

Exploring Pre-Service Teachers' Perspectives On The Use Of Colours In Educational Settings

Dr. Pallavi Kaul,

Associate Professor, Amity Institute of Education, AUUP, Noida

Aanchal Sikka,

Facilitator, Shiv Nadar School, Faridabad, Haryana

Sylvia Maria Dominic,

PRT, Mount Carmel School, Anand Niketan, Delhi

Abstract

This research explores perspectives of pre-service teachers on the usage of colours in educational settings, with a specific focus on examining the perceived effects of pastel vs. bright colours on attention, focus, and motivation of students. Surveying 40 pre-service teachers from Delhi NCR. The findings revealed a strong preference for pastel colours which were associated with calming effects boosting concentration and focus in learning environments. Bright colours were recognized for their ability to create an energising and engaging environment, but also being potentially distracting when overused. The study also highlights the need for strategic use of colour in classroom design and teaching materials in educational institutions to improve student engagement and learning outcomes.

Keywords: Pre-Service Teachers, Colour Preference, Educational Settings, Classroom Design, Teaching Materials, Learning Outcomes, Colour Perception, Attention.

INTRODUCTION

Colours have always had some impact on our emotions and behaviour. Warm colours consisting of oranges, reds, yellows can make people feel energetic, alert and excited, while cool colours like blue, purple, green are known to have a calming effect on people.

We can see the use of colour in treating different physical as well as mental problems in ancient cultures, especially in Indian Ayurveda, and Ancient China.

Since ancient times in China, Colour has been seen as being associated with energies and the five elements. Feng Shui masters have been using colours as a way to balance energies with a specific space by strategically placing them. For example, Red in south of a house is believed to enhance reputation and visibility. Similarly, Acupuncturists use specific colours to enhance their therapeutic effects. For example, green being associated with liver and growth was used for treating liver related problems.

Similarly in Indian Ayurveda, too, colours have been long associated with energies and the five

elements. These energies believed to influencing the soul, body and mind of a person. In Ayurveda, dosha imbalance (imbalance of elements) causes ailments in the body. Ayurvedic doctors would often advice to incorporate certain colours to reduce the imbalance of elements. For example, if someone displayed ailments of digestion, it was regarded as pitta (fire) imbalance and so ayurvedic doctors would advice to use cool colours like blue green in as clothing, and tell them to have exposure to natural scenes like green forest and blue skies to have a calming effect.

These are just some of the examples how colours are being used since times immemorial, one may also find some consistent moods and emotions being related to certain colours throughout cultures. For example, Red being associated with courage, love as well as danger, Blue with tranquillity as well as melancholy etc.

The decision to conduct a scientific study of this phenomenon of colours influencing the energy and well-being of humans gave birth to the concept of Colour Psychology. Colour psychology is the study of how different hues and shades of colours influence moods and behaviours in humans. The impact of colours on people may vary due to their genders, age and their cultural traditions. Although different in way the affect individuals, this influence of colour has been seen across all races and cultures

The pioneering of scientific study into Colour Psychology is often attributed to Carl Jung, who says “colours are the mother tongue of the subconscious.” In the early 20th century, the Swiss psychiatrist delved into the psychological effects of color and created a form of color therapy that enabled patients to express their social and emotional experiences through colors and images.

Today, Colour Psychology is being applied into various fields encompassing marketing, interior design, advertising, healthcare, education, and even in business set ups.

“The general model of colour psychology relies on six basic principles

Colour can carry a specific meaning

Colour meaning is either based in learned meaning or biologically innate meaning.

The perception of colour causes evaluation automatically by the person perceiving.

The evaluation process forces colour-motivated behaviour.

Colour usually exerts it’s influence automatically

Colour meaning and effect has to do with context as well.” (*Whitefield TW, Wiltshire TJ (November 1990). Colour psychology: a critical review.*)

Since colours have this ability to influence the human behaviour in their daily life. Colour Psychology can be used in educational settings at all grade levels as an effective tool to regulate student behaviours, moods, concentration and energy levels, thereby stimulating their minds and enhancing their mental abilities.

Numerous studies have already begun to explore the impact of colour on learning environments. For instance, in a recent research paper, *Effects of Warm, Cool and Neutral Colours on Short-Term memory in Young Children* by *Ms. Roy and Ms. Thattil* in 2024 found that cool colours were found to enhance memory retention in children aged 9-10 years than both neutral and warm colours. Comprehensive research was done

by *Ms. Gaines, Mr. Curry* in the paper titled *The Inclusive: Classroom: The effects of colour on Learning and Behaviour* in 2011 which gave certain recommendations to use different shades of colours strategically, to positively influence both students with disabilities and without disabilities.

Such articles suggest that Colour Psychology can be applied at educational institutions at various levels – Physical environment which encompasses colour of the classrooms, furniture, decorations etc; The teaching aids the teacher uses, and even for arranging the portfolios of students.

SIGNIFICANCE OF THE RESEARCH

In India, traditional beliefs and rituals significantly shape the meanings and importance of colours. Colours like saffron, white, and green hold special value in Indian society. Investigating how students perceive and respond to colours within this cultural framework can help design educational environments that are culturally and emotionally suitable. Additionally, such research could examine how India's linguistic diversity affects children's understanding and reactions to colours, as language plays a key role in shaping perception.

In India, complex cultural and social factors influence how colours are perceived and conducting such a study could have significant implications for boosting quality and engagement in the learning environment.

The results of this study can be applied in various ways to enhance the learning environment for children in India. For example:

Classroom Design: Schools can create enhanced educational environments by using colour schemes that improve focus and minimize stress.

Teaching Materials: Colour-coded books, charts, and learning aids can help learners understand and retain knowledge.

Inclusive Education: Understanding how various learners, particularly those with special needs, react to colours can lead to more inclusive and effective teaching approaches.

OBJECTIVES OF RESEARCH

To examine pre-service teachers' opinions regarding perceived effects of pastel versus bright colours on attention and ability to focus in learning.

To reflect on preference of colours that the pre-service teachers would prefer in their learning environment and for their teaching aids.

METHODOLOGY

For our paper, we used quantitative research method that explored pre-service teachers' perceptions of colour's impact on student learning. Forty pre-service teachers from Delhi NCR, with experience in schools and educational NGOs, participated. Data was collected via a 13-question Google Form survey, which included 11 multiple-choice questions and two short-answer questions, supplemented with visual stimuli. The survey focused on colour preferences for learning materials and classroom settings, particularly the role of pastel and bright backgrounds in enhancing concentration, comprehension, and motivation. While the study aimed to identify patterns in colour preferences, limitations included the small sample size and the subjective nature of colour perception and cognitive tasks.

DATA ANALYSIS

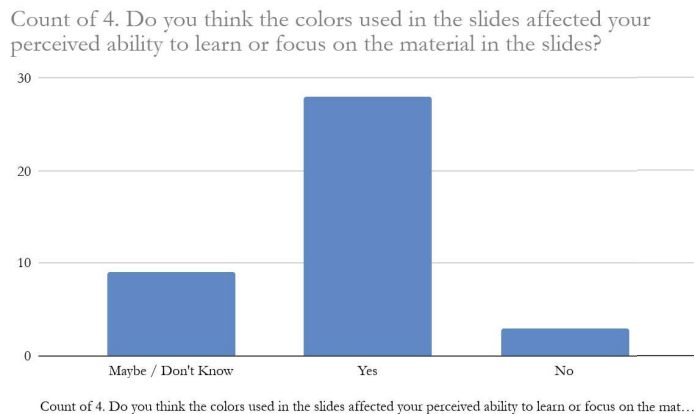
This study examines how colours influence students' concentration, comprehension, and motivation in learning environments. A survey of 40 preservice teachers from Delhi NCR, who had interned in schools and volunteered at NGOs, provided insights into colour preferences in educational settings.

Key Findings:

Objective 1: To examine pre-service teachers' opinions regarding perceived effects of pastel versus bright colours on attention and ability to focus on learning

The collected data indicates that a significant number of pre-service teachers were of the opinion that pastel colours had a more positive impact on attention and concentration in the learning environments.

28 out of 40 participants agreed that colours affect their own concentration when studying or doing work. A recurring theme in these responses was the preference for pastel backgrounds, which were seen as calming and conducive to focus. One participant explained, "I never really thought about it, but now that I do, I realize that pastel colours make studying feel less stressful." Another participant echoed this sentiment, stating, "That I realise now that my inability to pay attention in certain classes might be due to colours of the PPT! Some of the bright colours give me a headache." This suggests that, while many teachers recognize the role of colours, some individuals may not have consciously linked their attention or focus challenges to the colours used in educational materials.



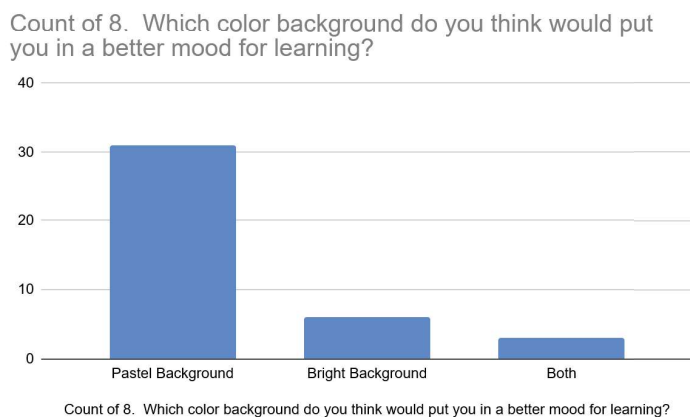
The data also highlights the participants' views on readability in relation to background colours. A total of 23 respondents noted that pastel backgrounds enhanced readability, while bright colours were often seen as a source of distraction when overused. One participant shared, "If the background is too bright, I start paying more attention to the colour than the content." Moreover, 35 respondents indicated a preference for pastel backgrounds to aid concentration, with only two participants favoring bright backgrounds and the remaining three expressing no strong preference. As one respondent put it, "I would choose light blue or pastel green walls for a calming effect, with pastel-coloured learning materials for a soothing and focused learning environment." These responses underscore the consensus that pastel colours, in

particular, promote a more focused and less stressful atmosphere conducive to learning.

On the other hand, bright colours, although seen as energizing, were frequently described as overwhelming when used excessively. Participants suggested that bright colours should be strategically used for emphasis rather than as dominant background colours. One respondent stated, “Bright colours are good for posters and highlights, but too much of them in slides or books makes my eyes tired.” This illustrates the nuanced role that bright colours play in educational materials, where they can capture attention but might contribute to visual fatigue if overused.

Objective 2: To reflect on preference of colours that the pre-service teachers would prefer in their learning environment and for their teaching aids

When asked about their preferences for colours in learning environments, the majority of participants indicated that they preferred pastel shades for both classroom walls and learning materials. A notable 30 respondents agreed that the colours of classroom walls significantly impacted focus. Pastel colours such as light blue, lavender, and beige were the most favored, with many respondents suggesting that these colours promoted a calm and focused atmosphere. One participant expressed, “Pastel shades and neutral shades like light blue, purple, white or beige would be good for walls to help students remain calm and focused in classrooms.” However, this preference was not universal. A few participants, particularly those envisioning active learning spaces such as gym classes, suggested that brighter colours might be suitable for specific environments. For example, one respondent noted, “But if I think about it, I would also use bright shades like fiery red or electric blue for both walls and materials in gym class where I would expect students to be highly energetic and active.” This reflects the diversity of opinions among the pre-service teachers, with some preferring neutral, calming colours for general classroom environments, while others acknowledged the potential value of using vibrant colours in more dynamic settings.



In terms of teaching aids, many participants again emphasized the use of pastel colours. They noted that pastel backgrounds for teaching materials, such as presentations or worksheets, were more effective

for student engagement without overwhelming them. For example, one participant shared, “Pastel-coloured learning materials for a soothing and focused learning environment.” In contrast, bright colours were mostly viewed as appropriate for highlighting specific points or for visually stimulating materials like posters or markers. A few respondents, however, felt that bright colours, when used in moderation, could capture attention and help differentiate key content. One participant summed up the use of bright colours effectively by saying, “Bright colours are good for posters and highlights, but too much of them in slides or books makes my eyes tired.”

A key observation in the study was that colour choices in educational settings are often under considered. Many respondents felt that the impact of colours was overlooked when designing learning materials or organizing classroom spaces. This suggests that educational institutions could benefit from more intentional and thoughtful use of colours in their planning. By integrating colour psychology into educational designs, teachers could create more engaging and effective learning environments. The research indicates that the use of pastel colours for backgrounds, with the occasional strategic use of bright colours for emphasis, would be the optimal approach to enhance student concentration and engagement.

CONCLUSION

This study explored pre-service teachers’ perceptions on impact of colours on student focus, attention, and motivation in learning. Findings revealed a strong preference for pastels, associating them with calmness, improved concentration, and enhanced readability. While bright colours were acknowledged for encourage spontaneous and

active engagement, they were also perceived as distracting when overused.

Pastels were also linked to a positive learning atmosphere, though their impact on motivation was less clear. For classroom design, light blue, lavender, and beige were favoured for walls. A key finding was the perceived lack of attention to colour in educational settings, highlighting a gap in educational design. The study suggests prioritizing pastels for learning materials and using bright colours strategically for emphasis. Classrooms should incorporate neutral and pastel wall colours.

Participants recommended a strategic approach: pastels for environments requiring focus, and bright colours for activities needing spontaneous engagement.

By integrating colour psychology principles into educational planning, institutions can create more engaging and effective learning environments. Through the findings, it can be suggested that:

Pastel colours should be prioritized for backgrounds to enhance readability, reduce cognitive overload, and maintain focus.

Bright colours should be used strategically for highlights and key information to stimulate attention without being distracting.

Classroom walls should incorporate a mix of neutral and soft colours, ensuring a welcoming yet focused atmosphere.

While limited by sample size and demographics, this study underscores colour’s importance in the learning process and advocates for its thoughtful integration in educational planning.

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