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Academic Optimism, Work-Related Flow and Personal Effectiveness Among Indian Secondary School Teachers: Testing a Mediation Model Across SSC, CBSE and ICSE Boards

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Abstract. The purpose of the study was to examine if secondary school teachers' academic optimism was a predictor of work-related flow, and if flow experience mediated teachers' personal effectiveness. Guided by the principles of positive educational psychology and social cognitive theory, the study combined a belief-based resource, academic optimism, with an experiential motivational state, work-related flow, to explain interpersonal aspects of teacher effectiveness. Using a descriptive correlational design, the study drew on a purposive sample of 343 secondary school teachers from India, representing Secondary School Certificate (SSC; n = 143), Central Board of Secondary Education (CBSE; n = 100), and Indian Certificate of Secondary Education (ICSE; n = 100) schools. Participants completed standardized instruments assessing academic optimism, work-related flow, and personal effectiveness. Academic optimism significantly predicted work-related flow ($\beta = .51$, $R^2 = .41$, $p < .001$), with efficacy as the strongest component-level predictor ($\beta = .19$, $p = .001$). Both academic optimism ($\beta = .36$, $p < .001$) and work-related flow ($\beta = .42$, $p < .001$) contributed significant unique variance to personal effectiveness ($R^2 = .37$). Mediation analysis confirmed that flow partially mediated the association between academic optimism and personal effectiveness (indirect effect $\beta = .26$, 95% CI [0.15, 0.38]). Board-wise comparisons revealed significant differences, with ICSE teachers reporting higher levels than SSC teachers ($p < .01$). The results suggest that teachers' optimistic beliefs and conditions that facilitate flow can be beneficial in improving interpersonal teacher effectiveness.

Keywords: academic optimism; work-related flow; personal effectiveness; secondary teachers; teacher efficacy

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1. Introduction

Teaching cannot be reduced to delivering subject content or applying pedagogy. Teachers teach lessons, monitor daily, evaluate learning, and adapt for diverse learners, collaborate with colleagues, parents, and administrators, and manage the emotional demands of daily classroom work. Over time, these demands can accumulate (Madigan & Kim, 2021). This underscores the importance of examining the psychological resources that help teachers remain engaged, maintain effective practice, and cope with professional strain (Song, 2022). From a positive educational psychology perspective, teachers' belief systems and day-to-day motivational experiences are viewed as central to how they appraise challenges, persist in their efforts, and maintain their commitment to teaching, with clear implications for both well-being and effectiveness (Salanova et al., 2006; Xanthopoulou et al., 2011).

Despite the growing awareness of the importance of teacher effectiveness being influenced by factors beyond the teacher's skill as an instructor, the link between belief-based psychological resourcefulness and effective interpersonal professional competence remains an area of needed research. Current research has tended to investigate academic optimism and work-related flow as independent constructs without testing the mediating role of flow in the relationship between academic optimism and effective teacher interpersonal competence. Additionally, little is known about the processes of these constructs in institutionally varied contexts, including the different school boards that govern secondary education in India. This study aims to fill the research gap by testing the mediation role of work-related flow in the relationship between academic optimism and personal effectiveness of secondary school teachers in India.

One belief-based resource that has received increasing attention is academic optimism. Academic optimism refers to an education-specific orientation toward teaching and learning that brings together three related elements: teachers' instructional efficacy, trust in students and families, and an emphasis on academic goals (Hoy et al., 2006; Hoy et al., 2008). Confidence in teaching and belief in students' potential are linked with instructional persistence, adaptive interpretations of setbacks, and continued emphasis on strong academic expectations (Bandura, 1997; Tschannen-Moran & Hoy, 2007; Woolfolk Hoy & Burke Spero, 2005). From this perspective, academic optimism serves as a vital internal asset that facilitates resilience and adaptive professional practice (Beard et al., 2010). Research further suggests that these optimistic belief systems are not static; rather, they are responsive to the surrounding organizational culture, showing measurable variation across different institutional settings and levels of school-based support (Lelieur et al., 2024).

The rationale for proposing academic optimism's relationship with flow experiences and, in turn, with personal effectiveness is based on two interrelated theoretical underpinnings. First, social cognitive theory, according to Bandura (1997), posits that "self-efficacy beliefs influence people's approaches to challenges, persistence in the face of obstacles, and recoveries from adversity."

Teachers with high efficacy tend to be more likely to pursue high but achievable goal setting, persist in the face of adversity, and maintain cognitive engagement, all of which are antecedents to flow experiences, according to Csikszentmihalyi (1990). Second, in the context of positive psychology, Seligman and Csikszentmihalyi (2000) argued that “the best way to understand people is to study them at their best.” In this context, academic optimism is a belief strength, and flow is an experiential strength, both of which may create a synergistic relationship in which academic optimism contributes to flow experiences, and flow experiences, in turn, enhance interpersonal effectiveness.

However, teacher effectiveness is not shaped solely by beliefs. Complementing academic optimism is the lived motivational experience of teaching – particularly the extent to which teachers feel energized, absorbed, and intrinsically engaged during their work (Salanova et al., 2006; Xanthopoulou et al., 2011). The term flow captures an optimal state of engagement in which individuals are deeply absorbed, concentrate intensely, and experience both enjoyment and a sense of control during the activity (Csikszentmihalyi, 1990).

In school contexts, teacher flow reflects periods when teaching is experienced as meaningful and rewarding rather than merely effortful (Khajavi et al., 2022; Wang, 2022). Work-related flow has been studied as a measurable construct linked with sustained motivation, positive work functioning, and adaptive coping (Bakker, 2008). When teachers experience flow more frequently, they may demonstrate greater persistence and responsiveness in instruction and may be better positioned to manage professional demands without depleted engagement (Song, 2022).

An analysis of the link between academic optimism and work-related flow is of interest for theory and application, as optimistic beliefs could be seen as facilitating teachers’ engagement, persistence, and receptiveness to challenges in the face of modern school demands (Song, 2022; Wang, 2022). Teachers who report confidence in their capacity to manage instruction and trust students’ capacity to learn could be more likely to manage instructional challenges constructively, persevere in the face of obstacles, and adapt their responses as challenges arise (Bandura, 1997; Song, 2022; Tschannen-Moran & Hoy, 2007).

This is similar to the conditions that lead to the emergence of flow in professional activities, as teachers experience significant engagement, concentration, and self-motivation in their professional activities (Csikszentmihalyi, 1990; Khajavi et al., 2022; Wang, 2022). On the other hand, flow is also seen as being influenced by contextual factors that could be beyond the teacher’s control and might be related to the school’s climate and leadership support that could either foster or limit the teacher’s capacity for significant engagement in their professional activities (Lelieur et al., 2024; Zausmer et al., 2024). Therefore, an analysis of the role of belief and flow factors could be seen as more contemporary and contextual in nature (Song, 2022; Wang, 2022).

The other result that has been examined by this research is personal effectiveness, which is described as “interpersonal and self-management abilities that are necessary for effective professional performance.” In a school context, personal effectiveness is expressed through common professional interactions that involve appropriate self-disclosure, receptiveness to feedback, correct understanding of situations and people, and effective management of social and emotional aspects of daily work life (Pareek, 2001). In a modern-day learning environment, personal effectiveness is related to teacher adaptability, collaboration with colleagues, relationships, and professional functioning (Lelieur et al., 2024; Song, 2022). Therefore, personal effectiveness is important not only as a dimension of professional effectiveness but also as a practical intervention target for teacher development and school improvement initiatives in different contexts (Ma, 2023; Song, 2022).

While academic optimism has been studied in relation to teacher outcomes and school functioning, flow has been examined in relation to motivational experiences associated with positive work functioning. There is limited research that has integrated these variables within a single framework to explain how belief-based resources (academic optimism) are related to experiential engagement (flow), and then to interpersonal aspects of work functioning (personal effectiveness). Recent research has suggested that optimistic psychological resources, experiences related to engagement (flow), and contextual working conditions may be related to teacher working conditions. However, this relationship has been under-explored within integrated frameworks, particularly across diverse institutional contexts (Gao et al., 2023; Song, 2022; Wang, 2022). The importance of such an integrated framework is particularly evident in contexts where work conditions are challenging and institutional climate, support, and expectations vary (Lelieur et al., 2024; Zausmer et al., 2024).

India’s secondary education system is administered through different boards, such as SSC, CBSE, and ICSE, which differ in governance and accountability. These boards can vary in academic expectations, administrative routines, curriculum requirements, and access to professional development (Lelieur et al., 2024). Such differences may affect teachers’ confidence, trust, emphasis on academic goals, and day-to-day engagement, underscoring the importance of examining whether psychological resources and work-related flow differ across board contexts (Hoy et al., 2006; Zausmer et al., 2024). Understanding these differences can also help identify where school-level supports may be most needed to strengthen teacher functioning (Song, 2022; Xanthopoulou et al., 2011).

Accordingly, the present study investigates the relationships among academic optimism, work-related flow, and personal effectiveness among secondary school teachers and tests whether flow serves as a mechanism through which academic optimism contributes to personal effectiveness (Baron & Kenny, 1986; Salanova et al., 2006). By including teachers from SSC, CBSE, and ICSE schools, this study considers whether institutional context is associated with differences in academic optimism, work-related flow, and personal effectiveness (Lelieur et al., 2024; Zausmer et al., 2024). It also examines whether selected demographic

characteristics – namely gender, age group, and years of teaching experience – are linked with meaningful variation in these constructs (Beard et al., 2010). The study contributes to the literature in three ways. First, it connects a belief-based resource, academic optimism, with an experiential motivational state, work-related flow (Csikszentmihalyi, 1990; Hoy et al., 2008). Second, it shifts the focus beyond instructional outcomes to interpersonal and self-regulatory aspects of teacher functioning (Pareek, 2001). Third, it provides evidence from a multi-board Indian secondary education context (Lelieur et al., 2024).

1.1 Hypotheses:

H1: Academic optimism is positively correlated with work-related flow among secondary school teachers.

H2: Academic optimism is positively correlated with personal effectiveness (self-disclosure, openness to feedback, perceptiveness).

H3: Work-related flow is positively correlated with personal effectiveness.

H4: Academic optimism significantly predicts work-related flow.

H5: Academic optimism and work-related flow jointly and significantly predict personal effectiveness.

H6: Teachers differ significantly across boards (SSC, CBSE, ICSE) on academic optimism, work-related flow, and personal effectiveness.

H7: Demographic groups (gender, age group, years of experience) differ significantly on academic optimism, work-related flow, and personal effectiveness.

2. Literature Review

2.1 Positive Educational Psychology and Teacher Functioning

The present study uses positive educational psychology as its framework, focusing on strengths that support teachers' effectiveness and well-being, including optimism, engagement, and intrinsic motivation (Song, 2022; Xanthopoulou et al., 2011). This orientation is also consistent with recent review-based evidence highlighting the growing scholarly attention to positive psychology interventions in educational settings to support well-being and adaptive functioning (Vo & Allen, 2022).

Rather than framing teacher effectiveness primarily in terms of reducing burnout or stress (Madigan & Kim, 2021), this approach directs attention to the psychological resources that support sustained energy, commitment, and adaptive performance (Salanova et al., 2006; Wang, 2022). From this standpoint, teacher effectiveness is reflected in constructive belief systems and motivating work experiences that sustain high-quality professional practice (Hoy et al., 2006; Hoy et al., 2008). Consistent with this orientation, the current study focuses on two complementary constructs: academic optimism, a belief-based resource, and work-related flow, an experiential state of engagement that may support interpersonal aspects of effectiveness (Bakker, 2008; Csikszentmihalyi, 1990).

Nevertheless, the positive psychology perspective has some limitations. For instance, it has been argued that the core focus on positive factors might minimize the role of structural factors that might limit teachers' performance regardless of

their positive psychological factors (Seligman & Csikszentmihalyi, 2000). Additionally, the optimism-flow perspective assumes that the factors that influence teachers' performance are individual factors. However, the teaching profession is conducted within an organizational system that might override individual factors (Bakker & van Woerkom, 2017). The present study recognizes the constraints while arguing that the exploration of belief-based and experiential resources provides significant insight into the variability of teacher effectiveness.

2.2 Academic Optimism as a Belief-Based Resource

In Hoy et al.'s model, academic optimism is built from three connected beliefs: "I can teach effectively" (efficacy), "students and parents can be trusted," and "academic goals matter" (Hoy et al., 2006; Hoy et al., 2008). Collectively, the three components describe a unified set of beliefs in which teachers' sense of efficacy supports meaningful learning, confidence in key stakeholders, and a consistent emphasis on academic goals (Beard et al., 2010). Academic optimism is therefore not merely a general personality disposition; it is an education-specific construct shaped by professional experiences and school conditions (Hoy et al., 2006). In the present study's conceptualization, academic optimism captures teachers' confidence, relational trust, and commitment to academic standards as a unified psychological resource.

Prior scholarship links academic optimism with outcomes reflecting effective school functioning, including higher engagement and more supportive classroom climates (Song, 2022). Efficacy, relational trust, and academic emphasis together can promote a more adaptive response to obstacles, increasing teachers' likelihood of staying engaged and persisting with instruction (Bandura, 1997; Tschannen-Moran & Hoy, 2007; Woolfolk Hoy & Burke Spero, 2005). This belief system can influence how teachers appraise classroom difficulties, respond to student behaviour, and sustain effort during periods of high demand (Bandura, 1997). The evidence base suggests that academic optimism is shaped by context, with reported variation across institutions that differ in student mix, school climate, and academic support structures (Lelieur et al., 2024). Collectively, these findings indicate that academic optimism functions as a personally held psychological resource that is sensitive to contextual conditions (Hoy et al., 2006).

2.3 Work-Related Flow as an Experiential State of Engagement

Complementing belief-based resources, the construct of flow describes an optimal state of deep absorption and intrinsic enjoyment in an activity (Csikszentmihalyi, 1990). Flow tends to occur under conditions of challenge-skill balance and is experienced as strong focus, perceived control, and intrinsic motivation (Csikszentmihalyi, 1990). In teaching, flow may be reflected when teachers feel fully immersed in instruction, experience teaching as meaningful and rewarding, and remain energized rather than depleted by classroom demands (Khajavi et al., 2022; Wang, 2022). Within the present study's framework, flow represents the affective-motivational dimension of professional functioning that may help translate positive beliefs into effective behaviours (Salanova et al., 2006).

Researchers typically measure work-related flow in terms of absorption, work enjoyment, and intrinsic motivation, enabling statistical testing of its relationship

with work outcomes (Bakker, 2008). Evidence suggests that flow is associated with creativity, emotional stability, and adaptive performance, which may support teachers' responsiveness, persistence, and psychological resilience in routine practice (Song, 2022; Wang, 2022). In addition, flow experiences can vary across learning environments and instructional conditions (Zausmer et al., 2024), suggesting that institutional context may shape teachers' engagement states (Lelieur et al., 2024).

2.4 Personal Effectiveness as an Interpersonal Dimension of Teacher Effectiveness

The outcome variable in this study is personal effectiveness, conceptualized as a set of interpersonal and self-management competencies that support professional functioning. In educational settings, teacher effectiveness extends beyond technical pedagogy to include how teachers communicate, seek and use feedback, and manage relational and emotional demands in everyday interactions (Pareek, 2001). The present study operationalizes personal effectiveness through indicators such as self-disclosure, openness to feedback, and perceptiveness, which capture teachers' capacity for reflective communication, receptivity to improvement, and sensitivity to others' needs (Pareek, 2001).

Personal effectiveness is especially relevant because teaching is fundamentally relational work. A teacher's day includes repeated interactions with students, colleagues, parents, and administrators. Many of these interactions take place under time pressure and high expectations. In such conditions, teachers need to remain composed and communicate constructively (Pareek, 2001). Openness to feedback supports professional learning and improvement over time (Pareek, 2001). Perceptiveness helps teachers notice social cues and respond appropriately in the classroom and school settings (Pareek, 2001). Appropriate self-disclosure may foster trust and support authentic professional relationships. Accordingly, personal effectiveness provides a meaningful lens for examining teacher functioning (Song, 2022).

It is worth noting that the construct of personal effectiveness, as it is used in the study, is based on the framework developed by Pareek (2001) and is specific in nature. In the study, personal effectiveness is studied regarding the interpersonal aspects of self-disclosure, openness to feedback, and perceptiveness. Other potential conceptualizations of teacher effectiveness, such as instructional quality, student outcomes, and classroom management, might show a different relationship with academic optimism and flow. Therefore, the study is specific with regard to the interpersonal competencies of personal effectiveness, as it is just one part of the construct of personal effectiveness.

2.5 Linking Academic Optimism, Flow, and Personal Effectiveness

An integrated model suggests that academic optimism and flow work together to shape personal effectiveness. Academic optimism provides a cognitive foundation—teachers' confidence, trust, and academic emphasis—that may increase the likelihood of approaching teaching tasks with positive expectations and persistence (Hoy et al., 2006; Hoy et al., 2008). Optimistic beliefs may create conditions that increase the likelihood of flow by helping teachers view classroom

demands as manageable and meaningful, work with clear goals, and remain intrinsically motivated during instruction (Bandura, 1997; Csikszentmihalyi, 1990). Flow may then help convert these beliefs into observable interpersonal effectiveness (Bakker, 2008; Salanova et al., 2006). Teaching professionals who are highly engaged and experience positive affect in instructional contexts are more likely to communicate with greater care, be responsive to situational requirements, and be more constructive in dealing with routine interactions (Wang, 2022).

Self-Determination Theory argues that intrinsic motivation is more likely when individuals experience competence and relatedness in their work (Deci & Ryan, 2000; Van den Broeck et al., 2016). In teaching, academic optimism can strengthen perceived competence through efficacy beliefs and support relatedness through trust in students and parents (Bandura, 1997; Hoy et al., 2006). Work-related flow represents the experiential manifestation of this internal drive, emerging most consistently when a teacher's psychological needs are satisfied (Bakker, 2008; Csikszentmihalyi, 1990).

Within this framework, optimistic beliefs function as the cognitive filter through which educators evaluate and confront daily professional challenges (Hoy et al., 2008). While optimism dictates the initial approach to a task, flow characterizes the subsequent state of deep, sustained absorption (Csikszentmihalyi, 1990). It is this energized state of involvement that provides the psychological stamina necessary for teachers to remain interpersonally responsive and effective within the often-taxing environment of the modern school (Salanova et al., 2006; Xanthopoulou et al., 2011).

2.6 Institutional Context and Variation Across School Boards

India's secondary education landscape includes boards such as SSC, CBSE, and ICSE, which may differ in their institutional climates and academic structures. Differences in curriculum expectations, assessment practices, workload, autonomy, leadership, and professional development can affect teachers' confidence, trust, and academic emphasis, as well as the likelihood of experiencing absorption and enjoyment in instruction. Given evidence that optimism and flow are responsive to contextual conditions, examining board-wise differences provides a practical way to understand how organizational environments may support or constrain teachers' psychological resources and engagement.

Typically, ICSE schools follow English medium of instruction, international curriculum design, small class sizes, and teacher autonomy in instructional decisions (Lelieur et al., 2024). On the contrary, SSC schools follow state government regulations, large class sizes, and standardized curriculum design. Additionally, they offer fewer opportunities for teacher professional development. CBSE schools lie between the two and follow standardized curriculum and infrastructure (Lelieur et al., 2024). Such structural variations may lead to different working conditions that might influence teachers' belief systems

and engagement states differently (Zausmer et al., 2024; Bakker & van Woerkom, 2017).

2.7 Summary and Research Gap

Overall, the literature supports the view that both belief-based resources and motivational experiences shape teacher effectiveness. Academic optimism offers a coherent framework for understanding teachers' efficacy, trust, and commitment to academic goals (Hoy et al., 2006), while flow captures a state of deep engagement that can support sustained motivation and adaptive functioning (Bakker, 2008; Csikszentmihalyi, 1990). Personal effectiveness extends the focus to interpersonal competencies that are central to professional practice and growth (Pareek, 2001).

However, fewer studies have integrated academic optimism and flow within a single explanatory model that links these constructs to interpersonal dimensions of teacher effectiveness, particularly within a multi-board Indian context and with attention to whether key psychological resources vary across demographic groups. Addressing this gap, the present study examines whether academic optimism predicts flow, whether both contribute to personal effectiveness, and whether flow partially explains the pathway from optimism to effectiveness, while also considering variation across SSC, CBSE, and ICSE school contexts and demographic characteristics.

3. Methodology

3.1 Research Design

The present study adopted a descriptive-correlational research design, which was appropriate for examining relationships among academic optimism, work-related flow, and personal effectiveness without manipulating any variables. The objective was to understand how teachers' belief systems and experiential states relate to their effectiveness in professional settings. This design supported a quantitative examination of associations and predictive patterns among the study variables. The study followed established ethical standards for social science research and adhered to APA-aligned procedures for data collection and reporting. It is, of course, necessary to point out that the scope for drawing causal conclusions from the results is limited by the nature of a cross-sectional study, though it is an appropriate method for testing a model and generating hypotheses where a research area is poorly researched, as is the case in our study, as proposed by Lelieur et al. (2024).

3.2 Participants

A total of 343 secondary school teachers participated in the study, representing three Indian education boards: SSC (n = 143), CBSE (n = 100), and ICSE (n = 100). Participants were recruited through purposive sampling to obtain coverage across gender, age, and teaching experience. Ages ranged from 27 to 56 years (M = 39.2, SD = 7.8), and teaching experience ranged from 3 to 30 years. The sample included 168 female and 175 male teachers. To ensure that participants had adequate exposure to classroom practice and board-related institutional conditions, only

teachers with at least three consecutive years of teaching experience were included.

For this purpose, purposive sampling has been used to ensure representation from three different types of school boards. Random sampling from the total universe of secondary teachers would not ensure representation from each type of board, especially ICSE schools, as there are less in number compared to SSC or CBSE schools in any state in India. The experience criterion of a minimum of three years has been used to ensure that teachers are aware of the institutional climate. Although purposive sampling increases the relevance to the research problem by ensuring balanced board representation, it may limit the generalizability to the total universe of Indian secondary school teachers.

3.3 Measures

Three standardized instruments were used to measure the study variables. All instruments were administered in English, as it was the medium of instruction and appropriate for the participating teachers.

Though these scales were developed in the Western context, all three scales were administered in the past research on Indian educators and were found to have satisfactory psychometric properties. No specific cultural adaptation was done for the purpose of the present research. However, the fact that the medium of instruction in the schools of the participants is English supports the linguistic validity of the scales. The reliability coefficients that will be mentioned below refer to the present sample. In this study, academic optimism was operationalized as efficacy, trust in students and parents, and academic emphasis, and was measured using the 30-item Academic Optimism Scale (Beard et al., 2010; Hoy et al., 2006; Hoy et al., 2008). A five-point response format was used (1 = strongly disagree; 5 = strongly agree). The scale showed strong internal consistency in the present study (Cronbach's $\alpha = .88$).

Work-Related Flow Inventory: The 13-item Work-Related Flow Inventory (Bakker, 2008) was administered to measure work-related flow across absorption, work enjoyment, and intrinsic motivation (Csikszentmihalyi, 1990; Salanova et al., 2006). The response options ranged from 1 (never) to 7 (always) on a seven-point continuum. The reliability for the overall scale in this study was $\alpha = .90$.

Personal Effectiveness Scale: Participants' personal effectiveness was assessed using Pareek's 40-item scale (2001) encompassing self-awareness, goal setting, motivation, and emotional competence (Pareek, 2001). Teachers responded using a five-category scale (1 = rarely true; 5 = always true). In this study, the total scale's reliability was high ($\alpha = .87$).

3.4 Data Collection and Analysis

Permission was obtained from school principals and the appropriate local education authorities before data collection. Data collection then proceeded for two months. Participants were briefed on the study aims and provided informed consent before responding. To support school participation, the questionnaire was available in paper form and on a secure online platform. Average completion

time was approximately 25 minutes. Participation was voluntary, and anonymity was maintained by excluding identifying details from the questionnaire.

Analyses were run in SPSS v25.0. Descriptive statistics were obtained to summarize participant characteristics and review the distributions of the scale scores. Pearson's correlation was used to examine relationships among academic optimism, work-related flow, and personal effectiveness. Multiple regression analysis was conducted to test predictive relationships among variables. The mediation effect of flow was tested using a regression-based mediation approach following Baron and Kenny's (1986) four-step procedure, supplemented with a 95% bias-corrected confidence interval for the indirect effect derived from 5,000 bootstrap resamples using the PROCESS macro (Hayes, 2018).

Although the Baron and Kenny framework provides a clear framework to assess all conditions of mediation through a step-by-step approach, the bootstrap confidence interval is a stronger approach to assess the indirect effects without assuming normality in the sampling distribution (Hayes, 2018). The personal effectiveness composite index was computed as the unweighted arithmetic mean of the three subscale scores (self-disclosure, openness to feedback, and perceptiveness), following standard practice for scales with equal numbers of items per dimension (Pareek, 2001). Board-wise differences across SSC, CBSE, and ICSE were tested using one-way analysis of variance, with Tukey post hoc comparisons used to locate specific group differences. Statistical significance was evaluated at $p < .05$, and internal consistency was examined using Cronbach's alpha for each scale.

Prior to the primary analysis, a series of diagnostic checks were conducted. These include normality tests using skewness and kurtosis statistics, where all values were within ± 2 . Other normality checks were conducted using histograms and Q-Q plots. Multicollinearity checks were conducted using variance inflation factors (VIF), where all values were below 3. Homoscedasticity was examined through scatterplots of standardized residuals against predicted values, which showed no systematic pattern. Levene's test was applied before ANOVA to verify equality of variances across board groups. These checks confirmed that the data met the assumptions required for parametric analyses.

Because all variables were measured through self-report instruments administered at a single time point, common method variance (CMV) is a potential concern. To mitigate the risk of CMV in the present context, the questionnaire included both positively and negatively worded items, the subjects were assured anonymity to reduce the effect of social desirability bias, and the measures employed different formats of the response scale. Although the above procedures cannot entirely eliminate the effect of CMV, they are intended to reduce the effect.

4. Results and Findings

The results reported here follow the study's analytic plan, moving from descriptive summaries to correlations and group comparisons, and then to regression and mediation analyses.

4.1 Qualitative Findings

Before performing any hypothesis testing, data screening was performed on the data, including checking for non-response and appropriateness for parametric testing. Skewness and kurtosis values were within acceptable limits, between ± 2 . Multicollinearity was not an issue, with variance inflation factors (VIF) all below 3. Homoscedasticity was also confirmed, and Levene's test was performed to ensure equal variances, necessary for ANOVA. Internal consistency estimates were satisfactory across measures ($\alpha = .81-.92$). Descriptive statistics for the main study variables are presented in Table 1.

Table 1: Descriptive statistics of key variables (N = 343)

Variable	Mean	SD
Academic Optimism	4.21	0.63
Flow	4.07	0.71
Self-Disclosure	3.88	0.67
Openness to Feedback	4.02	0.64
Perceptiveness	4.15	0.59

Associations among the key variables were examined using Pearson's correlation. Table 2 shows that academic optimism and flow were positively and significantly related, and both were positively related to each dimension of personal effectiveness.

Table 2: Correlations among academic optimism, flow, and personal effectiveness (N = 343)

Variable	1	2	3	4	5
1. Academic Optimism	—				
2. Flow	0.58*	—			
3. Self-Disclosure	0.42*	0.36*	—		
4. Openness to Feedback	0.49*	0.41*	0.52*	—	
5. Perceptiveness	0.45*	0.45*	0.48*	0.54*	—

Note. * $p < .01$.

To test whether teachers differed across boards (SSC, CBSE, ICSE), one-way ANOVAs were conducted for academic optimism, flow, and the three personal effectiveness dimensions. The results are reported in Table 3.

Table 3: Board-wise differences in key variables (N = 343)

Variable	SSC M (SD)	CBSE M (SD)	ICSE M (SD)	F (2, 340)	p
Academic Optimism	4.15 (.64)	4.18 (.60)	4.34 (.58)	4.89	.008
Flow	3.98 (.72)	4.10 (.70)	4.23 (.66)	5.17	.006
Self-Disclosure	3.84 (.68)	3.90 (.64)	3.96 (.66)	1.42	.243
Openness to Feedback	3.95 (.63)	4.01 (.61)	4.17 (.62)	7.56	.001
Perceptiveness	4.09 (.60)	4.10 (.57)	4.29 (.55)	6.21	.002

Tukey post-hoc tests were used to identify pairwise differences; overall, the mean pattern indicated higher scores for ICSE teachers and lower scores for SSC teachers on the variables with significant omnibus effects.

Next, regression analysis was used to test predictors of flow. As shown in Table 4, academic optimism significantly predicted flow, and teacher efficacy emerged as the strongest component-level predictor.

Table 4: Regression predicting flow (combined model, N = 343)

Predictor	β	t	p
Academic Optimism	.51	9.64	< .001
Sense of Teacher Efficacy	.19	3.41	.001
Trust in Parents & Students	.08	1.52	.129
Academic Emphasis	.06	1.17	.243

Note. $R = .64$, $R^2 = .41$, $Adjusted R^2 = .40$, $F(4, 338) = 58.28$, $p < .001$.

To test whether academic optimism and flow jointly predicted personal effectiveness, a multiple regression model was estimated with personal effectiveness analysed using a composite index (the unweighted arithmetic mean of self-disclosure, openness to feedback, and perceptiveness scores). Results are presented in Table 5.

Table 5: Regression predicting personal effectiveness (combined model, N = 343)

Predictor	β	t	p
Academic Optimism	.36	6.92	< .001
Flow	.42	8.01	< .001
Sense of Teacher Efficacy	.09	1.71	.088
Trust in Parents & Students	.07	1.32	.188

Note. $R = .61$, $R^2 = .37$, $Adjusted R^2 = .36$, $F(4, 338) = 49.72$, $p < .001$.

Finally, mediation analysis tested whether flow partially explained the relationship between academic optimism and personal effectiveness. Path coefficients and the indirect effect are reported in Table 6.

Table 6: Mediation model coefficients linking academic optimism, flow, and personal effectiveness (N = 343)

Path	β	SE	t	p
Academic Optimism → Flow	.58	.04	13.91	< .001
Flow → Personal Effectiveness	.44	.05	8.22	< .001
Academic Optimism → Personal Effectiveness (Direct)	.30	.05	5.92	< .001

Note. Indirect effect: $\beta = .26$, $SE = .06$, 95% CI [0.15, 0.38]. Mediation was significant because the confidence interval did not exclude zero.

Because the hypotheses also included comparisons across demographic groups, additional tests examined differences by gender, age group, and years of experience. These analyses yielded no statistically significant differences on the main constructs across demographic groups; as a result, they are summarized here to conserve space.

Hypothesis testing summary: H1-H3 were supported (significant positive correlations among academic optimism, flow, and personal effectiveness dimensions). H4 was supported (academic optimism significantly predicted flow). H5 was supported (academic optimism and flow jointly predicted personal effectiveness). Hypothesis 6 received partial support as significant differences were found for academic optimism, flow, openness to feedback, and perceptiveness at the board level but not for self-disclosure. Hypothesis 7 was not supported as no significant differences were found for gender, age group, and years of experience for the important constructs.

5. Discussion

This study investigated how academic optimism, work-related flow, and personal effectiveness are related among secondary school teachers across three Indian school boards (SSC, CBSE, and ICSE). The findings indicate that teachers' belief-based resources and motivational engagement are jointly associated with interpersonal dimensions of effectiveness. Specifically, academic optimism was positively related to work-related flow and to all three dimensions of personal effectiveness: self-disclosure, openness to feedback, and perceptiveness. Work-related flow also partially mediated the relationship between academic optimism and personal effectiveness. This pattern suggests that optimistic beliefs may support effectiveness both directly and indirectly by fostering stronger engagement at work.

5.1 Academic Optimism and Work-Related Flow as Predictors of Personal Effectiveness

Consistent with Hypotheses 1 and 4, academic optimism was positively associated with work-related flow and significantly predicted flow. The evidence points to a teaching-specific belief configuration – efficacy and trust coupled with sustained academic emphasis – rather than optimism as a trait (Hoy et al., 2006). A combination of strong efficacy beliefs and constructive expectations about students and families may support adaptive appraisals of classroom demands and sustained instructional effort, thereby increasing the likelihood of absorption and enjoyment during teaching (Bandura, 1997; Beard et al., 2010; Hoy et al., 2008).

In practical terms, the effect size for the academic optimism–flow relationship ($R^2 = .41$) indicates that approximately 41% of the variance in teachers' flow experiences was accounted for by academic optimism and its components. This is a substantial proportion, suggesting that interventions targeting teachers' efficacy, trust, and academic emphasis could meaningfully increase the frequency and intensity of flow experiences. The implications of this study for educational administrators are that an investment in teachers' professional development programs that aim at supporting teachers' beliefs can lead to an improvement in teachers' day-to-day engagement, as proposed by Bakker and van Woerkom (2017).

Notably, efficacy emerged as the strongest component-level predictor of work-related flow ($\beta = .19, p = .001$), whereas trust and academic emphasis did not reach significance. The proximal nature of efficacy beliefs may explain this finding: efficacy beliefs directly shape teachers' willingness to set challenging instructional goals and to persist through difficulty (Bandura, 1997), which are immediate preconditions for flow (Csikszentmihalyi, 1990). Trust and academic emphasis, while important for creating a supportive institutional climate, may exert their influence more indirectly, at the school level, rather than directly shaping the moment-to-moment psychological conditions that give rise to individual flow experiences. This interpretation aligns with social cognitive theory's emphasis on self-efficacy as the most proximal cognitive determinant of motivated behaviour (Bandura, 1997; Tschannen-Moran & Hoy, 2007).

Academic optimism also showed positive associations with personal effectiveness, supporting Hypothesis 2. This extends the relevance of academic optimism beyond instructional persistence to include interpersonal competencies (Beard et al., 2010; Hoy et al., 2008). Teachers' openness to feedback and perceptiveness tended to be higher when optimistic beliefs were stronger, consistent with a more developmental professional stance and greater awareness of social cues in daily interactions (Pareek, 2001).

Work-related flow was also positively associated with personal effectiveness, supporting Hypothesis 3. Higher flow may be associated with greater attentiveness and psychological presence in classroom and collegial interactions, supporting reflective communication, receptiveness to feedback, and more adaptive social responsiveness (Bakker, 2008; Salanova et al., 2006). The consistent associations between flow and all three personal effectiveness dimensions suggest

that engagement states may act as an important motivational resource for interpersonal effectiveness in teaching (Khajavi et al., 2022; Wang, 2022).

5.2 Flow as a Mechanism Linking Beliefs to Effectiveness

A central contribution of this study is evidence consistent with the mediation hypothesis: work-related flow partially mediated the relationship between academic optimism and personal effectiveness (Baron & Kenny, 1986; Salanova et al., 2006). Partial mediation implies two complementary pathways. First, academic optimism retained a direct relationship with personal effectiveness, indicating that belief-based resources may support interpersonal functioning through appraisal and professional orientation (Hoy et al., 2006; Pareek, 2001).

Second, academic optimism also contributed indirectly to personal effectiveness through flow, suggesting that optimistic beliefs may increase the likelihood of experiencing energized engagement, which, in turn, supports effective interpersonal functioning (Bakker, 2008; Xanthopoulou et al., 2011). Consistent with Self-Determination Theory, efficacy and trust may support basic psychological needs that foster intrinsically motivated engagement, with downstream implications for more adaptive professional behaviour (Deci & Ryan, 2000; Van den Broeck et al., 2016).

It is important to note that the design of the study limits the extent to which the findings of the mediation analysis can be interpreted causally. While the data support the proposed causal chain of beliefs leading to engagement and subsequently to effectiveness, it is also true that the chain could be interpreted differently. For example, teachers who are already interpersonally effective may develop stronger optimistic beliefs through positive feedback from colleagues and students. Longitudinal or experimental designs would be needed to establish causal directionality. The present findings should therefore be interpreted as evidence of patterns consistent with the proposed model rather than as confirmation of causal mechanisms.

5.3 Board-Wise Differences and Institutional Context

The study found meaningful differences across boards, providing partial support for Hypothesis 6 (Lelieur et al., 2024). Teachers affiliated with ICSE generally reported higher academic optimism, work-related flow, and selected dimensions of personal effectiveness than those affiliated with SSC.

These differences may reflect several contextual and organizational factors. ICSE schools typically offer smaller class sizes, greater instructional autonomy, and more access to professional development resources, all of which may support teachers' efficacy beliefs and create conditions conducive to flow (Zausmer et al., 2024). By contrast, SSC schools, which often operate under tighter state-level regulation with larger class sizes and fewer resources, may present working conditions that are less supportive of sustained engagement and relational trust. The relative advantage enjoyed by CBSE teachers in placing themselves between SSC and ICSE on these parameters could be due to the nationally standardized, yet moderately resourced environment provided by CBSE schools. The absence of significant differences in self-disclosure indicates that this particular aspect of

interpersonal competency is probably more related to individual personality or cultural factors. Future research could examine specific organizational mechanisms—such as leadership practices, collegial support, and workload distribution—that may explain why certain boards produce more favourable conditions for teacher optimism and flow (Bakker & van Woerkom, 2017; Lelieur et al., 2024).

5.4 Implications, Limitations, and Future Research

The findings have several practical implications for school leaders and policymakers. First, school-level interventions could target the three components of academic optimism separately: (a) boost teacher efficacy through structured mentoring programs, peer observation, and mastery-oriented professional development; (b) foster trust through continuous and positive communication among teachers, students, and parents; and (c) augment the academic focus through shared goal-setting and recognition of excellence in instruction (Hoy et al., 2006; Hoy et al., 2008).

Second, schools can promote flow-supportive conditions by providing clear instructional goals, reducing unnecessary administrative burdens, offering teachers meaningful autonomy in lesson design, and implementing constructive rather than purely evaluative feedback mechanisms (Bakker, 2008; Csikszentmihalyi, 1990; Zausmer et al., 2024). Third, settings showing comparatively lower engagement indicators, such as SSC-affiliated schools, may warrant targeted resource allocation and leadership development to close the gap observed in this study (Song, 2022).

Several limitations should be acknowledged. The descriptive–correlational design does not allow causal conclusions, and self-report measures may increase the risk of common-method variance. In addition, purposive sampling may limit generalizability beyond the sampled schools. Future research can strengthen inference by employing longitudinal panel designs that track teachers across multiple time points, thereby allowing assessment of whether measurable changes in personal effectiveness follow changes in academic optimism or flow-supportive conditions.

Experimental or quasi-experimental studies testing specific interventions—such as efficacy-building workshops or flow-promoting school restructuring—would provide stronger evidence for causal claims. Additionally, triangulating findings with multi-source data, including observational measures, student ratings of teacher effectiveness, and school climate surveys, would help clarify contextual influences and reduce reliance on self-report data (Lelieur et al., 2024; Zausmer et al., 2024).

6. Conclusion

This study examined how academic optimism relates to work-related flow and personal effectiveness among secondary school teachers from three Indian education boards (SSC, CBSE, and ICSE). Results showed that academic optimism was positively associated with flow and with the interpersonal dimensions of

personal effectiveness—self-disclosure, openness to feedback, and perceptiveness. Moreover, flow was positively related to personal effectiveness and partially mediated the relationship between academic optimism and personal effectiveness, suggesting that there were direct and indirect paths through teachers' engagement at work. Board-wise comparisons further revealed differences in academic optimism, flow, and selected effectiveness dimensions, underscoring the role of institutional context in shaping teachers' psychological resources.

Taken together, the findings support an integrative view in which belief-based resources and engagement states jointly contribute to teacher functioning. In applied terms, school improvement efforts may focus on supporting teachers' efficacy and trust while maintaining academic emphasis and creating working conditions that enable sustained engagement. Specifically, structured mentoring, autonomy-supportive leadership, and constructive feedback mechanisms may promote both optimistic beliefs and flow-conducive environments. Future research using longitudinal or intervention designs, along with multi-source indicators, would help clarify directionality and contextual influences on the belief-engagement-effectiveness pathway.

7. Conflict of Interest

The author declares that there is no conflict of interest associated with the publication of this manuscript. The research was conducted independently, without any commercial or financial relationships that could be construed as a potential conflict of interest.

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