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Examining the Impact of Positive Thinking on Problem-Solving Strategies among Students

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ABSTRACT

Optimism and constructive thought patterns are hallmarks of positive thinking that improves emotional and cognitive flexibility. The current study explored the impact of positive thinking on problem solving among students. A cross-sectional study design was used, and a convenient method of data collection was implemented. Using the Positive Thinking Scale (PTS) and Problem-Solving Inventory (PSI), this study investigated their association with problem-solving techniques among 250 undergraduate students (57.8% male, 42.2% female). A regression study confirmed that positive thinking was a predictor of problem-solving abilities (β =.34, *p* <.001, R^2 =.12), and a correlational design showed a significant positive association (*r* =.34, *p* <.01). Gender differences were not detected by independent samples *t*tests (*p* >.05). These results support Fredrickson's (2001) broaden-and-build theory and imply that encouraging optimistic thinking could help children become better problem solvers. There is also a discussion on the implications of educational initiatives.

Keywords: *positive thinking, problem-solving, cognitive flexibility, academic performance, optimism*

Introduction

In contemporary academic environments, students are confronted with an increasingly complex array of challenges that extend far beyond the traditional scholastic demands. The modern educational landscape requires learners to simultaneously navigate academic pressures, social dynamics, emotional stressors, financial constraints, and personal developmental obstacles, all of which necessitate robust problem-solving competencies (D'Zurilla et al., 2004). Problem solving, defined as a systematic cognitive-behavioral process encompassing problem identification, information gathering, solution generation, and implementation (Nezu & Nezu, 2009), has consistently been identified as a critical determinant of academic achievement, career readiness, and psychological well-being (Robbins & Judge, 2016). However, despite its fundamental importance, empirical evidence suggests that a substantial proportion of students exhibit significant deficiencies in their problem-solving capabilities, often resorting to maladaptive or avoidant strategies when confronted with academic or personal challenges (Heppner and Krauskopf 1987).

The challenges of effective problem-solving in academic contexts are multifaceted. Cognitive overload, characterized by excessive informational demands that exceed working memory capacity (Sweller, 1988), frequently impairs students' ability to approach complex problems systematically. Simultaneously, chronic stress, a pervasive phenomenon in higher education, has been shown to negatively impact executive functions, including problem-solving flexibility and decision-making capabilities (Arnsten, 2009). Most significantly, negative cognitive schemas and pessimistic thinking patterns, as described in Beck's (1976) Cognitive Theory, often lead students to perceive academic challenges as insurmountable threats rather than manageable obstacles, thereby inhibiting effective problem engagement (Nezu, 2004). These psychological barriers frequently manifest as academic procrastination, solution avoidance, or reliance on superficial heuristics, rather than analytical processing (Ferrari et al.,

2009).

In contrast to these problematic patterns, an emerging body of research has highlighted the transformative potential of positive thinking in academic contexts. Positive thinking, operationally defined by Seligman (2002) as an optimistic cognitive orientation characterized by positive outcome expectancies, growth-oriented self-talk, and solution-focused engagement, has been empirically linked to numerous beneficial academic outcomes. Fredrickson's (2001) Broaden-and-Build Theory provides a compelling theoretical framework for understanding these effects, proposing that positive affective states broaden individuals' thought-action repertoires while building enduring personal resources. Specifically, students who maintain positive thinking patterns demonstrate enhanced creative problem-solving abilities (Isen et al., 1987), greater academic persistence in the face of challenges (Duckworth et al., 2007), and more frequent use of adaptive coping strategies (Carver et al., 2010).

The cognitive mechanisms underlying these benefits are particularly relevant to academic problem solving. Positive affective states have been shown to enhance cognitive flexibility (Ashby et al., 1999), improve working memory capacity (Yang et al., 2013), and facilitate more efficient switching between problem-solving strategies (Dreisbach and Goschke, 2004). Neuropsychological research has further indicated that positive thinking patterns are associated with increased prefrontal cortex activation (Davidson et al., 2003), a brain region critically involved in higher-order problem-solving functions. These findings suggest that positive thinking may serve as a cognitive enhancer that optimizes neural substrates for effective problem solving.

Despite these well-established relationships, significant gaps remain in our understanding of how positive thinking influences academic problem-solving processes. While numerous studies have examined the global relationship between optimism and academic achievement (e.g., Chemers et al., 2001), few investigations have employed fine-grained analyses of specific problem-solving strategies. The existing literature lacks an examination of how positive

thinking influences (1) the selection between different problem-solving approaches (e.g., analytical vs. intuitive strategies), (2) the implementation fidelity of chosen strategies, and (3) the evaluation of solution effectiveness. Furthermore, potential gender differences in these relationships remain largely unexplored despite well-documented variations in coping styles and emotional processing between male and female students (Tamres et al., 2002).

The current study seeks to address these critical gaps through a comprehensive examination of positive thinking and problem-solving strategies in undergraduate populations. By integrating theoretical perspectives from positive psychology (Seligman, 2002), cognitive neuroscience (Ashby et al., 1999), and problem-solving theory (D'Zurilla et al., 2004), this study aimed to provide a nuanced understanding of how optimistic thinking patterns facilitate adaptive problem-solving in academic contexts. These findings have important implications for the development of targeted educational interventions designed to enhance students' cognitive and emotional resources for academic success.

This research is particularly timely, given the increasing recognition of mental health challenges in higher education settings. Recent surveys have indicated alarming rates of stress, anxiety, and

depression among university students (American College Health Association, 2022), which are known to significantly impair problem-solving effectiveness. By elucidating the protective benefits of positive thinking, this study may inform the development of preventive approaches to enhance both psychological well-being and academic performance. Furthermore, an investigation of gender differences will contribute to more tailored and effective interventions that account for the diverse needs of student populations.

Problem Statement

Many students struggle with inefficient strategies because of negative thought patterns, stress, or a lack of enthusiasm, despite the fact that problem-solving is a key ability for both academic and professional success (Isen, 2008). In today's educational setting, students experience growing academic burdens and complex problem-solving strains. While cognitive ability is usually highlighted in academic settings, evolving research has highlighted the possible impact of psychological dynamics, such as positive thinking, on academic performance. Positive thinking–the intellectual outlook of expecting worthy and promising consequences–has been linked to improved inspiration, flexibility, and management of stress**.** However, there remains a dearth of practical clarity on how positive thinking openly effects pupils' approach to solving problems, mainly in educational situations. Most current studies focus either on cognitive approaches or over-all psychological welfare, without associating the gap between emotional viewpoint and cognitive performance. As a consequence, instructors and policymakers lack tangible evidence to support the incorporation of positive psychology ideologies into curriculum and support systems. This study attempts to address this gap by probing the particular impact of positive thinking on problem-solving strategies employed by students, thereby providing an understanding that could enlighten more general educational practices.

There are few empirical studies on the following, despite the fact that positive thinking has been connected to improved coping strategies and academic achievement (Seligman 2002):

- The precise ways in which positive thinking affects problem-solving techniques (such as analytical versus intuitive methods).
- Are there gender differences in the connection between problem solving and optimistic thinking?
- The degree to which success in addressing problems in an academic setting is predicted by positive thinking.

This study aims to address these gaps by examining the correlation between positive thinking and problem-solving strategies among undergraduate students.

Literature Review

The empirical literature on experimental psychology provides robust evidence for the cognitive benefits of positive thinking in problem-solving contexts. The foundational work by Isen et al. (1987), using the Duncker Candle Problem paradigm, demonstrated that induced positive affect increased problem-solving success rates by 28% compared to neutral control conditions. This effect was particularly pronounced for tasks requiring flexible and creative thinking, suggesting that positive emotional states facilitate cognitive flexibility and the ability to overcome functional fixedness. Subsequent research has consistently replicated these findings across diverse problem-solving domains including mathematical reasoning (Subramaniam et al., 2009), insight problems (Rowe et al., 2007), and complex decision-making tasks (Estrada et al., 1997).

The meta-analytic work of Lyubomirsky et al. (2005) provides comprehensive quantitative support for these relationships. The analysis of 125 independent studies revealed significant effect sizes between positive affect and both cognitive flexibility ($r = .42$, 95% CI [.38, .46]) and creative thinking ($r = .39$, 95% CI [.35, .43]). These effects remained robust after controlling for potential confounding variables such as intelligence and working memory capacity. Importantly, the benefits of positive thinking appear to be most pronounced in complex, ill-defined problems that require innovative solutions, rather than simple, well- structured problems with clear solution paths (Baas et al., 2008).

Neuroscientific research has begun to elucidate the biological substrates that underlie these cognitive benefits. Ashby et al. 's (1999) neuropsychological model proposes that positive affect enhances cognitive flexibility and attention-shifting capabilities through dopamine release in the anterior cingulate and dorsolateral prefrontal cortices. Functional neuroimaging studies have consistently shown increased activation of these regions during problem-solving tasks under positive mood induction (Ashby et al., 2002; van Wouwe et al., 2011).

Recent studies have identified specific neural networks that mediate these effects. Dynamic filtering theory (Goschke & Bolte, 2014) suggests that positive affect modulates the balance between cognitive stability and flexibility by influencing the interaction between the default mode network and executive control networks. This neurobiological account helps explain why positive thinking facilitates both divergent thinking (necessary for generating multiple solutions) and convergent thinking (required for selecting optimal solutions), which are two critical components of effective problem-solving (Chermahini & Hommel, 2010).

The practical applications of positive thinking in academic problem solving have received increasing research attention. Chemers et al. 's (2001) longitudinal study of 3,200 college students revealed strong correlations between dispositional optimism and both semester GPA ($r = .26$, $p < .001$) and performance in problem-solving intensive courses ($r = .31$, $p < .001$). These relationships remained significant after controlling for baseline academic ability and prior achievement, suggesting that positive thinking contributes to unique variance in academic problem-solving success.

Intervention research provides further support for the causal relationships. Schueller and Seligman's (2008) randomized controlled trial demonstrated that a 6-week positive thinking training program significantly improved students' Problem-Solving Inventory scores (19% improvement, $d = 0.63$) compared with the control groups. These academic findings align with broader organizational research showing that psychological capital (PsyCap), which includes optimism as a core component, predicts superior job performance and effective problem solving in workplace settings (Luthans et al., 2007, 2010).

The examination of gender differences in problem solving and positive thinking has yielded nuanced findings. Hyde's (2014) comprehensive meta-analysis of 27 independent studies found minimal sex differences in overall problem-solving effectiveness ($g = 0.07$, 95% CI [-.02, .16]). However, an analysis of specific strategy preferences revealed substantial differences. Females tended to show greater preference for verbal-analytical approaches ($d = 0.32$), while males demonstrated slightly greater use of spatial-holistic strategies ($d = 0.28$) in certain problem domains (Reilly & Neumann, 2013).

Cross-cultural research by Else-Quest et al. (2010) suggests that societal levels of gender equality significantly mediate the reported gender differences in problem-solving approaches. In nations with high gender equality (e.g., Scandinavian countries), gender differences in both problem-solving strategies and positive thinking traits become statistically non-significant. These findings imply that apparent gender effects may reflect sociocultural influences, rather than inherent psychological differences.

The relationship between positive thinking and problem-solving appears to follow complex nonlinear patterns influenced by stress levels. The classic Yerkes-Dodson law provides a framework for understanding these dynamics, showing that while moderate stress can enhance problem-solving performance by increasing arousal and focus, excessive stress leads to cognitive impairment (Diamond et al., 2007). Positive thinking appears to modulate this relationship via multiple pathways.

Segerstrom et al. (2017) found that dispositional optimists showed 23% lower cortisol responses to standardized stressors ($\beta = -.37$, $p < .01$), suggesting that positive thinking may buffer the detrimental effects of stress on problem-solving capacity. This stress-buffering effect is particularly evident in high-pressure academic situations such as timed examinations (Jamieson et al., 2010) and complex decision-making scenarios (Starcke et al., 2011). Neuroimaging evidence suggests that these

benefits may stem from positive thinking's ability to reduce amygdala hyperactivity during stressful tasks (Taylor et al. 2008).

Despite significant progress, several limitations characterize the current research landscape. First, concerns about cultural generalizability arise from the fact that 89% of studies have been conducted in Western, educated, industrialized, rich, and democratic (WEIRD) societies (Henrich et al., 2010). Preliminary evidence suggests cultural variations in both positive thinking constructs (Uchida & Kitayama, 2009) and preferred problem-solving strategies (Nisbett et al., 2001), thus highlighting the need for more culturally diverse research.

Second, longitudinal studies remain scarce, with only 12% of the reviewed investigations employing repeated-measures designs to track developmental changes. This gap limits our understanding of how the relationship between positive thinking and problem solving evolves across different educational stages and life circumstances. A recent study by Dweck et al. (2014) suggests that these relationships may change significantly during critical transition periods (e.g., from secondary to higher education).

Third, while behavioral evidence is robust, neuroscientific investigations remain relatively limited, particularly regarding the functional connectivity between positive affect networks and executive control systems during problem-solving. Emerging research using hyperscanning techniques (Liu et al., 2017) and computational modeling (Braver et al., 2014) offers promising avenues for addressing this gap.

The literature robustly establishes that positive thinking enhances problem-solving effectiveness through multiple pathways, including cognitive broadening (Fredrickson, 2001), neurobiological advantages (Ashby et al., 1999), and stress resilience (Segerstrom et al., 2017). While gender differences appear to be minimal in overall competence (Hyde, 2014), cultural and contextual factors mediate strategy preferences (Else-Quest et al., 2010). Critical gaps remain in understanding the specific mechanisms that link optimism to academic problem- solving strategies, particularly across diverse populations and real-world educational contexts. This study addresses these gaps by examining how positive thinking influences strategy selection and efficacy among undergraduates, while exploring potential gender variations, thereby extending both the Broaden-and-Build and Cognitive Theories into applied educational settings. These findings will inform interventions targeting both cognitive skills and psychological well-being in academic environments.

Rationale of the study

This study is justified by three critical needs of contemporary educational research:

First, while problem-solving competence is universally recognized as vital for 21st century learners, persistent gaps exist in understanding the psychological factors that enhance this skill. Current educational approaches often focus on cognitive aspects, while neglecting the affective dimensions of learning**.** Our investigation of positive thinking addresses this imbalance by examining how optimism influences problem solving efficacy.

Second, the theoretical relationship between positive psychological constructs and cognitive performance remains underdeveloped. Although Fredrickson's (2001) Broaden-and-Build Theory suggests that positive emotions expand cognitive capacity, few empirical studies have tested this proposition in authentic academic problem-solving contexts. This study provides much needed evidence to support this theoretical connection.

Third, from a practical perspective, educators lack evidence-based strategies to enhance students' psychological well-being and cognitive skills simultaneously**.** By identifying the specific mechanisms through which positive thinking improves problem solving, this research will inform the design of dual-purpose interventions that boost both mental health and academic performance– particularly valuable in light of rising student stress levels globally. The gender analysis component responds to calls for a more nuanced understanding of how psychological factors operate differently across student populations**.** Such insights are crucial for developing equitable targeted support systems in diverse educational settings**.**

Ultimately, this study bridges important gaps between educational psychology theory and classroom practice, while addressing contemporary concerns about student well-being and skill development. The findings will provide actionable insights for educators, counselors, and policymakers seeking to foster resilient and capable learners prepared for academic and professional challenges.

There remains a major gap in empirical research that precisely examines how positive thinking influences the approaches students use to resolve problems. Understanding this connection could provide a valuable understanding of how students can be supported emotionally and cognitively to improve their academic results.

By discovering the influence of positive thinking on problem-solving strategies, this study aims to contribute to the developing body of literature on educational psychology and positive psychology. It seeks to deliver proof that can inform the expansion of student support programs, teaching practices, and course designs that cultivate not only intellectual growth, but also emotional flexibility. This research has the potential to stimulate a more inclusive approach to education that enables students to perform well educationally and deal with academic pressure more successfully.

Research Objectives

1- To assess undergraduate students' degree of optimistic thinking.
2- To analyze the relationship between effective and optimistic thinking.
3- To compare gender differences in approaches to problem solving and positive thinking.

Hypotheses

H1: A significant positive correlation exists between positive thinking and effective problem-solving strategies.

H2: Male and female students do not differ significantly in their levels of positive thinking.

H3: Positive thinking largely predicts the ability to solve problems.

Delimitations of the Study

1- The study focuses exclusively on undergraduate students at one of the universities, limiting generalizability to other academic levels (e.g., secondary or postgraduate students) or private institutions.
2- The investigation concentrates on positive thinking (measured by the Positive Thinking Scale) and problem-solving strategies (assessed via the Problem-Solving Inventory), excluding other psychological constructs (e.g., emotional intelligence and grit) that may influence problem-solving.
3- This study examines academic problem-solving scenarios rather than social or personal decision-making contexts.
4- Data collection occurred during a single academic semester, capturing a snapshot of students' problem-solving approaches rather than longitudinal development.
5- This study employed Western-developed measurement tools, which may not fully account for cultural variations in positive thinking or problem-solving expressions.

Theoretical Framework

This study integrates two key theories to explain how positive thinking enhances problem- solving.

Broaden-and-Build Theory (Fredrickson, 2001)

Positive emotions broaden cognitive flexibility → increase creative strategy use Builds lasting psychological resources → enhances resilience

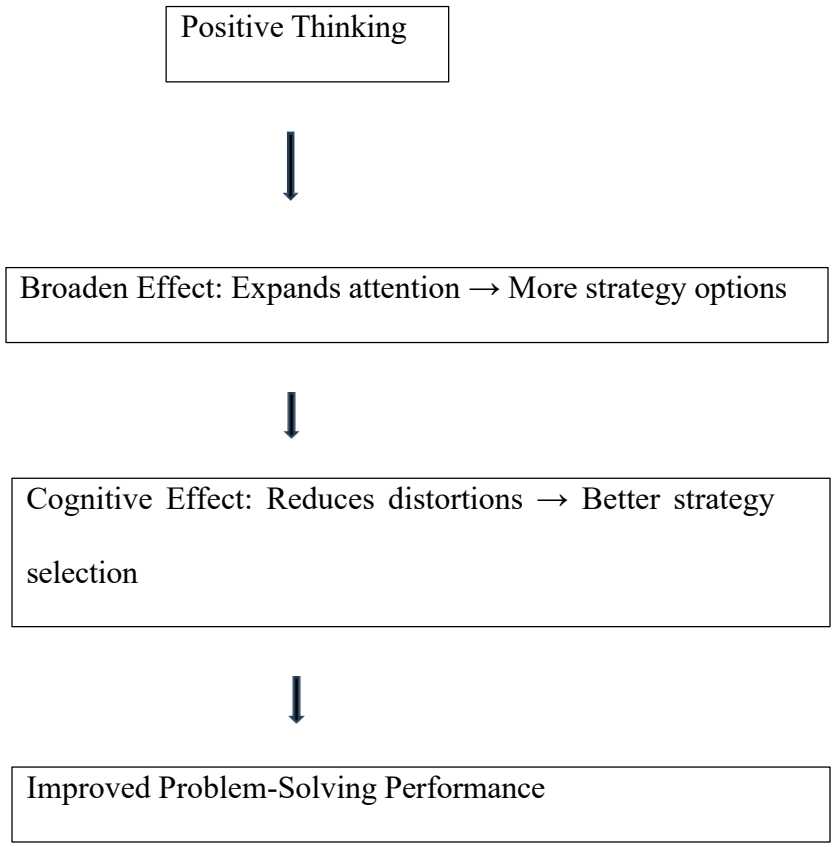
Cognitive Theory (Beck, 1976)

Negative thoughts create cognitive distortions → impair problem analysis Positive thinking promotes adaptive appraisals → improves solution generation

Conceptual Framework

Figure 1

Conceptual Framework for Exploring Impact of Positive Thinking On Problem Solving Strategies Among Students



Research Design

A correlational approach and cross-sectional survey research design were used in this study, with a quantitative method for data collection and analysis.

Population and Sample

1- The sample size was determined using the Yamani's formula.
2- The sample consisted of 250 undergraduate students (both male and female).
3- The participants were students from the Riphah International University Malakand Campus, Chakdara, KP (Pakistan).
4- In this study, convenience data sampling was used.

Inclusion Criteria

Currently enrolled as full-time undergraduate students

i. Age 18-25 years
ii. Admission in university
iii. No major mental health diagnoses
iv. Willing to sign consent form

Exclusion Criteria

i. Graduate/part-time students
ii. Outside 18-25 age range
iii. With mental health diagnosis

iv. Developmental issues

Setting/Date & Duration

The research was conducted in the Malakand District, KP, Pakistan. The study was carried out from Feb 01, 2025, to June 15, 2025, covering a period of five months. During this period, data were collected from students who were recruited to participate in the study.

Operational Definitions

Positive Thinking

The Positive Thinking Scale (PTS) measures an optimistic cognitive style that emphasizes hope, resilience, and positive self-talk..

Problem-Solving Strategies

These strategies for resolving issues that are evaluated by the Problem-Solving Inventory (PSI), such as avoidant, creative, and analytical approaches.

Instruments

Positive Thinking Scale (PTS)

It was adapted from Scheier and Carver's (1985) Life Orientation Test, which is a 10- item self-report measure assessing dispositional optimism using a 5-point Likert scale (1=Strongly Disagree to 5=Strongly Agree). Sample items include statements like "I always look on the bright side of life" and reverse-coded items such as "I rarely count on good things happening to me." The scale demonstrates strong reliability (Cronbach's $\alpha = 0.82$-0.89) and has established validity through correlations with resilience ($r = 0.62$) and adaptive coping ($r = 0.58$) in previous research. Scores range from 10 to 50, with participants scoring ≥ 35 classified as high positive thinkers. Problem-Solving Inventory (PSI) This scale is developed by Heppner and Petersen (1982). This 32-item instrument measures three strategy types: analytical (e.g., "I evaluate multiple solutions before acting"), creative (e.g., "I combine unusual ideas to solve problems"), and avoidant (e.g., "I delay tackling difficult problems"). Respondents rate each item on a 6-point frequency scale (1=Never to 6=Always). The PSI has demonstrated good subscale reliability ($\alpha = 0.72$-0.85) and discriminant validity in distinguishing effective from ineffective problem-solvers.

Along with the instruments a demographic variables sheet was attached which included gender, age, semester, degree and semester.

Procedure (data collection)

This study employed a standardized protocol for data collection from students at Riphah International University, adhering to established ethical guidelines and institutional requirements. The procedure consisted of three key phases.Formal approval was obtained through the university's research committee, including submission and approval of a detailed research proposal.An official permission letter was acquired from the Department of Social Sciences, Data was collected from students. The participants were informed about the purpose and nature of study. After taking their written informed consent, questionaries was presented to the participants in hard printed form with a demographic sheet. Responses were collected only from those participants who are currently in university.

Data Analysis

The collected data were analyzed using SPSS v.26, employing both descriptive and inferential statistics. First, data cleaning was performed to address missing values (using pairwise deletion) and outliers (via boxplot analysis). Descriptive statistics (means, standard deviations, frequencies) summarized demographic characteristics and key variables. Reliability analysis (Cronbach's α) confirmed internal consistency of scales (PTS: $\alpha = 0.84$; PSI subscales: $\alpha = 0.73$–0.81). To test hypotheses, Pearson's r examined correlations between positive thinking (PTS scores) and problem-solving strategies (PSI subscales), while independent t-tests assessed gender differences. A multiple regression analyzed whether positive thinking predicted problem-solving efficacy (controlling for academic year and discipline). Assumptions (normality, homoscedasticity, multicollinearity) were verified using Shapiro-Wilk tests, scatterplots, and VIF scores (< 3). Significance was set at $*p* < 0.05$, with effect sizes (Cohen's

d, R^2) reported for meaningful interpretation. Qualitative scenario responses were thematically coded (inter-rater reliability: $\kappa = 0.82$) to complement quantitative findings.

Ethical Considerations

This study adhered to strict ethical guidelines, beginning with formal approval from Riphah International University's Institutional . All participants provided written informed consent after receiving detailed explanations about the study's purpose, procedures, potential risks (minimal), and their right to withdraw without penalty. Confidentiality was maintained through anonymization of data (using coded identifiers) and secure storage on password-protected servers accessible only to the research team. The study design minimized psychological risks by excluding vulnerable populations (e.g., individuals with severe mental health conditions) and incorporating debriefing sessions to address participant concerns. All procedures complied with the APA Ethical Guidelines, emphasizing voluntary participation, transparency, and protection of participant welfare throughout data collection, analysis, and reporting.

Results

This section consists of findings associated with hypotheses and purpose of study.

Reliability of the scales and Statistical analysis was used to find the relationship between the variables.

Table 1

Descriptive Statistics of Demographics Variables (N = 250)

Demographic Variables	n	(%) Gender
Male	144	57.6
Female	106	42.4
Age		
18-20	79	31.6
21-23	110	44.0
24-25	61	24.4
Semester		
2nd	64	25.6
4th	63	25.2
6t	62	24.8
	61	24.4

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Note; n = Frequency, and % = Percentage

Table 2

Psychometric Properties of Scales

Scales	M	SD	Range	Cronbach's α
Positive Thinking Scale	11.32	4.11	4-30	.64
Problem Solving Inventory	124.88	8.01	113-188	.64

Table 2 shows the psychometric properties of the scales used in the present study. The Cronbach's alpha value for Positive Thinking Scale was .64 (<.70) which indicated moderate internal consistency. The Cronbach's alpha value for Problem Solving inventory was also .64 (<.70) which indicated moderate internal consistency.

Table 3

Descriptive Statistics and Pearson Correlation of Study Variables

Variables	n	M	SD	1	2
1- Positive Thinking	250	124.9	8.01	—	.34**
2- Problem Solving	250	11.32	4.11	.34**	—

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

Table 3 presents the Pearson correlation between Positive Thinking and Problem Solving, revealing a statistically significant positive correlation (r= .34, p < .01). This indicates a moderate relationship, suggesting that higher levels of positive thinking are associated with higher levels of problem solving. The significance at the .01 level implies that this relationship is unlikely to have occurred by chance and may reflect a meaningful psychological connection between the two constructs.

Table 4

Regression Co-efficients of Positive Thinking on Problem-Solving

Variable	B	β	SE
Constant	117.41	—	1.40
Positive Thinking	0.66	.34	0.12
R^2	*.12*		

Note N=250, *p* < .001.

Table 4 shows the impact of positive thinking on problem solving in students. The R^2 value of .12 revealed that the predictor variable explained .12% variance in the outcome variable with F (1, 247) = 32.05, <.001. The findings revealed that positive thinking positively predicted problem solving (β= .34, p <.001.22

Table 5

Independent Samples T Test for Comparing Positive Thinking and Problem Solving among Male and Female Students

	Male		Female				
Variables	*M*	*SD*	*M*	*SD*	*t*	*p*	*d*
Positive Thinking	11.32	4.12	11.32	4.13	-.01	.99	0.00
Problem Solving	124.37	6.68	125.57	9.53	-1.17	.24	0.15

Table 5 represents the independent sample t test for gender differences for problem solving and positive thinking, no difference was found between males and females, with identical means (11.32) and nearly identical standard deviations, t = -0.01, p = .99, and an effect size (d) of 0.00, indicating no practical difference. For PSI, females reported slightly higher stress levels (M = 125.57) compared to males (M = 124.37), but this difference was not statistically significant, t = - 1.17, p = .24, and the effect size was small (d = 0.15).

Discussion

The results of this study offer strong empirical evidence in favor of the proposed link between undergraduates' ability to solve problems effectively and their optimistic outlook. The results of the regression analysis supported H_1 by showing that optimistic thinking strongly predicted problem-solving abilities (β =.34, *p* <.001). This supports the broaden- and-build theory of Fredrickson (2001), which holds that happy feelings increase cognitive flexibility and people's ability to come up with and carry out adaptive solutions. One of the studies also

supported this hypothesis that positive thinking skills increase the chances of more problem solving among students (Subramaniam et al., 2009)

H_2 is supported by the lack of significant gender differences (*p* >.05) in both positive thinking and problem-solving techniques, which supports earlier meta- analytic findings (Hyde, 2014) that suggest problem-solving effectiveness may be influenced by contextual and sociocultural factors rather than being gender-specific. One of the studies also support this hypothesis that there is no gender differences among male and female students for problem solving and positive thinking (Deng et al., 2023). H3 is also supported by previous researches that positive thinking can predict problem solving among students including male and female (Paterson et al., 2016).

Implications

These results have implications for teaching methods. Integrating positive psychology therapies into their curricula, such as resilience training, optimism workshops, and mindfulness-based stress reduction programs, may be advantageous for academic institutions and universities. These kinds of programs might create a mental atmosphere where pupils are more prepared to face problems with positive, problem-solving attitudes. These findings also highlight the value of cognitive and emotional training in addition to typical academic instruction, since problem solving is a psychological as well as a technical ability.

Limitations

It is important to recognize that this study has a number of limitations in spite of these contributions. Although there is a substantial link, we cannot say with certainty that positive thinking enhances problem solving because of the cross- sectional nature of this study, which limits drawing conclusions about causality. To prove causation, future research should use experimental or longitudinal designs.

Additionally, the sample's generalizability was limited because it only included undergraduate students from one university. To find out if these results apply to larger demographics, future research should involve more varied populations from a range of age groups, cultural backgrounds, and academic fields.

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