and time 2 assessment points. At the time of the intervention, the importance of building on the personal resources of school staff was proactively endorsed by several Australian schools, based on the assumption that strengths knowledge and strengths use were needed to 'growing legs' (Seligman et al., 2009), and that positive interventions would contribute to both lower the rates of depression, and enhance social and emotional well-being among school staff and students (Weeks, 2013). These interventions were primarily focused on strengths knowledge and strengths use. According to Peterson and Seligman (2004), strengths are 'psychological ingredients – processes or mechanisms – that define the virtues' (p. 13). Operating within largely applied work settings, Linley and Harrington (2006) expanded this view by arguing that strengths do not always need to be morally valued. Hence, they defined strengths more generally as 'a natural capacity for behaving, thinking, or feeling in a way that allows for optimal functioning and performance' (p. 88). Other researchers (Clifton & Anderson, 2002) defined strengths as 'one's innate talents which have been developed through the application of knowledge and skill' (p. 6). In the attempt to mark a point of agreement between these varying definitions, Wood et al. (2011) provided a more pragmatic and less directive definition to strengths, as 'characteristics that allow a person to do well or at their personal best' (p. 16).

To move the school wide community from 'antiquated' educational structures to a focus on social and emotional intelligence and wellbeing, it was important to 'get the language right' (Weeks, 2013), by establishing a process of harmonious 'innovation wrapped in tradition' (Rathunde & Csikszentmihalyi, 2006), including the promotion of strengths use and strengths knowledge among school staff as a part of a culture-wide intervention guided by a dialectic approach. Learning and knowing one's strengths was not considered as a mere academic exercise, but as a resource to successfully and adaptively interact with the changing environments of modern education (Delle Fave & Massimini, 2015, p. 49).

Using the data from this school staff, Ignjatovic et al. (2021, 2022) investigated the process of strengths use, flow at work, vital engagement, and acceptance. Findings from the first study (Ignjatovic et al., 2021) highlighted a contextually bounded relationship between strengths use and flow at work; moreover, the potential role of strengths use as a behavioural indicator of flow experiences was detected, as they seemed to be occurring in tandem with each other. The second study (Ignjatovic et al., 2022) provided preliminary support for a model of vital engagement as a sustainable and

accepting relationship between the best of the individual and their flow activities, based on school staff's strengths use, vital and accepting attitudes towards meaningful challenges (Steger, 2005; Steger & Frazier, 2005) and frequent flow experiences at work.

Building on these findings, the present study examines the role of perceived work climate. A contextual variable operationalised as organisational commitment, intention to stay, and job satisfaction (Langford, 2009), as an independent predictor of flow at work. Then, to consider the potential synergistic effects of work climate, the interaction between strengths use/knowledge and positive climate on flow at work were tested. We expected the following outcomes:

H1: Strengths use, strengths knowledge, and positive climate would predict more frequent flow at work both cross-sectionally and over time.

H2: Positive climate would moderate the relationship between strengths use/knowledge and flow at work.

Method

Participants

School staff were asked to complete a survey over five occasions across a three-year period, being assessed twice per year for the first two years (T1-T4) and once at the end of the third year (12 months later, T5). The sample consisted of 327 staff members. Ethics approval was received from the University of Melbourne Human Research Ethics (ID: 1750027.1) to undertake this research.

The age distribution was as follows: 12.2% were aged 20–30, 25.7% were aged 31–40, 30.6% were aged 41–50, 25.1% were aged 51–60, and 6.4% were over 60. Regarding gender, 53.2% identified as female and 46.8% identified as male. Regarding tenure at the school, 20.6% had been employed for under 12 months, 27.6% for 1–4 years, 23.6% for 5–9 years, and 28.2% for 10 years or more. In terms of role, 44.2% were teachers, while 55.8% were in other roles. Additionally, across all staff, 66.1% were teaching staff, 20.2% were administrative staff, 6.1% were executive staff, and 7.6% were support staff.

To consider potential effects of missing data, we compared individuals who completed two or more assessments (i.e. those who were exposed to the intervention) with those who completed only the baseline assessment (i.e. before the positive education intervention occurred), using independent sample t-tests for continuous variables and chi-square for categorical variables. No significant differences emerged between the two groups on frequency of flow experience ($t(194) = 0.30$, $p = 0.77$), strengths use ($t(194) = 0.28$, $p = .78$), positive climate ($t(194) = -1.94$, $p=.05$), strengths knowledge ($t(194) = 1.53$, $p=.13$, type of profession ($\chi^2(6) = 3.99$, $p=.68$), time of employment at the school ($\chi^2(6) = 5.47$, $p = .49$), gender ($\chi^2(2) = .24$, $p = .89$), or age group ($\chi^2(8) = 4.78$, $p = .78$).

Measures

Participants completed a self-report survey at each occasion; the current study is specifically focused on the assessment of general strengths use, strengths knowledge, work related flow, and positive climate.

Strengths use scale (SUS)

The Strengths Use Scale (Govindji & Linley, 2007) includes 14 items that measure the extent to which participants use their strengths in various situations and challenges, both on a daily basis and over time (1 = strongly disagree, 7 = strongly agree), Sample items include: 'I am able to use my strengths in lots of different situations' and 'Most of my time is spent doing things that I am good at doing'. Items were averaged together at each time point to create the participants' strengths use score. In the current sample, Cronbach's alphas ranged from .92 to .95. As the training at the school was focused on Peterson and Seligman's (2004) framework involving 24-character strengths, we assume that participants had the Values in Action character strengths in mind when rating their use, but participants' actual conceptualizations of strength when doing the ratings are unknown.

Strengths knowledge scale

The Strengths Knowledge Scale (Govindji & Linley, 2007) was developed to assess individuals' awareness and recognition of their strengths. It includes eight items such as 'Other people see the strengths that I have', 'I know the things I am good at doing' and 'I know when I am at my best'. Items were averaged together to create participants' strength knowledge score. In the current sample, Cronbach's alphas ranged from .91 to .94. As noted for the SUS, the training at the school was focused on Peterson and Seligman's (2004) framework involving 24 character strengths. We assume that staff had the values in action character strengths in mind when rating their knowledge of strengths, but their actual conceptualizations of strength are unknown.

Work-related flow inventory

The Work-Related Flow Inventory (Bakker, 2008) includes 13 items that assess the perceived frequency of flow experiences at work. The scale has three subscales: absorption (4 items), work enjoyment (4 items), and intrinsic work motivation (5 items). Considering the past two weeks, participants indicated on a 7-point scale (1 = never and 7 = always) the extent to which statements such as 'I am totally immersed in my work' (absorption), 'I do my work with a lot of enjoyment' (work enjoyment), and 'I get motivation from the work itself, and not from the reward for it' (intrinsic work motivation) describe their experiences. Items were averaged together at each time point to create their flow at work score. In the current sample, the Cronbach's alphas ranged from .90 to .92.

Positive climate

Positive climate was assessed using the Voice Climate survey, which measures work practices and outcomes (Langford, 2009) across seven domains: purpose, property, participation, people, peace, progress, and passion. The survey consists of 102 items, rated on a 5-point scale (1 = strongly disagree, 5 = strongly agree). The current study utilized the 10-item passion subscale, which included the combination of organizational commitment (e.g. "I feel a sense of loyalty to this organization'), job satisfaction ('Overall I'm satisfied with my job'), and intention to stay ('I can see a future for me in this organization'). Items were averaged together to create the participants' positive climate score. In the current sample, the Cronbach's alphas ranged between .85 to .93.

Data analysis

Descriptives and cross-sectional and longitudinal correlations amongst the variables were first calculated. Preliminary analyses indicated that age and gender were not systematically related to the model variables and did not modify the results of the model testing. Thus, to facilitate model estimation and ease of presentation, subsequent analyses used the whole sample, without further consideration of demographic factors.

Two moderation models (one for strengths use and one for strengths knowledge) were then tested through non-lagged (i.e. cross-sectional) and lagged (i.e. longitudinal) analyses. The first model included strengths use, positive climate, and the interaction between the two as flow predictors. The second model included strengths knowledge, positive climate, and the interaction between the two as flow predictors. Non-lagged analyses were conducted on the cross-sectional data collected among all the participants ($N = 327$) at T1 (before the positive education intervention occurred), and with 134 participants at T2 (after the positive education intervention occurred). The predictors and outcome variable were entered together, simultaneously testing the main and interaction effects. Lagged analyses were then performed on the longitudinal data, taking advantage of the five time points and testing for temporal precedence.

Analyses were performed through the linear mixed models function in SPSS (version 27). Following the process used by Goodman et al. (2017), the function takes advantage of the five time points, nesting them within the individuals. Variables were first standardized to z-scores, which results in grand mean centering for both within and between person associations. An autocorrelated error structure was used (Goodman et al., 2017), which assumes that time points that are closer to one another in time are more strongly associated with one another than time points that are further away than one another in time.

Results

Means, standard deviations, and bivariate correlations (Pearson correlation coefficients) are summarized in Table 1. Correlations indicated that both cross-sectionally and over time, strengths use, strengths knowledge, and positive climate were related to more frequent flow at work. Table 2 summarizes the regression models. The direct effects for strengths use, strengths knowledge, and positive climate were significantly related to flow at work, whereas the moderating effect of positive climate on strengths use and strengths knowledge was non-significant, both in the lagged and non-lagged analyses.

Discussion

The present study aimed to investigate conditions under which flow at work occurs, by testing individual factors (strengths use and strengths knowledge), contextual factors (subjectively rated positive climate), and the interaction between individual and contextual factors (i.e. the moderation effects). Findings showed that all main effects were significant, both cross sectionally and over time, but there was no evidence of moderation.

Between time 1 and time 2, the school introduced a positive education intervention, which included an introduction to character strengths. Considering changes in the mean scores and standard deviation on the strengths use and strengths knowledge scales, the intervention was more impactful for some participants

Table 1. Means, standard deviations (SD), and correlations for the study variables.

		Mean	SD	N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Flow at work T1	4.67	1.02	199																				
2	Flow at work T2	4.8	1.03	134	.76**																			
3	Flow at work T3	4.85	0.96	90	.78**	.70**																		
4	Flow at work T4	4.94	0.95	114	.68**	.56**	.51**																	
5	Flow at work T5	4.8	0.94	133	.67**	.60**	.70**	.68**																
6	Positive climate T1	4.18	0.65	208	.58**	.52**	.53**	.46**	.37**															
7	Positive climate T2	4.33	0.65	139	.54**	.62**	.73**	.41**	.44**	.73**														
8	Positive climate T3	3.95	0.75	95	.32*	.26	.43**	.41**	.55**	.34**	.32*													
9	Positive climate T4	4.07	0.65	121	.2	.12	.44**	.28**	.25*	.32**	.34**	.70**												
10	Positive climate T5	3.72	0.99	39	.43*	.48*	.09	.67**	.57**	.54**	.55**	.85**	.78**											
11	Strengths use T1	5.81	0.74	197	.52**	.52**	.49**	.43**	.43**	.52**	.42**	.32*	.18	.22										
12	Strengths use T2	5.67	0.71	198	.42**	.55**	.48**	.44**	.35**	.40**	.44**	.29*	.12	.53*	.71**									
13	Strengths use T3	5.65	0.88	131	.22	.25	.44**	.30*	.30*	.37**	.28*	.44**	.42**	.51	.63**	.64**								
14	Strengths use T4	5.74	0.88	90	.32**	.26*	.48**	.41**	.28*	.51**	.41**	.53**	.34**	.5	.66**	.68**	.81**							
15	Strengths use T5	5.75	0.85	113	.38**	.27*	.36*	.51**	.50**	.52**	.40**	.58**	.55**	.61**	.65**	.65**	.70**	.64**						
16	Strengths knowledge T1	5.81	0.73	132	.30**	.39**	.31*	.43**	.34**	.29**	.23*	.15	.17	.07	.69**	.60**	.44**	.56**	.58**					
17	Strengths knowledge T2	5.51	0.59	132	.42**	.49**	.54**	.45**	.36**	.39**	.44**	.35*	.05	.64**	.52**	.76**	.53**	.55**	.49**	.43**				
18	Strengths knowledge T3	5.87	0.79	90	.19	.15	.36**	.30*	.46**	.42**	.32*	.45**	.42**	.69**	.55**	.49**	.69**	.67**	.65**	.53**	.57**			
19	Strengths knowledge T4	5.69	0.58	113	.34**	.27*	.31*	.40**	.33**	.45**	.41**	.36**	.25**	.69**	.48**	.50**	.49**	.78**	.47**	.49**	.49**	.50**		
20	Strengths knowledge T5	5.66	0.49	132	.34**	.32**	.32*	.46**	.40**	.46**	.39**	.61**	.32**	.57**	.52**	.64**	.47**	.55**	.68**	.51**	.65**	.52**	.59**	

*p < .05, **p < .01, ***p < .001.

Table 2. Regression models testing direct and moderation effects of strengths use, strengths knowledge, and positive climate on flow, with non-lagged and lagged and analyses.

	Non-Lagged analyses (T1)		Non-Lagged analyses (T2)		Lagged analyses	
	Std. Coef.	95% CI	Std. Coef.	95% CI	Std. Coef.	95% CI
Model 1: Strengths Use						
Strengths Use	.44***	[.3750]	.34**	[.2444]	.37***	[.2648]
Positive Climate	.24***	[.1731]	.32**	[.2341]	.25***	[.14, .36]
Strengths use × Positive Climate	.02	[−.0508]	.03	[−.4410	.02	[−.0913]
Model 2: Strength Knowledge						
Strengths Knowledge	.33***	[.2640]	.290**	[.1937]	.31***	[−.2343]
Positive Climate	.29***	[.2236]	.340**	[.2543]	.27***	[.15, .38]
Strengths Knowledge × Positive Climate	.00	[−.0606]	.005	[−.0607]	−.01	[−.1109]

T1 = Time 1 (before the positive education intervention), T2 = Time 2 (after the positive education intervention).
*$p < .05$. **$p < .01$. ***$p < .001$.

and less impactful for other participants. From a systems informed perspective, this result is not surprising, as it is insufficient to simply introduce an intervention at a school (Kern & Taylor, 2021), even if the intervention is evidence informed. Careful thought must be given to several contextual and individual factors, such as school conditions at the time of the intervention, support by leadership, messaging around the intervention, time given to the educators for learning about and practicing the intervention exercises, the intervention itself, educators' motivation and perceived need to change. Successful interventions provide beneficial effects to areas not targeted by the intervention itself, as occurred in the present study with flow at work: it was not a target of the intervention, but participants reporting increased strengths use and strengths knowledge were more likely to experience work-related flow more frequently.

Our study captured subjective perceptions of the school climate, operationalised as organisational commitment, intention to stay, and job satisfaction, finding that more positive perceptions were related to greater likelihood of flow experiences at work. This suggests that flow does not occur in a vacuum; while schools cannot force workers' flow experiences, they can create positive, inviting environments facilitating them.

We expected to find an interaction between positive climate and strengths use/knowledge, suggesting their synergistic effect on flow, but this was not the case. From a systems perspective, several levels should be considered to understand this finding. The individual level includes personal, though malleable factors such as strengths use and strengths knowledge. The micro context level, subjective and psychobiological in nature (Bronfenbrenner & Ceci, 1994), is represented by the internal conditions (i.e. current health status, mood, goals, worries, activity schedule) through which the person experiences daily life. A third level consists of the subjective macro context, captured here as positive climate. Finally, there is the level of the objective macro context (i.e. the school context as judged by others). Future studies might test whether the internal context is more likely to interact with personal factors to create synergistic effects, and whether flow occurs due to direct effects alone, or more complex dynamics are at play.

Implications for theory, research, and practice

The empirical findings from this study have several implications for theory, research, and practice. Firstly, this study delved more deeply into the behavioral sequences that may produce facilitative conditions for flow experiences to routinely occur in daily activities across the lifespan (Tse et al., 2019). Secondly, this study examined flow experiences in work activities from both short- and long-term perspectives – extending the knowledge base of these dynamic constructs at different time scales and pointing to the importance of considering longer-term modelling and empirical testing.

Previous studies have highlighted the importance of facilitative socio-cultural contexts (cf. Delle Fave & Massimini, 2015; Delle Fave et al., 2011) of flow experiences, such as social and community support, and opportunities for skills development. In this vein, our study provides further empirical evidence of the importance of considering both the environmental conditions external to the individual, and the personal and micro contextual conditions inside the individual that surround flow at work.

Workplaces are important components of the wider culture; given the amount of time and energies individuals are investing at work every day and throughout life, their impact is substantial. Schools, like most

modern workplaces, are complex dynamic systems in which many interconnecting factors influence the well-being of both students and staff (Kern et al., 2017). Therefore, this study contributes to understanding how working adults can cultivate their strengths and experience flow in their job tasks over time (Nakamura & Condren, 2018).

Limitations

The study had several limitations. While it benefitted from longitudinal data collected over a three-year period and included several hundred participants, the attrition rate limited the power to detect effects. Moreover, all data were self-reported. The focus was on school staff, which may prevent generalization of results to other populations. The examined school was in the midst of implementing a positive education intervention, and longitudinal results may be dependent upon the efforts by the school to create a positive climate that was facilitative of flow experiences. That is, positive climates do not simply happen but must be carefully constructed and nurtured.

Conclusion

Advances in the applications and generalizability of systems sciences within positive and educational psychology have potential benefits for the 'everyday person' (Kern et al., 2020) in ways that respect their authenticity, their social and cultural environment, and their behavioral context (Ciarrochi et al., 2016). Attempts to identify and promote flow in work settings highlights that it is for everyday survival, as well as the 'what' and 'how' of optimally structuring attention and daily experience. This information remains highly valid, particularly as contemporary cultural environments make it harder for individuals to focus attention during daily life. While the moderation effects were non-significant, we found that both individual factors and contextual factors mattered for flow experiences to occur. Further, we have pointed to the complex nature of flow experiences that occur over extended periods of time. We hope that this article initiates a more dynamic understanding of flow by focusing on *what doing* and *how doing* or flow activity in the everyday lives of working adults.

The data that support the findings of this study are available from the corresponding author, [CI], upon reasonable request.

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No potential conflict of interest was reported by the author(s).

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