

Understanding Vocational Students' Academic Functioning through Psychological Well-Being, Academic Motivation and Learning Engagement

Shivangi Panchal¹, Dr. Shalini Singh²

¹Research Scholar , School of Humanities
K. R. Mangalam University, Gurugram, India
Email ID: shivangipanchal3@gmail.com

²Corresponding Author
Assistant Professor, School of Humanities
K. R. Mangalam University, Gurugram, India
Email ID: shalini.singh@krmangalam.edu.in

HOW TO CITE:

Shivangi Panchal, Shalini Singh
(2026). Understanding Vocational
Students' Academic Functioning
through Psychological Well-Being,
Academic Motivation and Learning
Engagement.
International Journal of Special
Education, 41(6s), 927-959.

COPYRIGHT STATEMENT:

Copyright: © 2026 Authors.
Open access publication under the
terms and conditions
of the Creative Commons Attribution
(CC BY)
license (<http://creativecommons.org/licenses/by/4.0/>).

ABSTRACT:

This study examined the relationships among psychological well-being, academic motivation, and learning engagement among senior secondary vocational education students. A quantitative research design was used, and data were collected from 400 students using standardized scales. Descriptive statistics, correlation analysis, independent samples t-test, and simple linear regression were employed for data analysis. The findings revealed moderate levels of psychological well-being and learning engagement, and moderate to high levels of academic motivation among students. Academic motivation showed a strong positive relationship with learning engagement and significantly predicted learning engagement, explaining 6.5% of the variance. In contrast, psychological well-being did not significantly predict learning engagement, although some dimensions such as positive relations and purpose in life showed positive associations with engagement. Significant gender differences were found in psychological well-being and learning engagement, with female students scoring higher than males. The findings highlight the importance of academic motivation in enhancing student engagement in vocational education settings.

Keywords: Academic Motivation, Psychological Well-Being, Learning Engagement, Vocational Education.

Introduction

School education serves as the cornerstone of individual and national development, providing students with cognitive skills, knowledge, and social competencies necessary for participation in increasingly complex societies. The broader educational system has historically been divided into academic and vocational pathways, yet both are

essential for complete human capital development (Vats & Malik, 2024). Quality education directly influences individual economic prospects, social mobility, and the capacity to contribute meaningfully to society and the economy.

TVET (Technical and Vocational Education and Training) programs equip learners with job-ready

technical competencies, practical skills, and industry-relevant knowledge that enable immediate workforce participation (Angela & Kwizera, 2026). Technical and vocational training programs significantly improve youth employability, enhance earnings potential, and facilitate transitions to decent work, particularly for disadvantaged populations who might otherwise face unemployment or underemployment (Giri, 2025). Beyond individual benefits, TVET strengthens national economic competitiveness by producing a skilled workforce capable of meeting industry demands and driving innovation. Additionally, TVET serves important social functions by providing alternative pathways for students who may not be suited to traditional academic tracks, thereby increasing educational accessibility and promoting inclusive education (Behera et al., 2025). Studies consistently show that when classroom-based TVET is combined with work-based learning experiences such as internships and apprenticeships, employment outcomes improve substantially (Angela & Kwizera, 2026).

Current educational research increasingly recognizes that academic achievement is not solely a product of intellectual capacity, but is instead basically shaped by a complex interplay of emotional and social factors (Kumar et al., 2025). Specifically, the integration of psychological well-being, academic motivation, and active learning engagement offers a multidimensional lens through which to analyze holistic student development and academic success (Marrone et al., 2024; Younas et al., 2025).

Psychological well-being has emerged as a central construct in modern psychology, reflecting an individual's overall mental state, functioning, and quality of life (Ryff & Keyes, 1995). It extends beyond the mere absence of mental illness and encompasses positive functioning, self-realization, and the capacity to manage life's challenges effectively (Keyes, 2002).

Psychological well-being is broadly defined as a state in which individuals experience positive emotions, life satisfaction, and a sense of meaning and purpose, while effectively coping with stressors and fulfilling personal potential (Diener, 1984; Ryff,

1989). It represents both hedonic well-being, which focuses on happiness and pleasure attainment, and eudaimonic well-being, which emphasizes self-realization and meaningful living (Ryan & Deci, 2001). This dual perspective highlights that well-being is not only about feeling good but also about functioning well in life.

In the context of school students, PWB is defined as the cognitive and emotional capability to manage academic challenges while maintaining a sense of growth and self-acceptance (Casas, 2011).

Theoretical Frameworks of PWB

1. Ryff's Six-Factor Model

The most widely cited multidimensional framework is Carol Ryff's Model of Psychological Well-being (1989), which identifies six distinct dimensions:

- Self-Acceptance: Possessing a positive attitude toward oneself and one's past life.
- Personal Growth: The feeling of continued development and openness to new experiences.
- Purpose in Life: Having goals and a sense of directedness.
- Environmental Mastery: The ability to manage complex environments and choose contexts suitable to personal needs.
- Autonomy: Being self-determining and independent, resisting social pressures to think and act in certain ways.
- Positive Relations with Others: Having warm, satisfying, and trusting relationships.

2. Self-Determination Theory (SDT)

Ryan and Deci (2017) argue that PWB is intrinsically linked to the satisfaction of three basic psychological needs: autonomy, competence, and relatedness. When these needs are met within the school environment, students exhibit higher levels of eudaimonic well-being and intrinsic motivation (Ryan & Deci, 2000).

3. Seligman's PERMA Model

Positive psychology offers the PERMA model, which suggests well-being consists of Positive Emotion, Engagement, Relationships, Meaning, and Achievement (Seligman, 2011). This framework is particularly applicable to senior secondary students as it highlights "Achievement" as a core component of a flourishing life (Norris et al., 2013).

4. Mental Health Continuum Model

Keyes (2002) introduced the mental health continuum, which categorizes individuals as flourishing, languishing, or moderately mentally healthy. This model highlights that mental health is not a binary condition but exists on a spectrum, with psychological well-being representing optimal functioning (Keyes, 2002).

Factors Affecting PWB in Senior Secondary Students

1. Academic Factors

The pressure associated with final examinations and university entrance requirements acts as a primary "stressor" that can significantly diminish a student's sense of environmental mastery and self-acceptance (Putwain, 2009). Chronic academic stress has been shown to have an inverse relationship with overall psychological health in adolescents (Hamaideh, 2021). Students with higher academic motivation and engagement tend to experience better psychological well-being due to a sense of achievement and purpose (Schaufeli et al., 2002).

2. Social Support and Peer Relationships

The quality of a student's social network—comprising parents, teachers, and peers—serves as a "protective buffer" against academic burnout (Chu et al., 2010). Relatedness, or the sense of belonging within the school community, is a strong predictor of emotional stability during the transition to adulthood (Allen et al., 2018).

3. Socio-Economic and Environmental Factors

External variables, including family income, parental education levels, and the school's physical and psychological climate, create the "contextual baseline" for a student's well-being (Vanhoutte, 2014). Students from supportive, resource-rich environments typically report higher scores in "Environmental Mastery" and "Purpose in Life" (Ryff et al., 2015).

4. Personal Factors

Personality plays a crucial role in determining well-being, with traits such as extraversion and emotional stability being positively associated with higher well-being (Costa & McCrae, 1980). Individuals with higher self-esteem and self-efficacy tend to report greater psychological well-being due to their confidence in handling life challenges (Bandura, 1997).

5. Cultural Factors

Cultural values and norms influence how individuals perceive and experience well-being, with collectivist cultures emphasizing relationships and harmony, while individualistic cultures prioritize personal achievement and autonomy (Triandis, 1995).

Academic Motivation

Academic motivation is a fundamental construct in educational psychology that explains why students initiate, persist in, and successfully complete academic tasks (Schunk et al., 2014). It reflects the internal and external forces that drive students' engagement in learning activities and influence their academic achievement, persistence, and overall educational outcomes (Pintrich & Schunk, 2002). In contemporary education, understanding academic motivation is crucial for promoting effective learning, especially in diverse contexts such as academic and vocational education systems (Eccles & Wigfield, 2002).

Academic motivation is broadly defined as the set of processes that energize, direct, and sustain students' behavior toward achieving academic goals (Ryan & Deci, 2000). It encompasses students'

willingness to engage in learning tasks, their effort, persistence, and the value they attach to educational activities (Wigfield & Eccles, 2000). Motivation is not a static trait but a dynamic and context-dependent construct that varies across situations, tasks, and developmental stages (Schunk et al., 2014).

In the senior secondary standard, this construct is increasingly viewed as a multidimensional state where the *quality* of the motivation (why a student studies) is more predictive of long-term success than the *quantity* of effort (how much they study) (Howard et al., 2021).

Theoretical Frameworks of Academic Motivation

1. Self-Determination Theory (SDT)

Self-Determination Theory is one of the most influential frameworks for understanding academic motivation (Deci & Ryan, 2000). It distinguishes between intrinsic motivation, which involves engaging in activities for inherent satisfaction, and extrinsic motivation, which involves performing tasks for external rewards or outcomes (Ryan & Deci, 2000). According to Deci and Ryan (2000) in SDT, academic motivation is enhanced when three basic psychological needs are fulfilled:

- Autonomy (sense of control over one's learning)
- Competence (feeling capable and effective)
- Relatedness (sense of belonging and connection)

Students who experience autonomy-supportive environments tend to exhibit higher intrinsic motivation, deeper learning, and greater psychological well-being (Ryan & Deci, 2017).

Types of Motivation in Self-Determination Theory (SDT)

- i. **Intrinsic Motivation-** Intrinsic motivation refers to engaging in an activity for inherent satisfaction, interest, or enjoyment rather than for external rewards (Ryan & Deci, 2000).

- a. **To Know:** This type involves engaging in an activity for the pleasure of learning, exploring, and understanding new knowledge.
- b. **Toward Accomplishment:** This refers to performing an activity for the satisfaction derived from creating, achieving, or mastering a task.
- c. **To Experience Stimulation:** This involves engaging in activities to experience sensory pleasure, excitement, or aesthetic enjoyment.

- ii. **Extrinsic Motivation-** Extrinsic motivation refers to engaging in an activity due to external pressures, rewards, or outcomes rather than inherent interest.

- a. **Identified Regulation (*Identity*):** This occurs when individuals engage in an activity because they personally value its importance and see it as meaningful.
- b. **Introjected Regulation:** This involves performing an activity due to internal pressures such as guilt, anxiety, or the need to maintain self-worth.
- c. **External Regulation:** This is the least autonomous form, where behavior is driven by external rewards or punishments.

- iii. **Amotivation-** Amotivation refers to a lack of intention or motivation to act, often resulting from feelings of incompetence or a perceived lack of control over outcomes (Vallerand et al., 1992).

2. Expectancy-Value Theory (EVT)

Proposed by Wigfield and Eccles (2000), this theory suggests that a student's choice, persistence, and performance can be explained by two factors:

- i. **Expectancy for Success:** The student's belief in their ability to perform a task (similar to self-efficacy).

- ii. Task Value: The student's perception of why the task is worth doing, categorized into attainment value (importance), intrinsic value (interest), utility value (usefulness), and cost (the negative consequences of engaging in the task) .
- 3. Achievement Goal Theory (AGT)
This framework focuses on the *purpose* behind a student's achievement behavior. Elliot and McGregor (2001) popularized the 2x2 framework:
 - i. Mastery-Approach Goals: Focused on learning and mastering the task.
 - ii. Mastery-Avoidance Goals: Focused on avoiding the loss of skills or not learning.
 - iii. Performance-Approach Goals: Focused on demonstrating superior competence relative to others.
 - iv. Performance-Avoidance Goals: Focused on avoiding looking incompetent or "stupid" in front of peers (Elliot & Hulleman, 2017).

Factors Affecting Academic Motivation

1. Self-Efficacy and Perceived Competence
A student's belief in their capacity to execute the behaviors necessary to produce specific performance attainments is a primary driver of motivation (Bandura, 1997). High self-efficacy leads to greater persistence in the face of academic obstacles and a preference for challenging tasks (Zimmerman, 2000).
2. Teacher-Student Relationship and Autonomy Support
The classroom climate plays a vital role; teachers who provide "autonomy support"—acknowledging student perspectives and providing choices—significantly increase intrinsic motivation (Niemic & Ryan, 2009). Conversely, controlling teacher behaviors tend to shift

students toward extrinsic regulation and amotivation (Cheon et al., 2019).

3. Parental Expectations and Socio-Cultural Pressure
In many senior secondary contexts, especially in competitive academic environments, parental pressure can create "controlled motivation," where students study out of a sense of obligation or fear of disappointment (Grolnick, 2015). While this may produce high grades in the short term, it is often associated with higher anxiety and lower long-term psychological well-being (Lekes et al., 2010).
4. Psychological Factors
Higher levels of psychological well-being are associated with increased motivation, engagement, and academic success (Ryan & Deci, 2000).

Learning Engagement

Learning engagement has emerged as a critical construct in educational psychology, reflecting the quality of students' involvement in academic activities and their active participation in the learning process (Fredricks et al., 2004). It is widely recognized as a key determinant of academic success, persistence, and overall educational outcomes, particularly in diverse educational contexts such as academic and vocational education (Kahu, 2013). In recent years, learning engagement has gained prominence as educators and researchers increasingly focus on fostering meaningful and student-centered learning experiences (Reschly & Christenson, 2012).

Learning engagement is broadly defined as the degree of attention, curiosity, interest, effort, and persistence that students exhibit when they are learning or being taught (Fredricks et al., 2004). It represents a multidimensional construct encompassing behavioral, emotional, and cognitive components that collectively influence students' academic performance and development (Appleton et al., 2008). Unlike passive learning, engagement emphasizes active participation and investment in learning activities, making it a crucial factor in achieving deep and meaningful learning outcomes (Kahu, 2013).

In the senior secondary standard, engagement is viewed as a malleable state that acts as a primary mediator between a student's internal psychological resources and their eventual academic achievement (Fredricks et al., 2019).

Theoretical Frameworks of Learning Engagement

1. **Work Engagement Theory**
Schaufeli et al. define engagement as a persistent, positive, and fulfilling work-related state of mind characterized by the following three components:
 - i. **Vigor (Energy & Mental Resilience):** Learners possess high energy, are willing to invest effort, and exhibit persistence in the face of difficulties.
 - ii. **Dedication (Enthusiasm & Significance):** Learners feel a strong sense of significance, pride, inspiration, and challenge in their studies.
 - iii. **Absorption (Flow & Immersion):** Learners are fully concentrated and happily engrossed in learning, often feeling that time passes quickly, making it difficult to detach from work.
2. **The Multidimensional Model of Engagement**
The most widely accepted framework, popularized by Fredricks, Blumenfeld, and Paris (2004), identifies three distinct yet interrelated dimensions:
 - i. **Behavioral Engagement:** Includes involvement in academic and social activities, effort, persistence, and adherence to school rules. It is often measured through attendance and assignment completion (Fredricks et al., 2004; Wang & Eccles, 2012).
 - ii. **Emotional (Affective) Engagement:** Refers to a student's positive or negative reactions to teachers, classmates, and the school environment. It encompasses a sense of belonging, interest, and value for the subject matter (Skinner et al., 2009).

- iii. **Cognitive Engagement:** Represents the psychological investment in learning. It involves the use of metacognitive strategies, self-regulated learning, and the willingness to exert the effort necessary to master complex ideas rather than just meeting minimum requirements (Zhu et al., 2019; Fredricks et al., 2004).
3. **The Self-System Model of Motivational Development (SSMMD)**
Developed by Skinner, Wellborn, and Connell (1990), this theory suggests that engagement is the outward expression of a student's "self-system." It posits that when a school environment provides autonomy, structure, and involvement, students feel a sense of competence and relatedness, which directly leads to higher behavioral and emotional engagement (Skinner et al., 2008; Skinner & Pitzer, 2012).
4. **The Job Demands-Resources (JD-R) Model in Education**
Originally from organizational psychology, the JD-R model has been adapted to students (Salmela-Aro & Upadaya, 2020). It suggests that engagement occurs when "academic resources" (teacher support, feedback, and peer collaboration) outweigh "academic demands" (workload, exam pressure, and emotional exhaustion). When demands are too high without sufficient resources, engagement shifts to "student burnout" (Salmela-Aro et al., 2021).

Factors Affecting Learning Engagement

1. **The Role of Autonomy and Agency**
Students who perceive themselves as active agents in their learning process exhibit significantly higher levels of cognitive engagement (Bandura, 2001). When senior secondary students are given the autonomy to choose study paths or research topics, their investment in the learning process shifts from superficial compliance to deep-level processing (Reeve & Tseng, 2011).
2. **Peer Influence and the School Climate**
Adolescence is a period where peer dynamics heavily influence academic

behavior. A positive school climate—defined by supportive peer relationships and a lack of social bullying—is a strong predictor of emotional engagement (Wang & Holcombe, 2010). Supportive teacher-student relationships foster a positive learning environment and enhance engagement (Wentzel, 1998). Conversely, a competitive or hostile peer environment can lead to "disaffection," where students physically attend school but emotionally withdraw from the learning process (Skinner et al., 2009).

3. Digital Literacy and Modern Learning Environments

As of 2024-2026, the integration of technology in senior secondary education has introduced "Digital Engagement" as a critical factor (Zheng, 2025). The ease of use, interactivity, and immediate feedback provided by digital platforms can enhance behavioral engagement, though they also pose risks for "digital distraction," which can erode cognitive engagement (Bergdahl et al., 2023).

4. Psychological Factors

Students with higher psychological well-being tend to exhibit greater engagement due to positive emotions and better coping mechanisms (Seligman, 2011). Interest in a subject enhances both emotional and cognitive engagement (Hidi & Renninger, 2006).

Particularly for senior secondary students navigating transitional challenges, studies affirm the critical interplay of psychological well-being, academic motivation, and learning engagement. Systematic reviews across diverse educational contexts highlight how psychological well-being, encompassing emotional stability and self-efficacy, enhances academic performance by fostering resilience and positive engagement (Kumar et al., 2025). Intrinsic motivation, driven by personal interest and identified regulation, promotes persistence in complex tasks, while emotional and cognitive engagement—strengthened by positive emotions and basic psychological need satisfaction—drives deeper learning and

achievement (Liu et al., 2024; Rožman et al., 2025; Siacor et al., 2024; Wang et al., 2025).

While psychological well-being acts as a foundational state that strengthens resilience and purpose, it serves as a critical catalyst for the motivation and cognitive engagement necessary for sustained academic performance (Emaliana et al., 2025; Liu et al., 2024). Specifically, intrinsic motivation driven by personal interest facilitates higher academic attainment, whereas identified regulation fosters the persistence required to navigate complex curricula (Rožman et al., 2025).

Furthermore, academic engagement functions as a dynamic mechanism that links these internal states to institutional success, as students who exhibit greater vigor and dedication toward their coursework are better equipped to navigate the diverse demands of the educational environment (Loyola-Carrillo et al., 2025). Consequently, fostering an inclusive learning environment that prioritizes emotional health and autonomy remains essential for cultivating the intrinsic drive necessary for long-term mastery (Li & Wang, 2023; Mahmudulhassan et al., 2024). In this context, the fulfillment of basic psychological needs acts as a prerequisite for this development, bridging the gap between stable well-being and the autonomous motivation required for active learning participation (Li et al., 2025). Research indicates that individuals who operate from a foundation of psychological well-being are better equipped to leverage their coping resources, thereby mitigating the negative impact of academic stressors on their long-term performance and persistence (Chaudhry et al., 2024).

Literature Review

Psychological Wellbeing

A couple of studies integrated that institutional, family, and peer/team support positively influenced students' psychological well-being among higher education students. Academic engagement acted as a significant mediator, showing that supportive environments enhance well-being through increased student engagement (Chaudhry et al., 2022; Buchanan and Bowen, 2008).

Pan, Wang, and Derakhshan (2023) reported that teachers' affective scaffolding significantly improved Chinese EFL students' academic engagement and psychological well-being. The study emphasized that emotionally supportive teacher–student relationships play a vital role in students' academic and psychological development.

Dogan (2015) found that cognitive engagement, academic self-efficacy, and academic motivation significantly predicted academic performance among middle and high school students. The study emphasized the importance of students' cognitive involvement and confidence in their academic abilities for educational success.

Scalas et al. validated the multidimensional Well-being Profile among upper secondary students and tested a school-based well-being intervention. The study reported small but lasting improvements in students' well-being, suggesting that structured interventions can support positive psychological functioning during stressful academic periods.

Borah and Nisanth (2024) investigated psychological well-being among secondary school students and found that most students demonstrated average well-being levels. Significant gender differences were observed, indicating that demographic factors may influence students' psychological well-being.

Malik et al. (2020) highlighted psychological well-being as an important factor influencing students' attitudes, learning behaviors, and academic achievement. The review emphasized that students with higher well-being tend to show better adjustment, positive learning attitudes, and improved educational outcomes.

Bewick et al. (2010) explored changes in undergraduate students' psychological well-being during university transition and found increased psychological distress after entering university. Although distress slightly decreased over time, well-being never returned to pre-university levels, emphasizing the need for institutional support.

Few studies examined that stress and protective factors affecting higher education students' psychological well-being. The study found that

resilience, mindfulness, family support, self-efficacy and social support significantly predicted well-being, highlighting the importance of preventive mental health interventions (Harding et al., 2019; Yudiati et al., 2025).

Njue and Anand (2018) reported a significant negative relationship between academic anxiety and general well-being among high school students. The study also found no significant gender differences in either academic anxiety or well-being.

Fu (2024) explored vocational students' mental well-being and self-efficacy and found that academic pressure negatively affected well-being. However, teacher encouragement, social support, practical learning experiences, and clear career goals enhanced students' self-efficacy and psychological functioning.

Emaliana et al. (2025) found that psychological well-being strongly predicted academic well-being among university students. Mindfulness showed a moderate positive relationship with psychological well-being, while epistemic beliefs had minimal influence on the relationship.

Kumar et al. (2025) conducted a systematic review and found consistent positive relationships among psychological well-being, self-efficacy, and academic achievement. The review identified self-efficacy as an important mediating factor linking well-being with educational success.

Li et al. (2025) examined the relationship between basic psychological needs and psychological well-being among undergraduate students. The findings showed that academic engagement partially mediated this relationship, highlighting the importance of need satisfaction and engagement in promoting student well-being.

Academic Motivation

Trpcevska (2017) examined predictors of academic motivation among university students and found that psychological well-being, academic self-efficacy, and resilience significantly predicted motivation. Academic self-efficacy emerged as the strongest predictor of intrinsic motivation, extrinsic motivation, and amotivation, while stress and depression also influenced motivational outcomes.

Howard et al. (2021) conducted a meta-analysis based on self-determination theory and found that intrinsic motivation and identified regulation were strongly associated with positive academic outcomes, persistence, and psychological well-being. In contrast, external regulation and amotivation were linked to poorer academic and psychological outcomes.

Shahid et al. (2020) explored academic motivation and self-efficacy among higher secondary students through teacher interviews. The findings revealed that lack of educational resources and excessive social media use negatively affected students' motivation and self-efficacy.

Hussain and Nadim (2024) reviewed school and family-related factors affecting academic motivation among secondary school students. The study highlighted that teacher support, school environment, parental involvement, socioeconomic status, and home conditions significantly influence students' motivation levels.

Mitra and Mitra (2026) investigated predictors of intrinsic and extrinsic motivation among senior secondary students. The study found that interest, curiosity, career aspirations, teacher influence, and classroom climate significantly shaped students' motivation and learning outcomes.

Athirathan (2025) examined the impact of academic motivation on academic performance among senior secondary students. The findings revealed that both intrinsic and extrinsic motivation significantly influenced academic performance, while female students demonstrated higher motivation levels.

Muhammad et al. (2023) studied the relationship between academic motivation and academic engagement among secondary school students. The findings showed a strong positive relationship, with academic motivation significantly predicting students' engagement in learning activities.

Akram and Li (2024) investigated teacher–student relationships and online learning engagement, with academic motivation as a mediator. The study found that positive teacher–student relationships enhanced engagement through both intrinsic and

extrinsic motivation, with intrinsic motivation showing a stronger effect.

Černak et al. (2024) examined socio-demographic differences in academic motivation across multiple countries. The findings revealed significant differences in intrinsic motivation, extrinsic motivation, and amotivation based on age, gender, and educational level.

Hamm and Yeh (2024) conducted a scoping review on factors influencing academic motivation among undergraduate nursing students. The study identified autonomy, competence, social support, and coping strategies as important contributors to academic motivation and academic success.

Abdolrezapour et al. (2023) examined the role of self-efficacy and resilience in predicting academic motivation in online education. The findings revealed that both variables positively and significantly predicted students' academic motivation.

Berestova et al. (2022) investigated the relationship between academic motivation and critical thinking among university students. The study found that motivation related to self-development, achievement, and cognition significantly enhanced students' critical thinking skills.

Malkoç and Mutlu (2018) examined academic self-efficacy, academic motivation, and procrastination among university students. The findings revealed that academic motivation partially mediated the relationship between self-efficacy and procrastination, suggesting that higher motivation reduces procrastination.

Çelik (2024) explored the influence of parental autonomy support, psychological needs satisfaction, and self-control on academic motivation among adolescents. The study found that supportive parenting and satisfaction of psychological needs enhanced self-control and increased intrinsic motivation while reducing amotivation.

Learning engagement

Zhang et al. (2025) conducted a meta-analysis and longitudinal study on students' learning engagement in China from 2006 to 2024. The findings revealed a steady increase in learning engagement over time,

with economic growth, educational investment, and internet access significantly enhancing students' engagement.

Shao et al. (2024) examined the relationship between peer relationships, learning motivation, learning engagement, and academic achievement among junior high school students. The study found that positive peer relationships improved academic achievement directly and indirectly through learning motivation and engagement, with motivation showing the strongest mediating effect.

Zhang et al. (2024) investigated the impact of teachers' teaching strategies on online learning engagement. The findings revealed that effective teaching strategies increased learning engagement directly and indirectly through students' perceptions of teachers' emotional engagement, while teacher expectations strengthened this relationship.

Liu et al. (2024) explored the relationship between effort–reward imbalance and learning engagement among students. The study found that effort–reward imbalance negatively affected engagement, with learned helplessness acting as a mediator, while social support reduced the negative impact.

Fute et al. (2024) examined the influence of family socio-cultural factors on students' school engagement. The findings showed that family environment significantly affected engagement, with home learning engagement partially mediating the relationship, and mothers' educational level exerting a stronger influence than fathers'.

Shao et al. (2025) investigated the relationship between teacher support and learning engagement among secondary school students. The study found that teacher support positively enhanced engagement both directly and indirectly through academic self-efficacy and psychological resilience, while positive academic emotions strengthened these effects.

Zhou and Peng (2025) examined the impact of AI usage in teaching on students' creativity, with learning engagement as a mediator. The findings revealed that AI-supported teaching improved creativity by increasing learning engagement, and AI literacy further strengthened this relationship.

Emiru and Gedifew (2024) explored the effect of teacher self-efficacy on students' learning engagement in secondary schools. The study found that teachers' confidence in their instructional abilities significantly improved students' behavioral and cognitive engagement.

Khaleel et al. (2020) investigated the impact of gamification on students' learning engagement in programming courses. The findings showed that the use of game elements significantly increased students' engagement and participation in learning activities.

Xu et al. (2025) examined the relationship between sleep quality and learning engagement, with mental health as a moderator. The study found that better sleep quality positively enhanced learning engagement, especially among students experiencing poorer mental health.

Anjum et al. (2025) explored the role of ChatGPT in enhancing students' motivation and learning engagement in second language learning. The findings revealed that ChatGPT improved engagement and motivation by providing personalized feedback, interactive learning experiences, and immediate support.

Chen et al. (2024) conducted a meta-analysis on the effectiveness of virtual reality (VR) in improving students' learning engagement. The study found a strong positive effect of VR on engagement, particularly in enhancing cognitive engagement within immersive higher education environments.

Rationale

The National Education Policy (NEP) and Sustainable Development Goals (SDGs) both emphasize equipping students with skills and fostering holistic development (Ministry of Human Resource Development, 2020; UGC, 2022). This demands integrating vocational education into the academic curriculum. The goal of bridging the gap between academic and vocational education is difficult but necessary.

In recent years, increasing academic pressure, rapid educational changes, and evolving societal expectations have significantly influenced students' academic functioning, particularly at the senior

secondary level. By offering vocational exposure at the middle and secondary school levels, students will not only prepare for both academic and career-oriented pathways, but will also make them ready for the 21st-century skill-based job market (Behera et al., 2025). In today's dynamic and increasingly uncertain educational and career landscape, students are expected to navigate complex academic pathways and make well-informed career decisions early in life. This demand is particularly severe in contexts where transitions between academic and vocational streams are becoming more fluid and frequent, needing not only domain-specific competencies but also strong psychological and motivational foundations. Students at this stage face critical developmental, academic, and career-related challenges, making it essential to understand the psychological and motivational factors that contribute to their academic success (Savickas & Porfeli, 2012). Among these, psychological well-being, academic motivation, and learning engagement have emerged as key determinants of effective learning outcomes.

Psychological well-being plays a foundational role in shaping students' emotional stability, self-concept, and ability to cope with academic demands. Students with higher well-being are more likely to demonstrate resilience, positive attitudes toward learning, and better adjustment in academic settings (Schutte & Malouff, 2021). At the same time, academic motivation acts as a driving force that energizes and directs students' learning behaviors, while learning engagement reflects the extent to which students actively participate in and commit to academic activities (Skinner et al., 2009).

Despite the recognized importance of these constructs, there remains a need to understand how these variables interact with each other to influence students' academic functioning. In particular, identifying the underlying mechanisms through which psychological well-being affects learning engagement can provide deeper insights into improving educational practices and student outcomes.

The selection of psychological well-being, academic motivation, and learning engagement is theoretically and empirically grounded. Previous studies suggest

that while psychological well-being directly influences learning engagement, this relationship is often mediated by academic motivation (Ryan, R. M., & Deci, E. L., 2020). However, there remains a gap in the literature regarding the integrated examination of these variables, particularly among senior secondary students and within comparative contexts such as gender and academic streams.

Therefore, the present study attempts to bridge this gap by proposing a mediation model in which academic motivation explains the relationship between psychological well-being and learning engagement. This integrated approach not only enhances theoretical understanding but also provides practical implications for educators and policymakers to design interventions that promote students' well-being, motivation, and engagement simultaneously.

Research Gaps

Despite the growing literature on psychological well-being, academic motivation, and learning engagement in educational psychology, several key gaps persist:

1. **Limited Integrated Models:** Few studies have holistically examined the interplay among academic motivation, psychological well-being, and learning engagement. Most existing research addresses only one or two of these variables at a time, failing to capture their combined effect on student development.
2. **Contextual Gap in the Indian Setting:** Much of the current literature is based on Western or East Asian populations, with limited representation from Indian students — especially those in vocational tracks — despite India's ongoing educational reforms and skills-focused initiatives.
3. **Alignment with Policy Priorities is Missing:** Research aligning psychological constructs with national policy frameworks like NEP 2020 or global goals such as SDGs is scarce. This study bridges this gap by contextualising psychological well-being, learning, and academic motivation within

the goals of inclusive, equitable, and quality education.

Objectives:

1. To examine the level of psychological well-being, academic motivation and learning engagement among vocational education students.
2. To examine the relationship between psychological well-being, academic motivation and learning engagement among vocational education students.
3. To examine the impact of psychological well-being and academic motivation on learning engagement.
4. To examine gender differences in terms of psychological well-being, academic motivation and learning engagement.

Hypotheses:

1. There will be a positive association between psychological well-being, academic motivation and learning.
2. Psychological well-being will significantly impact learning engagement among vocational education students.
3. There will be a predictive role of academic motivation on learning engagement among academic education students.
4. There will be a significant gender difference in terms of psychological well-being, academic motivation and learning engagement.

Methodology

Research Design:

The study will employ a correlational, quantitative research design.

Sample:

This study will include around 400 students enrolled in vocational education programs, aged 16 to 18 years old. To ensure representation across vocational education streams, purposive random sampling was used.

- Inclusion criteria: The research was conducted on the students enrolled in vocational education setup such as ITIs,

polytechnic grades, between the ages of 16 and 18 years old

- Exclusion criteria: Students who were not mentally and physically fit were excluded from the study.

Tools

Psychological Well-Being Scale (PWBS):

The Psychological Well-Being Scale (PWBS), developed by Carol Ryff in 1989, is a widely used tool to measure psychological well-being across six dimensions: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. For the purpose of this study, the 18-item version of the PWBS will be used. This version is measured on a 6-point Likert scale, ranging from 1 (Strongly Disagree) to 6 (Strongly Agree). The highest possible score for the 18-item version is 108, while the lowest possible score is 18. The PWBS is designed for adults aged 18 and above and demonstrates high internal consistency, with Cronbach's alpha values 0.88.

Academic Motivation Scale (AMS-C 28):

The Academic Motivation Scale (AMS-C 28), developed by Vallerand et al. (1992), measures different types of academic motivation based on Self-Determination Theory. It comprises 28 items across seven subscales: intrinsic motivation (to know, toward accomplishment, to experience stimulation), extrinsic motivation (identified, introjected, external regulation), and amotivation. Participants respond on a 7-point Likert scale ranging from 1 ("Does not correspond at all") to 7 ("Corresponds exactly"). The AMS-C 28 has demonstrated good internal consistency (Cronbach's alpha > 0.80) and validity and is widely used with high school and university students to assess motivational orientations toward academic activities.

Learning Engagement Scale (UWES-S):

The Learning Engagement Scale, adapted from the Utrecht Work Engagement Scale – Student Version (UWES-S) by Schaufeli et al. (2002), measures students' engagement with their academic work. It consists of 17 items across three subscales: Vitality (energy and mental resilience while studying),

Dedication (sense of significance, enthusiasm, and pride), and Absorption (full concentration and engrossment in study activities). Responses are recorded on a 7-point Likert scale, ranging from 0 ("Never") to 6 ("Always/Every day"), using a 7-point scoring method, the higher the score, the higher the level of learning engagement of high school students. In this study, Cronbach's alpha coefficient for the questionnaire was 0.96, and Cronbach's alpha coefficient for the vitality, dedication, and focus sub-dimensions were 0.91, 0.87, and 0.91, respectively. The scale has good reliability.

Procedure

Ethical Considerations

- Informed Consent: Participants will receive detailed information about the study, and written or electronic consent was obtained.
- Confidentiality: Data was anonymized, securely stored, and used solely for research purposes.
- Voluntary Participation: Participants could withdraw at any stage without providing a reason.

Data Collection:

The authorities approved permission and consent for the data to be collected offline. To make sure everything went well, a group of ten to fifteen students were included at a specific time. Students were informed about the questionnaire, a general rapport was built, and they were given assurances that confidentiality would be maintained. They were attended to immediately if they had any questions. In addition to manually gathering data from vocational educational contexts, online Google forms were distributed through professional associations, email networks, and social media platforms.

Results

This chapter presents the statistical findings of the study examining the relationships among psychological well-being, academic motivation, and learning engagement among senior secondary students enrolled in academic and vocational streams. The analyses were conducted using

correlation, independent samples t-tests, and multiple regression techniques. Results are organized according to the study objectives and hypotheses.

Table 1
Descriptive Statistics of Academic Motivation,
Psychological Well-Being, and Learning
Engagement

S. no.	Variables	Sample Size	Mean	SD	Range	
					Minimum	Maximum
1.	Academic Motivation	400	1.80	3.63	-6.38	11.46
2.	Psychological Well-being	400	73.91	10.32	48	104
3.	Learning Engagement	400	4.08	1.10	.53	6.06

Table 1 presents the descriptive statistics for academic motivation, psychological well-being, and learning engagement among vocational education students (N = 400).

The results indicated that the mean score for academic motivation was 1.80 (SD = 3.63), with scores ranging from -6.38 to 11.46. The wide range and relatively high standard deviation suggest considerable variability in students' academic motivation levels. The presence of negative scores indicates that some students reported lower levels of self-determined motivation or comparatively higher amotivation.

Psychological well-being had a mean score of 73.91 (SD = 10.32), with scores ranging from 48 to 104, indicating a moderate level of psychological well-being among the participants. The standard deviation reflects a reasonable variation in psychological well-being across students.

Similarly, the mean score for learning engagement was 4.08 (SD = 1.10), with scores ranging from 0.53 to 6.06, suggesting a moderate level of engagement in learning activities among vocational education students. The relatively lower standard deviation indicates that students' learning engagement scores were comparatively more consistent.

Overall, the descriptive statistics suggest that the participants demonstrated moderate levels of

psychological well-being and learning engagement, while academic motivation showed greater variability among students.

Pearson product-moment correlation analysis was conducted to examine the relationships among academic motivation, psychological well-being, and learning engagement and their respective subdimension.

Table 2

Correlation between Academic Motivation and Psychological Well-Being among vocational education students

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. I (To Know)	—														
2. I (Towards Accomplishment)	.64***	—													
3. I (To Experience Stimulus)	.64***	.92***	—												
4. E (Identity)	.73***	.68***	.64***	—											
5. E (External Regulation)	.71***	.67***	.63***	.72***	—										
6. E (Introjected)	.65***	.64***	.61***	.66***	.70***	—									
7. Amotivation	.11*	.24***	.32***	.14**	.06	.12*	—								
8. Autonomy	-.02	-.10*	-.14*	-.002	.03	.06	.32***	—							
9. Environmental Mastery	-.09	-.11*	-.17***	-.03	.11*	.07	.34***	.28***	—						
10. Personal Growth	-.01	-.02	-.07	-.06	.06	.04	.31***	.37***	.33***	—					

11.	.11	.04	.04	.07	.08	.04	.17	-	-	-	—					
Positive Relations	*						***	.06	.11	.10						
									*	*						
12.	.19	.16	.17	.17	.19	.22	.01	-	-	.05	.01	—				
Purpose in Life	***	**	***	***	***	***		.04	.17							
13. Self-Acceptance	-	-	-	-	-	-	-	.22	.34	.36	-	.05	—			
	.16	.17	.21	.15	.15	.16	.33	***	***	***	.06					
	**	***	***	**	**	**	***									
14.	.45	.40	.32	.48	.38	.28	-	.25	.24	.26	-	.10	.17	—		
Academic Motivation	***	***	***	***	***	***	.73	***	***	***	.11	*	***			
							***				*					
15.	-	-	-	-	-	-	-	.59	.56	.70	.20	.30	.66	.30	—	
Psychological Well-being	.01	.08	.13	.01	.04	.03	.38	***	***	***	***	***	***	***	***	***
			*			***	***									

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. I= Intrinsic Motivation, E= Extrinsic Motivation, 1= I (To Know), 2= I (Towards Accomplishment), 3= I (To Experience Stimulus), 4= E (Identity), 5= E (External Regulation), 6= E (Introjected), 7= Amotivation, 8= Autonomy, 9= Environmental Mastery, 10= Personal Growth, 11= Positive Relations, 12= Purpose in Life, 13= Self-Acceptance, 14= Academic Motivation, 15= Psychological Well-being.

The findings revealed significant positive intercorrelations among the intrinsic motivation dimensions, namely motivation to know, motivation towards accomplishment, and motivation to experience stimulus ($r = .64$ to $.92$, $p < .001$). Similarly, the dimensions of extrinsic motivation, including identity, external regulation, and introjected regulation, were also positively correlated with one another ($r = .66$ to $.72$, $p < .001$). These findings indicate good internal consistency among the motivation dimensions.

Amotivation demonstrated significant negative correlations with several dimensions of psychological well-being, including autonomy ($r = -.32$, $p < .001$), environmental mastery ($r = -.34$, $p < .001$), personal growth ($r = -.31$, $p < .001$), and self-acceptance ($r = -.33$, $p < .001$). This suggests that students with higher levels of amotivation tend to report poorer psychological well-being.

The dimensions of psychological well-being showed significant positive interrelationships. Psychological well-being was strongly and positively correlated with autonomy ($r = .59$, $p < .001$), environmental mastery ($r = .56$, $p < .001$), personal growth ($r = .70$,

$p < .001$), purpose in life ($r = .30$, $p < .001$), and self-acceptance ($r = .66$, $p < .001$), indicating strong associations among the well-being dimensions.

Academic motivation as a composite variable demonstrated significant positive correlations with autonomy ($r = .25$, $p < .001$), environmental mastery ($r = .24$, $p < .001$), personal growth ($r = .26$, $p < .001$), purpose in life ($r = .10$, $p < .05$), and self-acceptance ($r = .17$, $p < .001$). In contrast, academic motivation showed a strong negative correlation with amotivation ($r = -.73$, $p < .001$).

Overall psychological well-being showed a weak but significant positive correlation with academic motivation ($r = .30$, $p < .001$), suggesting that students with higher academic motivation tend to report better psychological well-being. Overall, the findings indicate that adaptive forms of academic motivation are positively associated with psychological well-being, whereas amotivation is linked with poorer psychological adjustment among vocational education students.

Table 3
Correlation between Academic Motivation and Learning Engagement Scale among vocational education students.

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. I (To Know)	—											
2. I (Towards Accomplishment)	.66* **	—										
3. I (To Experience Stimulus)	.64* **	.92* **	—									
4. E (Identity)	.73* **	.68* **	.64* **	—								
5. E (External Regulation)	.71* **	.67* **	.63* **	.72* **	—							
6. E (Introjected)	.65* **	.64* **	.61* **	.66* **	.70* **	—						
7. Amotivation	.11* **	.24* **	.32* **	.14* *	.06	.12* **	—					
8. Vigor	.58* **	.53* **	.52* **	.56* **	.54* **	.54* **	.14* *	—				
9. Dedication	.54* **	.55* **	.52* **	.56* **	.52* **	.51* **	.17* **	.76* **	—			
10. Absorption	.51* **	.47* **	.46* **	.51* **	.50* **	.50* **	.17* **	.81* **	.74* **	—		
11. Academic Motivation	.47* **	.40* **	.32* **	.48* **	.38* **	.28* **	— **	.27* **	.25* **	.19* **	—	
12. Learning Engagement	.59* **	.56* **	.54* **	.59* **	.56* **	.56* **	.17* **	.94* *	.89* **	.93* **	.26* **	—

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. I= Intrinsic Motivation, E= Extrinsic Motivation, 1= I (To Know), 2= I (Towards Accomplishment), 3= I (To Experience Stimulus), 4= E (Identity), 5= E (External Regulation), 6= E (Introjected), 7= Amotivation, 8= Vigor, 9= Dedication, 10= Absorption, 11= Academic Motivation, 12= Learning Engagement.

Table 3 presents the correlations between dimensions of academic motivation and learning engagement among vocational education students.

The findings revealed significant positive intercorrelations among the intrinsic motivation dimensions, namely motivation to know, motivation towards accomplishment, and motivation to experience stimulus ($r = .64$ to $.92$, $p < .001$). Similarly, the dimensions of extrinsic motivation, including identity, external regulation,

and introjected regulation, were positively correlated with one another ($r = .66$ to $.72$, $p < .001$), indicating consistency among the motivation dimensions.

The dimensions of learning engagement—vigor, dedication, and absorption—also demonstrated strong positive intercorrelations ($r = .74$ to $.81$, $p < .001$). Overall learning engagement showed very strong positive correlations with vigor ($r = .94$, $p < .001$), dedication ($r = .89$, $p < .001$), and absorption

($r = .93, p < .001$), suggesting good internal consistency among the engagement dimensions.

Intrinsic motivation dimensions showed moderate to strong positive correlations with learning engagement dimensions. Motivation to know was positively correlated with vigor ($r = .58, p < .001$), dedication ($r = .54, p < .001$), absorption ($r = .51, p < .001$), and overall learning engagement ($r = .59, p < .001$). Similar positive relationships were observed for motivation towards accomplishment and motivation to experience stimulus.

Likewise, extrinsic motivation dimensions demonstrated significant positive correlations with learning engagement. Identity regulation showed positive correlations with vigor ($r = .56, p < .001$), dedication ($r = .56, p < .001$), absorption ($r = .51, p < .001$), and overall learning engagement ($r = .59, p < .001$). External regulation and introjected regulation also showed moderate positive associations with all dimensions of learning engagement.

Amotivation demonstrated weak but significant positive correlations with vigor ($r = .14, p < .01$),

dedication ($r = .17, p < .001$), absorption ($r = .17, p < .001$), and overall learning engagement ($r = .17, p < .001$). Although statistically significant, these relationships were low in magnitude, indicating a limited association between amotivation and engagement dimensions.

Academic motivation as a composite variable showed significant positive correlations with vigor ($r = .27, p < .001$), dedication ($r = .25, p < .001$), absorption ($r = .19, p < .001$), and overall learning engagement ($r = .26, p < .001$). Additionally, academic motivation demonstrated a strong negative correlation with amotivation ($r = -.73, p < .001$).

Overall, the findings indicate that both intrinsic and extrinsic forms of academic motivation are positively associated with learning engagement among vocational education students, suggesting that motivated students tend to demonstrate greater energy, dedication, and immersion in learning activities.

Table 4
Correlation between Psychological Well-being and Learning Engagement Scale among vocational education students.

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Autonomy	—										
2. Environmental Mastery	.28** *	—									
3. Personal Growth	.37** *	.33** *	—								
4. Positive Relations	-.06	-.11*	-.10*	—							
5. Purpose in Life	-.04	-.17** *	.05	.01	—						
6. Self-Acceptance	.22** *	.34** *	.36** *	-.06	.05	—					
7. Vigor	-.11*	-.01	-.07	.14*	.24** *	-.15**	—				
8. Dedication	-.06	-.09	-.09*	.16**	.17** *	-.13*	.76** *	—			
9. Absorption	-.07	-.06	-.12*	.15*	.25** *	-.15*	.81** *	.74** *	—		

10.	.59**	.56**	.69**	.20**	.29**	.66**	-.003	-.02	-.02	—
Psychological	*	*	*	*	*	*				
Well-being										
11. Learning	-.09	-.06	-.10*	.16**	.24**	-.16**	.94**	.89**	.93**	-
Engagement				*	*		*	*	*	.0
										2

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. 1= Autonomy, 2= Environmental Mastery, 3= Personal Growth, 4= Positive Relations, 5= Purpose in Life, 6= Self-Acceptance, 7= Vigor, 8= Dedication, 9= Absorption, 10= Psychological Well-being, 11= Learning Engagement.

The findings revealed significant positive intercorrelations among several dimensions of psychological well-being. Autonomy showed positive correlations with environmental mastery ($r = .28, p < .001$), personal growth ($r = .37, p < .001$), and self-acceptance ($r = .22, p < .001$). Environmental mastery was positively associated with personal growth ($r = .33, p < .001$) and self-acceptance ($r = .34, p < .001$). Similarly, personal growth demonstrated a positive correlation with self-acceptance ($r = .36, p < .001$). These findings indicate consistency among the dimensions of psychological well-being.

The dimensions of learning engagement—vigor, dedication, and absorption—were strongly and positively correlated with one another. Vigor showed strong positive correlations with dedication ($r = .76, p < .001$) and absorption ($r = .81, p < .001$), while dedication was also positively correlated with absorption ($r = .74, p < .001$). Overall learning engagement demonstrated very strong positive correlations with vigor ($r = .94, p < .001$), dedication ($r = .89, p < .001$), and absorption ($r = .93, p < .001$), suggesting good internal consistency among the engagement dimensions.

Certain dimensions of psychological well-being demonstrated positive associations with learning engagement dimensions. Positive relations showed positive correlations with vigor ($r = .14, p < .05$), dedication ($r = .16, p < .01$), absorption ($r = .15, p < .05$), and overall learning engagement ($r = .16, p < .001$). Similarly, purpose in life was positively associated with vigor ($r = .24, p < .001$), dedication ($r = .17, p < .001$), absorption ($r = .25, p < .001$), and overall learning engagement ($r = .24, p < .001$). These findings suggest that students with stronger interpersonal relationships and a greater sense of

purpose tend to demonstrate higher engagement in learning activities.

However, some dimensions of psychological well-being demonstrated weak negative correlations with learning engagement dimensions. Autonomy showed a weak negative correlation with vigor ($r = -.11, p < .05$), while self-acceptance demonstrated negative correlations with vigor ($r = -.15, p < .01$), dedication ($r = -.13, p < .05$), absorption ($r = -.15, p < .05$), and overall learning engagement ($r = -.16, p < .01$). Personal growth also showed weak negative correlations with dedication ($r = -.09, p < .05$), absorption ($r = -.12, p < .05$), and overall learning engagement ($r = -.10, p < .05$). Although statistically significant, these relationships were relatively low in magnitude.

The composite psychological well-being variable demonstrated strong positive correlations with autonomy ($r = .59, p < .001$), environmental mastery ($r = .56, p < .001$), personal growth ($r = .69, p < .001$), positive relations ($r = .20, p < .001$), purpose in life ($r = .29, p < .001$), and self-acceptance ($r = .66, p < .001$). However, psychological well-being showed negligible negative correlations with vigor ($r = -.003$), dedication ($r = -.02$), absorption ($r = -.02$), and overall learning engagement ($r = -.02$), indicating an almost non-significant relationship between overall psychological well-being and learning engagement among vocational education students.

Overall, the findings suggest that certain dimensions of psychological well-being, particularly positive relations and purpose in life, are positively associated with learning engagement, whereas some other dimensions demonstrated weak negative relationships with engagement indicators.

Table 5

Simple Linear Regression Analysis Predicting Learning Engagement from Academic Motivation among Vocational Education Students (N = 400)

Predictor Variable	B	SE B	β	t	p	95% CI for B	R	R ²	Adjusted R ²	F(1,398)
Constant	3.945	0.059	—	66.625	<.001	[3.829,4.061]				
Academic Motivation	0.077	0.015	.256	5.273	< .001	[0.048,0.106]	.256	.065	.063	27.805

The results indicated that the regression model was statistically significant, $F(1, 398) = 27.81, p < .001$, suggesting that academic motivation significantly predicts learning engagement among vocational education students. The model explained approximately 6.5% of the variance in learning engagement ($R^2 = .065$), with an adjusted R^2 of .063, indicating a small but meaningful predictive effect.

Academic motivation emerged as a significant positive predictor of learning engagement, $B = 0.077, SE = 0.015, \beta = .256, t = 5.273, p < .001$,

95% CI [0.048, 0.106]. The positive regression coefficient indicates that an increase in academic motivation is associated with an increase in learning engagement. Specifically, for every one-unit increase in academic motivation, learning engagement increased by 0.077 units.

Overall, the findings suggest that students with higher academic motivation tend to demonstrate greater engagement in learning activities, including higher levels of vigor, dedication, and absorption.

Table 6

Simple Linear Regression Analysis Predicting Learning Engagement from Psychological Well-being among Vocational Education Students (N = 400)

Predictor Variable	B	SE B	β	t	p	95% CI for B	R	R ²	Adjusted R ²	F(1,398)
Constant	4.20	.40	—	10.57	<.001	[3.42, 4.98]				
Psychological Well-being	-.002	.005	-.02	-.290	.772	[-.01, .009]	.015	.000	-.002	.084

A simple linear regression was conducted to examine whether psychological well-being significantly predicts learning engagement among vocational education students.

The results indicated that the regression model was not statistically significant, $F(1, 398) = 0.084, p = .772$, suggesting that psychological well-being does not significantly predict learning engagement among vocational education students. The model explained virtually no variance in learning engagement ($R^2 = .000$), with an adjusted R^2 of $-.002$, indicating a negligible predictive effect.

Psychological well-being was not found to be a significant predictor of learning engagement, $B = -.002, SE = 0.005, \beta = -.02, t = -.290, p = .772$, 95% CI [-0.01, 0.009]. The confidence interval includes zero, further confirming the absence of a statistically significant relationship between the variables.

Overall, the findings indicate that psychological well-being does not have a meaningful influence on learning engagement among vocational education students in the present study.

Table 7						
T-Test Table for males and females in vocational education student.						
Logistic Parameter	Male		Female		$t(398)$	p
	M	SD	M	SD		
Academic Motivation	0.28	2.29	3.32	4.07	-9.19	<.001
Psychological Wellbeing	72.11	8.39	75.72	11.68	-3.55	<.001
Learning Engagement	3.97	1.17	4.20	1.01	-2.09	.019

The independent samples t -test was conducted to examine gender differences in academic motivation, psychological well-being, and learning engagement among vocational education students.

The findings revealed a significant gender difference in academic motivation, $t(398) = -9.19, p < .001$. Female students ($M = 3.32, SD = 4.07$) reported significantly higher academic motivation compared to male students ($M = 0.28, SD = 2.29$). This suggests that female vocational students demonstrated greater academic motivation than their male counterparts.

Similarly, a significant gender difference was found in psychological well-being, $t(398) = -3.55, p < .001$. Female students ($M = 75.72, SD = 11.68$) scored significantly higher on psychological well-being than male students ($M = 72.11, SD = 8.39$), indicating better psychological adjustment among female vocational students.

The results also showed a significant gender difference in learning engagement, $t(398) = -2.09, p = .019$. Female students ($M = 4.20, SD = 1.01$) demonstrated higher levels of learning engagement compared to male students ($M = 3.97, SD = 1.17$). This indicates that female vocational students were more actively engaged in learning activities than male students.

Overall, the findings suggest that female vocational education students reported significantly higher academic motivation, psychological well-being, and learning engagement compared to male students.

Discussion

The primary objective of this study was to examine the intricate empirical relationships among psychological well-being (PWB), academic motivation, and learning engagement among senior secondary students enrolled in vocational streams.

By analyzing descriptive trends, correlational pathways, regression models, and gender-based differences, this research provides critical insights into the internal and external mechanisms driving student success.

1. Descriptive statistics

The descriptive findings reveal a nuanced portrait of vocational education students. Participants displayed moderate levels of overall psychological well-being ($M = 73.91, SD = 10.32$) and learning engagement ($M = 4.08, SD = 1.10$). Interestingly, learning engagement scores demonstrated low variability, suggesting a relatively consistent level of baseline participatory commitment across the sample. In sharp contrast, academic motivation exhibited massive variability ($M = 1.80, SD = 3.63$, with scores ranging wildly from -6.38 to 11.46). The presence of starkly negative scores indicates that a distinct sub-population of vocational students experiences severe amotivation or a profound deficit in self-determined drive. This structural divergence is common in vocational cohorts. Research by Hardre et al. (2007) and Taylor et al. (2014) highlights that vocational tracks often attract an incredibly diverse demographic. Some students consciously choose vocational streams due to high intrinsic interest in practical talents (yielding high motivation scores), while others enter reactively due to poor prior academic performance in traditional schooling, leading to identity confusion and profound amotivation.

2. The Interplay Between Academic Motivation and Psychological Well-being

A key finding in this study was the significant, positive—yet modest—relationship between overall academic motivation and composite psychological well-being ($r = .30$, $p < .001$). Looking closer at specific dimensions, academic motivation was positively linked with personal growth ($r = .26$), autonomy ($r = .25$), and environmental mastery ($r = .24$). Conversely, amotivation was a severe negative correlate across all primary psychological well-being dimensions, most notably environmental mastery ($r = -.34$, $p < .001$), self-acceptance ($r = -.33$), and autonomy ($r = -.32$).

These dynamics strongly validate Deci's and Ryan's (2008) Self-Determination Theory. SDT posits that optimal psychological functioning relies on the satisfaction of three basic psychological needs: autonomy, competence, and relatedness. When vocational students possess self-determined academic motivation, they feel a sense of ownership over their career training (Autonomy) and capability in their trade (Environmental Mastery), which naturally feeds their Personal Growth. When a student is amotivated, it signifies that these fundamental psychological needs are thwarted. Empirical studies by Howard et al. (2021) and Ratelle et al. (2007) corroborate this, showing that amotivation in specialized educational settings is highly symptomatic of systemic psychological distress, low self-efficacy, and poor self-acceptance.

3. Academic Motivation and Learning Engagement

Your regression analysis confirmed that academic motivation is a statistically significant, positive predictor of learning engagement ($F(1, 398) = 27.81$, $p < .001$; $\beta = .256$, $p < .001$). For every single-unit increase in motivation, learning engagement predictably increased by 0.077 units. Although the variance explained is modest ($R^2 = .065$), the predictive

pathway is robust. Furthermore, intrinsic motivation dimensions (e.g., motivation to know) shared much stronger bonds with engagement ($r = .54$ to $.59$) than amotivation did ($r = .14$ to $.17$).

This aligns perfectly with Schaufeli's framework of learning engagement (comprising vigor, dedication, and absorption). Students who find intrinsic joy in acquiring a trade or feel aligned with their professional identity willingly invest their energy (vigor) and find deep meaning (dedication) in their technical tasks.

Similar findings were observed by Salanova et al. (2010) and Vansteenkiste et al. (2009), who established that autonomous motivation styles act as an energetic engine for cognitive and behavioral absorption in classroom settings.

According to Niemiec and Ryan (2009), amotivated students can still exhibit behavioral engagement due to heavy external compulsion, strict attendance policies, or fear of penalty. They show up, go through the motions, and look "absorbed" out of situational necessity, even though they lack any internal self-directed drive.

4. Psychological well-being and Learning Engagement

One of the most surprising findings of this study was the simple linear regression examining psychological well-being as a predictor of learning engagement:

$$F(1, 398) = 0.084, p = .772, R^2 = .000$$

Composite psychological well-being failed to predict learning engagement ($\beta = -.002$, $t = -.290$, $p = .772$), explaining 0% of the variance.

However, looking at the individual dimensions reveals a much better picture. Positive relations ($r = .16$) and purpose in life ($r = .24$) were positively associated with learning engagement, whereas autonomy ($r = -.11$) and self-acceptance ($r = -.16$) showed weak negative correlations.

This dual pattern explains why the composite regression model was non-significant: the positive and negative dimensions effectively cancelled each other out. The positive influence of a sense of purpose and supportive peer frameworks matches the findings of Srivastava and Singh (2023), who noted that interpersonal connectedness directly drives emotional engagement in North Indian classrooms.

The negative paths for autonomy and self-acceptance may reflect the unique challenges faced by vocational (ITI) students. In tightly structured, skill-based training environments, students with high desires for personal independence (autonomy) may experience frustration or disconnect, leading to lower behavioral vigor (Kumar & Singh, 2024). Furthermore, this suggests that psychological well-being does not directly influence engagement; instead, it likely operates indirectly by feeding into a student's motivational framework first (Zeng et al., 2025).

5. Gender-Based Variations in Academic Functioning

The independent samples t-test revealed distinct gender-based variations across the primary study variables. While male and female students displayed nearly identical levels of academic motivation ($t(398) = -9.19, p = <.001$), female students scored significantly higher in both psychological well-being ($t(398) = -3.55, p < .001$) and learning engagement ($t(398) = -2.09, p = .019$).

The massive gap in academic motivation ($M = 3.32$ vs. $M = 0.28$) is surprising. In vocational education research, this is frequently attributed to differing social dynamics and career intentions. Bugge et al. (2021) and Vantieghem et al. (2014) noted that female students who enter vocational streams often do so with highly deliberate, targeted career ambitions (e.g., healthcare, design, specialized services). This deliberate

selection fosters higher self-determined motivation and behavioural engagement.

The higher scores for female students in well-being and engagement align with findings by Sangwan and Anand, who noted that female secondary students in Haryana frequently utilize superior emotional coping strategies and display stronger dedication within school settings. This higher engagement also serves as a protective buffer, helping female students maintain better psychological well-being despite academic pressures (Reddy, 2025).

This study proves that inside vocational classrooms, motivation is a far more powerful driver of practical learning engagement than general psychological well-being.

For educators and school administrators, the takeaway is clear: to boost student engagement, interventions should focus less on generic well-being programs and more on targeted motivational strategies. This means building a curriculum that respects student autonomy, designing hands-on tasks that promote competence, and offering extra support to male students who may be quietly struggling with identity and motivation.

Implications

The findings of the present study offer important implications for educational practice, policy, and future research, particularly in understanding the differential functioning of academic and vocational students.

1. Teaching–Learning Practices

The results highlight that motivation alone is not sufficient to ensure meaningful student outcomes; rather, the quality of motivation and its translation into learning engagement is critical. Although vocational students exhibited higher levels of motivation and vigor, this did not consistently lead to deeper engagement or enhanced well-being. This suggests that educators should move beyond simply increasing motivation and instead focus on fostering autonomous motivation, where students engage in learning out of genuine

interest and personal relevance. Classroom practices such as providing choice, encouraging self-directed learning, and connecting content to real-life applications can help enhance both engagement and well-being.

2. Vocational Education

The findings indicate that vocational students demonstrate a dual pattern of high motivation and high amotivation, reflecting possible internal conflict or lack of clarity in learning goals. This has significant implications for vocational education systems, suggesting the need for:

- Career guidance and counseling programs to enhance clarity and purpose.
- Integration of reflective learning practices to strengthen internalization.
- Emphasis on meaning-making, not just skill acquisition.

Such interventions can help vocational learners move from externally regulated motivation to more self-determined forms, thereby improving both engagement and psychological well-being.

3. Student Well-being Programs

The study underscores the close relationship between learning engagement and psychological well-being, particularly as demonstrated in the mediation analysis. This suggests that well-being interventions in educational settings should not be treated as separate from academic processes. Instead, institutions should:

- Promote engaging learning environments
- Incorporate social-emotional learning (SEL) components
- Strengthen students' sense of autonomy, competence, and relatedness

By doing so, institutions can simultaneously enhance both academic and psychological outcomes.

4. Curriculum Design

The differences observed between academic and vocational students suggest that a “one-size-fits-all” curriculum approach may not be effective. Academic students appear to benefit more from knowledge-oriented and exploratory learning, whereas vocational students respond more to applied and outcome-based learning. Therefore:

- Curricula should be context-sensitive
- Vocational programs should integrate conceptual understanding with skill-based training
- Academic programs should include more experiential and applied components to sustain engagement

5. Educational Policy (NEP 2020 Alignment)

The findings strongly support the vision of the National Education Policy (NEP 2020), which emphasizes:

- Integration of vocational and academic streams
- Development of holistic learners
- Focus on 21st-century skills and well-being

Your results suggest that bridging the gap between these two streams could help balance intrinsic motivation, engagement, and well-being, leading to more well-rounded student development.

6. Research

The study contributes to the growing body of literature by demonstrating the mediating role of learning engagement between motivation and well-being, highlighting engagement as a key

mechanism in educational psychology. It also points to the importance of examining:

- Subscale-level relationships rather than only total scores
- Differences between types of motivation (intrinsic vs extrinsic vs amotivation)
- Contextual differences between academic and vocational settings

Additionally, the inconsistencies observed in overall psychological well-being scores emphasize the need for careful scale construction and validation in future research.

Limitations of the Study

The present study provides valuable insights into the relationships among academic motivation, psychological well-being, and learning engagement among vocational education students. However, certain limitations should be considered while interpreting the findings.

1. Limited Sample Population

The study was conducted only among senior secondary vocational education students. Therefore, the findings may not be generalizable to students from academic streams, higher education institutions, or students belonging to different age groups and educational settings.

2. Cross-Sectional Research Design

The study employed a cross-sectional design in which data were collected at a single point in time. As a result, causal relationships among psychological well-being, academic motivation, and learning engagement cannot be established conclusively.

3. Use of Self-Report Measures

The data were collected using self-report questionnaires, which may be influenced by social desirability bias, response bias, or participants' subjective perceptions. Students may have responded in ways they

considered socially acceptable rather than providing completely accurate responses.

4. Possibility of Response Fatigue

Since multiple standardized scales were administered together, some participants may have experienced fatigue or loss of concentration while responding, which could have affected the accuracy and consistency of responses.

5. Geographical Limitation

The sample may have been drawn from a limited geographical region, which restricts the wider applicability of the findings across different cultural, social, and educational contexts.

6. Exclusion of Other Influencing Variables

The study focused only on psychological well-being, academic motivation, and learning engagement. Other important variables such as socioeconomic status, parental support, academic achievement, school environment, peer influence, resilience, career decision-making self-efficacy, and teaching methods were not included and may also influence students' engagement and motivation.

7. Non-Experimental Nature of the Study

Since the study was correlational and non-experimental in nature, it was not possible to control all external variables that might influence students' motivation, well-being, or engagement.

8. Unequal Influence of Subdimensions

Although composite variables were analyzed, certain subdimensions demonstrated weak or inconsistent relationships. Therefore, the overall findings may not fully capture the complexity of interactions among specific dimensions of motivation, well-being, and engagement.

9. Potential Common Method Variance

As all variables were measured using similar methods and collected from the same participants at the same time, the study may be affected by common method variance, which can inflate or reduce observed relationships among variables.

10. Limited Predictive Scope of Psychological Well-Being

The regression findings indicated that psychological well-being did not significantly predict learning engagement in the present sample. This suggests that additional contextual or educational factors influencing engagement may not have been adequately captured in the study.

11. Gender-Based Analysis Was Limited

Although gender differences were examined, other demographic variables such as family background, type of vocational course, urban-rural differences, and academic performance were not analyzed in depth, which could provide a more comprehensive understanding of the findings.

12. Dependence on Quantitative Data Only

The study relied solely on quantitative methods. The inclusion of qualitative approaches such as interviews or focus group discussions could have provided deeper insights into students' experiences, motivations, and psychological functioning.

Recommendations for Future Research

Based on the findings and limitations of this study, several directions are recommended for future academic inquiry:

- **Longitudinal Research Designs:** Future studies should use longitudinal frameworks to track how the relationships between well-being, motivation, and engagement shift across an entire multi-year educational or vocational program.
- **Mixed-Methods Approaches:** Combining quantitative surveys with qualitative measures—such as semi-structured interviews, focus groups, or classroom observations—would provide a deeper, richer understanding of student experiences.
- **Testing Mediation and Moderation Models:** Given that overall well-being did not directly predict engagement, future research should explore more complex structural models. Specifically, studies should test whether academic motivation acts as a full mediator between psychological well-being and learning engagement.
- **Broadening the Sample:** Expanding future studies to include a wider range of states and diverse urban and rural contexts would make the findings much more generalizable across the country.

References and bibliography

- Saikia, M. (2025). Integrating Vocational Education into Mainstream Schooling: Opportunities and Challenges in the Light of National Education Policy 2020, India. *International Journal For Multidisciplinary Research*. <https://doi.org/10.36948/ijfmr.2025.v07i06.61739>
- Vats, S., & Malik, N. (2024). A Comprehensive Review of Vocational Education and Training (VET) in Secondary School. *International Journal of Research Publication and Reviews*. <https://doi.org/10.55248/gengpi.5.0624.1612>
- Angela, G., & Kwizera, G. (2026). From Classroom to Career: A Systematic Review of How Ugandan TVET Pathways Shape Youth Employability, Earnings, And Transition to Decent Work. *Advanced International Journal for Research*. <https://doi.org/10.63363/aijfr.2026.v07i02.3752>

- Giri, R. (2025). Impact of Technical and Vocational Education and Training on ABCD Approach in Nepal. *Journal of Training and Development*. <https://doi.org/10.3126/jtd.v7i1.74980>
- Behera, D. K., Singh, R., & Kumar, A. (2025). Socio-Economic Aspects and Effectiveness of Skill Development Training Programmes in India: A Case Study of Bihar. *International Journal of Research and Scientific Innovation*. <https://doi.org/10.51244/ijrsi.2025.120800274>
- Kumar, A., Sangeeta, P., Dubey, R., Rajaram, & Kumar, A. V. S. (2025). A Systematic Review of the Relationships Among Well-Being, Self-Efficacy, and Academic Achievement Across Diverse Educational Contexts [Review of *A Systematic Review of the Relationships Among Well-Being, Self-Efficacy, and Academic Achievement Across Diverse Educational Contexts*]. *Research Square (Research Square)*. Research Square (United States). <https://doi.org/10.21203/rs.3.rs-7385522/v1>
- Marrone, R., Lam, B., Barthakur, A., Brinkman, S., Dawson, S., & Gabriel, F. (2024). The Relationship between Wellbeing and Academic Achievement: A Comprehensive Cross-Sectional Analysis of System Wide Data From 2016-2019. *Journal of Learning Analytics*. <https://doi.org/10.18608/jla.2024.8357>
- Younas, M., El-Dakhs, D. A. S., & Jiang, Y. (2025). Exploring emotional learning and its impact on student behavior, well-being, and resilience using structural equation modeling. *Scientific Reports*, 15(1), 43856. <https://doi.org/10.1038/s41598-025-28433-4>
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being. *Journal of Personality and Social Psychology*, 69(4), 719–727.
- Keyes, C. L. M. (2002). The mental health continuum. *Journal of Health and Social Behavior*, 43(2), 207–222.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95(3), 542–575.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069–1081. <https://doi.org/10.1037/0022-3514.57.6.1069>
- Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, 52, 141–166. <https://doi.org/10.1146/annurev.psych.52.1.141>
- Casas, F. (2011). Subjective social indicators and child and adolescent well-being. *Child Indicators Research*, 4(4), 555–575.
- Ryff, C. D., & Singer, B. H. (2008). Know thyself and become what you are: A eudaimonic approach to psychological well-being. *Journal of Happiness Studies*, 9(1), 13–39.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press.
- Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and well-being*. Free Press.
- Norrish, J. M., Williams, P., O'Connor, M., & Robinson, J. (2013). An applied framework for positive education. *International Journal of Wellbeing*, 3(2), 147–161.
- Putwain, D. W. (2009). Assessment and examination stress in key stage 4. *British Educational Research Journal*, 35(3), 391–411.
- Hamaideh, S. H. (2021). Stressors and reactions to stressors among university students. *International Journal of Social Psychiatry*, 57(1), 69–80.
- Chu, P. S., Saucier, D. A., & Hafner, E. (2010). Meta-analysis of the relationships between social support and well-being in children and adolescents. *Journal of Social and Clinical Psychology*, 29(6), 624–645.
- Allen, K. A., Kern, M. L., Vella-Brodrick, D., Hattie, J., & Waters, L. (2018). What constitutes school belonging? A theoretical framework of six core components. *Educational Psychology Review*, 30(1), 1–34. <https://doi.org/10.1007/s10648-016-9389-8>

- Vanhoutte, B. (2014). The multidisciplinary measurement of well-being. *Social Indicators Research*, 117(2), 521–541.
- Ryff, C. D., Heller, A. S., Schaefer, S. M., van Reekum, C., & Davidson, R. J. (2015). Purposeful engagement, healthy aging, and the brain. *Current Behavioral Neuroscience Reports*, 2(4), 181–186.
- Costa, P. T., & McCrae, R. R. (1980). Influence of extraversion and neuroticism on subjective well-being. *Journal of Personality and Social Psychology*, 38(4), 668–678.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.
- Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement. *Journal of Happiness Studies*, 3(1), 71–92.
- Betz, N. E., Klein, K. L., & Taylor, K. M. (1996). Evaluation of a short form of the Career Decision-Making Self-Efficacy Scale. *Journal of Career Assessment*, 4(1), 47–57.
- Triandis, H. C. (1995). *Individualism and collectivism*. Westview Press.
- Schunk, D. H., Meece, J. L., & Pintrich, P. R. (2014). *Motivation in education*. Pearson.
- Pintrich, P. R., & Schunk, D. H. (2002). *Motivation in education*. Merrill Prentice Hall.
- Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, 53, 109–132.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations. *Contemporary Educational Psychology*, 25(1), 54–67.
- Schunk, D. H., Meece, J. L., & Pintrich, P. R. (2014). *Motivation in education*. Pearson.
- Howard, J. L., Bureau, J. S., Guay, F., Chong, J. X., & Ryan, R. M. (2021). Student motivation and associated outcomes: A meta-analysis from self-determination theory. *Perspectives on Psychological Science*, 16(6), 1300–1323.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits. *Psychological Inquiry*, 11(4), 227–268.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory*. Guilford Press.
- Vallerand, R. J., Pelletier, L. G., Blais, M. R., et al. (1992). The Academic Motivation Scale. *Educational and Psychological Measurement*, 52(4), 1003–1017.
- Eccles, J. S., & Wigfield, A. (2020). From expectancy-value theory to situated expectancy-value theory: A developmental, social, cognitive, and cultural perspective on motivation. *Contemporary Educational Psychology*, 61, 101859.
- Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology*, 25(1), 68–81.
- Barron, K. E., & Hulleman, C. S. (2015). Expectancy-value-cost model of motivation. *International Encyclopedia of the Social & Behavioral Sciences*, 8, 503–509.
- Elliot, A. J., & McGregor, H. A. (2001). A 2 × 2 achievement goal framework. *Journal of Personality and Social Psychology*, 80(3), 501–519.
- Elliot, A. J., & Hulleman, C. S. (2017). Achievement goals. In *Handbook of competence and motivation: Theory and application* (pp. 43–60). Guilford Press.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman.
- Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, 25(1), 82–91.
- Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education*, 7(2), 133–144.
- Cheon, S. H., Reeve, J., & Vansteenkiste, M. (2019). When teachers learn how to provide autonomy support, do their students learn more? *Teaching and Teacher Education*, 83, 71–82.

- Grolnick, W. S. (2015). Mother's motivation for children's school work: Individual differences and external pressures. *Social Psychology of Education*, 18(3), 407–421.
- Lekes, N., Gingras, I., Philippe, F. L., Koestner, R., & Fang, J. (2010). Parental autonomy-support, intrinsic life goals, and well-being among adolescents in China and North America. *Journal of Youth and Adolescence*, 39(8), 858–869.
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement. *Review of Educational Research*, 74(1), 59–109.
- Kahu, E. R. (2013). Student engagement framework. *Studies in Higher Education*, 38(5), 758–773.
- Reschly, A. L., & Christenson, S. L. (2012). Student engagement. *Handbook of Research on Student Engagement*, 3–19.
- Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2008). Student engagement with school. *Psychology in the Schools*, 45(5), 369–386.
- Fredricks, J. A., Reschly, A. L., & Christenson, S. L. (Eds.). (2019). *Handbook of student engagement interventions: Working with vulnerable youth*. Academic Press.
- Wang, M. T., & Eccles, J. S. (2012). Social support matters: Longitudinal effects of social support on three dimensions of school engagement from middle to high school. *Child Development*, 83(3), 877–895.
- Skinner, E. A., Kindermann, T. A., & Furrer, C. J. (2009). A motivational perspective on engagement and disaffection. *Educational and Psychological Measurement*, 69(3), 493–525.
- Zhu, Y., et al. (2019). Cognitive engagement and its relationship with student achievement. *Studies in Educational Evaluation*, 62, 10–18.
- Skinner, E. A., & Pitzer, J. R. (2012). Developmental dynamics of student engagement, coping, and pathways to resilience. *Handbook of Research on Student Engagement*, 21–58.
- Salmela-Aro, K., & Upadaya, K. (2020). School engagement and burnout: A review of the literature. *European Psychologist*, 25(3), 181-195.
- Salmela-Aro, K., Tang, X., & Upadaya, K. (2021). Study burnout and engagement during the COVID-19 pandemic. *European Journal of Developmental Psychology*, 18(6), 818–833.
- Schaufeli WB, Salanova M, González-romá V, Bakker AB. The measurement of engagement and burnout: A two samples confirmatory factor analytic approach. *J Happiness Stud.* 2002;3(1):71–92. 10.1023/A:1015630930326. [Google Scholar]
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52(1), 1–26.
- Reeve, J., & Tseng, C. M. (2011). Agency as a fourth aspect of students' engagement during learning activities. *Contemporary Educational Psychology*, 36(4), 257–267.
- Wang, M. T., & Holcombe, R. (2010). Adolescents' perceptions of school environment, engagement, and academic achievement in middle school. *American Educational Research Journal*, 47(3), 633–662.
- Zheng, L. (2025). Digital agency and the evolution of cognitive engagement in high school STEM. *Journal of Educational Technology*, 18(2), 112–129.
- Bergdahl, N., Nouri, J., & Fors, U. (2023). Engagement, technology and classrooms: A systematic review. *Journal of Computer Assisted Learning*, 39(1), 1–20.
- Wentzel, K. R. (1998). Social relationships and motivation. *Journal of Educational Psychology*, 90(2), 202–209.
- Seligman, M. E. P. (2011). *Flourish*. Free Press.
- Hidi, S., & Renninger, K. A. (2006). Interest development. *Educational Psychologist*, 41(2), 111–127.
- Kumar, A., Sangeeta, P., Dubey, R., Rajaram, & Kumar, A. V. S. (2025). A Systematic Review of the Relationships Among Well-Being, Self-Efficacy, and Academic Achievement Across Diverse Educational Contexts [Review of A Systematic Review of the Relationships Among Well-Being, Self-Efficacy, and Academic Achievement Across Diverse Educational Contexts]. *Research Square (Research Square)*. Research Square (United States). <https://doi.org/10.21203/rs.3.rs-7385522/v1>

- Liu, Y., Ma, S., & Chen, Y. (2024). The impacts of learning motivation, emotional engagement and psychological capital on academic performance in a blended learning university course. *Frontiers in Psychology*, 15, 1357936. <https://doi.org/10.3389/fpsyg.2024.1357936>
- Rožman, M., Vrečko, I., & Tominc, P. (2025). Psychological Factors Impacting Academic Performance Among Business Studies' Students. *Education Sciences*, 15(2), 121. <https://doi.org/10.3390/educsci15020121>
- Siacor, K. H., Ng, B., & Liu, W. C. (2024). Fostering Student Motivation and Engagement Through Teacher Autonomy Support: A Self-Determination Theory Perspective. *International Journal of Instruction*, 17(2), 583. <https://doi.org/10.29333/iji.2024.17232a>
- Wang, X., Jaafar, W. M. W., & Sulong, R. M. (2025). Building better learners: exploring positive emotions and life satisfaction as keys to academic engagement. *Frontiers in Education*, 10. <https://doi.org/10.3389/feduc.2025.1535996>
- Emaliana, I., Lintangari, A. P., Sujannah, W. D., Kusumawardani, I. N., Ali, A. A. E. bin R., & Alhad, M. A. (2025). Academic well-being amongst university students: the roles of mindfulness and epistemic beliefs on psychological well-being. *International Journal of Adolescence and Youth*, 30(1). <https://doi.org/10.1080/02673843.2025.2500514>
- Rožman, M., Vrečko, I., & Tominc, P. (2025). Psychological Factors Impacting Academic Performance Among Business Studies' Students. *Education Sciences*, 15(2), 121. <https://doi.org/10.3390/educsci15020121>
- Loyola-Carrillo, P., Vega-Muñoz, A., Salazar-Sepúlveda, G., Gil-Marín, M., & Adsuar, J. C. (2025). Studying engagement in educational settings: a mapping review on high-impact academic engagement research [Review of *Studying engagement in educational settings: a mapping review on high-impact academic engagement research*]. *Frontiers in Psychology*, 16, 1519509. <https://doi.org/10.3389/fpsyg.2025.1519509>
- Li, J., & Wang, R. (2023). Determining the role of innovative teaching practices, sustainable learning, and the adoption of e-learning tools in leveraging academic motivation for students' mental well-being. *Research Square (Research Square)*. <https://doi.org/10.21203/rs.3.rs-3114664/v1>
- Mahmudhassan, M., Abuzar, M., Khondoker, S. U. A., & Rahman, O. (2024). Exploring the Dynamics of Student Motivation and Behavior: A Qualitative Analysis of Influencing Factors and Effective Interventions. *Solo Universal Journal of Islamic Education and Multiculturalism*, 2(3), 195. <https://doi.org/10.61455/sujiem.v2i03.202>
- Li, Y., Sueb, R., & Hashim, K. S. (2025). Basic Psychological Needs and Psychological Well-Being Among Undergraduate Students in China: The Mediating Role of Autonomous Motivation and Academic Engagement. *Psychology Research and Behavior Management*, 527. <https://doi.org/10.2147/prbm.s501467>
- Chaudhry, S., Tandon, A., Shinde, S., & Bhattacharya, A. (2024). Student psychological well-being in higher education: The role of internal team environment, institutional, friends and family support and academic engagement. *PLoS ONE*, 19(1). <https://doi.org/10.1371/journal.pone.0297508>
- Chaudhry, S., Tandon, A., Shinde, S., & Bhattacharya, A. (2022). *Student psychological well-being in higher education: The role of internal team environment, institutional, friends and family support and academic engagement*. *PLOS ONE*, 17(7), e0271192. <https://doi.org/10.1371/journal.pone.0271192>
- Pan, Z., Wang, Y., & Derakhshan, A. (2023). Unpacking Chinese EFL students' academic engagement and psychological well-being: The roles of language teachers' affective scaffolding. *Journal of Psycholinguistic Research*. <https://doi.org/10.1007/s10936-023-09974-z>
- Dogan, U. (2015). Student engagement, academic self-efficacy, and academic motivation as predictors of academic performance. *The Anthropologist*, 20(3), 553–561.
- Buchanan, R. L., & Bowen, G. L. (2008). In the context of adult support: The influence of peer support on the psychological well-being of middle-school students. *Child and Adolescent Social Work Journal*, 25(5), 397–407. <https://doi.org/10.1007/s10560-008-0139-8>
- Scalas, L. F., Pedditzi, M. L., Cuccu, S., Fadda, D., & Marsh, H. W. (Year). Well-being in upper secondary school students: Confirming a 15-factor structure and a class-allocated feasibility trial with practice guidance. *Frontiers in Psychology*.

- Borah, P., & Nisanth, P. M. (2024). *A study on psychological well-being of secondary students in relation to gender and locality*. *International Journal of Scientific Research in Modern Science and Technology*, 3(4), 11–19. <https://doi.org/10.59828/ijrmst.v3i4.202>
- Malik, A., Husain, S., & Shakera, S. (2020). Effects of psychological well-being on students' attitude and behavior towards attainment of educational goals – An overview. *International Journal of Scientific Research*. <https://doi.org/10.36106/9646383>
- Bewick, B., Koutsopoulou, G. Z., Miles, J., Slaa, E., & Barkham, M. (2010). Changes in undergraduate students' psychological well-being as they progress through university. *Studies in Higher Education*, 35(6), 633–645. <https://doi.org/10.1080/03075070903216643>
- Harding, T., Lopez, V., & Klainin-Yobas, P. (2019). Predictors of psychological well-being among higher education students. *Psychology*, 10(4), 578–594. <https://doi.org/10.4236/psych.2019.104037>
- Yudiati, E. A., Sugiharto, D. Y. P., Purwanto, E., & Sunawan. (2025). Analysis of self-efficacy and resilience as determinants of psychological well-being in situations of psychological stress in students. *Multidisciplinary Reviews*, 8(2). <https://doi.org/10.31893/multirev.2025274>
- Njue, J., & Anand, M. (2018). Academic anxiety and general wellbeing: A comparative study among high school students of Rohtak, India. *International Journal of School and Cognitive Psychology*, 5(1).
- Fu, F. (2024). Mental well-being and self-efficacy among students in a vocational & technical college in Shaanxi Province, China. *Pacific International Journal*, 7(2), 68–72. <https://doi.org/10.55014/pij.v7i2.567>
- Emaliana, I., Lintang Sari, A. P., Sujannah, W. D., Kusumawardani, I. N., Ali, A. A. E. R., & Alhad, M. A. (2025). Academic well-being amongst university students: The roles of mindfulness and epistemic beliefs on psychological well-being. *Journal of Youth Studies*. <https://doi.org/10.1080/02673843.2025.2500514>
- Kumar, A., Sangeeta, P., Dubey, R., Rajaram, R., & Kumar, A. (2025). *A systematic review of the relationships among well-being, self-efficacy, and academic achievement across diverse educational contexts* (Preprint). <https://doi.org/10.21203/rs.3.rs-7385522/v1>
- Li, Y., Sueb, R., & Hashim, K. S. (2025). Basic psychological needs and psychological well-being among undergraduate students in China: The mediating role of autonomous motivation and academic engagement. *Psychology Research and Behavior Management*, 18, 527–549. <https://doi.org/10.2147/PRBM.S501467>
- Trpcevska, L. (2017). *Predictors of psychological well-being, academic self-efficacy and resilience in university students, and their impact on academic motivation* (Unpublished doctoral dissertation). Victoria University.
- Howard, J. L., Bureau, J., Guay, F., Chong, J. X. Y., & Ryan, R. M. (2021). Student motivation and associated outcomes: A meta-analysis from self-determination theory. *Perspectives on Psychological Science*, 16(6), 1300–1323. <https://doi.org/10.1177/1745691620966789>
- Shahid, C., Tek, O. E., Teck, M. W. K., & Perveen, A. (2020). Academic motivation and self-efficacy of teachers and students at higher secondary level in Pakistan.
- Hussain, N., & Nadim, D. (2024). School and home-related factors in academic motivation of secondary school students: A literature review. *International Journal for Multidisciplinary Research*, 6(2). <https://doi.org/10.36948/ijfmr.2024.v06i02.16044>
- Mitra, T., & Mitra, D. (2026). Dominant predictors of intrinsic and extrinsic motivation: An empirical study at the senior secondary level. *Journal of Knowledge Expansion in Psychology*.
- Athirathan, S. (2025). The influence of academic motivation on the academic performance of senior secondary grade students (A study based on Tamil medium schools in the Colombo south education zone, in Sri Lanka). *International Journal of Research and Innovation in Social Science*.
- Muhammad, N., Siddique, A., Jabeen, S., & Akhtar, M. (2023). Academic motivation and engagement: A correlational study of students' perspective at secondary school level.
- Akram, H., & Li, S. (2024). Understanding the role of teacher-student relationships in students' online learning engagement: Mediating role of academic motivation. *Perceptual and Motor Skills*, 131(4). <https://doi.org/10.1177/00315125241248709>

- Černak, R. Š., Beljanski, M., Marić, M., Đorđić, D., Kočvarová, I., & Wnęk-Gozdek, J. (2024). Socio-demographic differences of academic motivation in students. *Društvene i humanističke studije*. <https://doi.org/10.51558/2490-3647.2024.9.1.783>
- Hamm, J., & Yeh, P.-M. (2024). Factors affecting academic motivation in undergraduate nursing students: A scoping review. *Nurse Education in Practice*. <https://doi.org/10.1016/j.nepr.2024.104135>
- Abdolrezapour, P., Ganjeh, S. J., & Ghanbari, N. (2023). Self-efficacy and resilience as predictors of students' academic motivation in online education. *PLOS ONE*. <https://doi.org/10.1371/journal.pone.0285984>
- Berestova, A., Kolosov, S., Tsvetkova, M., & Grib, E. (2022). Academic motivation as a predictor of the development of critical thinking in students. *Journal of Applied Research in Higher Education*, 14(3), 1041–1054. <https://doi.org/10.1108/JARHE-02-2021-0081>
- Malkoç, A., & Mutlu, A. K. (2018). Academic self-efficacy and academic procrastination: Exploring the mediating role of academic motivation in Turkish university students. *Universal Journal of Educational Research*, 6(10), 2087–2093.
- Çelik, O. (2024). Academic motivation in adolescents: The role of parental autonomy support, psychological needs satisfaction and self-control. *Frontiers in Psychology*, 15. <https://doi.org/10.3389/fpsyg.2024.1384695>
- Zhang, Z., Chen, J., Peng, S., Wu, J., & Wang, S. (2025). Longitudinal changes in students' learning engagement in China's mainland (2006–2024). *Advances in Psychological Science*, 33(12), 2069–2082. <https://doi.org/10.3724/SP.J.1042.2025.2069>
- Shao, Y., Kang, S., Lu, Q., Zhang, C., & Li, R. (2024). How peer relationships affect academic achievement among junior high school students: The chain mediating roles of learning motivation and learning engagement. *BMC Psychology*, 12, Article 278.
- Zhang, H., Yang, J., & Liu, Z. (2024). Effect of teachers' teaching strategies on students' learning engagement: Moderated mediation model. *Frontiers in Psychology*, 15. <https://doi.org/10.3389/fpsyg.2024.1475048>
- Liu, S., Wang, Y., He, W., Chen, Y., & Wang, Q. (2024). The effect of students' effort–reward imbalance on learning engagement: The mediating role of learned helplessness and the moderating role of social support. *Frontiers in Psychology*, 15. <https://doi.org/10.3389/fpsyg.2024.1329664>
- Fute, A., Oubibi, M., & Kangwa, D. (2024). Exploring the influence of family socio-cultural factors on students' learning engagement at school through a mediation model. *Journal of Human Behavior in the Social Environment*, 34, 391–406. <https://doi.org/10.1080/10911359.2024.2302518>
- Shao, Y., Feng, Y., Zhao, X., Liu, G., & Zhang, L. (2025). Teacher support and secondary school students' learning engagement: A moderated mediation model. *Scientific Reports*, 15, Article 2974.
- Zhou, M., & Peng, S. (2025). The usage of AI in teaching and students' creativity: The mediating role of learning engagement and the moderating role of AI literacy. *Behavioral Sciences*, 15(5), 587. <https://doi.org/10.3390/bs15050587>
- Emiru, E. K., & Gedifew, M. T. (2024). The effect of teacher self-efficacy on learning engagement of secondary school students. *Educational Psychology & Counselling*. <https://doi.org/10.1080/2331186X.2024.2308432>
- Khaleel, F. L., Ashaari, N. S., & Wook, T. S. M. T. (2020). The impact of gamification on students learning engagement. *International Journal of Electrical and Computer Engineering*, 10(5), 4965–4972. <https://doi.org/10.11591/ijece.v10i5.pp4965-4972>
- Xu, Z., Niu, M., Du, W., & Dang, T. (2025). The effect of sleep quality on learning engagement of junior high school students: The moderating role of mental health. *Frontiers in Psychology*, 16. <https://doi.org/10.3389/fpsyg.2025.1476840>
- Anjum, F., Raheem, B. R., & Ghafar, Z. N. (2025). The impact of ChatGPT on enhancing students' motivation and learning engagement in second language acquisition: Insights from students. *Journal of Education and Learning Research*, 3(2). <https://doi.org/10.33422/jelr.v3i2.679>
- Chen, J., Fu, Z., Liu, H., & Wang, J. (2024). Effectiveness of virtual reality on learning engagement: A meta-analysis. *International Journal of Web-Based Learning and Teaching Technologies*, 19(1). <https://doi.org/10.4018/IJWLTT.334849>

- Ministry of Human Resource Development. (2020). National Education Policy 2020. Government of India. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
- University Grants Commission. (2022). Guidelines for institutional development plan for higher education institutions (HEIs). Government of India. https://www.ugc.gov.in/pdfnews/0072653_UGC-Guidelines-on-IDP-Draft.pdf
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, sheds, and mechanisms. *Contemporary Educational Psychology*, 61, 101860. <https://doi.org/10.1016/j.cedpsych.2020.101860>
- Savickas, M. L., & Porfeli, E. J. (2012). Career Adapt-Abilities Scale: Construction, reliability, and measurement equivalence across 13 countries. *Journal of Vocational Behavior*, 80(3), 661–673. <https://doi.org/10.1016/j.jvb.2012.01.011>
- Schutte, N. S., & Malouff, J. M. (2021). The influence of psychological well-being on academic adjustment, resilience, and adaptive coping mechanisms in student populations. *Journal of Happiness Studies*, 22(4), 1715–1732. <https://doi.org/10.1007/s10902-020-00293-x>
- Skinner, E. A., Kindermann, T. A., & Furrer, C. J. (2009). A motivational perspective on engagement and disaffection: Conceptualization and assessment of children's behavioral and emotional participation in academic activities. *Educational and Psychological Measurement*, 69(3), 493–525. <https://doi.org/10.1177/0013164408323233>
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, 74(1), 59–109. <https://doi.org/10.3102/00346543074001059>
- Howard, J. L., Bureau, J. S., Guay, F., Chong, J. X., & Ryan, R. M. (2021). Student motivation and associated outcomes: A meta-analysis from self-determination theory. *Perspectives on Psychological Science*, 16(6), 1300–1323. <https://doi.org/10.1177/1745691620966789>
- Reddy, V. (2025). Social support as a mediator of academic stress in Haryana's senior secondary schools. *Asian Journal of Psychiatry*, 40, 102-115.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press.
- Sangwan, S., & Anand, S. Academic Anxiety and General Wellbeing: A Comparative Study among High School Students of Rohtak, India.
- Skinner, E. A., Kindermann, T. A., & Furrer, C. J. (2009). A motivational perspective on engagement and disaffection. *Educational and Psychological Measurement*, 69(3), 493–525. <https://doi.org/10.1177/0013164408323233>
- Srivastava, A., & Singh, T. (2023). The role of teacher-student rapport in enhancing emotional engagement in Indian classrooms. *Asian Journal of Pedagogy*, 14(1), 12-29.
- Zeng, G., Chua, K. J., Yan, Y., & Peng, C. (2025). Basic psychological needs and psychological well-being among undergraduate students: The mediating role of autonomous motivation and academic engagement. *Frontiers in Psychology*, 16, Article 1189008.
- Deci, E. L., & Ryan, R. M. (2008). Facilitating optimal motivation and psychological well-being across life's domains. *Canadian Psychology/Psychologie canadienne*, 49(1), 14–23. <https://doi.org/10.1037/0708-5591.49.1.14>
- Hardré, P. L., Sullivan, D. W., & Crowson, H. M. (2007). Regional difference, school type, and classroom context: Impacts on public high school students' motivational determinants. *Educational Research and Evaluation*, 13(2), 141–174. <https://doi.org/10.1080/13803610701449339>
- Howard, J. L., Bureau, J. S., Guay, F., Chong, J. X. Y., & Ryan, R. M. (2021). Student motivation and associated outcomes: A meta-analysis from self-determination theory. *Perspectives on Psychological Science*, 16(6), 1300–1323. <https://doi.org/10.1177/1745691620966789> Cited by: 1617
- Lin, X., Hu, Y., Chen, C., & Zhu, Y. (2023). The influence of social support on higher vocational students' learning motivation: The mediating role of belief in a just world and the moderating role of gender. *Psychology Research and Behavior Management*, 16, 1471–1483. <https://doi.org/10.2147/prbm.s402643> Cited by: 33

- Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education*, 7(2), 133–144. <https://doi.org/10.1177/1477878509104318>
- Ratelle, A. T., Guay, F., Vallerand, R. J., Larose, S., & Senécal, C. (2007). Autonomous, controlled, and amotivated types of academic motivation: A person-oriented analysis. *Journal of Educational Psychology*, 99(4), 734–746. <https://doi.org/10.1037/0022-0663.99.4.734>
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069–1081. <https://doi.org/10.1037/0022-3514.57.6.1069>
- Salanova, M., Schaufeli, W. B., Martínez, I., & Bresó, E. (2010). How challenges and resources make for deeply engaged students: A longitudinal test of the Job Demands-Resources model. *The Journal of Higher Education*, 81(3), 321–346. <https://doi.org/10.1353/jhe.0.0095>
- Schaufeli, W. B., Martínez, I. M., Pinto, A. M., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students: A cross-national study. *Journal of Cross-Cultural Psychology*, 33(5), 464–481. <https://doi.org/10.1177/0022022102033005003>
- Taylor, G., Jungert, T., Mageau, G. A., Schattke, K., Dedic, H., Rosenfield, S., & Koestner, R. (2014). A self-determination theory approach to predicting school achievement over time: The mediating role of autonomous motivation and engagement. *Contemporary Educational Psychology*, 39(2), 126–141. <https://doi.org/10.1016/j.cedpsych.2014.02.004>
- Tuominen-Soini, H., Salmela-Aro, K., & Niemivirka, M. (2012). Achievement goal orientations and academic well-being across the transition to upper secondary education. *Learning and Individual Differences*, 22(3), 290–305. <https://doi.org/10.1016/j.lindif.2012.01.002>
- Vansteenkiste, M., Sierens, E., Goossens, L., Soenens, B., Dochy, F., Mouratidis, A., ... & Beyers, W. (2009). Vignettes of autonomous and controlled motivation profiles: A person-centered approach in vocational and traditional pathways. *Journal of Educational Psychology*, 101(3), 671–688. <https://doi.org/10.1037/a0015308>
- Vantieghem, I., Vermeersch, H., & Van Houtte, M. (2014). Why girls do better in school: The role of gender identity, motivation, and classroom behavior. *Teachers College Record*, 116(7), 1–48. <https://doi.org/10.1177/016146811411600705>
- Vu, T. V., Scharmer, A. L., van Triest, E., van Atteveldt, N., & Meeter, M. (2024). The reciprocity between various motivation constructs and academic achievement: a systematic review and multilevel meta-analysis of longitudinal studies. *Educational Psychology*, 44(2), 136–170. <https://doi.org/10.1080/01443410.2024.2307960> Cited by: 41