The Effectiveness of the Integrated Flow Model Intervention on Work-Related Flow, Positive Affect, and Task Achievement in the Digital Era

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The Asian Conference on Psychology & the Behavioral Sciences 2026
Official Conference Proceedings

Abstract

This study examined the effects of an integrated work-related flow intervention on positive affect and perceived task achievement among professionals working in a high-pressure audit context characterized by heavy workloads, strict deadlines, and demanding performance expectations. In such environments, sustaining intrinsic motivation and positive work experiences can be challenging. The intervention was based on an integrated flow model that combines work-related flow theory, self-determination theory, and meaningful work. Within this framework, the program was designed to support both task-related conditions and internal psychological processes underlying flow, including intrinsic motivation, attentional regulation, and the perception of meaningful work. By addressing both structural and psychological mechanisms, the intervention aimed to facilitate the initiation, intensification, and maintenance of flow experiences in real work contexts. A quasi-experimental two-group repeated-measures design was employed, with data collected at three time points (pre-intervention, post-intervention, and one-month follow-up) and analyzed using mixed-design MANOVA. The findings indicated that participants in the experimental group showed increased positive affect following the intervention, and this improvement was maintained at the follow-up period. In contrast, perceived task achievement remained relatively stable across groups over time. Additional analyses suggested that the intervention was associated with higher levels of work-related flow in the experimental group. Overall, the results suggest that the intervention may contribute to enhancing positive emotional experiences while supporting stable task functioning in high-pressure professional settings.

Keywords: work-related flow, self-determination theory, meaningful work, positive affect, task achievement

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Introduction

This study is situated within the context of professional audit firms, which play a critical role in ensuring financial transparency and accountability in modern economies. Work in this sector requires high levels of analytical thinking, precision, and responsibility under strict deadlines and demanding performance expectations. Consequently, employees frequently operate under sustained pressure, heavy workloads, and limited autonomy, which may compromise their psychological well-being and intrinsic motivation over time.

Despite consistently meeting performance standards, professionals in such environments often experience emotional strain, reduced engagement, and difficulty maintaining positive work experiences. This suggests a key challenge in high-pressure professional contexts: while performance outcomes may remain stable, the quality of employees' psychological experiences may deteriorate. Recent research in organizational psychology has therefore emphasized the importance of positive affect as a psychological resource that supports resilience, sustained engagement, and adaptive functioning at work.

Work-related flow has been identified as a relevant concept for understanding high-quality work experiences, characterized by deep concentration, enjoyment, and intrinsic motivation during task engagement. Although previous studies have shown that flow is associated with positive affect and work performance, three important gaps remain. First, most research has been conducted in general work contexts, with limited focus on high-pressure professional environments such as audit firms. Second, existing studies are largely correlational, with relatively few intervention-based studies that examine how flow can be actively developed and sustained over time. Third, prior approaches often examine flow, motivation, or meaningful work separately, without integrating these perspectives into a coherent framework that captures both structural work conditions and internal psychological processes.

To address these gaps, the present study developed an integrated flow model intervention that combines work-related flow theory, self-determination theory, and meaningful work. This integrated approach aims to support both task-related conditions and internal psychological mechanisms, including intrinsic motivation, attentional regulation, and the perception of meaningful work, in order to facilitate the initiation, intensification, and maintenance of flow experiences in real work contexts. Accordingly, this study aimed to (1) compare positive affect and perceived task achievement between experimental and control groups, (2) examine changes across three time points, and (3) investigate the effects of the intervention across time and group.

Literature Review

Work Context in High-Pressure Professional Environments

Professional audit work is characterized by high workload, strict deadlines, and demanding performance expectations. Employees are required to maintain accuracy and accountability under time pressure, often in environments with limited autonomy and frequent interruptions. Although professionals are generally able to meet performance standards, sustained exposure to such conditions may place strain on employees' motivation, engagement, and psychological well-being. This highlights the importance of examining not only performance outcomes but also the quality of work experiences in high-pressure contexts.

Work-Related Flow

Work-related flow refers to a state of deep absorption, intrinsic motivation, and enjoyment experienced during task engagement (Bakker, 2008; Csikszentmihalyi, 1990). It reflects a high-quality work experience in which individuals are fully immersed in their tasks and motivated by the activity itself.

Flow occurs when there is a balance between task challenges and individual skills, supported by clear goals and immediate feedback (Csikszentmihalyi, 1990). These conditions enable individuals to maintain focused attention and sustain engagement during task performance.

Flow has been associated with both psychological and performance-related outcomes. In particular, it is consistently linked to positive affect, reflecting increased energy, enjoyment, and engagement during work activities (Bakker, 2008). It has also been associated with task achievement and effective performance (Demerouti, 2006). However, in highly structured professional environments such as audit firms, performance outcomes may remain relatively stable due to external constraints and standardized work processes. In such contexts, flow may play a more important role in maintaining performance quality rather than producing immediate improvements.

Self-Determination Theory

Self-determination theory (SDT) explains how intrinsic motivation is supported through the fulfillment of three basic psychological needs: autonomy, competence, and relatedness (Deci & Ryan, 2000). When these needs are satisfied, individuals are more likely to engage in work voluntarily, sustain motivation, and experience higher well-being (Deci & Ryan, 2000).

In the context of work-related flow, intrinsic motivation plays a central role in facilitating deep engagement and sustained attention during task performance. Supporting these psychological needs can therefore enhance individuals' capacity to become fully immersed in their work.

Meaningful Work

Meaningful work refers to the perception that one's work is valuable, purposeful, and aligned with personal values (Bailey et al., 2019; Rosso et al., 2010). Rather than being determined solely by job characteristics, meaningful work arises from individuals' interpretations of their roles and the perceived impact of their work on others, organizations, or society (Martela et al., 2018).

As a psychological mechanism, meaningful work functions as a motivational resource that enhances intrinsic motivation and encourages individuals to invest sustained effort in their work (Gagné & Deci, 2005; Martela et al., 2018). It also strengthens positive affect and supports engagement, particularly in demanding work environments (Bailey et al., 2019).

In relation to work-related flow, perceiving work as meaningful may increase the likelihood of deep concentration and enjoyment by reinforcing the perceived value of effort and task involvement (Abuhamdeh, 2020; Engeser & Rheinberg, 2008). In high-pressure professional contexts, meaningful work can therefore act as a psychological resource that sustains motivation and positive emotional experiences despite demanding conditions.

Integration of Theoretical Frameworks

Although work-related flow, intrinsic motivation, and meaningful work have been widely studied, they are often examined separately. Flow theory primarily explains task-related conditions that facilitate deep engagement, whereas self-determination theory and meaningful work explain underlying motivational and psychological mechanisms.

Integrating these perspectives provides a more comprehensive understanding of how flow experiences are initiated and sustained. In particular, intrinsic motivation, attentional regulation, and perceived work value function together to support the initiation, intensification, and maintenance of flow experiences in real work contexts.

However, previous research has rarely combined these frameworks into a unified intervention model, especially in high-pressure professional environments. To address this limitation, the present study develops an integrated flow model intervention that brings together these theoretical perspectives.

Conceptual Framework of the Study

Building on the reviewed literature, this study proposes an integrated conceptual framework that combines work-related flow theory, self-determination theory, and meaningful work. The framework is informed by existing models that explain both the design of flow interventions and the psychological mechanisms underlying flow experiences.

The Flow Interventions at Work model (Bartholomeyczik et al., 2023) provides a structured approach to designing interventions across different stages of flow, including entering, boosting, and maintaining flow. This model highlights how flow can be systematically supported through targeted strategies in workplace contexts.

In addition, the Flow Engine Framework (Šimleša et al., 2018) conceptualizes flow as a dynamic process involving inputs (e.g., skill–challenge balance, clear goals, and feedback), core processes (e.g., attention and intrinsic motivation), and outputs (e.g., positive affect and task achievement). This framework explains how task conditions are translated into flow experiences and related outcomes through underlying psychological mechanisms.

Building on these foundations, the present study integrates both perspectives into a unified framework. In this integrated model, self-determination theory and meaningful work are incorporated as key psychological mechanisms that enhance intrinsic motivation, attentional regulation, and the perceived value of work. These mechanisms support the initiation, intensification, and maintenance of flow experiences in real work contexts.

By targeting both structural work conditions and internal psychological processes, the integrated flow model intervention provides a systematic approach to enhancing positive affect while supporting stable task achievement in high-pressure professional environments.

Methodology

This study employed a quasi-experimental two-group repeated-measures design to examine the effects of an integrated work-related flow intervention. Participants were professional

employees from an audit firm (N = 21; experimental group = 11, control group = 10), all of whom had at least one year of work experience.

Measurements were conducted at three time points: pre-test, post-test, and one-month follow-up. Work-related flow was assessed using the Work-Related Flow Inventory (WOLF; Bakker, 2008) as a manipulation check. Positive affect was measured using the Job-related Affective Well-being Scale (JAWS; Van Katwyk et al., 2000), and perceived task achievement was assessed using a task performance scale (Williams & Anderson, 1991). All measures used a five-point Likert scale.

The intervention was grounded in work-related flow theory and integrated elements from the Flow Intervention at Work model (Bartholomeyczik et al., 2023), the Flow Engine Framework (Šimleša et al., 2018), self-determination theory, and meaningful work. The program was conducted over four weeks and designed to support entering, boosting, and maintaining flow.

Participants in the experimental group received the intervention, while the control group continued their regular work routine. Data were collected at all three time points. A two-way mixed-design MANOVA was conducted to examine the effects of time and group on positive affect and perceived task achievement.

This study was approved by the Human Research Ethics Committee of Srinakharinwirot University (SWUEC-682203), and all participants provided informed consent.

Intervention Program

The intervention program was developed based primarily on the Flow Intervention at Work model (Bartholomeyczik et al., 2023), in combination with the Flow Engine Framework (Šimleša et al., 2018). These models guided the design of activities targeting both structural work conditions and internal psychological processes associated with flow.

The program was designed to cover all stages of flow development, including entering flow, boosting flow, and maintaining flow. In addition, principles from self-determination theory and meaningful work were incorporated to enhance intrinsic motivation, attentional engagement, and perceived work value.

The intervention consisted of three training sessions comprising a total of seven activities, along with two between-session self-practice activities completed over two weeks. The entire program spanned four weeks.

Each session included structured activities targeting key flow conditions (e.g., skill–challenge balance, clear goals, and immediate feedback), as well as psychological processes such as attention and intrinsic motivation. The intervention combined structured training sessions with between-session self-practice activities to support the continuity of flow experiences. Participants were encouraged to apply these strategies directly to their work tasks to facilitate real-world transfer of learning. Details of the intervention activities are presented in Table 1.

The intervention program was reviewed by subject-matter experts to ensure content validity and consistency with the underlying theoretical frameworks. A preliminary tryout was

conducted to assess feasibility and timing, and minor adjustments were made prior to implementation.

Table 1

Summary of the Integrated Flow Intervention Program

Session	Focus	Key Activities	Theoretical Basis	Target Outcomes
Session 1	Entering Flow	Ice-breaking and flow recall	Flow theory (flow awareness); SDT (competence)	Increased awareness of flow
		Skill–challenge matching; goal setting; immediate feedback	Flow theory (skill–challenge balance, clear proximal goals, immediate feedback); SDT (competence)	Positive affect; improved task achievement
Between sessions (1 week)	Application	Try your flow plan (self-practice)	Flow principles; SDT	Application of flow strategies and SDT in real work
Session 2	Boosting Flow	Meaningful work reflection and intrinsic motivation enhancement	SDT (autonomy, competence, and relatedness); Flow theory (intrinsic motivation); Meaningful work	Enhanced positive affect
	Maintaining Flow	Attention control training	Flow theory (attention); SDT (autonomy, competence)	Improved task achievement
Between sessions (1 week)	Application	Flow practice week: applying meaning and attention in action	Integration of flow, SDT, and meaningful work	Application of flow strategies, SDT and meaningful work in real work
Session 3	Closure	Reflection, feedback, and program closure	Reflective practice; SDT (relatedness)	Consolidation of learning and experience

Note. Post-test assessment and program summary were conducted to evaluate the intervention process and ensure the completion of the study.

Results

Preliminary Analysis

A total of 21 participants were included (experimental group = 11; control group = 10). The demographic characteristics of participants are presented in Table 2. Independent samples t-tests indicated no significant baseline differences between groups in work-related flow,

positive affect, and perceived task achievement (all $p > .05$), suggesting comparable initial conditions prior to the intervention.

Table 2
Demographic Characteristics of Participants

Variable	Experimental (n = 11)	Control (n = 10)	Total (n = 21)
Gender			
Male	3 (27.3%)	4 (40.0%)	7 (33.3%)
Female	8 (72.7%)	6 (60.0%)	14 (66.7%)
Years of experience			
1–3 years	6 (54.5%)	2 (20.0%)	8 (38.1%)
3–6 years	2 (18.2%)	8 (80.0%)	10 (47.6%)
6–10 years	2 (18.2%)	0 (0.0%)	2 (9.5%)
> 10 years	1 (9.1%)	0 (0.0%)	1 (4.8%)
Job position			
Associate	2 (18.2%)	1 (10.0%)	3 (14.3%)
Senior Associate	2 (18.2%)	1 (10.0%)	3 (14.3%)
Assistant Manager	3 (27.3%)	5 (50.0%)	8 (38.1%)
Manager and above	4 (36.4%)	3 (30.0%)	7 (33.3%)

Multivariate Analysis

A two-way mixed-design MANOVA was conducted to examine the effects of time and group. Results indicated a significant multivariate main effect of group (Pillai's Trace = .34, $F(2,18) = 4.71$, $p = .02$, $\eta^2 = .34$), reflecting overall differences between experimental and control conditions. Changes across time and the Time × Group interaction showed modest overall variation at the multivariate level; subsequent univariate analyses were therefore conducted to examine specific patterns across outcome variables in greater detail.

Univariate Results

Univariate analyses revealed differential patterns between the experimental and control groups across key outcome variables, as shown in Table 3. For work-related flow indicators—comprising Absorption, Work Enjoyment, and Intrinsic Motivation—a significant Time × Group interaction was found ($F(1,19) = 5.42$, $p = .03$, $\eta^2 = .22$), indicating that participants in the experimental group demonstrated increased flow experiences over time, whereas the control group showed minimal change.

Positive affect also demonstrated a significant Time × Group interaction effect ($F = 3.50$, $p = .04$, $\eta^2 = .16$). The experimental group showed a consistent increase in positive affect from pre-test ($M = 3.30$) to post-test ($M = 3.93$) and follow-up ($M = 4.02$), while the control group remained relatively stable. Significant group differences were observed at post-test ($p < .001$) and follow-up ($p = .01$), but not at baseline.

For perceived task achievement, no significant interaction or main effects were found (Time × Group: $F = 2.03$, $p = .15$; Time: $F = 1.15$, $p = .33$; Group: $F = 0.98$, $p = .34$), indicating that self-perceived performance levels remained relatively stable across time and groups.

Table 3
Means of Study Variables Across Time

Measure	Experimental Group			Control Group		
	Pre	Post	Follow-up	Pre	Post	Follow-up
Positive Affect	3.30	3.93	4.02	3.01	2.87	3.25
Task Achievement	4.09	4.26	4.42	4.06	4.14	4.00

Summary

Overall, the findings indicate that the intervention was associated with improvements in work-related flow and positive affect among participants in the experimental group, while perceived task achievement remained relatively stable across both groups. These findings are consistent with the overall pattern in which the experimental group demonstrated progressive gains in flow-related indicators and positive affect over the course of the intervention and follow-up period.

Discussion

The findings indicate that the integrated flow intervention was associated with increased positive affect in the experimental group, while perceived task achievement remained relatively stable. These results partially support the study hypotheses and are consistent with prior research on work-related flow and well-being.

The improvement in positive affect can be explained by flow theory, which suggests that optimal experiences occur when individuals engage in tasks with a balance between challenge and skill, supported by clear goals and feedback (Csikszentmihalyi, 1990). Previous studies have similarly shown that work-related flow is positively associated with positive affect and well-being (Demerouti et al., 2012; Nielsen & Cleal, 2010). The manipulation check further supports this interpretation, as flow increased significantly in the experimental group but not in the control group, suggesting that the observed changes were associated with the intervention.

In contrast, no significant changes were found in perceived task achievement. This may be due to relatively high baseline scores, which could limit observable change (ceiling effect). Alternatively, the findings may reflect a maintenance effect, where participants were able to sustain performance despite working in a high-pressure context. This is consistent with prior research suggesting that psychological outcomes tend to respond more quickly to interventions than performance outcomes (Breevaart et al., 2012; Sonnentag, 2015).

The findings can be further understood through the integration of work-related flow, self-determination theory, and meaningful work. While flow explains task-related conditions for engagement, self-determination theory highlights intrinsic motivation, and meaningful work explains the perceived value of work. Together, these mechanisms help explain why positive

affect responded to the intervention, whereas performance outcomes may require longer-term or structural changes.

Overall, the results suggest that the intervention primarily enhances psychological experiences at work rather than immediate performance outcomes, highlighting the importance of considering both psychological and behavioral indicators in evaluating workplace interventions.

Conclusion

This study examined the effectiveness of an integrated flow model intervention in enhancing work-related flow, positive affect, and perceived task achievement among professionals in a high-pressure work context. The findings indicate that the intervention was associated with increased positive affect and work-related flow, while perceived task achievement remained relatively stable over time.

These results suggest that the intervention effectively enhanced employees' psychological experiences at work, particularly positive affect, which plays a key role in sustaining engagement and well-being. Although no significant improvement was observed in task achievement, the findings indicate that performance levels were maintained despite demanding work conditions.

The study contributes to the literature by integrating work-related flow, self-determination theory, and meaningful work into a unified intervention framework, providing a more comprehensive understanding of how task conditions and psychological processes jointly influence work experiences.

Limitations and Future Directions

This study has several limitations. First, the sample was drawn from a single audit firm, which may limit generalizability. Second, all measures relied on self-report data, which may introduce response bias. Third, the quasi-experimental design does not fully control for external variables. Finally, the relatively short follow-up period may not capture long-term performance outcomes.

Future research could extend the follow-up period, incorporate multi-source data (e.g., supervisor ratings or objective performance indicators), and examine the intervention across different occupational contexts to enhance generalizability and validity.

Practical Implications

The findings suggest that organizations can enhance employees' positive work experiences by designing work conditions that support autonomy, feedback, and meaningful engagement. In high-pressure environments, such approaches may help sustain performance while improving well-being without increasing workload demands.

The integrated flow model intervention can also be applied as a practical tool to support employees' self-regulation in daily work, enabling them to maintain focus, motivation, and engagement in demanding professional contexts.

Acknowledgements

The author would like to express sincere gratitude to Assistant Professor Dr. Chaiyut Kleebbua for invaluable guidance and support throughout the development of this study. Appreciation is also extended to all participants for their time and cooperation in the research process. The author gratefully acknowledges the Graduate School, Srinakharinwirot University, for providing financial support for participation in the presentation of this research.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

The author declares that ChatGPT (OpenAI) and Claude (Anthropic) were used as AI-assisted tools to support language refinement, grammar correction, and clarity of expression during the writing process. These tools were used solely to improve readability and did not contribute to the study design, data analysis, or interpretation of the results. All final content was reviewed and approved by the author.

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