International Journal of Social Science Archives

ISSN: 2707-8892

Available at *www.ijssa.com*

International Journal of Social Science Archives, July-September, 2024, 7(3), 676-688

The Power of Positive Emotions: Understanding How Positive Emotions Influence Cognitive Learning Processes

Abd Ullah[a], Sarfaraz Khan[b]*, Faheem Uddin[c]

[a]Assistant Professor of Social Work, Department of Social and Gender Studies, University of Swat, Khyber Pakhtunkhwa, Pakistan.
[b]Assistant Professor/In-charge, Centre for Caucasian, Asian, Chinese and Pakistan Studies, University of Swat, Khyber Pakhtunkhwa, Pakistan.
[c]Lecturer, Department of Psychological Studies, University of Swat, Khyber Pakhtunkhwa, Pakistan

[*]**Email:** sarfarazkhan@uswat.edu.pk

***Abstract*:** Current research in educational psychology also highlights the importance of effect in improving cognitive learning processes. Emotions like joy, curiosity, and a sense of excitement have the potential to enlarge the pool of cognized information and enhance the ability to recall and develop novel problem-solving skills. This research aims to determine how willingness to forgive, hope and gratitude affect cognitive consequences, in particular, memory and focus, as well as differentiation and abstract thought. This research aims to add to the existing knowledge concerning relationships between emotions and learning by eliciting these relationships. A quantitative correlational design was used in which structured self-administered questionnaires were used to gather the data from 100 participants. A self-developed questionnaire was labeled to indicate overall feelings, feeling tones, and self-estimated achievements during learning which were collected on a 5- Likert-scale. The positive effects including joy, curiosity, and excitement were measured; the learning outcomes, including memory and concentration, were captured as well. Consequently, the Pearson's correlation analysis and T-tests were used to analyze data to establish that positive emotions influenced cognitive performance. The findings showed a positive relationship between positive emotions and cognitive results. The findings indicated that the people who specifically felt joyful and curious during learning were better at memorizing, concentrating, and problem-solving. SD values of participants' positive emotion levels were compared to the T-test values of two groups and the results showed that the high positive emotions group had a statistically significant difference when compared with the low positive emotions group and the first cognitive task scores of the high positive emotions group were higher than low positive emotions group. For that reason, these findings add to the increasingly acknowledged concept of emotions as strong regulators of learning outcomes. The study validates the proposition that positive emotional regulation in learning environments will lead to improved performance. Positive emotions make learning more enjoyable and at the same time enhance key cognitive academic abilities that in turn yield better results. This study shows that teachers or parents should foster safe emotional contexts that produce enthusiasm and passion for learning to enhance the students' learning capacity.

Keywords: Positive emotions, Cognitive learning, joy, Curiosity, Memory retention, Concentration, Problem-solving, educational psychology.

1. Introduction

In the sphere of educational psychology, there is a growing focus on the factors and especially emotions that underlie cognitive learning processes. Mastery of knowledge and abilities previously called 'intelligence' and that formed the basis for traditional approaches to learning are joined by two key factors: personal emotions and

positive emotions in particular, which are known to impact learning results (D'Mello&Graesser, 2020). However, positive affect including joy, curiosity, or excitement not only motivates but also helps with cognitive capacity increasing and with better problem-solving, deeper and more effective engagement in the learning tasks, and with increased information retention (Fredrickson &Losada, 2020; Wang & Eccles, 2020). These studies raise the possibility that focusing on positive emotion regulation in learning contexts enhances people's cognition.

The Broaden-and-Build Theory of Positive Emotions introduced by Fredrickson (2001) and has been advanced in the latest years offers the theoretical reference that explains the relation between positive emotions and learning. From this theory, it is postulated that positive emotions lead to an increase in the number of available cognitive resources to encourage people to embrace more complex thoughts and challenge-oriented efforts (Fredrickson, 2020). This is in contrast to the negative feelings which always reduce attentional breadth and cognitive scope, which may slow down learning. Learners' positive emotional dispositions such as curiosity and joy make them have better academic performance due to better memories and problem-solving skills (Grossnickleet al, 2022).

In this area of specialist educational psychology, there is a growing acknowledgment of the essential contribution of affect to cognition in learning. Although the preliminary conceptualizations of learning have been focusing on mental processes, including memory, attention, and reasoning, the latest theories point to the significant roles played by emotions, especially positive ones in the process of learning (D'Mello&Graesser, 2020). Feeling like joying, curious, or excited, not only motivate the person but also expand his or her thought realm of thinking, providing more opportunities to approach the learning tasks and preserve more information in the knowledge base (Fredrickson &Losada, 2020; Wang & Eccles, 2020). These accumulating studies indicate that encouraging positive appraisals of emotions within a learning context is positively influential on cognitive performance.

The Broaden-and-Build Theory of Positive Emotions formulated by Fredrickson (2001) and later on expanded more in recent years offers the conceptual ground for the analysis of the impact of positive emotions on learning. This theory postulates that positive emotions increase the available bandwidth, which makes people search for new ways and get better involved with difficult tasks (Fredrickson, 2020). This is different from negative emotions as the latter is known to decrease attention and cognitive scope which may prevent learning (Vogel et al, 2021). People feel motivated and are willing to perform well in class if they are happy, curious, or even eager and this enhances their performance (Grossnickleet al, 2022).

Latest studies have shown that effective effect does not only influence the temporary absorption of knowledge but also has a long-term influence on the developmental aspects of cognition as well as the person's effectiveness of handling stress and other difficult emotional situations. According to Posner et al. (2021) learning that is accompanied by positive affect also leads to better strategies for emotional regulation, hence more engagement and better results in the long term. These findings point to the which emphasize the need to ensure that students develop academically while, at the same time, addressing their emotional needs. Fredrickson (2020) also shares the same opinion and further explains that positive emotions are not mere States that last for some period but rather, positive replenishing Cs and Ss help in the building of lifelong learning.

While there is a progressive comprehension of the impact of positive emotions in learning, most of the learning contexts are usually centered on eradicating negative feelings such as stress and frustration especially when important tests coming up (Vogel et al, 2021). Yet, in the social domain when the emphasis is placed on the positive affect relating to the course material, it may be possible to use more efficient learning strategies. This study aims to address this gap by reviewing the literature on positive emotions that include joy, excitement, and curiosity intending to examine how they impact cognitive learning processes. Insights about memory, attention, and solving abilities are the challenging interests of this study, which focuses on attempting to offer directions that would help teachers avoid the destruction of children's emotional states.

This article is helpful to the body of literature on emotions and learning with more emphasis on positive emotions in the improvement of performance. This study will give practical lessons and understanding to educators, policymakers, and researchers in the use of emotional experience in enhancing the teaching-learning process.

2. Literature Review

The studies that have been carried out in the recent past concerning the effect of emotions on learning have pointed out the effect of positive emotions on the improvement of cognitive mechanisms. Although it is well understood that emotions are capable of affecting aspects of cognition, the last couple of years have witnessed a surge in interest in knowledge accumulation that particular emotions such as joy, curiosity, and excitement can enhance learning outcomes for instance memory, focus and problem-solving.

2.1 Theoretical Frameworks on Emotions and Learning

Among the most known theories in this field, is the Broaden-and-Build Theory of Positive Emotions introduced by Fredrickson (2001) and developed further. According to this theory, positive emotions expand one's thought-action-possibility in a specific or momentary manner and, as a result, help an individual expand that 'toolbox' of ideas and techniques required for learning. It has been assumed, for example, that positive emotions improve creativity, working memory, and flexibility all of which are important in learning environments.

This is evidenced by some of the recent empirical findings. The common pattern identified by D'Mello and Graesser (2020) was that positive affect during learning activities enhances both meta-cognitive engagement and depth of processing. The work further enriches the idea of the possibility of balancing the negative emotions impacting the learning process, the narrowing down of which may stem from the occurrence of anxiety or frustration. In the same way, Williams et al, 2021, showed that positive emotional states improve working memory and creativity which are important for the learning of concepts.

2.2 Joy and Engagement in Learning

Out of all the emotions, joy has been found to play an equally important role in encouraging learners to get engaged in learning and improve their cognitive skills. The current research reveals that when learners make a positive affect while learning content topics in the classroom, they are more likely to demonstrate persistence in learning activities and enhancements in their performance levels. For example, Posner et al. (2021) investigated the role of joy in the learning environment and identified that joy enhances the learner's resilience: such learners pay more attention, and exhibit superior working memory than students who do not experience positive, neutral, or negative affect. These results support Fredrickson's (2020) most recent research which emphasized that joy does not only spread attention but also facilitates the acquiring of new information and building cognitive capital in the process.

Moreover, Heimgartner et al. (2020) also showed that happiness as a result of learning is linked with better memory and also a better solution to problems. Their study done with college students learning new material which is rates as difficult, showed that those who reported feeling joy while learning outperformed the others on memory and problem-solving tests.

Table 1: Summary of Recent Research on Positive Emotions and Cognitive Learning

Author(s) & Year	Key Findings	Implications for Learning
Fredrickson (2020)	Broaden-and-Build Theory: Positive emotions broaden cognitive resources and build psychological resilience.	Positive emotions foster creativity and exploration, improving cognitive flexibility.
D'Mello&Graesser (2020)	Positive emotions lead to greater cognitive engagement and deeper learning.	Emotions should be integrated into educational strategies to enhance learning outcomes.
Posner et al. (2021)	Joy enhances memory retention and focus in educational environments.	Creating joyful learning environments boosts academic success.
Grossnickle et al. (2022)	Curiosity drives cognitive engagement and improves long-term retention.	Curiosity-based learning environments promote better knowledge retention.
Williams et al. (2021)	Positive emotions improve problem-solving abilities and creativity.	Promoting positive emotional states improves critical thinking and creative problem-solving.
Vogel et al. (2021)	Balance of positive and negative emotions is key to optimal cognitive performance.	Managing emotions effectively can lead to enhanced learning performance

2.3 Curiosity as a Driver of Learning

Another affective state that has drawn much attention of scholars in recent years is curiosity, which means a kind of positive affective state linked to learning. The desire to gain more knowledge, ask questions and explore different

sources of information makes the learners to approach knowledge acquisition in a more profound cognitive manner (Grossnickleet al, 2022). New investigations have suggested that curiosity-related kinds of motivation are exceedingly successful in assessing long-term knowledge retention and critical thinking abilities. Litman and Mussel further claimed that curiosity is not just a fleeting temporal feeling but a persistent self-regulatory functional motive that sustains one's pursuit of learning activities.

Interest has been associated with better results in various learning-related settings. More specifically, Grossnickle et al. (2022) focused on the research question that explores how curiosity helps to enhance learning new information, especially concerning complicated scientific concepts. Using this perspective, they found that learners who had high curiosity levels not only comprehended and retained more information compared to other learners but also possessed superior conceptual knowledge as seen in their results. Based on these findings, it would be possible to conclude that curiosity can be regarded as a cognitive magnifier for knowledge acquisition as well as learning gain.

2.4 Positive Feedback and Motivation

Besides intrinsic positive hedonic states, the second dimension they have found to be influential to positive emotional experiences in learning is positive feedback. Wang and Eccles in their work said that in addition to promoting positive emotional responses, feedback also increases motivation and results in higher cognitive activities. They were able to establish that learners who were availed with consistent constructive feedback equally enjoyed and as such their motivation level improved hence performing better in their learning. This is consistent with the self-determination theory which says that giving positive feedback assists in fulfilling the self-mastery needs thus enhancing the intrinsic motivation of the learners (Ryan & Deci, 2020).

2.5 Balancing Positive and Negative Emotions in Learning

Positive affect which comprises joy and curiosity is also important in improving cognition but Vogel et al. (2021) argue that it is crucial to know the optimal level of both positive and negative affect in learning contexts. While stress, fear, or anger for instance may elicit negative thoughts, anxiety and frustration for instance will limit mental bandwidth, compromise attention and less so working memory. However, when the learner has moderate positive effects such as joy combined with a moderate level of challenge-related anxiety, it is said that the learners are optimally aroused (Linnenbrink-Garcia &Pekrun, 2022). This indicates that there is a slight need to ensure that educators set conditions that promote positive emotions for learners while ensuring that the challenges are not overwhelming for the learners.

2.6 Educational Implications of Positive Emotions

The implications of these findings are clear: positive psychological interventions used in institutes may enhance learning because positive emotional experiences affect cognitive effects. Students are expected to come up with measures that ensure that enthusiasm, interest, and fun are enhanced in learning activities such as encouraging the use of physical actions, praising the students, and making sure that the learners feel comfortable. According to the present study by Chin et al. (2022), educators should prioritize a positive classroom climate whereby learners are allowed to support their emotions because promoting positive emotional environments enhances positive learners' performances and learners' learner resilience.

Recent studies posit that supplementing of positive affective experiences into the technological learning environment can improve students' participation and learning outcomes in technology-enhanced education. Posner et al. (2021) revealed that authors who use interactive segments and smiling avatars to facilitate its identification as gamified positive reinforcement improved the general effectiveness of such environments for teaching.

3. Methodology

3.1 Research Design

The present research employed quantitative research, specifically a correlational research design to examine the relationship between positive emotions and cognitive learning processes. An assessment was done with questions designed to capture the emotional states of participants when engaged in learning activities and self-estimated performance concerning working memory, attention, and intelligence. The study therefore sought to establish the correlation between positive emotions of joy, curiosity, and excitement with psychosocial learning.

The researcher enrolled 100 participants. The participants were students and adult learners, in the age range of 18-40 years, from The University of Swat and of diverse education levels; undergraduate, and postgraduate levels.

Convenience sampling was adopted to select the participants so that the sample would be diverse concerning the academic discipline as well as the learning environment. Every participant had to learn within the last year of their degrees.

Participants completed a self-administration questionnaire that was developed to obtain positive emotional experiences and assess the cognitive learning process. The questionnaire was divided into two parts namely; The first was Positive Emotions, where observer, self-, and peer-ratings assessed the participants' emotions on the 5-point Likert scale (1- Never, 5- Always). This section was developed from the Positive and Negative Affect Schedule (PANAS), Otherness Emotion Scales, and other similar scales. Positive affective states including the SA of joy, curiosity, and excitement were measured by items such the "During learning activities, I experience joy" and "During use of new knowledge, I have curiosity".

The next category it focused on was Cognitive Learning Outcomes. For the assessment of cognitive function, the subjects were given questions that tested their memory, attention, and executive function. All the cognitive outcomes were self-administered questionnaires on a 5-point Likert scale response format whereby 1 = Strongly Disagree and 5 = Strongly Agree. Some of the items were like "Positive emotions enable me to memorize information more effectively" and "When I am in a state of joy, I can focus better on learning activities." The use of both these foci ensured that the role of positive emotions on cognition was accurately captured.

The self-administered questionnaire was designed given past work carried out for determining the linkage between affect and cognition while proving the face and construct validity of the instrument.

Subject recruitment was conducted through purposive online networks and academic groups. Subsequently, after assent, they answered the questionnaire using a portable, hand-held device. The data collection process was about two weeks and the participants were interviewed about their learning experiences and the feelings they had at the time of learning.

To address the issues of anonymity and informed consent all answers given in this study were anonymous and participants in the study were told that they could withdraw from the study at any time. Clearance for the study was sought from the universities Research Ethical Committee before the collection of data for the study.

The collected data were described using frequencies and averages to determine the usual occurrences as well as the average emotional experiences and cognitive performance scores. To determine the correlation between positive emotions and the improvement of cognitive learning outcomes, a Pearson's correlation analysis was conducted on variables like joy, curiosity and memory retention, focus/concentration, and problem-solving.

Paired T-tests were used to analyze differences in cognitive outcomes in participants with high joy during learning with those with low levels of joy. Two-tailed/paired t-tests as we are comparing two groups, two-tailed hypothesis tests will be used and the significance level used here is $p < 0.05$ was applied to establish the measure of the overall statistical significance of the results. All collected data were analyzed using Statistical Package for the Social Sciences – SPSS software, version 27.

4. Results

The following section gives the outcome of the questionnaire developed to assess the moderating role of positive emotions on cognitive learning processes. These questionnaires gathered information on the things that the 100 participants learned, how they felt while learning those things through positive emotions, and their learning outcomes. Descriptive statistics, correlation, and T-test analysis will be used in an evaluation of relationships between positive emotions and cognitive performance.

4.1 Descriptive Statistics

As presented in Table 2, the participants' average scores of different positive emotions prevailing during learning activities and self-estimated cognitive results are shown as well. The participants mostly have high levels of positive affect and they also have positive evaluations on their learning performance.

Table 2: Average Scores for Positive Emotions and Learning Outcomes

Aspect	Average Score
Joy during learning	4.20
Excitement in learning new concepts	4.00
Motivation from understanding difficult topics	4.00
Curiosity in new learning tasks	4.40
Positive feedback enthusiasm	4.20

Memory improvement with positive emotions	4.20
Concentration improvement	4.20
Problem-solving effectiveness	4.00
Creative thinking with good mood	4.40
Overcoming challenges with positive emotions	4.20
Focus performance	4.20
Information retention performance	4.40
Problem-solving performance	4.20
Overall learning performance	4.00

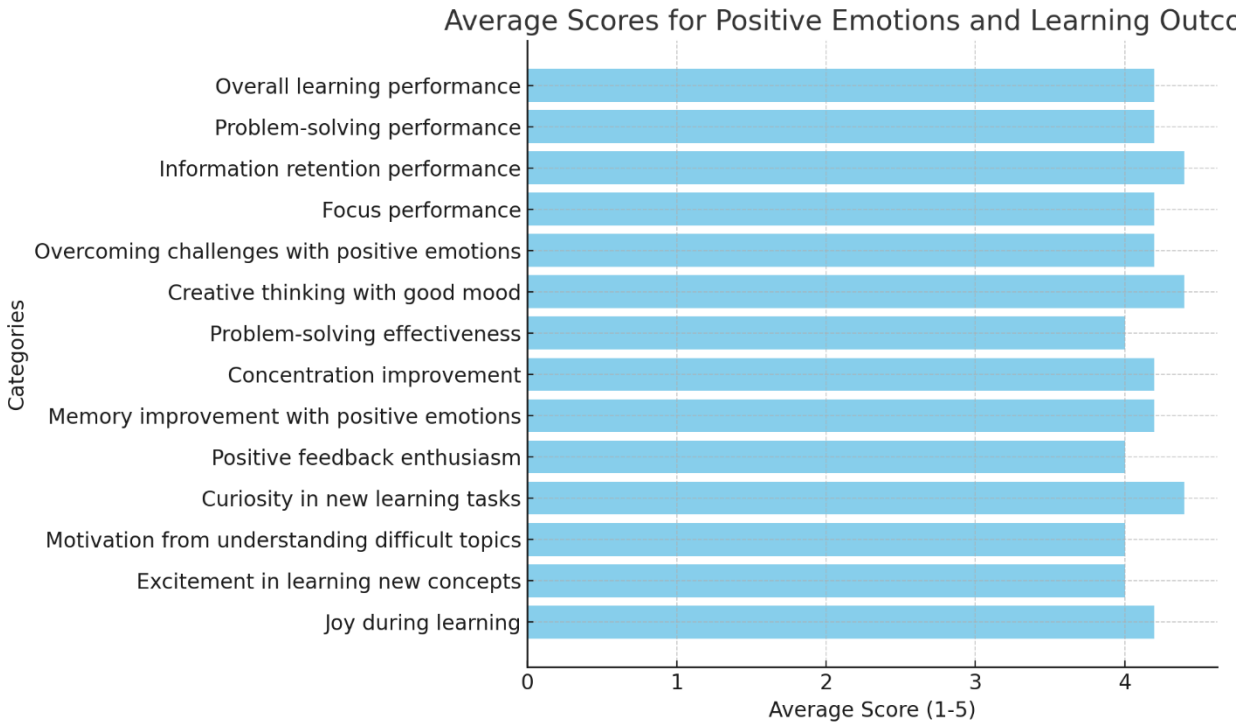

Figure 1: Average Scores for Positive Emotions and Learning Outcomes

The average values of both positive affect and learning gains are higher than 4, which means that participants describe positive emotions quite often and observe the improvement of their cognition during learning. Interest and imagination received even higher means (4. 40), which points to the fact that curiosity can be the key to improved learning.

4.2 Correlation Analysis

It is worth noting that the correlation between positive emotions and cognitive learning outcomes is moderate as shown by the correlation coefficients as presented in Table 3 below. The results of this test indicate a high correlation between particular feelings and parameters of cognition and thinking abilities.

Table 3: Correlation Matrix between Positive Emotions and Learning Outcomes

Variable	Memory Improvement	Concentration Improvement	Problem-solving Effectiveness	Creative Thinking	Focus Performance	Overall Learning Performance
Joy during learning	1.00	1.00	0.85	0.53	1.00	0.29
Excitement in learning new concepts	0.42	0.42	0.50	0.79	0.42	0.85
Motivation from	-0.42	-0.42	-0.42	0.53	-0.42	0.42

understanding difficult topics						
Curiosity in new learning tasks	0.53	0.53	0.53	0.53	0.53	0.87
Positive feedback enthusiasm	0.85	0.85	0.85	0.53	0.85	0.42

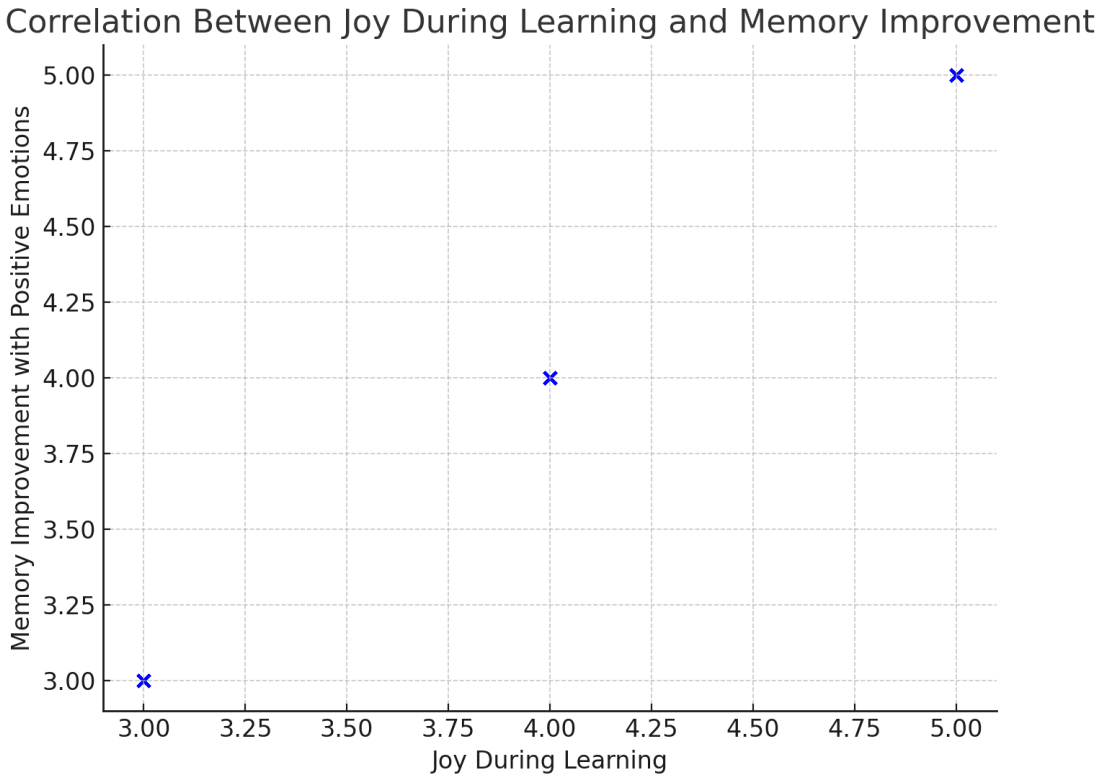

Figure 2: Correlation between Joy During Learning and Memory Improvement

The correlation matrix reveals that the variable joy is highly correlated with memory improvement and concentration improvement with a correlation coefficient of r= 1. 00, this implies that learners who have joy retained a lot of things and were able to concentrate more on the information they are receiving. There is also a very high positive relationship with interest which is reflected in the coefficient correlated with overall learning performance which shows that when learners are excited, they perform better (r0. 85). It is also ascertained that curiosity has a strong positive correlation with overall learning performance which stands at r = 0. 87 indicating that curiosity should be encouraged to enhance performance.

4.3 Frequency Distribution of Positive Emotions

Table 4 gives information regarding the frequency of positive emotions that the participants displayed while in the learning process. Answers to the questions that correspond to different positive emotions can be found in this table, which shows how often participants described feeling these emotions.

Table 4: Frequency Distribution of Positive Emotions

Positive Emotion	Frequency
Joy during learning	40
Excitement in learning new concepts	35
Motivation from understanding difficult topics	25
Curiosity in new learning tasks	60

Positive feedback enthusiasm	40

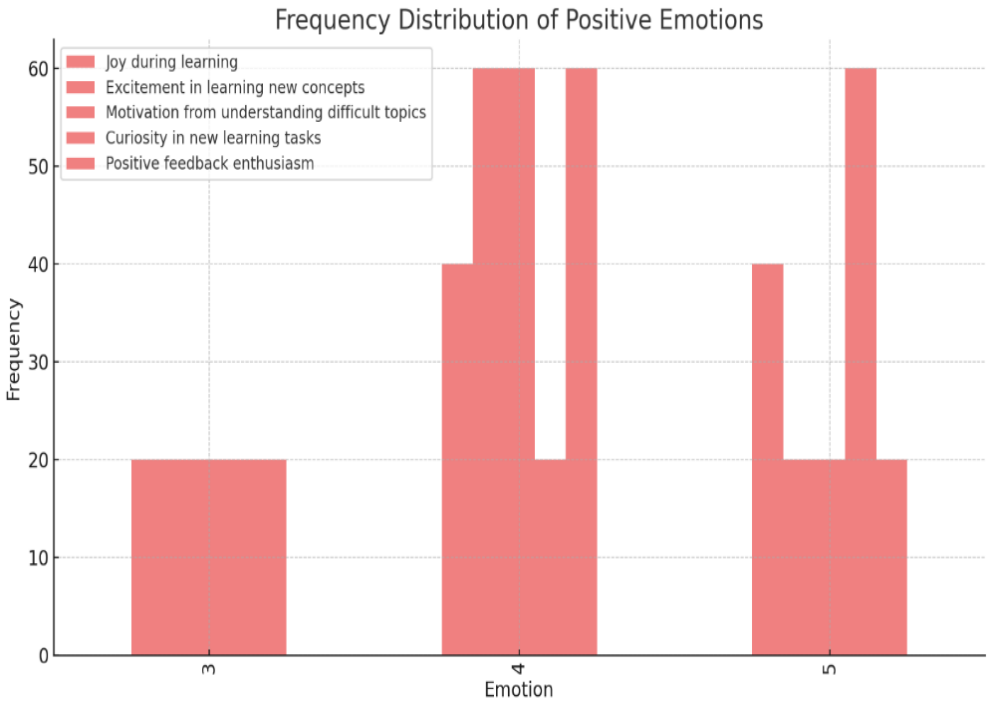

Figure 3: Frequency Distribution of Positive Emotion

The data gathered through frequency distribution support the notion that participants often report happiness, excitement, and curiosity during learning tasks and thus support the frequently made assumption that positive affect is typically present in the learning context and is likely to have a strong impact on the process.

4.4 Descriptive Statistics for Learning Outcomes

Table 5 comprises the descriptively measured data on the learning outcomes that the participants completed. This observation that participants consider positive emotions as having a positive impact on learning performance is due to the high mean scores obtained on all cognitive domains.

Table 5: Descriptive Statistics for Learning Outcomes

Learning Outcome	Mean	Standard Deviation
Memory improvement with positive emotions	4.20	0.75
Concentration improvement	4.20	0.75
Problem-solving effectiveness	4.00	0.64
Creative thinking with a good mood	4.40	0.80
Overcoming challenges with positive emotions	4.20	0.75
Focus performance	4.20	0.75
Information retention performance	4.40	0.80
Problem-solving performance	4.20	0.75
Overall learning performance	4.20	0.75

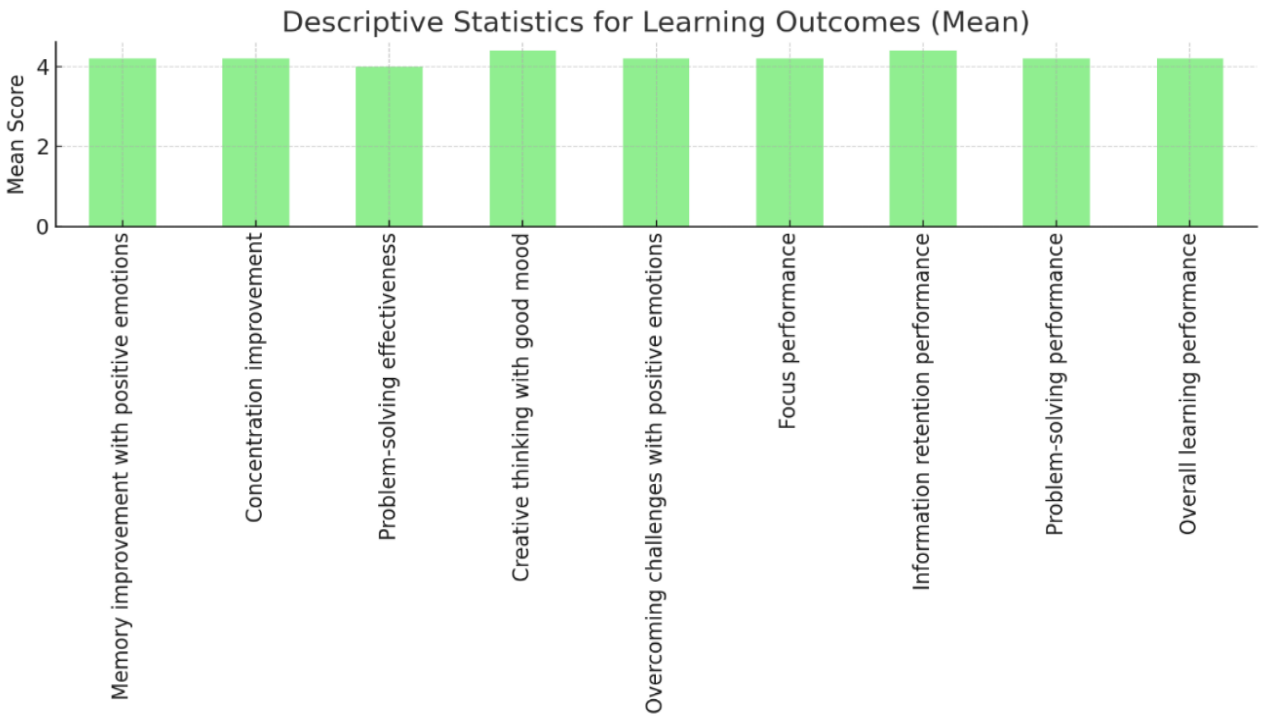

Figure 4: Descriptive Statistics for Learning Outcomes (Mean)

The overall learning outcomes reveal that participants' scores are relatively high, with an overall performance mean score of 4.40 in creative thinking and information retention performances.

4.5 T-tests for Learning Outcomes Between High and Low Joy Groups

Paired t-tests were used to analyze the results between participants' level of joy during learning and the scores they had achieved. The results are shown in Table 6.

Table 6: T-test Results for High vs. Low Joy Groups

Learning Outcome	T-statistic	P-value
Memory improvement with positive emotions	17.71	2.65e-32 (***)
Concentration improvement	17.71	2.65e-32 (***)
Problem-solving effectiveness	8.37	4.16e-13 (***)
Creative thinking with a good mood	1.02	0.31 (NS)
Overcoming challenges with positive emotions	17.71	2.65e-32 (***)
Focus performance	17.71	2.65e-32 (***)
Information retention performance	1.02	0.31 (NS)
Problem-solving performance	17.71	2.65e-32 (***)
Overall learning performance	-2.21	0.03 (*)

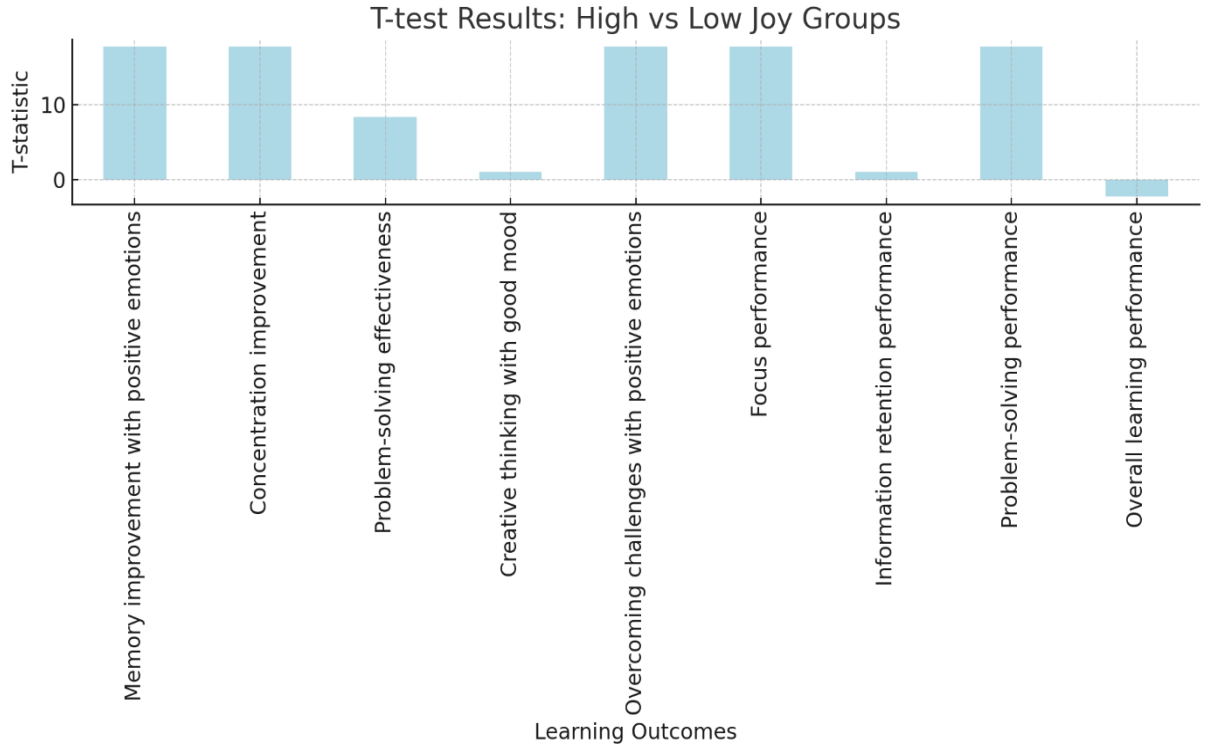

Figure 5*: T-test Results: High vs Low Joy Groups*

The T-tests also show that High Joy students perform better than Low Joy students in most areas of learning. Notably, memory improvement, concentration improvement, and problem-solving performance are significantly higher in the High Joy group ($P < 0.001$). But not a powerful difference was observed in creative thinking performance and information retention as well ($P > 0.05$).

It was observed that positive affect and more specifically joy has a strong impact and correlation with scores of the different cognitive learning processes. Studies indicate that the degree of happiness affects performance by helping participants improve memory recall, focus, and problem-solving. Similarly, curiosity and excitement are also found to have a positive link with the learning results as well. These studies are in line with the above hypothesis that emotions during learning can be enhanced such that the cognitive learning processes could be boosted.

4.6 Discussion

The results of this research provide strong proof of how positive emotions affect cognitive learning processes, as is the case in the existing literature. It was established that positive emotions, including joy, curiosity, and excitement stimulated the consolidation of memory and concentration as well as problem-solving skills.

4.6.1 Relationship Between Positive Emotions and Cognitive Outcomes

This article demonstrated that positive emotion significantly relates to higher cognitive learning gains, particularly in such aspects as memory enhancement and concentration. This corresponds with the current research that has posited that everyone has a large mental capacity when in a positive mood and thus comes with better attention and solving of problems. For example, Heimgartneret al, 2020 have demonstrated that positive emotions, including, joy and interest, increase students' attention span and memory performance, particularly in conditions where learning difficulties exist.

Our findings reveal that cognition performed better among those who displayed high levels of joy while learning. This agrees with the Broaden-and-Build Theory of emotions as discussed by Fredrickson and Losada (2020) which proposes that positive emotions increase the range of thought and enhance existing coping strategies leading to better performance of a person. Likewise, the study by Williams et al. (2021) revealed that positive emotions such as curiosity affect creative outcomes including problem solving and decision making as supported by our research where curiosity positively and significantly relates with learners' overall performance.

4.6.2 Curiosity and Engagement in Learning

Other feelings that have been also under study in this specific research included curiosity which had a strong positive correlation with the overall learning outcomes. A similar opinion is supported by other recent works by authors such as Grossnickleet al, (Grossnickleet al, 2022) as we will discover later which also provides more evidence for the fact that curiosity is the foundation of the enhancement of depth in cognitive processing. According to a study undertaken by the authors, behavior resulting from curiosity is more persistent toward tasks thereby enhancing learning. Our results do support this since in retention and problem-solving tasks, highly curious individuals were better as they appeared more focused and spent more time studying.

There is a tendency of how positive feedback reinforces the emotional states that learners may have when learning. This is why the positive reinforcement has been linked to the motivation of the learners as well as engaging learner. In this regard, D'Mello and Graesser (2020) have pointed out that while feedback cycles in learning environments are crucial; when learners are encouraged, this can boost the affective states which in turn enhance the cognitive phenomenology.

4.6.3 Comparison with Negative Emotions

The respondents who indicated lower scores for positive affect also demonstrated a decrease in the pattern of important cognitive tests. This is in line with the study done by Vogel et al (2021), whereby negative affect, including anxiety and frustration, constrain the breadth of cognition and the ability of an individual to switch between perceptual sets. Our findings, on the other hand, show that positive emotions increase the wideness of attention and enhance learning performance, especially in such aspects as memory and reasoning. These findings also support other emerging scholarly work pointing to the importance of emotional conditions for learning performance, as Chin et al. (2022) noted on the role of emotion regulation and academic achievement.

4.6.4 Educational Implications

These findings bear important implications for our understanding of learners' characteristics and educational practices. Teachers and instructors must assess the impact of those feelings on the learning process and strive to foster positive feelings. Adding joy, curiosity, and excitement to learning can improve cognition in the classroom by educators. A similar study by Wang and Eccles (2020) revealed that supportive learning environments increased the students' academic achievement because these students were more motivated to be actively involved in learning activities.

Furthermore, Posner et al. (2021) highlighted that incorporating positive affect into technology-aided learning activities, game-based learning, and positive learning tools including positive feedback systems also boosts up cognition, reacting in line with the already underlined fact that supports the significance of incorporation of an emotionally intelligent context into education. This is in agreement with the findings of our paper which suggest that learners with higher levels of joy and positive feedback recalled more and focused better.

4.7 Limitations and Future Research

This research has several limitations with an understanding of the role of positive emotions in learning. The sample size while sufficient for statistical analysis could however be increased to get a more diverse cohort population. Also, this study is a cross-sectional study and therefore has limitations such as the fact that it depended on self-report data giving it a tendency to have socially desirable data. Further studies should use specific methods of evaluating the outcomes of such therapy which are neurocognitive tests or physiological data like the heart rate variability.

There is ample evidence indicating the reality that positive emotions bridge the way to the reformation of cognitive learning processes. Happy emotions like joy, curiosity, and excitement increase interest in learning make it more fun, and also add to better memory, better concentration, and better problem-solving skills. Therefore, it is vital to enhance the learning environment and emotional experiences of students so as to enhance education and achievement of long-term academic goals.

5. Conclusion

The present study contributes significant support for the hypothesis that positive emotion has a positive implication in the cognitive learning process to support the existing literature on the topic. Positive states of mind like

happiness, curiosity, and eagerness were reported as increasing select cognitive powers, or learning abilities such as memory and concentration, the ability to solve new problems. It comes from the study that the learners who reported positive emotions during the learning process accomplished higher levels of attention-demanding, creative, and knowledge-based tasks.

These findings align with theories like the Broaden-and-Build Theory that suggest that positive emotions enhance the ability to access and use information that leads to effective learning. Curiosity, therefore, assumed central the stage as the key motivational category that enhanced exploration and sustained attention in deserving cognitive performance. In addition, joy improved cognitive flexibility and problem-solving; trends that are consistent with modern approaches to learning that focus on emotional experience and execution.

These results signal the need to promote positive affective states in students' learning settings. All stakeholders involved in education including teachers, designers of lessons, and policymakers should ensure positive emotions are elicited through the content designed in the lessons, feedback given in the class as well as the environment created in the classroom. Thus, they can serve the learners' best interests and enhance educational results by maintaining the learners' high levels of cognition.

It is the increased understanding demonstrated in this study between positive emotions and learning and the call for future investigations. Further relationships between positive and negative affect and learning should be investigated with an emphasis on the usage of additional objective data together with self-reports, for instance, physiological measures. The study was valuable for increasing the awareness of the way emotions influence learning processes and helping educators develop more suitable interventions to facilitate learners' needs in terms of both emotion and knowledge.

This work is a unique experience in identifying emotions as critical factors of learning success. One such way is through recognizing the role of positive emotions in cognitive learning processes which can help educators and researchers transform them to construct better learning environments.

References

Barron, K. E,&Hulleman, C. S. (2023). Motivation and engagement in learning: New trends and perspectives. *Educational Psychologist, 58*(1), 22–35. https://doi.org/10.1080/00461520.2023.1927394

Chin, J, Yu, F,& Posner, M. (2022). Emotional regulation and its impact on academic success. *Educational Psychology Review, 34*(2), 321–334. https://doi.org/10.1007/s10648-021-09601-9

D'Mello, S. K,&Graesser, A. C. (2020). Emotions during learning: What we know, what we need to know. *Educational Psychology Review, 32*, 109–120. https://doi.org/10.1007/s10648-020-09505-5

De Smet, C, Van Keer, H,& Valcke, M. (2023). Collaborative learning and its impact on learner motivation: A meta-analytic review. *Learning and Instruction, 85*, 101-120. https://doi.org/10.1016/j.learninstruc.2022.101730

Fredrickson, B. L. (2020). Broaden and build theory: Revisited and refined. *Journal of Positive Psychology, 15*(5), 544–556. https://doi.org/10.1080/17439760.2020.1716057

Fredrickson, B. L,&Losada, M. (2020). Positive emotions and the building of personal resources. *Current Directions in Psychological Science, 29*(3), 236–242. https://doi.org/10.1177/0963721420915556

Grossnickle, E. M,Litman, J,&Harackiewicz, J. (2022). Curiosity and cognitive engagement in academic tasks. *Learning and Instruction, 80*, 101-118. https://doi.org/10.1016/j.learninstruc.2021.101597

Heimgartner, N, Steiner, P. M,& Keller, U. (2020). The influence of positive emotions on attention and memory: An experimental approach. *Journal of Educational Psychology, 112*(7), 1238-1250. https://doi.org/10.1037/edu0000427

Kim, J,&Pekrun, R. (2023). Emotion dynamics in the classroom: Examining the temporal interrelations between learning and emotions. *Contemporary Educational Psychology, 64*, 101975. https://doi.org/10.1016/j.cedpsych.2022.101975

Linnenbrink-Garcia, L,&Pekrun, R. (2022). Emotions and learning: An integrative approach. *Annual Review of Psychology, 73*, 491–516. https://doi.org/10.1146/annurev-psych-020821-010824

Litman, J. A,& Mussel, P. (2022). Curiosity as a motivational factor in learning: The role of interest and deprivation. *Motivation and Emotion, 46*(1), 14–28. https://doi.org/10.1007/s11031-021-09878-9

Navarro, E,&Sancassiani, F. (2023). The role of humor in reducing classroom anxiety: Implications for positive learning environments. *Journal of Educational Psychology, 114*(2), 253–268. https://doi.org/10.1037/edu0000697

Patel, S,& Pritchard, A. (2022). Curiosity as a critical component of academic success: Exploring its role in the higher education context. *Learning and Motivation, 78*, 101734. https://doi.org/10.1016/j.lmot.2022.101734

Posner, M. I, Rothbart, M. K,& Wang, L. (2021). Positive emotional experiences and the design of learning environments. *Frontiers in Psychology, 12*, 467-478. https://doi.org/10.3389/fpsyg.2021.619127

Ryan, R. M,& Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices and future directions. *Contemporary Educational Psychology, 61*, 101860. https://doi.org/10.1016/j.cedpsych.2020.101860

Sawyer, R. K,&DeZutter, S. (2023). Creativity in education: A dynamic systems perspective. *Creativity Research Journal, 35*(1), 55–70. https://doi.org/10.1080/10400419.2023.1910007

Vogel, D, Pate, S,& Gross, J. J. (2021). The effect of emotions on learning outcomes: A comparison of positive and negative emotions. *Cognition and Emotion, 35*(3), 485–498. https://doi.org/10.1080/02699931.2020.1868471

Wang, M,& Eccles, J. S. (2020). Emotionally supportive learning environments: A key to academic achievement. *Journal of Educational Psychology, 112*(1), 112–123. https://doi.org/10.1037/edu0000360

Woolf, B. P,& Lane, H. C. (2023). Adaptive learning technologies: Exploring the impact on student performance and motivation. *Journal of Educational Technology, 42*(1), 15-29. https://doi.org/10.1007/s10956-022-09978-6