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CONTENTS

Educational Extracts ISSN 2320-7612
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UNLOCKING POTENTIAL: RATIONAL EMOTIVE EDUCATION TO COMBAT TEST ANXIETY IN SCHOOLS

Dr. Bisini P.S.*

Abstract

Students' academic performance and mental health in secondary school are greatly impacted by test anxiety. This study looked at how well 102 ninth-grade students from Kerala, India, who had been diagnosed with significant test anxiety responded to the Rational Emotive Education Model (REEM), which is based on Rational Emotive Behaviour Therapy (REBT). Participants were split evenly into experimental and control groups using a quasi-experimental pre-test and post-test control group design. An 18-session REEM intervention aimed at cognitive, emotional, and behavioural restructuring was finished by the experimental group. ANCOVA analysis of the data showed that the experimental group's test anxiety scores had significantly decreased ($F = 242.604$, $p < 0.01$). The results highlight how REEM promotes self-acceptance, emotional stability, and logical thinking. In order to combat test anxiety and improve holistic education, the study recommends incorporating REEM into school curricula. To further establish REEM's efficacy, future studies should evaluate its long-term effects, cultural adaptability, and parental engagement.

Key Words: *Test Anxiety, Rational Emotive Education*

Introduction

Test anxiety is a pervasive psychological phenomenon that affects students across various educational levels, particularly in high-stakes academic environments. It is defined as a set of phenomenological, physiological, and behavioural responses triggered by the fear of negative outcomes or failure in evaluative situations, such as exams (Sieber, O'Neil, & Tobias, 1977). Spielberger et al. (1976) further conceptualized test anxiety as a transitory emotional state, characterized by heightened emotional reactions when an individual perceives an evaluative situation as harmful or threatening. Test anxiety is currently understood as a multidimensional construct comprising cognitive and affective components (Endler & Parker, 1990). These

* *Associate Professor, S.N.M. Training College, Moothakunnam.*

dimensions interact with various factors, such as the intensity of evaluative stress, individual differences in trait anxiety, and the persistence of negative interpretations of situations (Spielberger et al., 1978).

The manifestations of test anxiety are multifaceted, involving physical symptoms like sweating, nausea, rapid heartbeat, and trembling; cognitive disruptions such as racing thoughts, difficulty concentrating, and forgetting learned material; and behavioural tendencies like avoidance and procrastination. These symptoms often create a cyclical effect, where poor performance exacerbates anxiety, leading to further impairment in future situations (Hembree, 1988). Test anxiety is also influenced by social factors, including fear of judgment by teachers, parents, and peers (Lowe et al., 2008). Given its prevalence and the adverse effects on students' academic performance and psychological well-being, test anxiety requires targeted interventions that address its cognitive, emotional, and behavioural aspects.

Rational Emotive Education (REE), derived from Rational Emotive Behaviour Therapy (REBT), offers a promising framework for addressing test anxiety. Developed by Albert Ellis, REBT is founded on the principle that individuals' emotional distress arises from irrational beliefs about life events rather than the events themselves. By challenging these irrational beliefs and replacing them with rational alternatives, individuals can achieve healthier emotional and behavioural outcomes (Ellis, 1962). By applying these ideas to educational environments, REE gives students the skills they need to control their anxiety, build resilience, and improve their academic achievement. In an effort to close the gap between psychological research and real-world implementation in classrooms, this study examines how well a rational emotive education model reduces test anxiety in secondary school pupils.

Review of Literature

Conceptual Framework of Test Anxiety

Test anxiety has been widely studied as a psychological construct with significant implications for academic performance. According to Hembree (1988), test anxiety negatively correlates with academic outcomes, as heightened anxiety interferes with cognitive processes such as information retrieval and problem-solving. Endler and Parker (1990) emphasized its multidimensional nature, encompassing cognitive worry and affective emotionality. These components interact with external stressors and internal traits, amplifying the anxiety response. Pekrun (2006) noted that test anxiety disrupts not only academic performance but also students' overall well-being, necessitating comprehensive interventions.

Causes and Consequences of Test Anxiety

The causes of test anxiety include fear of failure, perfectionism, negative past experiences, lack of preparation, and underlying anxiety disorders. Cognitive symptoms such as self-doubt and worry are often accompanied by physiological reactions like trembling and nausea, creating a compounding effect that undermines performance. Socially, students may experience heightened fear of judgment, further exacerbating their anxiety (Lowe et al., 2008). Alarmingly, coping strategies adopted by students often include maladaptive behaviours such as avoidance and excessive caffeine consumption, which

fail to address the root causes of anxiety (Jirjees, 2024).

Rational Emotive Behaviour Therapy (REBT)

REBT is based on the principle that emotional distress arises from rigid and extreme beliefs about life's adversities. These irrational beliefs lead to unhealthy negative emotions such as anxiety, depression, and guilt, which in turn cause dysfunctional behaviours (Dryden, 2002). By contrast, rational beliefs promote healthy emotions and constructive actions, enabling individuals to think realistically about themselves and their circumstances. The ABC model of REBT—Activating events (A), Beliefs (B), and Consequences (C)—illustrates how individuals' interpretations of events, rather than the events themselves, drive their emotional responses (Ellis, 1962).

Rational Emotive Education (REE)

REE applies the principles of REBT to educational contexts, aiming to help students develop rational thinking patterns and manage their emotional responses. Ellis (1971) demonstrated the effectiveness of REE in addressing students' emotional issues through teacher-led interventions. Subsequent studies, such as those by Bernard and DiGiuseppe (2000) and Popa and Bochis (2012), highlighted the positive impact of REE on students' interpersonal relationships, self-concept, and academic performance. Greaves (1997) and Block (1978) also found that REE programs reduced stress and improved behavioural outcomes among diverse student populations.

Numerous studies have validated the efficacy of REBT and REE in reducing test anxiety. For example, Mahfar et al. (2014) found that a Rational Emotive Education Module significantly reduced irrational beliefs and stress among Malaysian students. Similarly, Eifediyi, Ojugo, and Aluede (2017) demonstrated that REBT effectively reduced examination anxiety among secondary school students in Nigeria, recommending its integration into school counselling programs. Popa and Bochis (2012) reported improvements in peer relationships and socio-metric status among Romanian children following an REE program.

In India, however, the application of REE remains underexplored. Despite the prevalence of eclectic approaches in school counselling, there is a lack of structured interventions grounded in REBT principles. This study seeks to address this gap by developing a culturally relevant REE model tailored to the needs of Indian secondary school students.

Need and Significance of the Study

In educational settings, test anxiety is a serious problem, especially for secondary school students who are under a lot of academic pressure. Effective therapies are necessary since test anxiety is common and has a negative impact on academic achievement, mental health, and general well-being. Traditional methods of treating exam anxiety frequently concentrate on superficial tactics like study skills and relaxation methods, but they ignore the underlying emotional and cognitive causes of fear.

Targeting the illogical assumptions that cause exam anxiety, rational emotive education provides a comprehensive strategy. REE develops resilience, self-assurance, and a well-rounded viewpoint on

academic difficulties by instructing students to recognise and question these beliefs. Additionally, including REE into school curricula offers a scalable and long-lasting way to reduce test anxiety on a systemic basis.

Evidence-based therapies like REE are especially needed in the Indian context, where high-stakes exams and social pressures worsen test anxiety. An important weakness in the educational system's approach to mental health is highlighted by the lack of structured programs in Indian schools. By creating and executing a rational emotive education model especially for Indian secondary school students, this project seeks to close this gap. By doing this, it hopes to enhance students' entire emotional health in addition to their academic performance, opening the door to a more encouraging and psychologically aware learning environment.

Purpose of the Study

The purpose of the study is to find out the effectiveness of the Rational Emotive Education Model to control test anxiety of secondary school students.

Research Questions

1. What is the effect of REEM on the test anxiety of secondary school students in the experimental group when comparing their pre-test and post-test scores?
2. What is the effect of REEM on the test anxiety of secondary school students in the control group when comparing their pre-test and post-test scores?

Objectives

1. To compare the pretest and posttest scores of test anxiety of secondary school students of control group and experimental group.
2. To determine genuineness of the difference in performance of test anxiety of secondary school students between experimental and control groups

Hypotheses

1. There is no difference in the mean of pretest and posttest scores of Test Anxiety of control group and experimental group.

Method

The research design employed a quasi-experimental approach, specifically utilizing the pre-test, post-test control group design.

Population

The target population for this study comprises secondary school students from Kerala State.

Sampling

Using the Test Anxiety Inventory, 238 ninth-grade students were first evaluated for this study (Spielberger, 1980). Out of this group, 102 pupils who had severe test anxiety were found and chosen. Two groups of these pupils were formed: The experimental group consisted of 51 students who received specialised instruction utilising the Rational Emotive Education Model, while the control group consisted of 51 students who received no extra help to deal with exam anxiety.

Instruments for data collection

Test Anxiety Inventory (Spielberger,1980)

This standardized tool consists of 20 items divided into two subscales: the TAI

Emotionality Subscale and the TAI Worry Subscale. It utilizes a four-point rating scale, with possible scores ranging from a minimum of 20 to a maximum of 80.

Rational Emotive Education Model (REEM) (Musthafa & Bisini, 2013)

This study employed an experimental approach using the Rational Emotive Education Model (REEM), rooted in the theoretical basis of Albert Ellis REBT, a framework developed and validated by the investigator to enhance students' tolerance for ambiguity, decreasing irrationality and anxiety by reorganising their emotional, thinking and behaviour patterns through REBT techniques. The model is validated using the ADDIE Instructional System Design framework (McGriff, 2000).

Model Design and Structure. REEM is organized into three distinct phases, comprising a total of 18 sessions. Each phase employs a mix of Socratic and Didactic teaching methods, supplemented by homework assignments to reinforce the practical application of emotive, behavioural, and cognitive techniques.

Phase I: Theoretical Orientation. The first phase, spanning seven sessions, focuses on foundational concepts of Rational Emotive Behaviour Therapy (REBT). It introduces the ABC Model, (Ellis, 1962) where:

- **A** represents the Activating event,
- **B** signifies Beliefs, and
- **C** denotes Consequences.

These sessions guide students through understanding how activating events are interpreted, distinguishing between rational and irrational beliefs, and exploring the emotional, behavioural, and cognitive outcomes of these beliefs.

Phase II: Teacher Intervention. The second phase, comprising six sessions, emphasizes active teacher-led instruction. It begins with the introduction of the REBT Self-Help Form, a tool designed to help students identify and dispute irrational thoughts. Through targeted exercises, students learn to replace irrational beliefs with rational ones, fostering constructive behaviours. The sessions focus on cultivating self-acceptance, acceptance of others, and life acceptance by contrasting non-dogmatic preferences with rigid demands and addressing discomfort tolerance and depreciation beliefs.

Phase III: Group Intervention. The final phase, consisting of five sessions, adopts a collaborative group format. Students engage in structured discussions to address cognitive and emotional challenges. Techniques such as cognitive, behavioural, and emotive disputation are explored, with practical exercises aimed at disputing irrational beliefs. The phase concludes with a focus on unconditional self-acceptance, equipping students with the tools to foster emotional resilience and rational thinking.

The Rational Emotive Education Model provides a comprehensive framework for enhancing emotional and cognitive skills, combining theoretical insights with practical interventions to develop resilience and rational behaviour. (Musthafa & Bisini, 2013)

Analysis and Interpretation

Comparison of means of Pre-test and Post-test scores of Experimental and Control groups.

Table 1
Outcome of Significance Test Comparing Mean Pre-test and Post-test Scores on Test Anxiety Between Control and Experimental Groups

Group	No of Students	Pre-Test			Post-Test		
		Means	Standard Deviation	Critical Ratio	Means	Standard Deviation	Critical Ratio
Control Group	51	67.6275	4.75823	0.518 (NS)	67.5686	4.23913	10.705**
Experimental Group	51	67.1373	4.75823		57.5686	5.15075	

**Significant at .01 level

The table shows that the pre-test t-value is 0.518, which is not significant at the 0.01 level, indicating no notable difference in test anxiety pre-test scores between the experimental and control groups. However, the post-test t-value is 10.705, significant at the 0.01 level, surpassing the critical value of 1.96. This indicates a significant difference in post-test test anxiety scores between the experimental group, taught using REEM, and the control group.

It was noted that the experimental group had lower average test anxiety scores than the control group, indicating that the REEM treatment was likely responsible for this decrease. The treatment effectively reduced test anxiety among the secondary students.

To determine genuineness of the difference in performance between experimental and control groups.

The study evaluated the effectiveness of the Rational Emotive Education Model (REEM) in decreasing the test anxiety among secondary school students. Statistical analyses, including Analysis of Covariance (ANCOVA), confirmed the significant impact of REEM.

ANCOVA Results: The analysis accounted for pretest scores as a covariate, ensuring the differences in posttest outcomes were attributed to the intervention. The F-value for test anxiety ($F(1,99) = 242.604$, $p < 0.01$) indicated a substantial effect of REEM, independent of pretest variability.

Post-hoc Analysis: A significant difference was observed in the adjusted mean posttest scores between the experimental (57.751) and control groups (67.387). The *t*-value of 15.6, significant at the 0.01 level, further validated REEM's effectiveness in enhancing test anxiety.

Discussion

The study's conclusions offer strong proof of the effectiveness of the Rational Emotive Education Model (REEM) in reducing test anxiety in high school pupils. When compared to the control group, the experimental group showed a significant decrease in test anxiety. This is consistent with earlier studies that confirmed the efficacy of REBT-based therapies in treating emotional and cognitive difficulties. The findings highlight REEM's ability to give students the skills they need to identify and refute illogical ideas, resulting in more positive emotional and behavioural reactions in assessment scenarios.

The organised approach of REEM, which includes group participation, teacher interaction, and theoretical direction, is especially well-suited to tackling the complex character of test anxiety. Together, these elements promote self-acceptance, logical reasoning, and emotional fortitude—all of which are essential for raising kids' general wellbeing and academic achievement.

Educational Implications of the Study

The study has a number of significant educational ramifications. A methodical approach to test anxiety management is provided by incorporating the Rational Emotive Education Model (REEM) into school curricula, which helps children grow in resilience and logical reasoning. Teachers who receive training in REE approaches are also more equipped to handle the emotional and cognitive difficulties of their students. Prioritising both academic achievement and mental health, REEM promotes a comprehensive approach to education by cultivating emotional resilience and cognitive clarity. Additionally, the proven efficacy of REEM in lowering test anxiety can guide educational strategies, especially in situations involving high-stakes exams where mental health interventions are essential. REEM is scalable in a variety of educational contexts, even those with low resources, because to its structured and flexible style.

Suggestions for Further Research

Longitudinal studies should be carried out to investigate the long-term effects of REEM on students' academic achievement and emotional health. Its relative efficacy may be shown by comparisons with other interventions, such as mindfulness or cognitive-behavioural techniques. To improve its application in diverse educational and societal situations, it is necessary to investigate REEM's cultural adaptation. Examining the model's effects at various grade levels may help pinpoint advantages and difficulties unique to each age group, and looking into the function of parental participation may uncover other support systems that enhance REEM's results.

Limitations

The study contains a number of shortcomings in spite of its contributions. The findings' applicability to other groups is limited by the sample size's modest size and geographic focus. An evaluation of the intervention's long-term effects was not possible due to its brief duration. Furthermore, using self-reported anxiety measurements could lead to bias or inaccurate results. Comparative insights into various approaches are limited due to the control group's lack of an alternative intervention. Furthermore, the study did not take into consideration outside variables that can affect test anxiety results, like peer pressure or family support. Future studies could improve our comprehension and use of REEM in a variety of settings by addressing these limitations.

Conclusion

There is much potential for the Rational Emotive Education Model (REEM) to be a successful intervention for lowering test anxiety among secondary school pupils. Through addressing the behavioural, emotional, and cognitive aspects of anxiety, REEM equips students to face academic obstacles head-on with resilience and confidence. The study emphasises how crucial it is to integrate evidence-based mental health therapies into

educational systems, especially in settings with high stakes. In order to provide long-lasting advantages for students in a variety of contexts, future studies should seek to broaden the application of REEM and investigate its long-term effectiveness.

References

Bernard, M. E., & DiGiuseppe, R. (2000). Advances in the theory and practice of rational-emotive behavioural consultation. *Journal of Educational and Psychological Consultation, 11*(3-4), 333–355. https://doi.org/10.1080/10474412.2000.9669419

Bisini, P. S. (2016). Effectiveness of rational emotive education model in terms of interpersonal skills, irrational beliefs, and tolerance for ambiguity among VIII standard students (Doctoral dissertation). University of Calicut.

Block, J. (1978). Effects of a rational–emotive mental health program on poorly achieving, disruptive high school students. *Journal of Counselling Psychology, 25*(1), 61.

Dryden, W. (2002). Rational emotive behaviour group therapy: An overview. In W. Dryden & M. Neenan (Eds.), *Rational emotive behaviour group therapy* (pp. 1–27).

Eifediyi, G., Ojugo, A. I., & Aluede, O. (2018). Effectiveness of rational emotive behaviour therapy in the reduction of examination anxiety among secondary school students in Edo State, Nigeria. *Asia Pacific Journal of Counselling and Psychotherapy, 9*(1), 61–76.

Ellis, A. (1962). *Reason and emotion in psychotherapy.* Secaucus, NJ: Citadel.

Ellis, A. (1971). An experiment in emotional education. *Educational Technology, 11*, 61–64.

Endler, N. S., & Parker, J. D. (1990). Multidimensional assessment of coping: A critical evaluation. *Journal of Personality and Social Psychology, 58*(5), 844.

Greaves, D. (1997). The effect of rational-emotive parent education on the stress of mothers of young children with Down syndrome. *Journal of Rational-Emotive and Cognitive-Behaviour Therapy, 15*(4), 249–267.

Hembree, R. (1988). Correlates, causes, effects, and treatment of test anxiety. *Review of Educational Research, 58*(1), 47–77.

Jirjees, F., Odeh, M., Al-Haddad, A., Ass'ad, R., Hassanin, Y., Al-Obaidi, H., Kharaba, Z., Alfoteih, Y., & Alzoubi, K. H. (2024). Test anxiety and coping strategies among university students: An exploratory study in the UAE. *Scientific Reports, 14*(1), 25835. https://doi.org/10.1038/s41598-024-59739-4

Lowe, P. A., Lee, S. W., Witteborg, K. M., Prichard, K. W., Luhr, M. E., Cullinan, C. M., et al. (2008). The test anxiety inventory for children and adolescents (TAICA). *Journal of Psychoeducational Assessment, 26*, 215–230. https://doi.org/10.1177/0734282907303760

Mahfar, M., Aslan, A. S., Noah, S. M., Ahmad, J., & Jaafar, W. M. W. (2014). Effects of Rational Emotive Education Module on Irrational Beliefs and Stress among Fully Residential School Students in Malaysia. *Procedia - Social and Behavioural Sciences, 114*, 239–243.

Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Psychology Review, 18*, 315–341. https://doi.org/10.1007/s10648-006-9029-9

Popa, C., & Bochis, L. (2012). The effects of a rational emotive behaviour education program on the sociometric status and interpersonal perception modification of 9-10-year-old Romanian pupils. *Procedia - Social and Behavioural Sciences, 46*, 5792–5796.

Sieber, J. E., O'Neil, H. F., & Tobias, S. (1977). *Anxiety, learning, and instruction.* Lawrence Erlbaum Associates.

Spielberger, C. D., Edwards, C. D., Montuori, J., & Lushene, R. E. (1976). *State-Trait Anxiety Inventory for Children.* Palo Alto, CA: Consulting Psychologist Press.

Spielberger, C. D., Gonzalez, H. P., Taylor, C. J., Algaze, B., & Anton, W. D. (1978). Examination stress and test anxiety. In C. D. Spielberger & I. G. Sarason (Eds.), *Stress and anxiety* (Vol. 5). John Wiley & Sons.

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A STUDY ON THE RELATIONSHIP BETWEEN ATTITUDE TOWARDS TEACHING AND TEACHER COMPETENCIES OF PROSPECTIVE TEACHERS

Elizabeth Baby* & Dr. Sreelekha L.**

Abstract

This study attempted to quantitatively analyse the level of attitude towards and teacher competencies of prospective teachers in the colleges of teacher education under University of Kerala and the relationship between attitude towards teaching and teacher competencies of these prospective teachers. The investigator conducted a survey in four colleges of teacher education on a sample of 112 prospective teachers by administering a scale of attitude towards teaching and a teacher competence rating scale. The study found that the level of attitude towards teaching and teacher competencies of majority of the prospective teachers is average. The relationship analysis using Pearson's product moment correlation revealed that there is significant positive correlation between attitude towards teaching and teacher competencies of teachers.

Keywords: *Attitude towards teaching, teacher competencies, prospective teachers*

Introduction

Teacher competencies refer to the combination of knowledge, skills and attributes that educators possess, enabling them to effectively perform their roles in the classroom and contribute to the overall success of the educational process. These competencies encompass a wide range of elements, including pedagogical knowledge, subject matter expertise, instructional strategies, classroom management skills, communication abilities and the capacity to engage and motivate students. Additionally, teacher competencies extend beyond the academic realm to encompass interpersonal skills and a commitment to on-going professional development. Competent teachers not only possess a solid foundation of theoretical and practical knowledge but also demonstrate the ability to apply that knowledge in diverse and

* *Research Scholar, N.S.S. Training College, Pandalam, University of Kerala.*
** *Associate Professor, N.S.S. Training College Pandalam, University of Kerala.*

evolving educational settings. As education continues to adapt to new challenges and opportunities, teacher competencies evolve to incorporate the skills and qualities necessary for fostering student learning, critical thinking and overall development.

Attitude is one of the prerequisites in succeeding in any profession. Attitude of teachers towards teaching is no exception. Attitude is defined as "a state of mental and emotional readiness to react to situations, persons or things in a manner in harmony with a habitual pattern of response previously conditioned to, or associated with these stimuli (Good, 1945). A teacher's attitude towards teaching plays a pivotal role in shaping the learning experience for students. A positive and enthusiastic attitude can inspire and motivate students, fostering a love for learning. Teachers who approach their work with passion, patience and a genuine desire to help students succeed create a supportive and conducive learning environment. An empathetic and understanding attitude helps teachers connect with students on a personal level, creating a sense of trust and open communication. On the other hand, a negative or disinterested attitude can have detrimental effects on the learning process, hindering students' engagement and enthusiasm. Therefore, fostering a positive and student-centred attitude is not only crucial for effective teaching but also for nurturing a lifelong love for learning in the individuals they guide.

Need and Significance of the study

The relationship between attitude towards teaching and teacher competencies is a dynamic interplay that significantly influences the effectiveness of the educational process. A teacher's attitude towards their profession can serve as a driving force behind the development and enhancement of their competencies. A positive attitude fosters a genuine passion for teaching, leading educators to continuously seek ways to improve their skills, adapt to new pedagogical approaches and stay abreast of the latest developments in education. On the contrary, a negative attitude may hinder the motivation to invest time and effort in professional development, potentially impeding the acquisition of essential competencies. Thus, a teacher's attitude towards teaching acts as a motivational factor that either propels or hinders the acquisition and application of competencies crucial for effective education.

Teacher competencies, in turn, contribute to shaping and reinforcing a positive or negative attitude towards teaching. Competent teachers are better equipped to manage classroom challenges, engage students effectively, and adapt their instructional strategies to diverse learning needs. When teachers possess a comprehensive set of competencies, including pedagogical knowledge, classroom management skills and the ability to assess student progress, they are more likely to experience success in their teaching endeavours. This success reinforces a positive attitude, creating a cyclical relationship where competency-building and positive attitudes towards teaching mutually reinforce each other. Conversely, a lack of essential competencies may lead to frustration, decreased job satisfaction and a negative attitude towards teaching. Therefore, the interdependence of attitude and competencies highlights the importance of fostering a positive mindset and continuously enhancing skills for teachers to excel in their profession.

A study on the relationship between attitude towards teaching and teacher competencies holds significant implications for the field of education. Firstly, understanding this relationship can benefit teacher training programmes to tailor their curricula to foster positive attitudes among aspiring educators. By identifying the specific competencies associated with positive attitudes, teacher preparation can be enhanced to equip educators not only with technical skills but also with the mindset crucial for effective teaching. This insight can contribute to the development of more comprehensive and targeted professional development initiatives for in-service teachers, promoting continuous growth in both attitude and competencies throughout their careers.

Secondly, the findings of the study can influence teacher recruitment and selection processes. Educational institutions can use this knowledge to identify candidates who exhibit not only the requisite competencies but also a predisposition towards positive attitudes in teaching. By considering attitude alongside competencies during hiring processes, schools can build a teaching workforce that is not only highly skilled but also passionate, resilient, and committed to the holistic development of students. This approach aligns with the growing recognition that effective teaching extends beyond the mastery of subject matter to include qualities such as enthusiasm, adaptability and a genuine concern for student well-being.

Furthermore, the research outcomes can contribute to the on-going discourse on teacher retention and job satisfaction. Understanding the interplay between attitude and competencies can help educational policymakers create supportive environments that nurture positive attitudes and provide opportunities for teachers to continually enhance their competencies. This, in turn, may positively impact teacher job satisfaction, reduce burnout and contribute to the overall improvement of the quality of education. Considering the above aspects, the investigator felt that a quantitative analysis of the level of attitude towards teaching and teacher competence of prospective teachers and the relationship between these variables will of immense value for our educational policymakers, teacher educators and everyone who is concerned about moulding quality teachers from these novice aspirants. A review of the related studies also revealed that such studies are very few in the Kerala context.

There are very few studies on the relationship between attitude towards teaching and teacher competencies of teachers. Some of the recent studies are provided here.

Jaya and Hidayat (2020) studied the relationship of teacher attitudes and teachers' professional competency of vocational education teachers and found that there is significant relationship between attitude of teachers and their professional competency. *Deepa and Vasudevan (2022) found that there is significant relationship between teaching competence and attitude towards teaching profession of B.Ed. students. Prince, et al (2022) found* that there is significant positive relationship between attitude towards teaching profession and teaching competence of primary school teachers. *Vidushi (2023) in her study on "at*titude towards teaching among secondary school teachers in relation to teaching competence, locale and teaching experience" found a significant positive relationship between

attitude towards teaching and teaching competence of secondary school teachers. These studies provide ample evidence that attitude towards teaching has significant influence on teacher competencies of teachers. But studies on the relationship between attitude towards teaching and teacher competencies of prospective teachers are very few in Kerala context. Hence, the investigator decided to conduct a study on the relationship between attitude towards teaching and teacher competencies of prospective teachers.

Objectives of The Study

1. To find out the level of teacher competencies of prospective teachers;
2. .To find out the level of attitude towards teaching of prospective teachers;
3. To find out the relationship between attitude towards teaching and teacher competencies of prospective teachers;

Methodology

A survey was conducted among 112 prospective teachers from 4 teacher institutions under the University of Kerala. Due representation was given to management of the institution and subject of specialisation. A Teacher Competencies Rating Scale prepared by Elizabeth Baby & Sreelekha (2020) and a Scale of Attitude Towards Teaching Profession by Abraham & Vijayalekshmi (2008) were the tools used for collection of data.

The details of the analysis of the collected data are given below.

Analysis of Data

Level of Teacher Competencies of Prospective Teachers

The level of teacher competencies of prospective teachers was analysed by calculating the mean and standard deviation of the scores of obtained through the teacher competency rating scale. Based on the responses of prospective teachers, they were classified into three groups, namely, prospective teachers with high teacher competencies, prospective teachers with average teacher competencies and prospective teachers with low teacher competencies. The details of the analysis are given in Table 1.

Table 1

Level of Teacher Competencies of Prospective Teachers

Level of Teacher Competencies	No. & %
High level of Teacher Competencies (Above M + σ)	27 (24.10%)
Average level of Teacher Competencies (Between M + σ and M – σ)	71 (68.40%)
Low level of Teacher Competencies (Below M – σ)	14 (12.50%)
Total	112 (100%)

Mean = 118.11

Standard Deviation = 7.84

Table 1 shows that majority of the prospective teachers (68.40%) have average level of teacher competencies.

Level of Attitude towards Teaching of Prospective Teachers

The level of attitude towards teaching of prospective teachers was analysed by calculating the mean and standard deviation of the scores of obtained through the attitude towards teaching scale. Based on

the responses of prospective teachers, they were classified into three groups, namely, prospective teachers with high attitude towards teaching, prospective teachers with moderate attitude towards teaching and prospective teachers with low attitude towards teaching. The details of the analysis are given in Table 2.

Table 2
Level of Attitude towards Teaching of Prospective Teachers

Level of Attitude towards Teaching	No. & %
High level of Attitude towards Teaching (Above M + σ)	20 (17.85%)
Moderate level of Attitude towards Teaching (Between M + σ and M – σ)	78 (69.65%)
Low level of Attitude towards Teaching (Below M – σ)	14 (12.50%)
Total	112 (100%)

Mean = 312.05
Standard Deviation = 18.49

Table 2 shows that majority of the prospective teachers (69.650%) have moderate level of attitude towards teaching.

Relationship between Attitude towards Teaching and Teacher Competencies of Prospective Teachers

The relationship between attitude towards teaching and teacher competence of prospective teachers was found out using Pearson's product moment correlation and the coefficients of correlations were found out. The details are given in Table 3.

Table 3
Relationship between Attitude Towards Teaching and Teacher Competencies of Prospective Teachers

Groups	N	r	SEr	Confidence Interval at 0.01 level
Total sample	112	0.515**	0.069	0.336 to 0.694
Aided	58	0.575**	0.088	0.348 to 0.802
Unaided	54	0.481**	0.105	0.211 to 0.751
Science	71	0.378**	0.102	0.116 to 0.640
Humanities	41	0.696**	0.081	0.488 to 0.904

**Significant at 0.01 level

Table 3 shows that the coefficients of correlation obtained between attitude towards teaching and teacher competencies is positive and significant for the total sample of prospective teachers as the obtained r-value is significant at 0.01 level ($r = 0.515$; $p < 0.01$). This means that there is significant positive relationship between attitude towards teaching and teacher competencies of prospective teachers. That is, higher the attitude towards teaching higher will be the teacher competencies of prospective teachers and vice versa.

The relationship between attitude towards teaching and teacher competencies is positive and significant for the prospective teachers when they were classified based on management of the institution (aided, unaided) and subject of specialisation (science, humanities) as the coefficients of correlation for these groups are significant at 0.01 level. This means that irrespective of the type of management of the institution and subject of specialisation, there is significant positive relationship between

attitude towards teaching and subject of specialisation for all prospective teachers.

Conclusion

The analysis of data revealed that majority of the prospective teachers have average level of attitude towards teaching and the teacher competencies of majority of the prospective teachers are also average. The analysis also revealed that there is significant and positive relationship between attitude towards teaching and teacher competencies of prospective teachers. This relationship was evident in all categories of prospective teachers based on the management of the institution and subject of specialisation.

Recommendations

Since the study found that majority of the prospective teachers have only average level of attitude towards teaching and teacher competencies, the teacher education curriculum should give emphasise to instil the right attitude towards teaching and to provide essential teacher competencies to prospective teachers to make them vibrant and effective teachers who can provide the essential qualities to their students to meet the challenging requirements of the present fast-paced world. Seminars and workshops could be conducted by teacher education institutions focusing on the importance of right attitude towards teaching for a successful teaching career and steps can be initiated in the realisation of this goal by teacher education institutions.

Teacher competencies of prospective teachers can be enhanced by introducing them to the new technology oriented teaching-learning methodologies and providing them with ample opportunities to master these technologies as this will enhance the confidence of prospective teachers and create a positive attitude towards teaching in them. For cultivating a positive attitude towards teaching in prospective teachers, they should realise that teaching is a not a mere livelihood but it is one of the noblest professions and teachers are primarily responsible in shaping the destiny of a nation. Our teacher education institutions can create this awareness in prospective teachers and it is the duty of every teacher educator to work towards attaining this objective.

References

Deepa, T., & Vasudevan, V. (2022). Teaching competency and attitude towards teaching among B.Ed. students. Journal of Positive School Psychology, 6(7), 4000-4007.

Good, C.V. (1945). *The methodology of educational research*. New York: Appleton Century Crofts.

Jaya, W.S., & Hidayat, N. (2020). The relationship of school leadership and teacher attitudes towards teacher professional competency. *International Journal of Multicultural and Multireligious Understanding, 7* (10), 503-509. DOI: http://dx.doi.org/10.18415/ijmmu. v7i10.2107

Koksal, H. (2013). Teacher competencies in the 21st century: A literature review. *Journal of Education and Practice, 4*(14), 69-78. Retrieved from https://files.eric.ed.gov/fulltext/ EJ1079467.pd

Prince, O.M., Ngozi, O.M., & Celestina, O.C. (2022). Primary school teachers' commitment and attitude to the teaching profession as predictor of their teaching competence in Ekiti State, Nigeria. *International Journal of Academic Pedagogical Research (IJAPR), 6*(2), 16-23.

*Vidushi, V. (2023). A*ttitude towards teaching among secondary school teachers in relation to teaching competence, locale and teaching experience. *Shodha Prabha, 48*, 25-29.

Vijayalekshmi, N.S., & Abraham, M. (2008). *Scale of attitude towards teaching profession*. Department of Education, University of Kerala.

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St. Thomas College of Teacher Education, Pala, Kerala, India
(Research Centre in Education approved by MG University, Kottayam)
Website: https://sites.google.com/view/educational-extracts
email: educationalextracts@gmail.com

MAPPING ACHIEVEMENT EMOTIONS IN MATHEMATICS TEST TAKING: A STUDY AMONG UPPER PRIMARY SCHOOL STUDENT

Mary J Alappat* & Dr. Mridula K.**

Abstract

Mathematics is often perceived as one of the most difficult subjects in the academic curriculum, eliciting strong emotional responses from students. Achievement Emotions, including anxiety, enjoyment, pride, and shame, greatly impact students' academic performance and motivation, particularly during Mathematics test-taking. This research investigates the Achievement Emotions of 100 upper primary school students using the Achievement Emotion scale. Sample is identified through simple random sampling. The research aims to identify the emotions prevalent and significant before and after Mathematics test taking. Percentage analysis and t-tests are employed to identify the achievement emotions and to assess the significant difference based on gender. The survey identified a variety of feelings, including, enjoyment, hope, anger, anxiety, shame, and hopelessness before and after Mathematics test taking. Research findings reveal that anxiety is the most prominent feeling experienced before Mathematics Tests. Enjoyment and hope were reported after test taking. A significant difference was noticed in achievement emotions based on gender. The findings highlight the importance of tackling achievement emotions in educational environments to enhance students' performance and involvement in Mathematics test taking. By addressing these emotions, Educators help students to develop resilience and effective learning strategies, to overcome academic obstacles successfully.

Keywords: *Achievement Emotions, Enjoyment, Hope, Anger, Anxiety, Shame, Hopelessness Mathematics Test-Taking, Upper Primary School Students.*

Introduction

Mathematics learning challenges students intellectually and emotionally, which is deeply intertwined with a spectrum of emotions known as Achievement Emotions. In the control-value theory, achievement emotions are defined as emotions that are

* *Research Scholar, N.S.S. Training College Ottappalam, Research Centre in Education, Calicut University.*

** *Dr. Mridula K., Associate Professor, N.S.S. Training College Ottappalam, Research Centre in Education, Calicut University.*

directly linked to achievement outcomes or activities (Pekrun, 2009). Achievement Emotions such as enjoyment, hope, pride, anger, anxiety, shame, and hopelessness greatly influence students' engagement and performance in Mathematics. Positive emotions enhance cognitive functioning while negative emotions impede learning. The prefrontal cortex and limbic system are two essential parts of our brain that work together to regulate our emotions. The prefrontal cortex handles decision-making and impulse control, whereas the limbic system manages emotions, behaviour, memory processing and motivation.

Achievement emotions play a crucial role during mathematics tests by shaping students' attitude towards the tests, influencing their cognitive engagement, problem-solving strategies, and overall test outcomes. These tests not only measure students' understanding of Mathematical concepts but also act as indicators of their emotional readiness and resilience in confronting academic challenges.

Need and Significance of the Study

Achievement emotions in Mathematics encompass feelings and reactions that students experience during learning and test-taking scenarios. Pizzie, R. G., & Kraemer, (2023) explored the impact of Math anxiety on students' emotional and cognitive experiences. Math anxiety can lead to negative emotions which impair motivation associated with maladaptive study skills such as avoidance of homework and test preparation. Negative achievement emotions such as anger, anxiety, and boredom can reduce cognitive resources and self-regulation (Pekrun,1992). Most studies on achievement emotions have focused on how these emotions influence students' academic success and learning of Mathematics. Very few studies have explored the Achievement Emotions of upper primary school students in the context of Mathematics test taking. This study is particularly significant due to upper primary school students' developmental stage, marked as a period of transition from concrete to abstract thinking, accompanied by increased academic expectations and assessment pressures. At this age, students are forming crucial attitudes and approaches toward learning, which can strongly influence their emotional experiences.

A Survey conducted by Manodarpan cell of NCERT (2022) revealed that examinations and results are a significant source of anxiety for Indian students. A Paradigm shift in pedagogical practices is promoted in NCF (2023) to remove the fear of failure and make the subject enjoyable rather than a burden and it also recognizes the role of societal attitudes in perpetuating the fear of Mathematics. Therefore, creating a stress-free school environment is crucial to promote students' mental and physical health during Math learning and test taking.

Based on these, following research questions are formulated.

RQ:1. Do upper primary school students experience emotional tides before a Mathematics test?

RQ:2. What would be the achievement emotions experienced by upper primary school students before and after a Mathematics test? Will it be different?

Objectives

1. To identify the achievement emotions experienced by upper primary school students before a Mathematics test for the total sample and subsample:

   a. Gender (Boys/ Girls)

2. To find out the significant difference in mean scores of achievement emotions experienced by upper primary school students before a Mathematics test based on the subsample:

   a. Gender (Boys/Girls)
3. To identify the achievement emotions experienced by upper primary school students after a Mathematics test for the total sample and subsample:

   a. Gender (Boys/ Girls)
4. To find out the significant difference in the mean scores of achievement emotions experienced by upper primary school students after a Mathematics test based on the subsample:

   a. Gender (Boys/ Girls)

Hypotheses

1. There exist differences in achievement emotions experienced by upper primary school students before a Mathematics test for the total sample and subsample:

   a. Gender (Boys/ Girls)
2. There exists no significant difference in the mean scores of achievement emotions experienced by upper primary school students before a Mathematics test based on subsample:

   a. Gender (Boys/ Girls)
3. There exist differences in the achievement emotions experienced by upper primary school students after a Mathematics test for the total sample and subsample:

   a. Gender (Boys/ Girls)
4. There exists no significant difference in the achievement emotions experienced by upper primary school students after a Mathematics test based on subsample:

   a. Gender (Boys/ Girls)

Methodology

To identify the achievement emotions experienced by upper primary school students before and after Mathematics test taking, a survey study was adopted among one hundred upper primary school students. Students from standard seven identified through simple random sampling, participated in the study. An informal discussion was also conducted among the test takers before and after the test to identify their perceptions and emotions towards the test.

Procedure of the study

Achievement Emotion Scale for Upper Primary School students was developed, standardized, and administered among the identified sample. The responses were collected before and after Mathematics test taking. The Achievement Emotion Scale consisted of sixty-four items, focusing on emotions such as enjoyment, hope, anger, anxiety, shame, and hopelessness. Each item had five responses as Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree and scored 5,4,3,2,1 respectively. Percentage analysis and t-test were used for analysing data.

Analysis and Interpretation.

Analysis of the achievement emotions experienced by upper primary school students before the Mathematics test

Table 1

Data and results of the percentage analysis of the achievement emotions experienced by upper primary school students before Mathematics test for the total sample

Achievement Emotions	Low	Medium	High
Enjoyment	14%	68%	18%
Hope	14%	70%	16%
Anger	24%	48%	28%
Anxiety	16%	64%	20%
Shame	28%	56%	16%
Hopelessness	20%	62%	18%

Table 1 shows the results of the percentage analysis of achievement emotions experienced by upper primary school students. For the achievement emotions 'enjoyment', the low, medium and high percentages were 14% ,68% and 18%, for 'hope' were 14%, 70% and 16%, for 'anger' were 24%,48%and 28%, for 'anxiety' were 16%,64% and 20%, for 'shame' were 28%,56% and 16% and for 'hopelessness' were 20%,62%, and 18% respectively

Analysis of the achievement emotions experienced by upper primary school students before the Mathematics test based on the subsample gender

Table 2

Data and results of the percentage analysis of the achievement emotions experienced by upper primary school students before Mathematics test for the subsample gender

Achievement Emotions	Boys			Girls		
	Low	Medium	High	Low	Medium	High
Enjoyment	42%	54%	4%	28%	42%	30%
Hope	16%	54%	30%	4%	58%	38 %
Anger	24%	40%	36%	28%	60%	12%
Anxiety	10%	68%	22%	18%	70%	12%
Shame	42%	50%	8%	52%	38%	10%
Hopelessness	40%	46%	14%	48%	32%	20%

Table 2 Shows the result of percentage analysis of achievement emotions experienced by upper primary school students based on gender. Percentage analysis of Boys, for the achievement emotions 'enjoyment' the low, medium and high percentages were 42%,54% and 4%, for 'hope' were 16%,54% and 30%, for 'anger' were 24%,40% and 36%, for 'anxiety' were 10%,68%, and 22%, for 'shame' were 42%,50% and 8% ,for 'hopelessness' were 40%,46% and 14% and for Girls, achievement emotions 'enjoyment' the low, medium and high percentages were 28%, 42% and 30%, for 'hope' were 4%,58% and 38%, for 'anger' were 28%,60% and 12%, for 'anxiety' were 18%,70% and 12%, for 'shame' were 52%,38% and 10%, for 'hopelessness' were 48%,32% and 20% respectively.

Analysis of the significant difference in the mean scores of achievement emotions experienced by upper primary school students before the Mathematics test based on the subsample gender

Table 3
Data and results of the significant difference in achievement emotions experienced by upper primary school students before Mathematics test based on the subsample gender

Achievement Emotions	Mean (Boys)	Mean (Girls)	SD (Boys)	SD (Girls)	t value
Enjoyment	18.23	20.166	3.49	3.409	1.981
Hope	22.08	22.958	3.451	3.482	0.120
Anger	21.42	19.04	4.215	2.926	2.301
Anxiety	21.15	20.854	3.56	2.806	1.27
Shame	12.5	12.041	2.453	2.331	0.675
Hopelessness	12.46	10.75	3.264	2.862	1.963

From table 3 it is clear that the t value obtained for the achievement emotions 'enjoyment', 'anger', and 'hopelessness' are 1.981, 2.301 and 1.963 respectively. Since the t values are greater than the table value 1.96 it can be assumed that upper primary school students differ significantly in their achievement emotions enjoyment, anger and hopelessness with respect to gender before the mathematics test. Considering the mean scores the girls experienced enjoyment more than boys and boys experienced anger and hopelessness than girls. t value obtained for the achievement emotions 'hope', 'anxiety' and 'shame' are 0.120, 1,27 and 0.675 respectively. Since the t values are less than the table value 1.96, it can be assumed that there is no significant difference in the achievement emotions, hope, anxiety and shame of upper primary school students with respect to gender before a Mathematics test.

Analysis of the achievement emotions experienced by upper primary school students after the Mathematics test based on the subsample gender

Table 4
Data and results of the percentage analysis of the achievement emotions experienced by upper primary school students after Mathematics test

Achievement Emotions	Low	Medium	High
Enjoyment	20%	56%	24%
Hope	14%	56%	30%
Anger	20%	62%	18%
Anxiety	14%	70%	16%
Shame	16%	62%	22%
Hopelessness	16%	66%	18%

Table 4 shows the result of percentage analysis of achievement emotions experienced by Upper Primary School students. For the achievement emotions 'enjoyment' the low, medium and high percentages were 20%,56% and 24%, for 'hope' were 14%,56% and 30%, For 'anger' were 20%,62% and 18%, for 'anxiety' were 14%,70% and 16%, for 'shame' were 16%,62% and 22% and for 'hopelessness' were 16%,66% and18% respectively.

Analysis of the achievement emotions experienced by upper primary school students after the Mathematics test based on the subsample gender

Table 5

Data and results of percentage analysis of the achievement emotions experienced by upper primary school students after Mathematics test based on the subsample gender

Achievement Emotions	Boys			Girls		
	Low	Medium	High	Low	Medium	High
Enjoyment	12%	68%	20%	12%	60%	28%
Hope	8%	72%	20%	32%	50%	18%
Anger	24%	56%	20%	30%	64%	6%
Anxiety	10%	78%	12%	20%	72%	8%
Shame	40%	46%	14%	48%	44%	8%
Hopelessness	43%	47%	10%	49%	41%	10%

Table 5 Shows the result of percentage analysis of achievement emotions experienced by Upper Primary School students based on gender. Percentage analysis of boys , for the achievement emotions 'enjoyment' the low, medium and high percentages were 12%,68% and 20%, for 'hope' were 8%,72% and 20%, for 'anger' were 24%,56% and 20%, for 'anxiety' were 10%,78% and 12%, for 'shame' were 40%,46% and 14% and for 'hopelessness' were 30%,58% and 12% and for girls, achievement emotions 'enjoyment' the low, medium and high percentages were 12%, 60% and 28%, for 'hope' were 32%,50% and 18%, for 'anger' were 30%,64% and 6%, for 'anxiety' were 20%,72% and 8%, for 'shame' were 48%,44% and 8% and for 'hopelessness' were 49%,41% and 10% respectively.

Analysis of the significant difference in the mean scores of achievement emotions experienced by upper primary school students after the Mathematics test based on the subsample gender

Table 6

Data and results of the significant difference in the mean scores of achievement emotions experienced by upper primary school students after Mathematics test based on the subsample gender

Achievement Emotions	Mean (Boys)	Mean (Girls)	SD (Boys)	SD (Girls)	t value
Enjoyment	21.31	20.62	3.334	4.401	0.61
Hope	22.12	23.62	2.661	3.214	1.806
Anger	21.08	18.46	4.134	2.254	3.22
Anxiety	20.81	19.75	3.715	4.067	0.956
Shame	13.23	10.62	3.109	2.931	3.025
Hopelessness	12.96	11.625	3.223	3.372	1.425

From Table 6: it is clear that the t value obtained for the achievement emotions 'anger' and 'shame' are 3.22 and 3.025 respectively. Since the t values are greater than the table value 1.96, it can be assumed that upper primary school students differ significantly in the achievement emotions, anger and shame with respect to gender after a Mathematics test. Considering the mean scores the boys experienced anger and shame more than girls. t value obtained for the achievement emotions 'enjoyment', 'hope', 'anxiety' and 'hopelessness' are 0.61,1.806, 0.956 and 1.425 respectively. Since the t values are less than the table value 1.96, it can be assumed that there is no significant difference in the achievement emotions enjoyment, hope, anxiety and hopelessness of upper primary school students with respect to gender after the Mathematics test.

Findings

The study found that before the Math test, students predominantly experienced high levels of positive achievement emotions like enjoyment and hope. Findings of the study can be interpreted along with the findings of Perkrun, (2006) Positive emotions arise from the anticipation of recognition or reward they will receive after successfully completing the test and students may feel anticipatory joy when engaging in an academic activity with positive value, either to achieve goals or enhance learning.

The prevalence of negative achievement emotions like anxiety, anger and hopelessness can be attributed to test anxiety and previous negative experiences with Mathematics. Studies (Pekrun & Stephens, 2012) highlight that negative emotions such as anger and anxiety are associated with decreased motivation and poorer performance, and hopelessness with negative perception of the learning environment.

After the Math test, students experienced increased anger, anxiety, shame, and hopelessness. This may be due to the self-awareness of poor performance given in the test. Achievement goal theory (Elliot & McGregor, 2001) posits that students driven by performance goals might experience heightened negative emotions such as anger and shame when they perceive their performance is inadequate compared to their peers or personal expectations. The findings agree with that of Yerkes-Dodson Law (1908) states that "moderate levels of anxiety can enhance performance, while excessive anxiety can hinder it". Informal interview responses of students also substantiate these findings. Most of the students responded that they were anxious and afraid of attending the Mathematics test.

Despite the challenges and stress of the exam process, enjoyment and hope dominated students' emotions before and after the test. This may be due to their age of middle childhood. According to Erik Erikson's Psychosocial Development Theory (1950), the middle childhood period is a time for socialization, exploration, and enjoyment. No other fears or anxieties would persist enough to distract them from their happiness and enjoyment.

The results highlight distinct gender differences in Achievement emotions of upper primary school students before a Maths exam. The findings of the present study shows that boys tend to experience more negative achievement emotions like anger and hopelessness which may

be attributed to struggles with emotional regulation, past experiences of societal stereotypes, and gender norms. Societal expectations often emphasize boys' performance in traditionally masculine subjects like Mathematics and Gender norms discourage boys from expressing vulnerability or seeking help, leading to negative emotions when they struggle. These findings align with research (Hyde et al., 1990; Balart & Oosterveen, 2019) that highlights traditional masculine norms and external pressures contribute to increased anger and hopelessness among boys. Some boys may exhibit self-confidence during exams, those lacking this confidence are more prone to negative emotions, due to pressure from parents and peers.

Girls tend to experience greater enjoyment and hope before exams may be due to study habits, strong achievement motivation, and previous positive academic experiences. This leads to a sense of preparedness and confidence, fostering positive emotions about the exam. These findings corroborate the findings (Numan, A., & Salma, s. 2017; Unwalla, N. 2020; Tella 2007) that girls with effective study habits experience reduced test anxiety and superior academic performance. They are more disciplined, prepare better for tests with careful planning and sustained effort.

After the test, upper primary school students exhibit differences in achievement emotions based on gender. Girls exhibit higher hope, while boys have higher anger and shame. Both genders experience similar levels of anxiety and hopelessness, with anxiety increasing and hopelessness decreasing slightly.

High hope in girls may be due to self-efficacy, expectations of improvement and anticipation of good results. Girls believe that they have prepared well, fostering a sense of accomplishment and hope for a good result. This aligns with research findings (Bandura, 1977; Peters, 2012) that students with high self-efficacy have positive expectations about their results and future academic performance, leading to increased hope. Huang, C, (2013) found contradictory results, with girls displaying higher self-efficacy in language and arts and males in Mathematics and Computer. This discrepancy may be due to cultural differences or gender stereotypes, which often suggest girls are not good at Maths.

Boys tend to show higher levels of anger and shame after the test. This may be possibly due to fear of failure, competitive environment and social comparison. These findings corroborate the findings (Kemmelmeier, 2001; Swallow & Kuiper, 1988) that highlights the constant social comparisons in the classroom based on grades and teacher's feedback. Students may make an upward comparison or a downward comparison which can be motivating or demotivating for the self, depending on how they are handled. Research findings (Boissicat et al., 2012; Bouffard, 2014) show that girls use upward comparison more often, while boys use downward comparison. Informal interview responses support these findings. Most of the boys responded that they feel angry when compared them with others while girls are more confident in their abilities.

Conclusion

The study of achievement emotions in Mathematics test taking highlights the critical role of achievement emotions in shaping students' educational experiences and outcomes. By acknowledging

the influence of the limbic system on emotional processing, educators can foster nurturing learning environments that enhance emotional and cognitive needs of students. Understanding emotions like enjoyment, hope, anger, and anxiety impact students' engagement and learning during mathematics tests is essential for developing effective teaching and assessment practices that promote emotional intelligence, resilience and a lifelong love for Maths. Integrating emotional support with academic instruction creates a holistic and compassionate educational framework, helping students to navigate the pressures of academic assessments and develop a healthier relationship with Mathematics leading to more successful and emotionally resilient students.

Educational Implications

Some of the Brain-based practices that could be adopted in academic settings.

- Incorporating meditation in Maths class using the 'Square Breathing exercise'. It's an inhale-exhale sequence that calms the nerves and brings a sense of focus and mindfulness to the moment.
- Guide students to visualise mathematical processes with their eyes closed and minds open. This mindful approach fosters mental clarity and reduces stress, providing a brief escape from the pressure to achieve flawless results.
- Taking short brain breaks during Maths class to reduce stress levels and improve emotional self-regulation, help students to feel good and engage more deeply in learning.
- Developing a growth mindset in students while teaching Mathematics involves encouraging them to see challenges as opportunities for growth and emphasizing that abilities can be developed through dedication and hard work. This can be achieved by praising effort, normalizing mistakes as learning opportunities, providing constructive feedback, and creating a supportive classroom environment.
- Teachers can promote 'expressive writing›, writing about one›s thoughts and feelings just before a Maths test, helps to reduce test anxiety.
- Promote an enjoyable and supportive learning culture by strengthening school support systems, including counselling services and programs to manage test-related anxiety and emotional challenges.
- Teach Mathematics using simple-to-complex method and breaking down difficult problems or concepts into smaller, manageable parts which boosts students' interest in Maths and making it more achievable and less intimidating
- Integrate real-life situations into Maths instruction to heighten students' interest and engagement. This approach makes Maths more relevant and relatable, lessening its view as a hassle and enhancing their motivation to learn.

References

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215.

Balart, P., & Oosterveen, M. (2019b). Females show more sustained performance during test taking than males.*Nature Communications*, *10*(1).

Boissicat, N., Pansu, P., Bouffard, T., & Cottin, F. (2012). Relation between perceived scholastic competence and

social comparison mechanisms among elementary school children. *Social Psychology of Education: An International Journal, 15*(4), 603–614. https://doi.org/10.1007/s11218-012-9189-z

Bouffard, T., Pansu, P., Boissicat, N., Vezeau, C., & Cottin, F. (2014). Questionnaire of the comparison of academic self for children and adolescents. *Canadian Journal of Behavioural Science / Revue canadienne des sciences du comportement, 46*(2), 84–94. https://doi.org/10.1037/a0028429

Elliot, A. J., & McGregor, H. A. (2001). A 2 × 2 achievement goal framework. *Journal of Personality and Social Psychology, 80*(3), 501–519. https://doi.org/10.1037/0022-3514.80.3.501

Erikson, E. H. (1950). *Childhood and society.* WW Norton & Co.

Hyde, J. S., Fennema, E., Ryan, M., Frost, L. A., & Hopp, C. (1990). Gender comparisons of mathematics attitudes and affect: A meta-analysis. *Psychology of Women Quarterly, 14*(3), 299–324. https://doi.org/10.1111/j.1471-6402.1990.tb00022.x

Huang, C. (2013). Gender differences in academic self-efficacy: A meta-analysis. *European Journal of Psychology of Education, 28*(1), 1–35. https://doi.org/10.1007/s10212-011-0097-y

Kemmelmeier, M., & Oyserman, D. (2001). The ups and downs of thinking about a successful other: Self-construal's and the consequences of social comparisons. *European Journal of Social Psychology, 31*(3), 311–320.

Numan, A., & Hasan, S. S. (2017). Effect of study habits on test anxiety and academic achievement of undergraduate students. *Journal of Research and Reflections in Education, 11*(1).

Pekrun, R. (1992). The Impact of Emotions on Learning and Achievement: Towards a Theory of Cognitive/ Motivational Mediators. *Applied Psychology*, *41*(4), 359–376. https://doi.org/10.1111/j.1464-0597.1992.tb00712.x

Pekrun, R. (2006). The Control-Value Theory of Achievement Emotions: Assumptions, Corollaries, and Implications for Educational Research and Practice. *Educational Psychology Review*, *18*(4), 315–341. https://doi.org/10.1007/s10648-006-9029-9

Pekrun, R., & Linnenbrink-Garcia, L. (2012). Academic Emotions and Student engagement. In *Springer eBooks* (pp. 259–282).

Pekrun, R., & Stephens, E. J. (2009). Goals, emotions, and emotion regulation: Perspectives of the control-value theory. Commentary on Tyson, Linnenbrink-Garcia, and Hill. *Human Development, 52*(6), 357–365. https://doi.org/10.1159/000242349

Peters, M. L. (2012). Examining the relationships among classroom climate, self-efficacy, and achievement in undergraduate mathematics: A multi-level analysis. *International Journal of Science and Mathematics Education,11*, 459–480. https://doi.org/10.1007/s10763-012-9347-y

Pizzie, R. G., & Kraemer, D. J. M. (2023). Strategies for remediating the impact of math anxiety on high school math performance. *NPJ Science of Learning, 8*(1), 44.

Swallow, S. R., & Kuiper, N. A. (1988). Social comparison and negative self-evaluations: An application to depression. *Clinical Psychology Review, 8*(1), 55–76. https://doi.org/10.1016/0272-7358(88)90049-9

Tella, A. (2007). The impact of motivation on students' academic achievement and learning outcomes in mathematics among secondary school students in Nigeria. *Eurasia Journal of Mathematics, Science & Technology Education, 3*(2), 149–156.

Unwalla, N. (2020). Comparative analysis of study habits between males and females. *International Journal of Innovative Science and Research Technology*.

Yerkes, R. M., & Dodson, J. D. (1908). The relation of strength of stimulus to rapidity of habit-formation. The Journal of Comparat*ive Neurology and Psychology the Journal of Comparative Neurology and Psychology*, *18*(5), 459–482.

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St. Thomas College of Teacher Education, Pala, Kerala, India
(Research Centre in Education approved by MG University, Kottayam)
Website: https://sites.google.com/view/educational-extracts
email: educationalextracts@gmail.com

CONCEPTUAL OVERVIEW OF MICROLEARNING: A MODERN PEDAGOGICAL APPROACH

Krishnapriya P.P.*

Abstract

Microlearning has emerged as an innovative educational approach, driven by the demand for more accessible, flexible, and effective learning methods. Characterised by bite-sized, focused learning units, microlearning capitalises on the human brain's capacity for short bursts of attention, enabling better retention and application of knowledge. This article provides a conceptual overview of microlearning, exploring its theoretical foundations, key characteristics, advantages, challenges, and future potential. By examining its relevance in modern educational and professional contexts, this article underscores microlearning's transformative role in addressing the evolving needs of learners in the digital age.

Keywords: *Microlearning, Technology-driven models, Cognitive Load Theory, Ebbinghaus' Forgetting Curve, Dual Coding Theory, Behaviourist Principles of Reinforcement, Constructivist Theory, Bite-sized content.*

Introduction

The shift from traditional learning approaches to more flexible, technology-driven models reflects societal and professional changes. Learners today seek solutions that cater to their preferences for shorter, focused lessons that can fit into busy schedules. Microlearning addresses these needs, offering an effective alternative to conventional methods.

Microlearning involves breaking down complex subjects into smaller, digestible units to achieve specific learning outcomes. Unlike traditional models that may require lengthy classroom sessions or extensive reading, microlearning delivers content in formats such as videos, quizzes, and interactive modules that can be accessed on demand. This adaptability makes

* *Assistant Professor, S.N.M. Training College, Moothakunnam. Ph. No: 9656844794*
Email: krishnapriyaastc@gmail.com

microlearning particularly valuable in environments like corporate training, professional development, and digital education.

This article delves deeper into the concept of microlearning, its origins, and the cognitive science that underpins its effectiveness. It also examines its practical applications, benefits, challenges, and potential for reshaping the future of learning.

Theoretical Foundations of Microlearning

Microlearning's effectiveness is rooted in several cognitive science theories. By understanding these theories, we can better appreciate how microlearning optimises the learning process.

Cognitive Load Theory

According to Sweller (1988), learning is most effective when cognitive load is minimised. Microlearning achieves this by dividing content into manageable chunks, reducing the cognitive effort required to process new information.

Ebbinghaus' Forgetting Curve

Ebbinghaus (1885) demonstrated that memory fades over time unless reinforced. Microlearning incorporates strategies such as spaced repetition, where learners revisit the material at intervals to reinforce retention.

Dual Coding Theory

Paivio (1990) emphasized that learning is enhanced when verbal and visual information are combined. Many microlearning modules integrate visuals like infographics and videos with text to maximise understanding.

Behaviourist Principles of Reinforcement

Microlearning often includes interactive elements such as quizzes and immediate feedback, which reinforce learning through positive reinforcement (Skinner, 1954).

Constructivist Theory

Microlearning promotes active learning, where learners engage with content through exploration, problem-solving, and application, supporting deeper knowledge construction (Kolb, 1984).

Key Characteristics of Microlearning

Bite-Sized Content

Microlearning delivers information in compact, digestible chunks, with each lesson typically lasting no more than 10 to 15 minutes. This approach is designed to fit into the busy schedules of learners, allowing them to engage with content during short breaks or at moments of convenience.

Focused Learning Objectives

Each microlearning module is structured around a single, well-defined goal. By concentrating on one specific objective at a time, learners can achieve a deeper understanding and quickly apply the knowledge or skills being taught. This focused approach eliminates unnecessary distractions and enhances relevance.

Diverse Formats

Microlearning leverages a range of formats to meet diverse learner preferences and needs. These formats may include

engaging videos, audio podcasts, digital flashcards, gamified activities, or interactive quizzes. The variety not only caters to different learning styles but also keeps the experience fresh and engaging.

Just-in-Time Accessibility

Designed to be accessible whenever and wherever learners need it, microlearning content often integrates seamlessly into existing workflows or mobile platforms. This ensures that learners can retrieve information on demand, making it particularly useful for real-world problem-solving or performance support.

Interactivity

To sustain interest and enhance retention, microlearning frequently incorporates interactive elements. These might include real-life scenarios, decision-making challenges, or gamified tasks, all of which require active participation and foster a sense of accomplishment.

Adaptability

Microlearning's adaptable nature makes it suitable for a wide range of audiences, from students and employees to professionals in various industries. Whether used in academic settings, corporate training, or professional development, the content can be easily tailored to meet specific needs and contexts.

Benefits of Microlearning

Microlearning offers numerous advantages that make it a preferred choice for modern learners and educators:

Enhanced Retention

The compact and focused nature of microlearning lessons enhances learners' ability to remember and recall information. Additionally, incorporating techniques like spaced repetition reinforces knowledge over time, leading to long-term retention.

Increased Engagement

Microlearning often employs interactive and visually dynamic formats such as videos, gamification, and quizzes, which capture attention and keep learners motivated. This approach minimizes boredom and reduces the likelihood of disengagement, which can be common in traditional, lengthy training programs.

Flexibility

One of the most significant benefits of microlearning is its flexibility. Learners can access content at their convenience, whether they're using a mobile phone, tablet, or desktop. This makes it easy to fit learning into busy schedules and provides immediate access to relevant knowledge whenever it's needed.

Cost-Effectiveness

Microlearning significantly reduces expenses compared to traditional learning methods. By delivering content digitally, organizations save on costs like physical classroom space, printed materials, and facilitator fees. Additionally, creating short, modular lessons is generally faster and more economical than developing full-length courses.

Accessibility

The modular structure of microlearning makes it an inclusive solution for diverse learning needs. It accommodates various skill levels, learning preferences, and cultural backgrounds, ensuring that the content is accessible to a broad audience.

Scalability

Microlearning is ideal for organizations looking to train large, distributed teams. Once developed, content can be deployed quickly to learners worldwide with minimal extra effort or resources, making it a scalable option for global learning initiatives.

Challenges and Limitations of Microlearning

Despite its benefits, microlearning has limitations that educators and organizations must address:

Limited Depth

Microlearning is effective for teaching discrete skills or knowledge but may fall short when dealing with complex subjects requiring in-depth exploration.

Fragmentation

Without proper integration, microlearning can lead to a fragmented understanding of broader topics, as learners focus on individual modules rather than the bigger picture.

Overdependence on Technology

Microlearning relies heavily on digital tools, potentially excluding learners with limited access to technology or internet connectivity.

Assessment Challenges

Measuring the effectiveness of microlearning for long-term skill development and knowledge application can be difficult.

Learner Autonomy Requirements

Microlearning often requires self-motivation, which may be challenging for some learners without structured guidance.

The Future of Microlearning

Microlearning is poised to play a significant role in the future of education and training. Advances in technology, such as Artificial Intelligence (AI), Augmented Reality (AR), and Virtual Reality (VR), are expected to enhance microlearning's effectiveness.

AI-Driven Personalization

AI can analyse learners' progress and adapt content dynamically, providing a highly personalised learning experience.

Immersive Learning

AR and VR technologies can create immersive microlearning environments, offering learners hands-on experience in virtual settings.

Integration with Lifelong Learning

As lifelong learning becomes essential in the face of rapid technological change, microlearning can provide ongoing, accessible learning opportunities.

Collaboration and Social Learning

Social platforms are likely to integrate microlearning features, enabling collaborative learning through bite-sized content.

Conclusion

Microlearning represents a paradigm shift in how knowledge is delivered and consumed. By offering concise, focused content, it aligns with cognitive principles to improve retention, engagement, and accessibility. While it is not a replacement for traditional education, microlearning serves as a powerful complement, particularly for just-in-time learning and skill-specific training.

As technology continues to evolve, microlearning will become increasingly personalised, immersive, and integrated into daily life. To maximize its potential, educators, organisations, and learners must address its challenges and leverage its strengths to create meaningful and impactful learning experiences.

References

Ebbinghaus, H. (1885). *Memory: A contribution to experimental psychology.* Dover Publications. Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development.* Prentice Hall. Paivio, A. (1990). *Mental representations: A dual coding approach.* Oxford University Press. Skinner, B. F. (1954). *The science of learning and the art of teaching.* Harvard University Press. Sweller, J. (1988). Cognitive load during problem-solving: Effects on learning. *Cognitive Science, 12*(2), 257–285.

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St. Thomas College of Teacher Education, Pala, Kerala, India
(Research Centre in Education approved by MG University, Kottayam)
Website: https://sites.google.com/view/educational-extracts
email: educationalextracts@gmail.com

EDUCATIONAL RESEARCH: PHENOMENOLOGY STAND VALID?

Dr. Prasoon C.P.*, Dr. Vasumathi T.** & Dr. Anne Mary Thomas***

Abstract

The argument about how a particular subject is being studied can't be settled. The selection of a particular design for studying a particular subject requires intelligible discussion. This inquiry is conducted to explore the possibilities of studying educational variables with a phenomenological approach. The content of the article is a product of a desk review of literature on education and phenomenology. This article concludes that educational variables need to be viewed in their finiteness and structural limit. Such an approach can be inclusive of the experiential realm of learners.

Keywords: *Phenomenology, Hermeneutic Phenomenology, Educational Research, Subjectivity, Objectivity, Contextual Realities.*

This article takes the standpoint that reality is textual (Derrida, 1973; Bielecki, 2021) and no reality stands outside human agencies because objectivity is provisional (Bevir, 2000). If any reality stands outside this human agency, it is literally unwritable and not relevant for any intellectual proceedings.

Before moving to the question of whether phenomenology is valid in the context of educational research, it needs to be explained what phenomenology is. Phenomenology is a framework for viewing (Bolton, 1979) the world in which subjects construct (Flecha et al,2001). reality through their interpretations (Frank, 1979). It provides a qualitative paradigm for studying human experience by setting aside all pre-suppositions as referring to biology or environment and investigates what is experienced and how it is experienced (Morley, 2012). It in turn allows the inquirer to attend to what Husserl called, the 'lifeworld' (Husserl, 1931). Phenomenologists consider knowledge as a product (Pontecorvo, 1993) of how humans

* *Assistant Professor, St. Thomas College of Teacher Education, Pala, India. Email: prasooncp@uoc.ac.in*
** *Assistant Professor, Department of Education, University of Calicut, India*
*** *Assistant Professor, St. Thomas College of Teacher Education, Pala, India*

interpret the experience (Bencivenga, 1985), the world. Phenomenology, as a framework, captures the process of interpretation. Scholars of phenomenology try to provide new insights on the topic under study by capturing and interpreting the structure and functions of mind of the knower. They find meanings which are attached to others' experiences.

Educational research attempts to describe the experience attached to the learners and practitioners, teachers, policy makers and other stakeholders. The meaning the learner attached to and from their experience and the ways for improving methodological perspectives for the same are the subject of educational research. The seminal characteristic of educational research is that it is distinguished from purely inductive description or pure interpretative performance. Educational research does not describe an objective social phenomenon, these are largely subjective which means they are social realities (Shepard, 2000; Makhanbetovna, 2023). The educational variables, such as Teaching, learning and assessment are categories which cannot be objectively described (Tempelaar et al, 2020). It is largely influenced by conventions and principles which have been formed by human agency or in human interaction. These are functional categories and by and large these are decided by deliberations of formal system and decisions at systemic levels.

Educational Categories are Functional

Educational research, apart from other social science research, has a direct impact on social actions since teaching, assessment and its methods are the result of the deliberations above mentioned. How these realities can be described in an objective way, are these realities, educational realities, subjective or objective or does it require an eclectic method of the mixture of both are some questions to be raised and to be answered then. Are these realities absolute? Or are these contextual? (Shepard, 2000) These realities can be seen outside the boundaries of mere objectivism (Scholte, 1976), or these can be constructed within the interplay between the human agencies and realities themselves (Hammond et al., 2021; Thomas, 1978).

For instance, research which intends to study experience and perceptions of participants aim to know how assessment practices enable the culturally marginalised tribal students to self-represent (David. 2000; Meadows et al, 2015). The main aim of such an inquiry is to describe the current practices of assessment in educational settings (Prasoon, 2024), and to know how assessment practices enable or forbid the culturally marginalized tribal students (Tai et al, 2021) perform in formal education. So, such research examines the experience and perceptions of participants on assessment and culturally inclusive learning.

The design of phenomenological studies largely emerging in nature, not exclusively, and it is the function of the interaction between the inquirer and the phenomenon which is largely unpredictable. Even though

the inquiry aims to develop an ideographic body of knowledge (Lincoln and Guba, 1985) based on working research questions that describe the phenomenon under study, the assessment practices and cultural representation of students, this inquiry makes use of the scope phenomenology. In such research the researcher has direct interaction with the participants, thereby the researcher makes sense of the interaction which is valid.

The assessment practices, teaching and learning and the like in schools are not free from time and context. These are shaped by its experience, presumptions and goal guiding the practices. The theory of education is developed from its ongoing practices. It elicits the scope and drawbacks of its own practices by including and discarding existing and emerging thoughts and ideas. So, the nature of meaning educational research inquires is constructive in nature. Constructivism describes the individual human subject engaging with objects in the world and making sense of them (Crotty, 2003). Crotty (1985) is of the opinion that phenomenology, however, requires the inquirer to engage with Phenomena in our world and make sense of them. The researcher, in phenomenological research, interacts with participants to explore their experience on educational practices such as teaching, learning, evaluation and methodology of the same and make sense from explored data.

The phenomenological approach provides a logical, systematic, and coherent resource for carrying out the analysis and synthesis needed to arrive at essential descriptions of experience (Moustaks, 1994). Phenomenological study describes meaning of the lived experience of participants (Khan, 2014). It describes the meaning of individuals' experience about a phenomenon (Creswell, 1998). Phenomenologists believe that there are multiple realities and there are many ways of interpreting the same reality. Phenomenology, however, invites one to meaning making. It requires one to engage the phenomena in our world and make sense of them directly or immediately (Crotty, 1988). It doesn't mean that phenomenology asks one to take out received notion for granted (Crotty, 1988) but it calls one to question the manner of seeing the world in the way we have learned it growing up (Wotff, 1984).

Phenomenological design largely emerges in nature, and it is the function of the intervention between the inquirer and the phenomenon which is largely unpredictable. The educational research mainly collects the experience and perceptions of participants aiming to know how educational practices are shaped and how they can be improved. The educational practices are not free from time and context. It is by and large shaped by the experience of the practitioners who are involved in it. Here the practitioners such as teachers, administrators, educational experts or even students who engage in the educational phenomenon make sense of it (Crotty, 1988).

One argument, may be, raised against the application of phenomenology in educational research is that though in pure phenomenology the inquirer set aside all previous habits of thought (Husserl, 1931), constructing meaning from other's

experience and culture which is subjected to the prejudice of the inquirer (Crotty, 1985), pure phenomenology is not put in the practices of education and educational research is doubtful. This argument can be overruled by stating a single general notion that the basic idea of treating research as an object is not at all possible in educational research because 'what is being studied in educational research can't be reduced to numbers. The knowledge produced in educational research is subjected to time and context (Fredrick and Walberg, 1980). The phenomenological perspective is used to describe and interpret the current practices of educational variables, such as teaching methods, techniques, which are not free from historicity, by examining and interpreting the experience as perceived by the people (Ary, 2010) It receives the current notion not by a single historical event, but it is shaped by including and dismissing the thoughts at different time. This notion of any educational research demands a design which gives the researcher a standpoint to read practices and perceptions which in turn enable the researcher to interpret the phenomenon within the socio-cultural and political context. Thus, the statement phenomenology stands effective in educational research stands valid with qualifications.

Working of Hermeneutics Phenomenology in Educational Research

Any educational research design which intends to interpret the experience of participants regarding schools and classroom, teaching methodology, curriculum etc., because of the peculiar notion of the inquiry, Hermeneutical Phenomenology, as a method, is found to be the best choice. Hermeneutic, for its part, is the art and science of interpretations and thus also meaning; meaning in this context is not a thing that is final and stable, but something that is continuously open to new insight and interpretations (Friesen et al, 2012).

As a research approach Hermeneutic Phenomenology is particularly open to literary poetic qualities of language and encourage aesthetically sensitised writing as both a process and product of research. Interpretation is required in HP to bring out the ways in which meaning occur in a context. Interpretations are often linked to one's consciousness and this consciousness will have an impact on the research Process and findings. Therefore, researcher's subjectivity is placed in the foreground to begin the process of separating out what belongs to the researcher rather than researched. HP draws upon subjective experience, that is true, but the description and interpretations are the central to its method are also prerequisites in everyday communication. HP has its potential to act as missing link between theory and practice. Further Hermeneutic aims to describe and interpret lived experience of students and teachers to a certain degree of depth and richness (Van Manan, 1990) and therefore it provides a different kind of knowledge that is relevant for pedagogical practice and classroom interaction.

Setting the Momentum

Phenomenology and its cues are constructive in nature. The ideology of phenomenology is often identified with

constructivism or interpretivism (Seigfried, 1976). What make phenomenology as such, it is the way they see the world, which is inherently subjective and social realities are constituted subjectively (Scholte, 1976). Are knowledge and reality being undoubtedly subjective? The phenomenologist claim that the universe is subjective and there exist multiple realities which can only be approached within the compass of a qualitative paradigm. The educational categories are functional categories, and these are formed from and attached to the experiences and perspectives of the inquirer. Educational realities are functional realities, subjective, and it need to be shaped from the involvement of participants in making such realities (Scholte, 1976). At the same time education involves or deal with certain other categories which are objective in form, e.g. measurable achievements, but it cannot be fully understood in the absence of human intelligentsia, and which is largely understood by intelligible articulations. So, the question of phenomenology valid in education needs a phenomenological understanding since the issue is qualitative and it can be articulated based on the experiences of researchers and the insights gained by the phenomenon under study.

References

Derrida, J. (1973). Speech and Phenomena, and Other Essays on Husserl's Theory of Signs. Northwestern University Press.

Education as a Social Phenomenon and Pedagogical Process. American Journal of Science and Learning for Development, 2(11), 13–19. https://doi.org/10.51699/ajsld.v2i11.2826

Flecha, R., Gómez, J., & Puigvert, L. (2001). CHAPTER 7: The Analysis of Socially Constructed Reality. Counterpoints, 250, 51–56. http://www.jstor.org/stable/42977871

Frank, A. W. (1979). Reality Construction in Interaction. Annual Review of Sociology, 5, 167–191. http://www.jstor.org/stable/2945952

Fredrick, W. C., & Walberg, H. J. (1980). Learning as a Function of Time. The Journal of Educational Research, 73(4), 183–194. http://www.jstor.org/stable/27539747

Friesen, N., Henriksson, C., & Saevi, T. (2012). Hermeneutic phenomenology in education: Method and practice. In N. Friesen, C. Henriksson, & T. Saevi (Ed.), Practice of research method (4th Ed). Sense Publishers.

Given, L. M. (Ed.) (2008). The SAGE encyclopedia of qualitative research methods ,1. Sage Publications.

Gualtieri, A. R. (1992). Objectivity, Subjectivity and Beyond: An Exchange with W. C. Smith. Method & Theory in the study of Religion, 4(1/2), 107– 114. http://www.jstor.org/stable/23549565

Guba, E.G. and Lincoln, Y.S. (1994). Competing paradigms in qualitative research. In Denzin, N.K. and Lincoln, Y.S. (Ed.), Handbook of Qualitative Research (pp 105-117). Sage Publications.

Husserl, E. (1931). Ideas: General introduction to pure phenomenology. Macmillan. (Originally published 1913).

Khan, S.N. (2014). Qualitative Research Method—Phenomenology. Asian Social Science, 10. 298-310. https://doi.org/10.5539/ass.v10n21p298

Martin, M. (1993). The Rational Role of Experience. Proceedings of the Aristotelian Society, 93, 71–88. http://www.jstor.org/stable/4545166

Meadows, L., Sekaquaptewa, D., Paretti, M., Pawley, A., Jordan, S., Chachra, D. & Minerick, A. (2015). Interactive panel: Improving the experiences of marginalized students on engineering design teams. ASEE Annual Conference and Exposition, Conference Proceedings. 122. 10.13140/RG.2.1.2187.7200.

Morley, J. (2012). Five ways of doing qualitative analysis: Phenomenological psychology, grounded theory, discourse

analysis, narrative research, and intuitive inquiry. Journal of Phenomenological Psychology. https://link.gale.com/apps/doc/A293966595/HRCA?

Moustakas, C. (1994). Phenomenological research methods. Sage Publications.

Pontecorvo, C. (1993). Social Interaction in the Acquisition of Knowledge. Educational Psychology Review, 5(3), 293–310. http://www.jstor.org/stable/23359249

Popkewitz, T. (1978). Educational Research; Values and Visions of Social Order. Theory and Research in Social Education, 6. 10.1080/00933104.1978.10506043.

Ritchie, D. G. (1892). What is Reality? The Philosophical Review, 1(3), 265–283. https://doi.org/10.2307/2175783

Scholte, B. (1976). Dwelling on the Everyday World: Phenomenological Analyses and Social Reality. In Psathas (Ed), Review of Phenomenological Sociology: Issues and Applications, 78(3), 585–589. http://www.jstor.org/stable/674419

Schrag, C. O. (1980). Professor Seigfried on Descriptive Phenomenology and Constructivism. Philosophy and Phenomenological Research, 40(3), 411–414. https://doi.org/10.2307/2106404

Seigfried, H. (1976). Descriptive Phenomenology and Constructivism. Philosophy and Phenomenological Research, 37(2), 248–261. https://doi.org/10.2307/2107196.

Shepard, L. A. (2000). The Role of Assessment in a Learning Culture. Educational Researcher, 29(7), 4–14. https://doi.org/10.2307/1176145

Tempelaar, D., Rienties, B., & Nguyen, Q. (2020). Subjective data, objective data and the role of bias in predictive modelling: Lessons from a dispositional learning analytics application. PloS one, 15(6), e0233977. https://doi.org/10.1371/journal.pone.0233977

Van Manen, M. (1990). Researching live experience. State University of New York Press.

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St. Thomas College of Teacher Education, Pala, Kerala, India
(Research Centre in Education approved by MG University, Kottayam)
Website: https://sites.google.com/view/educational-extracts
email: educationalextracts@gmail.com

RELATIONSHIP BETWEEN USAGE OF SOCIAL MEDIA AND PERCEIVED SOCIAL ISOLATION AMONG HIGHER SECONDARY SCHOOL STUDENTS

Hicky Devadas* & Subina A**

Abstract

Social media has become an integral part of students' daily lives, significantly influencing their interactions and emotional well-being. While it fosters connectivity, excessive usage may contribute to perceived social isolation. This study investigates the relationship between social media usage and perceived social isolation among higher secondary school students. A quantitative survey method was adopted, gathering data from 400 students in Kozhikode district. Measurement tools included the Social Media Usage Scale (Rajeswari & Vaisakh, 2019) and the Perceived Social Isolation Scale (Subina A & Hicky Devadas, 2024). Stratified random sampling ensured balanced representation across gender, locale, and school management. Descriptive statistics, t-tests, and correlation analysis were used for data interpretation. Findings indicate that 73% of students exhibit average social media usage, while 72.25% report average levels of perceived social isolation. Gender differences were statistically significant for social media usage but not for perceived social isolation. Urban students reported higher perceived isolation than rural students. A weak negative correlation (r = -0.155) was found between social media usage and perceived social isolation, indicating that increased social media use is slightly associated with reduced isolation.

These findings suggest that social media usage has a minimal but notable impact on students' social experiences. Schools should implement digital literacy programs, encourage balanced media use, and promote offline social engagement. Future research should explore additional factors influencing students' social connectedness and emotional well-being.

***Keywords**: Social media, perceived social isolation, higher secondary school students, digital literacy, adolescent well-being.*

* *AssistantProfessor, Govt. College of Teacher Education, Kozhikode, Kerala.*
** *U.P. School Teacher, Govt. Sanskrit H.S.S. Meppayil, Vatakara, Kozhikode.*

Introduction

The rise of internet-based social platforms has profoundly influenced human interactions, connecting individuals virtually while sometimes reducing in-person social interactions. Though social media enhances communication, excessive reliance on these platforms may contribute to feelings of loneliness and isolation. Several studies indicate that despite the availability of advanced communication technologies, modern individuals report higher levels of loneliness than in previous generations.

It is important to understand how social media usage influences feelings of isolation. According to the uses and gratifications theory, people use media to fulfill different needs, such as seeking entertainment, staying connected, or obtaining information. However, excessive or inappropriate use may result in negative outcomes, including heightened social isolation. Maintaining a balanced approach to social media is essential for fostering positive interactions and overall well-being.

Background of the study

Adolescence is a phase marked by emotional and psychological transitions due to developmental changes. Support from parents and teachers is crucial during this stage. However, with the growing dominance of digital technology, many students turn to social media as a coping mechanism rather than seeking support from their immediate environment.

Research indicates that social media affects behavior, emotions, and mental health. While it offers a platform for self-expression and social connection, challenges such as cyber addiction, online bullying, and prolonged screen time can have harmful effects on students. Social isolation, when prolonged, can affect academic performance and social skills, making it important to study its relationship with social media usage.The psychological issues and confusions. In the ever-evolving landscape of today's world, dynamic shifts occur every second. The rise and evolution of social media play a pivotal role in this constant transformation. Social media has not only revolutionised people's behaviour and thought processes but also significantly impacted their daily actions and interactions. The swift access to communication and sharing has effectively reduced the world's size, bringing it under one virtual umbrella. However, alongside these advancements, issues such as cyber addiction, suicidal tendencies, hazardous online games, cyberbullying, and hacking have also surfaced.

This study explores how social media usage impacts students' sense of belonging and emotional well-being, with the goal of identifying strategies to promote healthy and balanced digital habits.

Statement of the problem

This study aims to examine the connection between social media usage and perceived social isolation among higher secondary school students. It seeks to answer the following questions:

- To what extent do higher secondary school students use social media in terms of duration, frequency, and purpose?

- What is the level of perceived social isolation among these students?
- Is there a significant relationship between social media usage and perceived social isolation?
- What are the implications of social media usage on students' social interactions, mental well-being, and academic performance?

Definition of key terms

Relationship

Any bond or connection that renders one entity in any way relevant to another. (Good, 1959).

In research, "relationship" refers to the connection or association between variables. It involves analysing the extent and nature of this connection to understand how changes in one variable may influence another..

Social media

Digital platforms that facilitate virtual interactions, communication, and content sharing (e.g., Facebook, Instagram, WhatsApp).

Social media refers to digital platforms and online communities where individuals interact, exchange messages, share information, and sometimes collaborate on activities. This includes widely used platforms such as Facebook, Twitter, Instagram, Snapchat, WhatsApp, and other similar digital communication tools.

Perceived social isolation

Perceived social isolation: A psychological state where an individual feels disconnected or lacks meaningful social connections, even when physically surrounded by others.

Perceived social isolation refers to a psychological condition where a person experiences feelings of disconnection, neglect, or a lack of meaningful social bonds and a sense of belonging, regardless of the number of social interactions they have. This state can have adverse effects on an individual's emotional, psychological, and overall well-being.

Higher secondary school students

Those who have received secondary education, usually between the ages of 15 to 18 years, and are pursuing studies at a higher secondary school." (Illustrated Oxford Dictionary, 2010).

For the purpose of this study, higher secondary school students are defined as individuals currently enrolled in higher secondary education within Kozhikode district. This includes students attending various higher secondary schools, junior colleges, or other equivalent educational institutions in the district.

Variables of the study

- Usage of social media
- Perceived social isolation

Classificatory variables selected for the study

Gender

Type of management

Locale

Objective of the study

1. To assess the extent of social media usage among higher secondary school students.

2. To evaluate the degree of perceived social isolation among higher secondary school students.
3. To examine whether there is a significant variation in social media usage among higher secondary school students based on,
   - Gender
   - School management
   - Locale
4. To determine whether there is a significant difference in perceived social isolation among higher secondary school students based on,
   - Gender
   - School management
   - Locale
5. To analyze the relationship between social media usage and perceived social isolation.

Hypotheses of the study

1. Significant differences exist in social media usage among students based on,
   - Gender
   - School management
   - Locale
2. Significant differences exist in perceived social isolation based on,
   - Gender
   - School management
   - Locale
3. There is a significant correlation between social media usage and perceived social isolation.

Methodology of the study

The methodology follows a structured approach to problem-solving. In this study, data was collected using the survey method.

Population and sample of the study

A sample of 400 students (ages 16–18) was selected from government and aided schools in Kozhikode using stratified random sampling. Due representation was given to the factors like gender, school management, and locale.

Tools used for the study

i) Social Media Usage Scale (Dr. Rajeswari K &Vaisakh M P ,2019).

ii) Scale on Perceived Social Isolation (Subina A & Hicky Devadas, 2024)

Statistical techniques used for the study

Descriptive Statistics

Inferential Statistics

Test of significance using the T-test.

Analysis and interpretation

Levels of usage of social media for the total sample to analyze social media usage among higher secondary school students, the researcher classified students into three categories: high, average, and low usage levels. Students who scored above the rounded value of M+□ were considered to have a high level of social media usage.

Table 1

Level of usage of social media for total sample

Level of usage of social media	N	Percentage
High	52	13
Average	293	73
Low	56	14

Table 1 indicates that out of a total sample of 400 higher secondary school

students, 13% exhibited a high level of social media usage, while 73% fell into the average usage category. Meanwhile, 14% demonstrated a low level of social media usage.

Table 2

Levels of perceived social isolation for the total sample

The total sample comprises 400 higher secondary school students, and their levels of perceived social isolation have been assessed. Based on the findings, the students are categorized into three groups: high, moderate, and low levels of social isolation. The detailed distribution is presented in

Table 2.

Level of usage of social media	N	Percentage
High	59	14.75
Average	289	72.25
Low	52	12.5

Table 2 shows that 14.75 % of higher secondary school students (total sample=400) showed high Levels of Usage of Social Media.72.25% of students coming average Level. And 12.5% is coming under Low Levels of Usage of Social Media.

Table 3

Comparison of the average social media usage scores between male and female students.

Variable	Group	N	Mean	SD	Z value	Significant Level
Usage of Social Media	Male	200	87.25	8.660	3.986	0.05
	Female	200	84.00	7.642		

As shown in Table 3, the z-value for social media usage among male and female students is 3.986, which surpasses the critical value of 1.96 at a 0.05 significance level. This supports the acceptance of the hypothesis, indicating a significant difference in the average social media usage scores between male and female students.

Comparison of the average social media usage scores between students from rural and urban areas.

Data related to the comparison of mean scores of usage of social media between rural and urban students are presented in the table 4.

Table 4

Table 4 presents a comparison of the average social media usage scores between students from rural and urban areas.

Variable	Group	N	Mean	SD	Z value	Significant Level
Usage of Social Media	Rural	200	86.79	8.111	2.832	0.05
	Urban	200	84.46	8.378		

Discussion of the result

Table 4 indicates that the mean social media usage score for rural and urban students is 2.832, which exceeds the critical value of 1.96 at the 0.05 significance level. Therefore, the hypothesis is accepted, confirming a significant difference in social media usage between rural and urban students.

Comparison of the mean social media usage scores between students from government and aided schools.

Data related to the comparison of mean scores of usage of social media between government and aided students are presented in the table 5.

Table 5

Table 5 presents data comparing the mean scores of social media usage between students from government and aided schools.

Variable	Group	N	Mean	SD	Z value	Significant Level
Usage of Social Media	Govt.	200	85.60	8.866	0.054	0.05
	Aided	200	85.65	7.754		

Discussion of the result

Table 5 indicates that the mean scores of social media usage for government and aided school students are 0.054, which is lower than the table value of 1.96 set at a 0.05 level of significance. Therefore, the hypothesis is rejected, confirming that there is no significant difference in the mean scores of social media usage between students from government and aided schools.

Comparison of means between different groups

The following section presents a comparison of mean scores for social media usage and perceived social isolation based on gender, locale, and type of school management among higher secondary school students.

Comparison of mean scores of usage of perceived social isolation between male and female students

The table below provides data on the comparison of mean scores for perceived social isolation between male and female students.

Table 6

Comparison of Mean Scores of Perceived Social Isolation Between Male and Female Students.

Variable	Group	N	Mean	SD	Z value	Significant Level
Perceived social isolation	Male	200	78.14	7.732	0.035	0.05
	Female	200	78.11	6.507		

Discussion of the result

Table 6 presents the mean scores of perceived social isolation for male and female students, which is 0.035. Since this value is lower than the table value of 1.96 at the 0.05 significance level, the hypothesis cannot be accepted. This indicates that there is no significant difference in the mean scores of perceived social isolation between male and female students.

Comparison of Mean Scores of Perceived Social Isolation Between Rural and Urban Students

The table below presents data comparing the mean scores of perceived social isolation between rural and urban students.

Table 7

Comparison of Mean Scores of Perceived Social Isolation Between Rural and Urban Students.

Variable	Group	N	Mean	SD	Z value	Significant Level
Perceived social isolation	Rural	200	77.41	7.873	2.018	0.05
	Urban	200	78.84	6.253		

Discussion of the result

Table 7 presents the mean scores of perceived social isolation for rural and urban students, showing a value of 2.018. Since this exceeds the table value of 1.96 at the 0.05 level of significance, the hypothesis is accepted. This indicates a significant difference in the mean scores of perceived social isolation between rural and urban students.

Comparison of mean scores of perceived social isolation between government and aided students.

Table 7 presents data comparing the mean scores of perceived social isolation among government and aided students.

Table 8

Comparison of mean scores of perceived social isolation between hovernment and aided students

Variable	Group	N	Mean	SD	Z value	Significant Level
Perceived social isolation	Govt.	200	76.92	7.102	3.384	0.05
	Aided	200	79.31	6.989		

Discussion of the result

Table 8 indicates that the mean scores of perceived social isolation for government and aided school students are 3.384, which exceeds the table value of 1.96 at the 0.05 level of significance. Therefore, the hypothesis is accepted, confirming a significant difference in the mean scores of perceived social isolation between government and aided school students..

Correlation Between Social Media Usage and Perceived Social Isolation for the Total Sample

Table 9 presents the coefficient of correlation between social media usage and perceived social isolation.

Variables	N	r	Type of Relation
Usage of social media and perceived social isolation	400	-.155	negative correlation

Discussion of the result

Table 9 reveals that the correlation coefficient between social media usage and perceived social isolation among higher secondary school students is -0.155. This indicates a negative correlation between the two variables. The negative 'r' value suggests that an increase or decrease in social media usage corresponds to an opposite change in perceived social isolation. The hypothesis aligns with this negative relationship, highlighting the direct impact of social media usage on perceived social isolation. Students who engaged more in social media tended to experience lower levels of perceived social isolation.

Educational implications of the study

The findings of this study enabled the researcher to propose the following recommendations.

- Integrate a digital literacy curriculum that teaches students how to use social media responsibly.
- Balanced digital use: Schools should conduct workshops on responsible social media use.
- Develop clear guidelines for appropriate social media use during school hours to minimize distractions.
- Extracurricular engagement: Encouraging offline social interactions can help mitigate isolation.
- Peer support networks: Establishing student support groups can enhance social connectedness

Conclusion

This study reveals a slight negative correlation between social media usage and perceived social isolation, suggesting that while social media enhances connectivity, its impact on reducing isolation is limited. The findings emphasize the need for a balanced approach to media consumption, alongside in-person interactions, to support students' emotional well-being. Future studies should examine other psychological and environmental factors that influence adolescent socialization. Although social media use does not significantly determine social isolation, maintaining a healthy balance in digital engagement is essential for students' social well-being. Further research is necessary to explore additional elements affecting their emotional and social health.

References

Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. Harvard University Press.

Good, C. V. (1959). Dictionary of education. McGraw-Hill.

Lerner, R. M., & Foch, T. T. (1987). Biological-psychosocial interactions in early adolescence: A life span perspective. Lawrence Erlbaum Associates.

Ibrahim, M. (2019). The Relationship between High School Teachers' Perceptions of Professional Development and Job Satisfaction. Journal of Educational Research and Practice, 9(1), 56-68

Illustrated Oxford Dictionary. (2010). Oxford University Press.

Khan. S 2008. Impact of social networking website on students. Abasyn Journal of social science, Vol. 56-76

Lokeshkoul. (2009). Methodology of Educational Research. New Delhi. Vikas Publishing house pvt Ltd.

Rajeswari, K., & Vaisakh, M. P. (2019). Social Media Usage Scale.

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St. Thomas College of Teacher Education, Pala, Kerala, India
(Research Centre in Education approved by MG University, Kottayam)
Website: https://sites.google.com/view/educational-extracts
email: educationalextracts@gmail.com

A STUDY ON THE ASAP PROGRAM AND ITS INFLUENCE ON BRIDGING THE SKILL GAP AMONG SECONDARY SCHOOL STUDENTS

Diya Frankson* & Dona Frankson**

Abstract

India having large educated population facing a significant skill gap with nearly 5125 of youth considered as employable according to the India skill report 2024 this gap is particularly evident as the economy transitions from primary to tertiary sector employment highlighting the crucial need for skill development initiatives. The Additional Skill Acquisition Programme (ASAP) launched in 2012 in Kerala aimed at enhancing job-readiness skills among students alongside conventional education. This study examined ASAP effectiveness in addressing skill gaps among secondary school students by analyzing three key aspects - student participation frequency, quality of instruction and the programs ability to address specific skill gaps and career aspirations. This research employed a quantitative approach collecting data through online questionnaires from 11th and 12th-grade students of Kottayam district. The findings revealed that most students attended ASAP sessions once weekly, having participated for less than six months. The program received favourable evaluations for instruction quality with majority of students rating it 4 or higher out of 5. Communication skills emerged as the primary area needing development identified by 55 of respondents regarding career relevance. 80 of students found the skills learned either very relevant or somewhat relevant to their future careers. ASAP plays a vital role in narrowing the skill gap, also needs some areas for improvement including strategies to increase participation frequency enhance instructor training and strengthen alignment with industry demands. These findings provide valuable insights for policymakers and educators to optimize skill development programs and contribute to developing a more employable workforce in Kerala and potentially serve as a model for similar initiatives across India.

Key Words: Skill development, Employability, Educated youth, Labour market, Government initiatives, AI, Skill Gap, Secondary Education, ASAP.

* *Research Scholar, Baselius College Kottayam, Ph: 9526073584. Email:* diyafrankson@gmail.com
** *II year B.Ed. Student, St Thomas College of Teacher Education, Pala. Ph: 9778782308. Email:* donafrankson@gmail.com,

Introduction

India is a land of cultural varieties and dominant country in the case of several indicators. The richness and authenticity of the resources makes the nation more and more dominant. In the competitive world, India was equipped with a vibrant and enthusiastic youth minds which contributes to the development of the country. The Report of Technical Group on Population Projections 2021, constituted by Ministry of Health and Family Welfare, 27.2% of the population is aged 15 - 29. When the economy moving from the agricultural sector (42.86%) to the tertiary sector (31.02%) with technological advancement, it underlines the importance of various skills which are somehow affects the working of the labour market. Thus there emerge the Skill gap, which means the gap between the required and the actual skills. The existing demand from the workforce is not yet fulfilled by the labour market so skill development and proper training is essential for the betterment of the society. India is rich in the case of educated individuals but only a less percentage of people acquired the required skill for the job market. The increasing rate of unemployed youth and the rate of growth of population in the context of India do matters. According to the India Skills Report 2024, the overall employability rate among the youth is 51.25%, with states like Haryana, Maharashtra, Andhra Pradesh, Uttar Pradesh, Kerala, and Telangana showing higher concentrations of employable youth. Various skill developmental initiatives were necessary to tackle the issues in the labour market.

A numerous skill development initiatives were introduced by the government of India during the last few years. The major initiatives for training and skill development programs by the government were Pradhan Mantri Kaushal Vikas Yojana (PMKVY), SANKALP Scheme, TEJAS Skilling Project, Skill India Digital, Skill India, National Skill Development Corporation (NSDC), and the National Skill Development Mission (NSDM), etc., This initiatives and programs aims to enhance quality education to individuals by providing industry relevant skills and training. The need for each program is different in different regions and locality. In the case of urban areas where people are more progress and advanced, especially in the case of soft skills and technical skills, also having access to various educations and training facilities within a short span of time. The people residing in rural areas have no proper way to catch all those things effectively they need something different from the urban people. Generally speaking the rural urban gap is very less but still face the problem of information asymmetry, which can only be corrected through proper channels. The people living in rural area needed education to use resources and knowledge of modern technology.

ASAP- The Additional Skill Acquisition Programme

ASAP was launched in 2012, as a Joint initiative under the General and Higher Education department, Government of Kerala which focused on providing job-readiness skills among students and enhancing employability levels along with conventional mainstream education. The ASA Program target the youth, Plus - one and degree students from various institutions which aims to develop

technological as well as traditional skills needed in the job market. According to the Directorate of Collegiate Education ASAP have skilled more than 2.5 lakhs students. Covid-19 and consequences brought the skill education into digital platforms. ASAP is offering various online or offline courses through Skill Development Centers, Advanced Skill Development Centers and the Community Skill Parks. There are a number of courses offering through various platforms including Communicative English Trainer, artificial Intelligence and Machine Learning, Business Analytics, Foreign Languages, Artisanal Bakery, Organic Grower etc. These courses and training programs were offered help the individuals to meet emerging demand on the secondary and tertiary sector effectively

ASAP has created demand-based, industry-led skill training in the State through its 121 Skill Development Centers connecting Higher Secondary Schools and Arts & Science Colleges, Advanced Skill Development Centers (ASDCs) in 66 Engineering Colleges and 45 Polytechnics for futuristic skilling, and 16 Community Skill Parks (CSPs) for multi skill training. It has 12 NSQF Skill Qualifications registered in the National Qualifications Register (NQR). ASAP Kerala transitioned to a company under the Companies Act, 2013, in 2021. ASAP is famous not only for skilling, it also provide framework for up skilling, re-skilling in corporate and educational domains, offering 150+ courses. They undertake training through 16 community skill parks and 126 development centers in Kerala.

India and the Skill Gap

India is a land of diversities having a largest populated country in the world. In this transition phase from the traditional to modern technology, India held the prominent position in the case of AI Skill and talents. The demand and supply mismatch arising in the labour market is due to the lack of required skills. Academic curriculum focused heavily on theoretical knowledge with limited stress on practical skills. A small percentage of students in India is preferred for vocational education and skill based training that may leads to shortage of employable talent in various sectors. The dynamic nature of industries such as IT, healthcare, and manufacturing requires updated skills. Various studies point out that around 65 – 75% demand supply gap arising in the new-generation job market (data scientist, ML engineer, data architect etc.,). The generation job market demands those who are having technological and analytical skills. The power of Data Science and AI can make tremendous impact in the economy. In order to make the resources equipped with the need The Government of India put various steps and initiatives to develop Artificial Intelligence. Some of the initiatives are;

- INDIAai.
- Responsible Artificial Intelligence (AI) for Youth.
- Artificial Intelligence Research, Analytics and Knowledge Assimilation Platform.
- Global Partnership on Artificial Intelligence (GPAI)
- US India Artificial Intelligence Initiative.

Emphasizing the commitment and support in advancing AI research and development the Ministry of Electronics and Information Technology allocated INR 551.75 Cr. to INDIAai under the budget 2024.

Employability and Skill Development

In 2024 Kerala declared its vision to become a global hub for generative AI because of having high skilled resources and also most preferable place to work for both the male and female. According to Skill India Report 2024, Kerala is rich having78.93% of employable resources in the age group of 18 – 21. Kerala known for various social indicators facing many issues based on skill development. Various initiatives were taken by the ministries to encounter the issues. Kerala aims to establish an AI cluster, industrial park, promoting public private partnership for better working. All these ventures enable the state to produce qualitative labour force demanded by the industries. Kerala has taken pro-active measures to face the skill gap through;

Kerala Academy for Skills Excellence (KASE): It is established as a State Skill Development Mission which aims to upgrade the skills of the young workforce to meet global standards. It coordinates various skill development initiatives, having industry tie-ups and placement linkage.

Additional Skill Acquisition Programme (ASAP) Kerala: ASAP focused to holistic growth opportunities, including language training and bridging the skill gap. It supports start-ups and specialized training programs to professionally qualified students through community colleges.

Community Colleges: These colleges offer a three-year credit-based Diploma in Vocation program, aligned with the National Skill Qualification Framework (NSQF). They provide industry relevant skill training and provide self-employment opportunities.

Centres of Excellence (CoEs): ASAP Kerala has set up futuristic CoEs, such as Electric Vehicle and Augmented /Virtual Reality (AR/VR) laboratories, it provide leadership, best practices, and skill training.

Additional Skill Acquisition Program (ASAP) aimed to build students with vocational and soft skills thereby enhancing their employability. Framing programs promoting digital literacy and technical skills among students which fulfills new-generation job market demand. By addressing the skill gap through ASAP and other initiatives, Kerala aims to create more employable workforce and reduce the existing educated unemployment.

Need for Skill Development in Secondary Education

Skill development at the secondary education level plays a vital role in framing student's academic, personal and professional growth. It acts as a bridge between basic education and higher education or future career opportunities. Secondary education is a critical stage where students began to explore their potential career paths and identifying skills. Imparting various skills such as technical, vocational, and soft skills helps them to prepare for the job market. Industry-specific training at this stage turns them more qualitative and productive. The rapid technological advancements and the emergence of new-generation industries require a workforce with updated skill sets. Early skill development programs enable the students to adapt changes and secure opportunities in competitive global market and also help in reducing the rate of un-employment and under employment conditions. Such skill development programs help in fostering innovation, problem solving and leadership abilities among them.

Equipping students with skills at an early period, with the help of skill India, Make India etc., provide a skilled workforce that can drive economic growth.

Objectives of the Study

1. To analyze the frequency and consistency of student participation in **Additional Skill Acquisition Programme Kerala (**ASAP)
2. To evaluate the quality of instruction and its impact on skill development by ASAP.
3. To assess how effectively ASAP addresses student's specific skill gaps and career aspirations.

Significance of the study

The Additional Skill Acquisition Programme (ASAP) in Kerala, studying its effectiveness in addressing the skill gap among secondary school students. Skill development plays a vital role in economic growth and social progress by enhancing employability, reducing unemployment, and fostering innovation. Integrating practical skills with academic knowledge in secondary education prepares students for real-world challenges, making them more adaptable in a competitive job market. This is critical for nations to compete globally and improve citizens' quality of life. The study on ASAP examines the program's reach, consistency of student participation, quality of instruction to ensure the development of high-standard competencies and bridging the gap between education and employability. As industries evolve with technological advancements, ASAP ensures students to gain relevant, up-to-date skills which are very relevant to meet industrial demands. By evaluating the program's successes and challenges, the study aims to offer recommendations for improvement and help scale similar initiatives, contributing to a skilled workforce nationwide.

Methodology

This study employs a quantitative research design utilizing an online survey and a questionnaire to gather data from students. The focus is on students studying in classes 11 and 12 within the Kottayam district of Kerala. A random sampling technique was used to select schools within the Kottayam district. Students from these schools were invited to participate in the survey. An online survey was distributed to students, ensuring accessibility and ease of participation and a structured questionnaire was designed to assess various aspects of the ASAP program, including participation frequency, quality of instruction, skill gaps, and relevance to career aspirations. The questionnaire included both closed-ended and open-ended questions to capture quantitative data and qualitative insights. Secondary data is collected from official websites of Government of Kerala, Skill Development report, and other official sources.

The collected data will be analyzed using statistical methods to evaluate the effectiveness of the ASAP program in addressing skill gaps and enhancing student's career readiness.

Data analysis and interpretation

I - To analyse the frequency and consistency of student participation in Additional Skill Acquisition Programme Kerala (ASAP)

The analysis of student participation frequency in the ASAP program indicates

how often students attend sessions. The results show the distribution of attendance, which is crucial for understanding engagement levels.

Table 1
Participation Frequency

Duration	No	Percentage
Once a week	23	57.5
Twice a week	8	20
Daily	5	12.5
Thrice a week	4	10
Total	40	100

Source: Primary Data

This data reveals that the majority of students (57.5%) attend the sessions once a week, with fewer attending more frequently. This suggests a consistent level of participation among most students, which is a positive indicator for the program's engagement.

Duration of participation in the ASAP

Table 2
The analysis of the shows the distribution of how long students have been involved.

Participation	No	Percentage
Less than 6 months	31	70.75
6 months to 1 year	5	12.5
1 – 2 years	3	7.5
More than 2 years	2	5
Total	40	100

Source: Primary Data

This data indicates that a significant number of students (31) have less than 6 months participated in the program, while others have varying lengths of participation, with fewer students having been involved for more than six months. This suggests that while there is a consistent level of participation, many students are at the beginning of their journey in the program.

II - To evaluate the quality of instruction and its impact on skill development by ASAP.

The analysis of the quality of instruction in the ASAP program has been completed, focusing on how students rate the instruction on a scale of 1 to 5.

Table 3
Quality of Instruction

Rating	No	Percentage
1	-	0
2	1	2.5
3	9	22.5
4	19	47.5
5	11	27.5
Total	40	100

Source: Primary Data

This data indicates that the majority of students rated the quality of instruction positively, with a significant number giving scores of 4 or 5. However, there are also a few lower ratings (2 and 3), which suggest that there may be areas for improvement.

Skill Improvement since Joining the ASAP

The analysis of perceived improvement in skills since joining the ASAP program indicates that a majority of students have noticed some level of improvement, with a significant number reporting substantial gains. Here are the findings:

Table 4
Skill Improvement

Opinion	No	Percentage
Yes, Somewhat	21	52.5
Yes, Significantly	12	30
Not sure	6	15
No improvement	1	2.5
Total	40	100

Source: Primary Data

This suggests that the quality of instruction is positively impacting students' skill development, as most students (52.5%) feel that they have improved academically since participating in the program.

The data indicates that while most students rate the instruction positively, there are some lower ratings. Additionally, a significant number of students report improvements in their academic performance, suggesting that the quality of instruction is having a positive impact on skill development.

III - To assess how effectively ASAP addresses student's specific skill gaps and career aspirations.

The analysis how effectively the ASAP program addresses student's specific skill gaps and career aspirations. The findings indicate the types of skill gaps students felt they had before joining the program and their perceptions of the relevance of the skills learned to their future career aspirations.

Table 5
Specific Skill Gaps

Skills	No	Percentage
Communication Skills	22	55
Technical Skills	7	17.5
Problem Solving	5	12.5
Leadership Skills	6	15
Total	40	100

Source: Primary Data

The data found that 55% of students need to eliminate communication skill gap. 17.5% faced technical skill gap.

Table 6
Relevance to Career Aspirations

Skills	No	Percentage
Yes, very relevant	13	32.5
Somewhat relevant	19	47.5
Not relevant	6	15
Unsure	2	5
Total	40	100

Source: Primary Data

A majority of students believe that the skills learned in the ASAP program are relevant to their future career aspirations, with most rating them as "very relevant" or "somewhat relevant." Still there are some students having unaware about the outcome of the program.

Findings and suggestions

- Majority of students (57.5%) attend ASAP sessions once a week.
- 20% of students attend sessions twice a week, 12.5% daily and 10% thrice a week.
- A consistent level of participation, indicating strong engagement by the students with the program.

- 70.75% of students have participated in the program for less than 6 months.
- 12.5% have participated for 6 months to 1 year, 7.5% for 1–2 years, and 5% for more than 2 years.
- A significant number of students rated the quality of instruction positively, with 47.5% giving a score of 4 and 27.5% giving a score of 5.
- However, 22.5% gave a score of 3, and 2.5% gave a score of 2, indicating areas for improvement.
- 52.5% of students reported some improvement in their skills since joining the program.
- 30% reported significant improvement that means the quality of instruction positively impacts students' skill development.
- 55% of students identified communication skills as an area of improvement.
- Other skill gaps included technical skills (17.5%), problem-solving (12.5%), and leadership skills (15%).
- 32.5% of students found the skills learned very relevant to their future careers.
- 47.5% found them somewhat relevant, while 15% found them not relevant, and 5% were unsure.

Suggestions

- Need to implement strategies to encourage more frequent participation. This could include more engaging and interactive session, flexible scheduling, and enhanced communication about the benefits of consistent attendance.
- Address the quality of instructors by providing additional training for them, incorporating more hands-on and practical learning opportunities, and regularly updating the curriculum to match industry needs.
- Focus on the specific skill gaps identified by students, particularly communication skills. Develop targeted modules and workshops that address these gaps effectively. Provide more practical sessions can also helps to reduce the gap.
- Ensure that the skills taught are closely aligned with the evolving industry demands. This could involve regular consultations with industry partners, alumni feedback, and continuous curriculum updates.
- Implement awareness campaigns to educate students about the benefits and outcomes of the ASAP program. This could include success stories, career counseling sessions, and engaging promotional materials.
- Establish a robust monitoring and evaluation framework to track the program's impact continuously. Use data-driven insights to make informed decisions and improve the program.

By addressing these suggestions, the ASAP program can further enhance its effectiveness, helping students to bridge skill gaps, align their training with career aspirations, and ultimately contribute to the development of a skilled workforce in Kerala.

Conclusion

This study highlights the dominant role of ASAP in eliminating the skill gap among secondary school students in Kerala. By evaluating the frequency and consistency of student participation it is evident that the

programme has successfully running and the substantial number of student participation indicating its relevance. The evaluation of the quality of instruction reveals that ASAP provides high standard training which effectively enhances student's ability and helps in skill development. Furthermore the assessment of how well ASAP address the particular skill gaps and aligns with students career aspirations underscores the programs ability to cater to the evolving demands of the job market and individual goals. The findings of the study provide valuable insights to the policy makers, educators, trainers, and stakeholders emphasizing the need for continuous improvement and optimization of the programme. By addressing the difficulties ASAP can further enhance its impact and contribute to the growth and development of skilled workforce and future-ready employers in Kerala. This study signifies the importance of skill development initiatives in stimulate socio-political equity, economic growth inclusive and sustainable development.

References

ASAP Kerala, Government of Kerala. (2012). *Additional Skill Acquisition Programme (ASAP): Program Overview.* Retrieved from https://ASAPKerala.gov.in/

Drishti IAS. (2023, December 26*). India Skills Report 2024 - Drishti IAS.*

Global Partnership on Artificial Intelligence (GPAI). (n.d.). *Global Partnership on Artificial Intelligence (GPAI)*. Retrieved from https://gpai.ai/

Government of Kerala. (n.d.). *Directorate of Collegiate Education*. Retrieved from https://collegiateedu.Kerala.gov.in/

India Briefing. (2023). *India Skill Report 2023: Key Findings on Talent Availability.* Retrieved from https://www.India-briefing.com/news/India-skill-report-2023-findings-on-talent-availability-and-employability-in-emerging-technologies-29148.html

Joseph, M. (2021). *Integrating education with employability: A review of Kerala's ASAP model. Asian Education Studies*, *5(2), 112–125.*

Kerala State Planning Board, Government of Kerala. (2013). *Twelfth Five-Year Plan: Enhancing Employability through Skill Development.* Retrieved from https://spb.Kerala.gov.in/

Kerala Academy for Skills Excellence (KASE). (n.d.). *Kerala Academy for Skills Excellence (KASE)*. Retrieved from https://kase.in/

Kerala State Planning Board. (n.d.). *Kerala Development Report: Initiatives, Achievements, and Challenges*.

Ministry of Electronics and Information Technology, Government of India. (n.d.). *Responsible Artificial Intelligence (AI) for Youth*. Retrieved from https://meity.gov.in/ai-for-youth

Ministry of Health and Family Welfare, Government of India. (2021). *Report of Technical Group on Population Projections 2021*.

Ministry of Skill Development and Entrepreneurship, Government of India. (n.d.). *Skill India: Transforming Lives through Skills Development*. Retrieved from https://skillIndia.gov.in/

Ministry of Electronics and Information Technology, Government of India. (n.d.). *INDIAai*. Retrieved from https://Indiaai.gov.in/

Ministry of Electronics and Information Technology, Government of India. (n.d.). *Artificial Intelligence Research, Analytics and Knowledge Assimilation Platform*. Retrieved from https://meity.gov.in/ai-platform

Nair, S. (2015). *Bridging the skill gap: A case study of the ASAP initiative in Kerala. International Journal of Educational Development, 38(1), 87-94.*

Skill India. (n.d.). *India Skills Report 2024.* Retrieved from https://skillIndia.gov.in/

Thomas, A. (2016). *Impact of skill development programs on employability among youth: A study of ASAP in Kerala*. *Journal of Education and Work*, *29(3), 233-249.*

US-India AI Initiative. (n.d.). *US India Artificial Intelligence Initiative*. Retrieved from https://usIndiaai.org/

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St. Thomas College of Teacher Education, Pala, Kerala, India
(Research Centre in Education approved by MG University, Kottayam)
Website: https://sites.google.com/view/educational-extracts
email: educationalextracts@gmail.com

TASK-BASED LEARNING TO OVERCOME DIFFICULTIES IN SOLVING NEGATIVE NUMBERS OF MATHEMATICS AMONG SECONDARYSCHOOL STUDENTS: AN ACTION RESEARCH

Dr. Elizabeth Joshua* & Krishna K.J.*

Abstract

Mathematics is the language of the universe, a powerful tool for problem-solving and critical thinking. Negative numbers are a crucial part of mathematics, allowing us to represent and analyse various concepts, such as temperature, debt, coordinates, velocity, and direction. Negative numbers also facilitate concise representation of large and small quantities through scientific notation. Their importance extends to real-world applications, including finance, physics, and engineering, making them an essential tool for problem-solving and critical thinking in mathematics.This small-scale action research study examines the students" Difficulties in Solving problems related to Negative Numbers". In this study, a plan of action was developed which uses games, puzzle as an alternative to traditional approach to help students in gaining a better understanding of the concept of solving problems related to Negative Numbers. The Class VIII-D consisting of 27 students of were selected for the study. The study involved 27 students from 8th class students of Amrita Higher Secondary School Vallikunnam. Data were collected and analyzed from the students" pre and post-test scores". Comparisons of the scores showed positive progress and greater improvement in the students' performance. After the implementation of plan it has been found that there is improvement in solving problem related to Negative Numbers. This indicated that the implemented strategy is effective in reducing the complexity in solving the problem.

Keywords: *Negative Numbers, Task based learning, Operations, Solving, Secondary School Students.*

Introduction

"Education is the most powerful weapon which you can use to change the world"
- Mandela(1990)

* *AssistantProfessor, Peet Memorial Training College, Mavelikara, Kerala.*
Email: manjujoshua@gmail.com
** *B.Ed. Student, Peet Memorial Training College, Mavelikara.*
Email: krishnakjrahul@gmail.com

Education plays a vital role in our life. It differentiates us form the rest of the creatures on earth and helps us to improve ourselves from within. It nourishes our character and broadens our perspective towards life. Education helps to transform an individual to be a better and responsible citizen. All the power and progress achieved by human beings is because of education. It teaches us morals, justice, ethics, and tolerance. It is because of education that a person can live a successful and self-dependent life. Education is the process of training man to fulfil his aim by exercising all faculties to the fullest extent as a member of the society.

Education is the searching knowledge from known to unknown and it makes an individual a real human being. Education is an essential human virtue and is a mental tool for training and exercise of intellectual functions. Due to its unique role in solving everyday problems, it has occupied a significant position in the human life. It has enabled individuals, whether in developing and developed countries, to become academicians, teachers, entrepreneurs, leaders and administrators.

Many researches have been conducted on teaching- learning process. New methods and techniques have been developed on the basis of research findings. The traditional methods and techniques have been replaced by new techniques in the last two decades in western countries. We can also benefit from these new methods and techniques, if we faithfully implement them in our classroom communication. The advanced countries have reached a state where the ideas, ideologies and even the object of faith are being examined from specific perspective. People were conscious to educate their children in a way so as to enable them to cope with the personal and social problems obvious in a modern complex society due to the influence of scientific, techno – Educational research refers to the systematic collection and analysis or data related to the field of education. Research may involve a variety of methods and various aspects of education including student learning, teaching methods, teacher training and classroom dynamics. It improves learning, knowledge, skills and understanding. It improves teaching and learning methods and empowers with data which help to teach and lead more strategically and effectively. Educational research provides a vast landscape of knowledge on topics related to teaching and learning, curriculum and assessment, students' cognitive and affective needs, cultural and socio-economic factors of schools, and many other factors considered viable to improving schools.

Need and Significance

Secondary school students often struggle with negative numbers in mathematics, leading to difficulties in understanding key concepts and solving problems. To overcome these challenges, it is essential to identify the root causes, such as lack of conceptual understanding, inadequate practice, and insufficient real-world context. Addressing these issues can help students develop a stronger foundation in mathematics and improve their problem-solving skills.

The significance of overcoming difficulties in solving negative numbers lies in its impact on students' future academic and professional pursuits. Mathematics is a fundamental subject that builds upon previously learned concepts, and a weak understanding of negative numbers can

hinder progress in advanced math topics, science, and engineering. Moreover, mathematical literacy is crucial in everyday life, and proficiency in solving negative numbers can enhance critical thinking and problem-solving skills.

By addressing the difficulties in solving negative numbers, educators can help secondary school students develop a deeper understanding of mathematical concepts, improve their academic performance, and enhance their career prospects. Effective instructional strategies, such as task-based learning, can provide students with a more engaging and meaningful learning experience, ultimately leading to greater confidence and fluency in mathematics.

Objectives of the Study

Following are the major objectives of the study.

1. To find out whether the students have difficulty in doing mathematical operations on Negative Numbers.
2. To develop a plan of action for overcoming problem solving difficulties with Negative Numbers.
3. To enhance the ability to solve the problems of Negative Numbers in Mathematics.

Hypothesis of the Study

1. The plan of action will help to solve the difficulties of Negative Numbers in Mathematical problems and hence to solve them effectively.

Methodology in Brief

Action Research was conducted in the eighth standard students of Amrita Higher Secondary School Vallikunnam. In this present study, a pre-test was conducted in order to identify the students who are facing difficulties in doing problems related to Negative Numbers. The test was conducted for 27 students in Class VIII-D of Amrita Higher Secondary School Vallikunnam based on the chapter Negative Numbers. Then post-test was given to the students after teaching the strategies and instruction given. The same set of questions that was given in the pre-test and post-test. In the context of the pre-test conducted, out of 27 students. 4 students were excellent in solving problem related to Negative Number.10 students solve the problem almost correctly. 8 students were chosen as sample because they scored low marks in pre-test. It shows that they lacked basic and prerequisite knowledge about Negative Numbers and fundamental operations on Negative Numbers. They had great difficulties in solving Negative Numbers.

The investigator designed an action plan after identifying the problem. And used various strategies with the help of teaching aids as remedial tools. There was a gradual improvement in students doing problems on Negative Numbers and hence finding its solution. The post test was conducted after taking the appropriate action plans. Post - test helped to identify whether the strategy applied was effective, areas to make further changes and to analyze if any improvement made by the pupil in performing problems on Negative Numbers. In this study percentage analysis was used to compare and analyze if any improvement was made by the students after performing the plan of action.

Results and Discussion of the Study

To find out whether secondary school students have difficulties in solving problem related to Negative Numbers.

Investigator observed learning difficulties among students in solving problems related to Negative Numbers. Thus a pre – test was conducted to find the main area of difficulty.

Table 1

Comparison of percentage of pre – test and post – test

Sample	Percentage of Pre – test mark	Percentage of Post – test mark
A	5	75
B	16	80
C	5	90
D	10	85
E	15	95
F	16	70
G	5	80
H	10	90

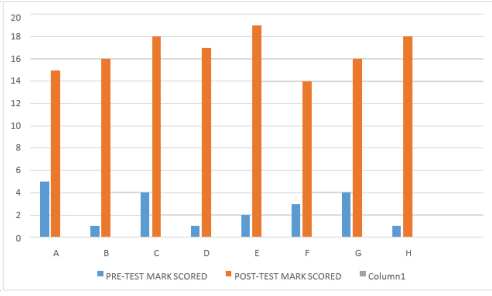

Fig 1. Comparison of Pre-test and post-test Scores.

A bar diagram is constructed as a part of this study to represent the scores of pre-test and post- test. The name of eight students chosen are given on the x- axis and the marks they scored in the pre-test and post-test are given on the y- axis. The two bars correspond to each student shows their levels in pre-test and post-test. The progress of the students in doing problems related to Negative Number is clearly depicted with the help of this bar diagram.

A comparative study is beneficial for understanding the improvement in any field. In Action Research, the score percentage of pre-test and post-test are compared in order to evaluate the results to determine how far the goals of the Action Hypothesis has been realized. After comparing the percentage of marks in the pre-test and post-test, it has been found that there is improvement in performing problems related to Negative Numbers.

Educational Implications

1. This study will be important for teachers for the identification of the learning difficulties of students.
2. This study provides an opportunity to plan remedial measures for students having learning difficulties.
3. This study points out the possible learning problems occurring in a classroom setting.
4. This study will help both the teacher and the learner to attain a better classroom experience.

Conclusion

Mathematics is a widely acceptable subject which has greater applications in all spheres of our life. It is closely associated with each and every creature, event and incident of the universe. It has greater correlations with daily life, science, arts various branches of mathematics, etc. Even a layman needs to use mathematics in their daily life. It is not necessary to study mathematics from school and colleges. Our circumstance and surroundings demand the learning of Mathematics. Even through Mathematics is very important in our life,

lot of people dislike Mathematics. Due to this dislike towards Mathematics, many students lack academic achievement in their later school stage. But mathematics is a compulsory subject up to secondary level in our educational system. As a result, Mathematics is considered as a boring and difficult subject. In each and every sphere of our daily life, Mathematics provides us its help and support without which we cannot do anything. The knowledge of Mathematics is very flexible and required in all day-to-day life activities beginning from awakening to nap in night. It is marked that the content included in the mathematics syllabus up to secondary level should provide the daily needs of the learner. The learning difficulties in Mathematics should be measured with great care and importance. If the teacher ignores the problem of the students, it will badly affect their achievement. Therefore, the better accepting and rectifying errors in Mathematics learning is very important for victorious academics in every student school life. For the purpose, the teacher should act as a guide and an adviser to the students. Some students lack in understanding of the basic mathematical operations on negative numbers. They have confusions in these concepts. This problem is very severe, and those students failed to follow, the further concepts related to it. But all the problem has a solution, if the investigator studies the causes of the problem and a suitable remedial measure for it. From the studies, the investigator concluded that Action Research is an effective remedial tool for helping students to overcome their learning difficulties.

References

Almeida, Rut & Alicia Bruno (2006). Strategies of pre-service primary school teachers for solving addition problems with negative numbers. International Journal of Mathematical Education in Science and Technology. 45(5), 719-737

Altiparmak, Kemal. (2010). A study on the teaching of the concept of negative numbers, International Journal of Mathematical Education in Science and Technology. 41(1), 31- 47.

Bofferding, Laura. (2010). Addition and subtraction with negatives: Acknowledging the multiple meanings of the minus sign. Proceedings of the 32nd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. 6(2), 703-710.

Bofferding, Laura. (2019). Understanding negative numbers. Research In Mathematics Education,4(3).

Brez et.al. (2016). Numerical estimation in children for both positive and negative numbers,

Journal of Cognition and Development. 17 (2), 341-358.

Cannon, Melinda A. (2017). Differentiated mathematics instruction: An Action Research Study (Doctoral dissertation). University of South Carolina. Retrieved from hppt://scholarcommons.sc.edu/edt/4222.

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St. Thomas College of Teacher Education, Pala, Kerala, India
(Research Centre in Education approved by MG University, Kottayam)
Website: https://sites.google.com/view/educational-extracts
email: educationalextracts@gmail.com

EXPLORING CROSS-CULTURAL DIFFERENCES IN COGNITION AND LEARNING

Dr. Saritha Rajeev*

Abstract

Cultural differences, shaped by beliefs, behaviours, and languages, influence cognition, perception, and problem-solving, leading to both enrichment and challenges in interactions. Culture operates across psychological, behavioural, and physical dimensions, affecting attention, memory, language, and decision-making. The interplay of human nature, culture, and personality shapes thinking and behaviour, often leading to misattributions in social and educational contexts. Cross-cultural variations in learning require adaptive teaching strategies that respect diversity while fostering inclusivity. Understanding cultural influences enhances collaboration, reduces misunderstandings, and transforms diversity into an opportunity for personal and collective growth in an increasingly globalized world.

Key Words: *Cognition, Cross-cultural differences, Learning.*

Introduction

Cultural differences, encompass beliefs, behaviours, languages, and practices shaped by an individual's ethnicity and background. These differences significantly influence cognition, impacting how people process information and approach problem-solving. While cultural diversity can enhance operations by introducing varied perspectives, it can also create limitations when perspectives clash or fail to align. Culture shapes not only what people perceive but also how they perceive it and the preferences they develop. Cross-cultural differences arise from variations in backgrounds, values, and beliefs unique to each culture. These differences can sometimes lead to misunderstandings, especially among individuals working closely together.

Culture includes three different dimensions: (1) the psychological or internal representation of culture, including values, attitudes, thinking, feeling, knowledge, and beliefs; (2) the ways of behaving in different contexts and circumstances, ways to relate with others, festivities, patterns

* *Assistant Professor, N.S.S. Training College, Changanacherry. Ph: 9447574950*
Email: saritharajeev82@gmail.com

of associations, etc. (Ardila, A. 2021) are included in the behavioural dimension of culture and (3) clothes, ornaments, houses, instruments, etc. are included in the physical dimension of culture. Throughout human history, cultural evolution and cultural changes are found depending on a diversity of factors, including, (a) new environmental conditions, (b) contact with other cultures, and (c) internal cultural evolution. (Ardila, A. 2021)

Research highlights the impact of culture on cognition and interaction. For instance, a study by Freeman et al. (2009) revealed that even when individuals receive the same information simultaneously, their cultural backgrounds influence how they process that information. Similarly, Adams et al. (2010) found that people are more accurate at interpreting the thoughts and emotions of individuals from their own culture. Furthermore, cultural affiliations can complicate interactions, whether on a personal or political level, due to varying culture-brain dynamics.

These cultural differences can create barriers to understanding, leading to conflicts or misinterpretations. However, exposure to other cultures provides opportunities for learning and adaptation. This exposure allows individuals to become more culturally attuned, which is essential for fostering better relationships, enhancing career prospects, and even improving overall well-being. Understanding and embracing cultural diversity can transform potential conflicts into opportunities for growth and collaboration.

Cultural Influences on Cognition

Culture plays a significant role in shaping cognitive processes, including perception, memory, and reasoning. For instance, Western cultures, which often emphasize individualism, encourage analytic thinking, where people focus on objects independently of their context. In contrast, Eastern cultures, rooted in collectivism, promote holistic thinking, emphasizing relationships and contextual understanding. These cultural differences influence attention and perception, with Westerners often prioritizing focal objects, while Easterners pay more attention to the background and interconnections. Such variations illustrate how cultural values and norms mould fundamental cognitive processes.

Language, a key component of culture, also deeply impacts cognition. The structure and vocabulary of a language shape how its speakers perceive and categorize the world. For example, some languages have distinct terms for spatial relationships or time, influencing how speakers conceptualize these ideas. This phenomenon, linked to the Sapir-Whorf Hypothesis, (Nordquist, Richard.2024) highlights how language and thought are interwoven. Furthermore, bilingual individuals often exhibit enhanced cognitive flexibility, as navigating between languages fosters adaptability and diverse problem-solving approaches. (Kay, P., & Kempton, W. 1984).

Culture also affects social cognition and decision-making. Collectivist cultures tend to prioritize group harmony and relational understanding, which shapes how individuals interpret social cues and solve interpersonal problems. In contrast, individualist cultures may focus more on personal goals and autonomy, influencing decision-making processes. These cultural frameworks not only affect personal

interactions but also impact educational practices, workplace dynamics, and cross-cultural communication. Understanding these influences is crucial for fostering collaboration and mutual respect in an increasingly globalized world.

Sources Influencing Thinking and Behaviour.

Human thinking and behaviour are shaped by three interconnected sources: human nature, culture, and personality. These layers often interact and overlap, making it difficult to distinguish their individual contributions. This complexity can result in misunderstandings and false assumptions, particularly in contexts such as education, professional settings, and interpersonal interactions. While human nature provides a universal foundation, culture and personality introduce variations that reflect both shared and unique experiences.

Human nature encompasses traits common to all humans, stemming from genetic inheritance. These traits, including sensory capabilities and a predisposition for socialization, create a shared framework for perceiving and responding to the world. Culture, in contrast, is learned and varies widely across social groups, influencing values, behaviours, and ways of thinking. It provides individuals with a sense of belonging while simultaneously shaping and constraining their actions. Personality blends both inherited traits and cultural influences, creating unique individual variations. Together, these three sources interact to mould human cognition and behaviour, highlighting the dynamic interplay of biology, socialization, and individuality.

Together, human nature and culture profoundly influence individual personalities, but humans also demonstrate creativity and agency in transcending these influences. While culture shapes individuals, individuals can, in turn, influence and transform culture, as evidenced by the enduring impacts of figures like Confucius or Plato. Over time, such interactions may even contribute to the evolution of human nature itself.

Cultural Dimensions of Learning

In education, culture plays a pivotal role in shaping how knowledge is transmitted and received. Cultural-historical activity theory (Cole, 1996) underscores the impact of historical and cultural experiences on learning. Educators act as cultural agents, influencing learners not only through content but also through the values and perspectives embedded in their teaching methods.

Teaching in multicultural settings requires balancing the dual responsibilities of cultural transmission and the avoidance of cultural bias. Respecting and preserving cultural diversity in education is both a practical and ethical imperative. Knowledge, skills, and attitudes are inherently tied to cultural frameworks, making teaching a vehicle for cultural transmission. Educators must navigate this complexity to foster inclusivity while ensuring instructional effectiveness. This dynamic relationship between human nature, culture, and personality highlights the intricate and evolving matrix that shapes thinking, behaviour, and learning across diverse contexts.

Cross-Cultural Differences in Cognition

Human beings have an innate tendency to categorize the world around them by identifying patterns and similarities and assigning labels to groups. This cognitive process, however, varies significantly across cultures. For example, Chinese children tend to use relational-contextual ways of categorization, grouping stimuli based on relationships, while American children prioritize identifying similarities. Such differences in categorization underscore the influence of cultural frameworks on cognitive development, as originally suggested by Jean Piaget in his theory of Genetic Epistemology. Piaget believed that cultural contexts significantly shape how children acquire and apply cognitive operations, highlighting the dynamic interplay between universal developmental processes and culturally specific influences.

Culture acts as a lens through which individuals perceive, remember, and understand the world. Memory, particularly semantic memory, serves as the medium through which culture is transmitted and preserved, reflecting collective knowledge derived from shared experiences. Our experiences, deeply rooted in cultural contexts, shape what is encoded in memory and influence what is later retrieved. This dynamic process emphasizes that culture is not only an external force but also an internal filter shaping our perceptions, thoughts, and emotions. Moreover, cultural influences extend to the collective unconscious, as seen in dreams, which blend personal experiences with the broader cultural psyche, offering insights into individual and societal realities.

The fundamental aspects of human experience such as time perception and pain interpretation are the byproducts of the influence of culture beyond cognition and memory. Different cultures conceptualize time in distinct ways, shaping how individuals prioritize and utilize it. Even within a single culture, attitudes toward time can vary widely, reflecting diverse values and social norms. Similarly, the experience of pain is a multifaceted phenomenon influenced by physiological, psychological, and cultural factors. An individual's background, interpersonal context, and cultural interpretation of pain imbue the sensory experience with unique meanings. These diverse influences demonstrate how human consciousness, whether in its waking state or altered forms, is deeply interwoven with cultural realities, showcasing the profound role of culture in shaping human experience.

Cross-Cultural Differences in Learning

A cognitive attribution bias, the fundamental attribution error in social psychology occurs when observers place too much emphasis on dispositional or personality factors and too little emphasis on situational and environmental factors that influence an actor's behaviour. They might mistakenly believe that a certain behaviour is an expression of personality, possibly generating a value judgment about that person, when in fact the behaviour is more culturally driven. Conversely, when a small number of people exhibit highly personality-driven behaviours, they might draw sweeping conclusions about a given culture. One of the most prevalent misconceptions is probably when people believe that their cultural ways of thinking

and acting are typical of human nature and, thus, the "correct" way to think or act. For instance, educators may believe that in order to enable people from different cultural backgrounds to think and learn effectively, they must teach them new learning behaviours. People are very adaptive, and circumstances have a big impact on how they think and act (Lemke, 1997). Accordingly, a person's behaviour in one circumstance does not always predict how they will act in another. When individuals find themselves participating in a different culture, they can also make up for their cultural conditioning by adopting the behaviours they start to perceive as fitting that culture. These cases can also lead to additional false assumptions that are more difficult to avoid. The unique challenge for instructional providers is to understand which learning behaviours are based on deeply entrenched cultural values that should not be challenged and which behaviours are more superficial practices that can be challenged for the sake of promoting learning. Additional difficulties include (a) acknowledging that research-based teaching methods are also culturally specific and may occasionally be unsuitable, (b) determining which teaching activities will work best for a specific student body, and (c) determining how to modify teaching methods in multicultural and cross-cultural contexts. (Parrish, P., & Linder-VanBerschot, J. 2010)

In fostering inclusive and equitable learning environments by understanding and addressing cross-cultural differences the role of the teachers is very crucial. This begins with developing socio-cultural consciousness, where educators critically examine their own biases, identities, and attitudes influenced by race, ethnicity, social class, and language. Recognizing and challenging discrimination is essential to creating a respectful and inclusive atmosphere for culturally diverse students. An affirming attitude toward diversity empowers students by validating their cultural identities and enhancing their academic confidence and performance. Through culturally responsive teaching strategies, educators incorporate students' cultural experiences and perspectives into the curriculum, promoting engagement and inclusivity.

Additionally, teachers must embrace a constructivist approach, scaffolding learning based on students' prior experiences and encouraging critical thinking, collaboration, and multiple perspectives. Building relationships with students by understanding their backgrounds, home cultures, and community contexts further strengthens teaching effectiveness. As agents of change, educators must actively work to dismantle barriers to equity while developing collaborative skills to create fairer schools over time. By integrating culturally responsive practices, teachers enable students to construct knowledge rooted in their personal and cultural strengths, ensuring a learning environment that respects and celebrates diversity.

Conclusion

Attention, perception, spatial skills, memory, language, executive processes, and cognition are just a few of the cognitive abilities that are greatly influenced by culture. Every culture has its own preferred learning style, and culture shapes learning styles. The impact of inherited factors on human abilities is not disregarded by the cultural explanation of cognition. Cultural interpretation of cognition does not rule out the involvement of genetic factors in human

abilities. The field of 'cultural neuroscience' (Chiao and Ambady, 2007) aspires to integrate the mechanisms by which the mutual constitution of culture, brain, and genes occurs. Cultural neuroscience incorporates concepts and techniques from various scientific fields, such as genetics, behavioural neurosciences, and cross-cultural psychology. (Chiao, 2009) Studying how cultural factors influence brain activity and how the human brain develops cultural capacities is known as cultural neuroscience.

References

Ardila, A. (2021). Cross-cultural differences in cognition and learning. In T. K. Shackleford (Ed.), The SAGE handbook of evolutionary psychology: Foundations of evolutionary psychology (pp. 420–435). Sage Reference. https://doi.org/10.4135/9781529739442.n23

Adams, R. B., Rule, N. O., Franklin, R. G., Wang, E., Stevenson, M. T., Yoshikawa, S., & Ambady, N. (2010). Cross-cultural Reading the Mind in the Eyes: An fMRI investigation. Journal of Cognitive Neuroscience, 22(1), 97–108. https://doi.org/10.1162/jocn.2009.21187

Chiao, J. Y., & Ambady, N. (2007). Cultural neuroscience: Parsing universality and diversity across levels of analysis. In S. Kitayama & D. Cohen (Eds), Handbook of cultural psychology (pp. 237–254). New York: Guilford Press

Chiao, J. Y. (Ed.). (2009). *Cultural neuroscience: A once and future discipline. In Cultural neuroscience: Cultural influences on brain function* (pp. 287–304). Elsevier Press.

Cole, M. (1996). Cultural psychology: An once and future discipline. Cambridge, MA: Harvard University Press.

Dalal, A.K. (2016). Cultural Psychology of Health in India: Well-Being, Medicine and Traditional Health Care. New Delhi: Sage Publications India.

Freeman, J. B., Rule, N. O., Adams, R. B., & Ambady, N. (2009). Culture shapes a mesolimbic response to signals of dominance and subordination that associates with behaviour. Neuro Image, 47(1), 353–359. https://doi.org/10.1016/j.neuroimage.2009.04.043

Jhangiani, R., & Tarry, H. (2022). Principles of social psychology (1st international H5P edition). BC campus. https://opentextbc.ca/socialpsychology

Kay, P., & Kempton, W. (1984). What is the Sapir□Whorf hypothesis? American anthropologist, 86(1), 65-79.

Lemke, J. L. (1997). Cognition, context, and learning: A social semiotic perspective. In D. Kirshner & J. A. Whitson (Eds.), Situated cognition: Social, semiotic, and psychological perspectives (pp. 37–55). Mahwah, NJ: Lawrence Erlbaum Associates.

Nordquist, Richard. (2024, June 25). The Sapir-Whorf Hypothesis Linguistic Theory. Retrieved from https://www.thoughtco.com/sapir-whorf-hypothesis-1691924

Parrish, P., & Linder-VanBerschot, J. (2010). Cultural dimensions of learning: Addressing the challenges of multicultural instruction. *The International Review of Research in Open and Distributed Learning*, *11*(2), 1–19. https://doi.org/10.19173/irrodl.v11i2.809