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The Adverbial Effect of Colors: Through the Lens of BTLED Students

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Abstract: This study explores the adverbial effect of colors—how colors indirectly shape human actions, expressions, and perceptions—through the lived experiences of Bachelor of Technology and Livelihood Education (BTLED) students. Anchored in qualitative insights, the research identifies three central themes: color's influence on decision-making, interpersonal relationships, and personal philosophies. Findings reveal that students associate colors with aesthetic choices and consumer behavior, illustrating how personal beliefs about color affect lifestyle decisions. Moreover, colors were perceived to subtly impact social interactions, emotional connections, and group dynamics, suggesting that shared color preferences foster attraction and cohesion. In shaping self-concept and worldview, colors were found to play a vital role in enhancing self-expression and identity. The study introduces Carale's Model of the Adverbial Effect of Colors, which identifies four interrelated elements—experiences, assumptions, conception, and concrete actions—that illustrate how individual perceptions of color evolve into behavioral manifestations. Supported by existing literature in psychology, philosophy, and design, the research underscores the wide-reaching implications of color perception in educational and business contexts. Recommendations include integrating color awareness into pedagogy, product branding, and social interactions to promote engagement, identity, and inclusivity.

Keywords: Adverbial Effect, decision-making, relationships with others, and overall perspective and philosophy of life

I. Introduction

"It's amazing how colors can truly impact our mood and influence our behavior" (Goldman, 2023). This observation reflects a deeper phenomenon known as the *adverbial effects* of colors—how colors function not merely as static visual stimuli but as modifiers of human perception, emotion, and behavior. In this context, "adverbial" refers to the way colors influence *how* experiences are felt, actions are performed, and social interactions unfold. These effects are dynamic, contextual, and deeply personal—shaped by individual histories, cultural background, and social environments. Unlike fixed symbolic meanings, adverbial effects of color operate fluidly, modifying not only what is seen but also how individuals react and relate to the world around them.

Color plays a profound role in shaping emotional states, cognitive responses, and behavioral patterns. From the calming influence of blue to the energizing intensity of red, colors can alter how individuals think, feel, and act in various situations (Chang & Lin, 2022). Research confirms that color affects everything from personal expression and consumer behavior to emotional regulation and interpersonal relationships (Lee & Hsieh, 2021; Wang et al., 2020). However, the adverbial effects of color highlight how color subtly mediates these processes—changing the *quality* of engagement, emotion, and decision-making.

This study seeks to explore the perspectives of Bachelor of Technology and Livelihood Education (BTLED) students regarding how color influences their daily lives. Specifically, it examines the adverbial impact of color in shaping decision-making, self-expression, and social interaction among students of different age groups and academic levels. While previous research has largely focused on the commercial, aesthetic, or general psychological effects of color (Popovski et al., 2024; Ahmed & Akhtar, 2022), there is a notable gap in understanding how color operates as a behavioral modifier—particularly in the lives of students in vocational and technology-oriented programs. This research aims to fill that gap by uncovering how students interpret and respond to color in educational and social contexts.

Color is widely acknowledged as a nonverbal medium for expressing identity and emotion (Kaya & Epps, 2023). People often associate colors with moods, personal style, and social cues—frequently without conscious awareness. In consumer settings, bright and warm hues can evoke excitement, while cool and muted tones may convey calmness and trust (Popovski et al., 2024). These responses illustrate adverbial effects at work: not just altering what is seen, but how individuals experience a product, brand, or message.

Beyond commercial applications, color also affects interpersonal dynamics and social cohesion. Shared color preferences can foster group connection and emotional empathy (Chou & Liu, 2021), while colors like red are often unconsciously linked with passion, danger, or dominance—shaping social perceptions and interactions (West & Silberman, 2023). Similarly, individuals use color to construct and express identity, a process influenced by cultural norms, personal experiences, and psychological associations (Gert, 2021; Huang & Zhang, 2020).

Despite growing interest in color psychology, limited attention has been paid to how students in vocational education settings perceive and utilize color. This study aims to address this oversight by investigating the adverbial effects of color in the daily lives

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue VII, July 2025

of BTLED students. In doing so, it hopes to contribute to a richer understanding of how color, as a subtle yet powerful force, shapes learning environments, social relationships, and personal development.

Statement of the Problem:

The main problem of this research is to identify the different perspectives of BTLED students about colors and their adverbial effect on individual concrete actions. It focused on how colors affect decision-making, relationships with others, and overall perspective and philosophy of life. Specifically, it answers the following questions:

What is the profile of the BTLED students in terms of the following:

- age, and
- year level

What are the perceptions of the BTLED students on the adverbial impact of colors in terms of:

- decision making,
- relationship with others,
- philosophy of life, and
- classroom instruction.

What is your perspective about colors?

What do you think are the most significant impact of utilizing colors in classroom instruction?

II. Review of Related Literature

The Psychological and Emotional Influence of Color: Color plays a central role in shaping psychological experiences, emotional responses, and behavior. Contemporary studies in color psychology affirm that colors do not merely decorate spaces or enhance aesthetics—they alter mood, perception, and engagement (Chang & Lin, 2022; Kaya & Epps, 2023). The calming effect of blue, the stimulating nature of red, or the stabilizing perception of green are examples of how specific hues are perceived emotionally and behaviorally. Chang and Lin (2022) found that students in color-rich environments reported improved cognitive performance and reduced stress levels, highlighting the role of color in academic settings.

Moreover, emotional responses to colors are deeply influenced by past experiences, cultural context, and individual temperament (Ahmed & Akhtar, 2022). According to Wang et al. (2020), color cues often serve as emotional triggers, subtly shaping how individuals respond to their surroundings without conscious awareness. These effects are especially pronounced in social and learning environments where color may either reinforce a sense of comfort or induce tension, depending on the individual's emotional history and cultural orientation.

The Concept of Adverbial Effects of Color. The idea of *adverbial effects* refers to how color modifies the *manner* in which experiences occur, much like adverbs modify verbs. This conceptualization extends beyond traditional symbolism or color theory, suggesting that colors influence the *quality* and *tone* of actions, thoughts, and emotional responses (Goldman, 2023). Popovski et al. (2024) emphasize that colors influence *how* individuals engage with spaces, products, and people—modifying intensity, emotional resonance, and cognitive processing.

This influence is not static. Instead, it is dynamic and context-dependent. For example, while yellow may evoke warmth and positivity in one cultural context, it may be perceived as overstimulating or even aggressive in another (Lee & Hsieh, 2021). These contextual differences highlight the adverbial nature of color: its psychological and emotional impact varies depending on internal belief systems and external environments.

Color and Self-Perception in Learning Contexts. Research increasingly points to the importance of color in identity formation and educational engagement. Gert (2021) argues that individuals use color as a tool for self-expression, particularly in environments where personal identity and creativity intersect, such as schools. Similarly, Huang and Zhang (2020) note that students' perceptions of classroom environments—including the use of color—can influence their motivation, confidence, and academic risk-taking.

In vocational education settings, where hands-on, practical learning is emphasized, color can reinforce or hinder learning behaviors. Bright, warm colors may encourage participation and collaboration, while cool, muted tones might enhance focus and attentiveness (Wang et al., 2020). However, the effectiveness of these colors depends on the learner's personal and cultural associations—further demonstrating the adverbial nature of their effects.

Social and Interpersonal Dimensions of Color Perception. Color not only shapes individual experience but also plays a role in social bonding and interpersonal interaction. Chou and Liu (2021) found that shared color preferences among peers can strengthen group cohesion and increase empathy. Similarly, West and Silberman (2023) demonstrated that color influences how individuals interpret emotional cues in social settings—affecting interpersonal judgments, trust, and perceived social warmth. In educational environments, these social dimensions are particularly relevant. When students feel that their surroundings reflect their identities or emotional states—through color or design—they are more likely to engage in meaningful social interaction. This supports the

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue VII, July 2025

argument that the adverbial effects of color extend beyond cognition to affect relational and social development, especially in youth and young adults.

The Gap in Vocational and Applied Education Research. While color psychology has been widely studied in marketing, healthcare, and early childhood education, its role in vocational and technology-driven learning environments remains underexplored. According to Popovski et al. (2024), most color-based studies focus on consumer behavior or general well-being, leaving a gap in research concerning applied education contexts.

This gap is critical to address, especially for Bachelor of Technology and Livelihood Education (BTLED) students who operate in visually and materially rich learning environments. These students may form unique relationships with color based on their exposure to design, technology, agriculture, and crafts. Understanding how color modifies their experiences, decisions, and classroom engagement can provide valuable insight into how to optimize learning environments in vocational education.

III. Research Methodology

This study utilized a mixed-methods design, integrating both quantitative and qualitative approaches to explore the perspectives of BTLED students on the adverbial impact of colors. Quantitative data were collected through structured questionnaires, while qualitative insights were obtained through open-ended questions to capture deeper reflections on color perception.

Research Approach

The descriptive survey approach was employed. This approach is appropriate for obtaining current information regarding how students perceive the influence of colors in various aspects of life, such as decision-making, interpersonal relationships, philosophy of life, and classroom instruction.

Research Locale

The study was conducted at Negros Oriental State University, focusing on students enrolled in the Bachelor of Technology and Livelihood Education (BTLED) program. This location was selected due to the accessibility of the target participants and relevance of the program to the research topic.

Participants of the Study

The participants were 52 BTLED students from various year levels at Negros Oriental State University. Participants ranged in age from 17 to 27 years old, providing a broad perspective from young adults in the tertiary level of education.

Sampling Technique

A purposive sampling technique was used in selecting the participants. This non-probability sampling method was appropriate since the research specifically targeted BTLED students who were expected to have insights into the subject matter. The selection criteria ensured that all participants were currently enrolled in the BTLED program.

Research Instruments

The primary instrument used in this study was a structured questionnaire developed based on a review of relevant literature. It included:

- Demographic profile section (age and year level)
- Likert-scale items to assess perceptions on the impact of colors in:
    - Decision making
    - Relationships with others
    - Philosophy of life
    - Classroom instruction
- Open-ended questions to gather qualitative data regarding students' general perspectives on colors

Study Design

The researcher employed a mixed-methods approach to gather and interpret data, utilizing questionnaires as the primary research instrument. The participants of this study were Bachelor of Technology and Livelihood Education (BTLED) students at Negros Oriental State University. To ensure validity, the questionnaire was developed based on a review of relevant literature. It was distributed online using Google Forms. The study aimed to explore the impact of color on self-expression, uniqueness, and self-concept as perceived by BTLED students. A total of 52 students, aged 17 to 27, participated in the survey. The findings are intended to reveal how individuals' perceptions of color influence their self-expression and self-concept, the impact of colors on relationships with others, and decision-making in life. All respondents were enrolled in the BTLED program at Negros Oriental State University.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue VII, July 2025

Ethical Considerations

Participants in the study were informed of their right to withdraw at any point. They were also given the opportunity to fully understand the study's process before providing consent, ensuring their autonomy and informed decision-making. During data collection, the researchers emphasized the importance of maintaining confidentiality, assuring participants that their names would not be linked to the data. The researchers placed great value on confidentiality as a means of safeguarding participants' privacy, which is a fundamental right. Protecting this right was a priority for the researchers to ensure participants' safety. The researchers also honored and respected the disclosures made by respondents, reflecting the researchers' trustworthiness and proper use of the information. Those who declined or chose not to participate were also respected. The study acknowledged potential limitations, including the possibility that some subjective responses might not fully reflect the truth during data collection.

Data Analysis.

The data were exported into the Statistical Package for Social Sciences (SPSS) which was used for data manipulation and analysis. Specifically, the mean was used to analyze the common perceptions of respondents on The Adverbial Effect of Colors, Pearson r correlation coefficient for the relationship between the independent and independent variables, t-test, and F-test ANOVA were used to find the difference in perceptions when respondents were grouped according to selected profile variables.

Presentation, Analysis, and Interpretation of Data

Perceptions of the respondents on the impact, extent, and influences of colors.

Table 1 The Influence of Colors in Making Life Decisions

Influences of colors in making life's decision	**WX**	**Rank**	**VD**
1. My choices of clothes to wear are influenced by my favorite colors.	*2.92*	*2nd*	*Agree*
2. Colors affect my aesthetic preferences.	*3.00*	*1st*	*Agree*
3. My taste in food is influenced by how food is presented through applications of colors.	*2.71*	*3rd*	*Agree*
4. I am attracted to products that are presented through effective packaging of colorful shades that influence my purchasing judgment.	*2.92*	*2nd*	*Agree*
5. Color themes on Online apps affect my frequency of usage and digital preferences.	*2.69*	*4th*	*Agree*
Composite mean	***2.85***		***Agree***

Legend:

Scale	**Interval**	**Verbal Description**
4	**3.25-4.00**	**Strongly Agree**
3	**2.50-3.24**	**Agree**
2	**1.75-2.49**	**Disagree**
1	**1.00-1.74**	**Strongly Disagree**

Table 1 signifies the influence of colors in making decisions in life. The indicator with the highest weighted mean is "Colors affect my aesthetic preferences" (Wx= 3.00, Agree), second is "My choices in clothes to wear are influenced by my favorite colors (Wx=2.92, Agree), and "I am attracted to products which are presented through effective packaging of colorful shades that influence my purchasing judgment" (Wx=2.92, Agree). While the composite mean is equal to 2.85 and interpreted as agree. This means that most of the respondents believed that their choices in life especially in making decisions or personal expressions in selecting products are influenced based on their beliefs about the beauty and application of colors. A wealth of influences that go beyond conventional aesthetics can be found in the psychological and visual elements of color in graphic design, according to Filip Popovski, Hristina Dimova Popovska, Svetlana Mijakovska, and Gorica Popovska Nalevska (2024). When considering the cultural and historical aspects of color, social manifestations and perceptions of color are inextricably linked to their meaning. In particular, the way that colors are used in branding and marketing highlights how crucial they are to shaping customer behavior and company identity.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue VII, July 2025

In branding, vibrant, thickened hues bolster the brand's energy- and movement-focused character. Excited messaging is conveyed by design components including strong text, chocolate design, background, and sharp angles. Colors that are soft and subdued add to the brand's character, which emphasizes harmony and serenity. A sense of well-being is promoted by the design components, which include representations of chocolate, soothing shapes, and symbols related to relaxation.

Purchase intention: Every hue has a psychological significance that can influence our mood and how we perceive the world around us, from the calming embrace of chilly blue to the vibrant vitality of warm red. Colors are used in product design to draw in customers who are searching for products that will provide them more energy while doing specific tasks. The goal of the design is to evoke a sense of urgency, which may influence consumers with active lifestyles to make different purchases. The calming color palette is likely to appeal to consumers looking for a product that is consistent with a more careful lifestyle. The Design has the power to inspire confidence and stability, which motivates purchases for self-care moments.

These findings are relevant to the statements given by the following participants:

P1: I see colors as a reflection of my mood and how I want to approach things. Colors help me connect with my feelings and make choices that reflect who I am at that moment.

P3: Blue is often linked to calmness, trust, and stability. It can represent making thoughtful, peaceful choices.

P8: Colors are for aesthetics, categorizing colors in terms of good or bad color when it comes to picking an aesthetic for graphic design or clothes, and memory, using it to associate with school subjects and annotations of my notes.

P11: The way I perceive colors is that they can evoke emotions and moods that may subconsciously influence decisions and confidence. For me, I have a better perspective of someone who wears dark green since it is my favorite color and it resembles calmness and elegance, while I tend to lean off track when I interact with people who wear orange since it's a disliked color of mine (no reason) and I'm more likely to disagree with that kind of person. In summary, I view colors as an impactful choice of manipulating my way of deciding choices as well as interacting with others.

The data suggests that colors significantly influence the decision-making processes of BTLED students, particularly in areas of personal expression, aesthetic judgment, and consumer behavior. Quantitative findings reveal that participants *agree* that their clothing choices, product preferences, and even digital usage habits are shaped by color associations—with a composite mean of 2.85, affirming a moderate to strong influence of color in life decisions.

Participant statements support these results, emphasizing how colors are tied to emotions, mood regulation, and personal identity. For example, students mentioned that colors help them express their current emotional state and influence how they perceive and interact with others. Colors like blue were associated with trust and calm decision-making, while preferences or aversions to certain colors affected confidence and even interpersonal dynamics.

Overall, both statistical data and participant insights underscore that color is not merely visual—it serves as a psychological tool that informs personal choices, self-presentation, and even social judgments. This aligns with literature asserting that color in design and marketing deeply shapes consumer behavior, mood, and identity, reinforcing the idea that color perception plays an adverbial role in daily human actions.

Table 2: The impact of colors on my relationship with others

The impact of colors on my relationship with others	**Wx**	**Rank**	**VD**
1. I am always motivated with somebody or a group when we have the same choice of colors.	*2.67*	*3rd*	*Agree*
2. I can tell the mood or feeling of others when wearing their shades of colors.	*2.48*	*5th*	*Agree*
3. I am attracted to somebody who wears the colors that I love.	*2.76*	*2nd*	*Agree*
4. I am attracted to the opposite sex when they are wearing my favorite color.	*2.50*	*4th*	*Agree*
5. I can easily cultivate my relationship with others when we have a common choice of colors.	*2.96*	*1st*	*Agree*
Composite Mean	**2.68**		**Agree**

Table 2 provides insight into how colors impact interpersonal relationships. It shows that "I can easily cultivate my relationship with others when we have a common choice of colors" has the highest weighted mean (WX= 2.96, Agree), and "I am attracted to somebody who wears the colors that I love" (Wx=2.76, Agree).

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue VII, July 2025

On the other hand, participants also agreed, though to a lesser extent, that matching colors can motivate group dynamics, ranking this statement third (WX=2.67, Agree). The ability to interpret someone's mood based on their choice of color (WX=2.48, Agree), and the attraction to the opposite sex when wearing a favorite color, at (WX=2.50, Agree), were ranked lower, but still showed agreement. This indicates that although color has a minor overall influence on interpersonal dynamics, individuals who wear colors they love feel more connected to and drawn to each other. Therefore, colors can benefit from similar color preferences. These similar color preferences can be supported by the case study by Barbie West and Joshua Silberman (2020). Two distinct elements in our life are colors and emotions. Given the prevalence of associations between colors and emotions, it seems plausible that emotions and colors are related. Generally speaking, colors evoke certain feelings. Red and pink, for example, are strongly associated with red. There are several emotions and explanations for which red may be associated. Cultural ties, social ties, or individual preferences could all have contributed to the correlations. Unknowingly, color is one of the things that affects people daily as a result of their surroundings. Though different kinds of sentiments and feelings can be evoked by different colors, colors can be thought of as a form of expression or emotion. By inducing heightened levels of arousal or tranquility, or based on personal choice, colors can influence people's work performances and emotional responses. In this perspective, colors impact how people cultivate relationships with others. It also shows on what is the perception of humans about colors that evoke their expression or emotion. Different colors represent different appearances of how humans embody their significance either it is from the influence of the people around them or it is from within. Colors are connected in a way that they influence your decision-making and this could possibly be because the colors are associated with emotions or they are purely based on preference or choices in life. Colors often make us certain emotions. Red and pink are strongly associated with love during the Valentine's Day season. There are colors associated with emotions as well. Anger, for instance, is usually associated with red. When two people like the same color they make themselves feel connected because they might have similar feelings about these colors. Having similar feelings about color makes it easier to relate to them just like cultivating relationships with others when we have a common choice of colors, this makes people create bonds and makes it easier for them to trust and feel close to each other. In essence, having a similar choice of color may symbolize deeper emotional alignment, helping cultivate relationships by harmonizing emotional reactions and creating a more comfortable social environment.

The above findings are relevant to the following statements:

P1: I see colors as a reflection of my mood and how I want to approach things. Colors help me connect with my feelings and make choices that reflect who I am at that moment.

P11: The way I perceive colors is that it can evoke emotions and moods that may subconsciously influence decisions and confidence. For me, I have a better perspective of someone who wears dark green since it is my favorite color and it resembles calmness and elegance, while I tend to lean off track when I, interact with people who wear orange since it's a disliked color of mine (no reason) and I'm more likely to disagree with that kind of person. In summary, I view colors as an impactful choice of manipulating my way of deciding choices as well as interacting with others.

P14: Colors in life mirror our emotions and choices. Each hue tells a story—like green for growth and renewal, or yellow for optimism. Our preferences shape our experiences and how we connect with the world around us.

Table 3: The extent of colors on the perspective and philosophy of life

Extent of colors towards perspective and philosophy of life	**WX**	**Rank**	**VD**
1. I developed a feeling of hatred for people when they love to wear any shades or colors that I can associate with my worst experiences.	*2.04*	*5th*	*Disagree*
2. The use of colors enhances my memory retention in recalling my daily tasks or academic learning.	*2.92*	*3rd*	*Agree*
3. Colors influence my perceptions about safety practices and measures.	*2.81*	*4th*	*Agree*
4. Colors play a vital role in my expressions and uniqueness.	*3.04*	*1st*	*Agree*
5. Colors play a vital role in building my positive self-concept.	*2.94*	*2nd*	*Agree*
Composite Mean	*2.75*		***Agree***

Lastly, how colors influence the perspective and philosophy of life. The indicator with the highest weighted mean is "Colors play a vital role in my expression and uniqueness" (Wx= 3.04, Agree), second, is "Colors play a vital role in building my positive self-concept "(Wx=2.94, Agree). While the composite mean is equal to 2.75 and interpreted as agree. This means that most of the respondents believed that colors could make an impact on their perspective and philosophy of life in enhancing their personal expression and self-concept. A perspective and philosophy of life that is influenced by colors can be supported by the case study in neo-pragmatist metaphysics and philosophy of perception by Joshua Gert (2017). A given color can present different veridical appearances in different viewing circumstances and to different normal viewers. In this perspective, personal expressions and

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue VII, July 2025

uniqueness are deeply rooted in truthful and accurate perceptions of self-expression. It is these appearances, which are to be understood in an adverbial way, that can be in standard color spaces. In explaining the distinction between objective color and color appearance, a central analogy to which Gert appeals is that between the perceptible three-dimensional shape of an object, and the various ways in which that shape appears from various perspectives. Relating this phenomenon to self-expression, uniqueness, and self-concept, the impact of color on self-expression will differ on how the person perceives, what he/she believes to be true, and how it impacts building self-concept. This cycle is what we call the adverbial effect. Primitive Colors also offers an account of color constancy, a moderated version of representationalism about visual experience, and a criticism of the thesis on the transparency of experience.

These findings are relevant to the statements given by the following participants:

P5: The way I perceive colors is that they can evoke emotions and moods that may subconsciously influence decisions and confidence. For me, I have a better perspective of someone who wears dark green since it is my favorite color and it resembles calmness and elegance, while I tend to lean off track when I interact with people who wear orange since it's a disliked color of mine (no reason) and I'm more likely to disagree with that kind of person. In summary, I view colors as an impactful choice of manipulating my way of deciding choices as well as interacting with others.

P15: In my perspective, colors have a significant impact on my life choices. They are a way for me to express myself, especially in connection with my moods, preferences, attitude, and even my style. Colors also inspire me to wake up each day as they bring life to everything I see. I compare colors to the melody of music, which enhances its beauty and meaning. Similarly, colors add beauty and vibrancy to everything around me.

P12: From my perspective, colors play a symbolic and psychological role in shaping choices. They can influence mood, convey emotions, and reflect identity. I see them as tools for expression and communication, whether through clothing, design, or environment. That's all.

The study revealed that colors play a significant adverbial role in the lives of BTLED students, influencing how they make decisions, interact with others, and form personal philosophies. Quantitative data showed consistent agreement that colors affect clothing choices, purchasing behavior, memory, and self-concept. Qualitative responses supported this, highlighting how colors are deeply tied to emotions, identity, mood regulation, and self-expression.

Participants shared personal reflections on how specific colors evoke feelings of calmness, trust, or even discomfort, which influence their actions and perceptions. These findings are aligned with psychological and philosophical theories, suggesting that color is not only a visual element but also a psychological tool that affects how individuals experience and interpret the world.

Overall, the study affirms that the impact of color goes beyond aesthetics—it is an influential factor in shaping students' thoughts, behaviors, and social interactions, reinforcing its role in both educational and personal contexts.

Question No. 4: What do you think are the most significant impact of utilizing colors in classroom instruction?

Clustered Meaning	Participant Numbers	Sample Statements	Final Theme
Colors enhance student attention and focus.	P1, P4, P7, P8, P10, P16	"Colors grab attention...", "To attract the attention of students..."	***Cognitive Engagement***
Colors improve memory retention and comprehension.	P3, P5, P6, P11, P13	"Helps students remember better...", "Retention power in memory..."	***Enhanced Learning and Recall***
Colors increase engagement, motivation, and participation.	P2, P8, P9, P10, P14, P17	"Motivates learning...", "Makes learning engaging..."	***Motivational Influence***
Colors evoke emotional responses and promote calm or excitement.	P2, P3, P13, P18	"Peace and lightness...", "Warm energizes, cool calms..."	***Emotional and Psychological Impact***
Colors support creativity and personal expression.	P9, P10, P12	"Shows creativity and emotions...", "Apply also for creativity."	***Creativity and Self-Expression***
Colors support diverse learning needs (especially visual learners).	P13, P14	"Color helps process info for visual learners..."	***Inclusive Learning Strategy***

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue VII, July 2025

Colors improve classroom aesthetics and environment.	P1, P15, P18	"Makes classroom lively...", "Inviting and engaging..."	***Learning Environment Enhancement***
Colors affect students' perception of time and mood.	P16, P17	"Affects attention span and perception of time..."	***Time and Mood Perception***

Emergent Themes:

Cognitive Engagement

Enhanced Learning and Recall

Motivational Influence

Emotional and Psychological Impact

Creativity and Self-Expression

Inclusive Learning Strategy

Learning Environment Enhancement

Time and Mood Perception

Emergent Framework

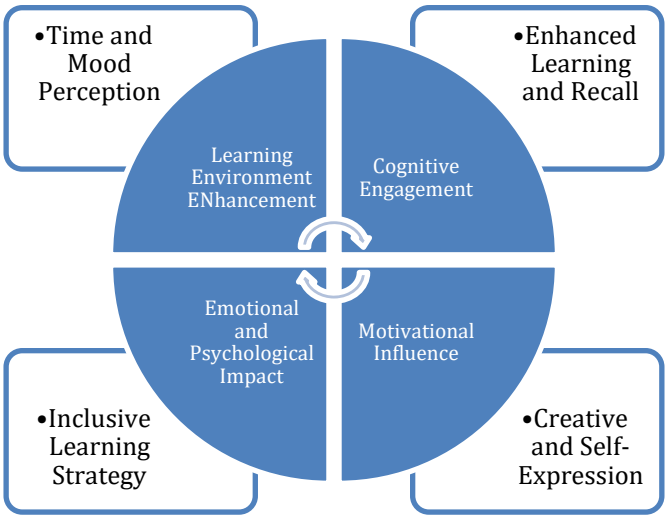


Figure 1: Emergent themes on Impact of Colors

The findings of this study revealed that the use of colors in classroom instruction exerts a significant adverbial influence on the cognitive, emotional, and behavioral aspects of student learning. Participants consistently shared that colors help capture attention, improve focus, enhance memory retention, and increase motivation to participate in learning tasks. This aligns with recent studies indicating that color-rich environments can enhance task performance and reduce cognitive fatigue (Popovski et al., 2024; Heliyon, 2022). Students noted that bright or warm colors—such as red, yellow, and orange—grab attention and energize classroom activities, while cool tones like blue and green create a calm and focused atmosphere. These observations echo findings in neuroscience and psychology suggesting that color impacts both arousal levels and information processing (Zekagraphic, 2023; Digital Learning Edge, 2023).

Furthermore, students emphasized how colors contribute to memory retention and content recall, particularly when used in highlighting key ideas or through color-coded instructional materials. This confirms the educational value of color as a visual learning aid, supported by studies that show improvements in memory and comprehension when color is strategically applied (Cell.com, 2022; ScienceDirect, 2021). Additionally, colors were found to foster creativity and self-expression. Students associated color with emotional tone, describing how they use it to express identity or make abstract learning more relatable. This supports the idea that color is not only decorative but also functions symbolically to express mood and values in educational spaces (Gert, 2017).

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue VII, July 2025

Another theme that emerged was the role of color in supporting inclusive and differentiated learning. Visual learners, in particular, benefit from the use of color in lessons, as it enhances accessibility and reduces cognitive overload. This perspective is supported by literature advocating for multimodal learning environments that incorporate color to address diverse learning needs (Zeka Design, 2023). Students also highlighted the aesthetic function of color, pointing out that colorful classrooms appear more welcoming, which encourages participation and positive emotional responses. This is consistent with findings from the PPG and RAND (2023) research, which show that classroom color design has a direct impact on student and teacher engagement.

In summary, the study found that color use in instruction enhances attention, memory, motivation, creativity, emotional regulation, inclusivity, and classroom aesthetics. These findings reinforce the idea that color is an effective pedagogical tool with wide-ranging cognitive and psychological benefits. Therefore, it is concluded that color contributes meaningfully to student learning by shaping perception, emotional engagement, and classroom interaction—highlighting its adverbial impact on how learning occurs rather than merely what is taught.

Based on these findings, several recommendations are proposed. Educators should apply balanced color schemes, using cool tones for focus areas and warm tones for stimulation. Color-coding should be used for organizing and emphasizing key content to improve memory retention. Teachers are also encouraged to consider students' emotional responses to color, ensuring that classroom colors promote calmness without overstimulation. Furthermore, the use of color should be inclusive—benefiting visual learners and students with different learning preferences. Lastly, students could be engaged in classroom design choices to increase their sense of ownership and enhance the learning environment's relevance to their identities and cultures.

IV. Discussions:

The first sub-construct signifies the influence of colors in making decisions in life. Most of the BTLED students believed that colors affect aesthetic preferences. Specifically, it influences choices in clothes to wear, and products to patronize. It further elucidates that BTLED students believed that their choices in life especially in making decisions or personal expressions in selecting products are influenced based on their beliefs about the beauty and application of colors. These findings are relevant to the notions of Filip Popovski, Hristina Dimova Popovska, Svetlana Mijakovska, and Gorica Popovska Nalevska (2024) stated that a wealth of influences that go beyond conventional aesthetics can be found in the psychological and visual elements of color in graphic design. These visual elements can influence indirectly or directly to personal beliefs which in turn dictate concrete actions of an individual. These concrete actions are the adverbial effects of what an individual believes to be true and correct.

On the insights into how colors impact interpersonal relationships, most of the students believed that colors can cultivate relationships with others and can influence feelings of attraction toward other people. On the other hand, participants also agreed, though to a lesser extent, that matching colors can motivate group dynamics, and interpret someone's mood based on their choice of color, and attraction to the opposite sex. This indicates that although color has a minor overall influence on interpersonal dynamics, individuals who wear colors they love feel more connected to and drawn to each other. Therefore, colors can benefit from similar color preferences. These similar color preferences can be supported by the case study by Barbie West and Joshua Silberman (2020). Two distinct elements in our life are colors and emotions. Given the prevalence of associations between colors and emotions, it seems plausible that emotions and colors are related. In this analogy, the adverbial effect of colors is the concrete manifestation, feeling, or emotions toward others.

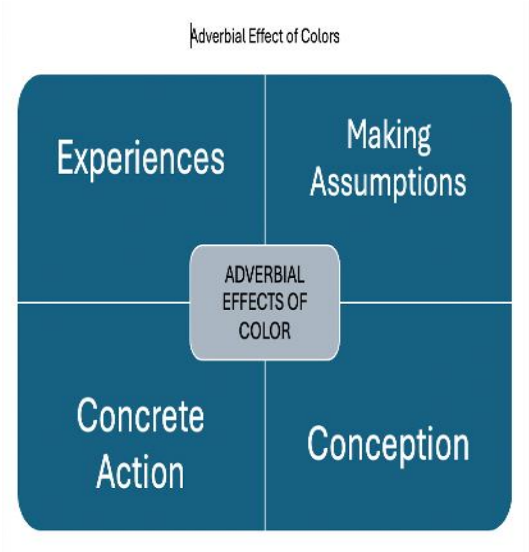
Colors influence the perspective and philosophy of life. The majority of the BTLED students believed that colors play a vital role in personal expression and uniqueness and colors play a vital role in building positive self-concept. Furthermore, most of the respondents believed that colors could make an impact in the perspective and philosophy of life in enhancing their personal expression and self-concept. A perspective and philosophy of life that is influenced by colors can be supported by the case study in neo-pragmatist metaphysics and philosophy of perception by Joshua Gert (2017) who posits that a given color can present different vertical appearances in different viewing circumstances, and different normal viewers. In this perspective, personal expressions and uniqueness are deeply rooted in truthful and accurate perceptions of self-expression. It is these appearances, which are to be understood in an adverbial way, that can be in standard Color spaces. In explaining the distinction between objective color and color appearance, a central analogy to which Gert appeals is that between the perceptible three-dimensional shape of an object, and the various ways in which that shape appears from various perspectives. Relating this phenomenon to self-expression, uniqueness, and self-concept, the impact of color on self-expression will differ on how the person perceives, what he/she believes to be true, and how it impacts to building self-concept. This cycle is what we call the adverbial effect.

The study concludes that the use of colors in classroom instruction significantly enhances students' learning experiences by improving attention, memory retention, motivation, emotional engagement, and overall classroom atmosphere. Colors serve not only as visual enhancements but also as powerful tools that influence how students perceive, process, and respond to instruction. By strategically integrating colors into teaching practices, educators can create more inclusive, engaging, and effective learning environments that support diverse learner needs and foster both cognitive and emotional development.

"Colors are not just seen—they are lived." (Inspired by Gert, 2017; Popovska et al., 2024)

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Theoretical Construct of the Four (4) Elements in the Adverbial Effects of Colors



Experiences: People's perceptions of the meaning of colors are shaped by their personal experiences. These experiences determine the four crucial components: likes and dislikes, family, community, and one's own aspirations or life objectives. One's interactions with color will either **REINFORCE** or **CHALLENGE PERSONAL VIEWS**. However, one's initial perception of colors is defined by **AUTHENTIC PERSONAL ENGAGEMENT**.

Making Assumptions: The ongoing interaction with the outside world may prompt ongoing assessment and contemplation of what is pertinent to and consistent with their worldview. These ongoing exercises in self-evaluation and realignment are habit-forming and will eventually reveal the true significance of how colors influence each individual. Respect and self-identity will be based on what is **TRUE** and **SIGNIFICANT** to their individual beliefs.

Conception: Self-conception is the product of what an

individual comprehends the relevance of colors that create his/her viewpoint and purpose in life. The fundamental basis of an individual's perception of the influence of colors on everyone and everything is their **SELF-CONCEPTION.** This will result in his or her actions—whether good or bad—of appreciation, dissatisfaction, or adaptability to any given environment. **PERSONAL IDENTITY** is reflected in constant self-conception.

Concrete Actions: A self-identity formed through introspection and self-conceptions manifests itself as an **ELICITED ACTION.** It is shown by one's attitudes, behaviors, and views on colors that are consistent with what one believes to be true. A manifestation of their personal life philosophy. It is a definite action or a response to a stimulus strongly rooted in real conception of oneself that forms **PHILOSOPHY OF LIFE.**

Figure 2: Carale's Model on the Adverbial Effect of Colors

Carale's Model on the Adverbial Effects of Colors presents a dynamic framework that explains how individuals internalize and respond to color not merely as a visual experience but as a psychological, emotional, and behavioral influence. The model is composed of four interconnected elements: Experiences, Making Assumptions, Conception, and Concrete Actions, all of which illustrate how the adverbial effect of color unfolds in a person's life. The foundation of the model lies in personal experiences, where one's perception of color is initially shaped. These experiences—ranging from personal preferences and family influences to community culture and individual goals—determine how colors are interpreted. Such encounters either reinforce or challenge personal beliefs, and ultimately define how one engages with color in a meaningful way. Building on these experiences, the second element, Making Assumptions, involves the continuous assessment of color's significance through reflection and alignment with one's worldview. This reflective process becomes habitual and forms the basis for a person's developing sense of identity and personal truth about what color represents to them. The third element, Conception, refers to the individual's internalization of these interpretations, where colors are no longer just seen, but felt and understood in relation to one's purpose and self-conception. This stage determines how a person adapts to, appreciates, or resists different environments based on their understanding of color's influence. Finally, Concrete Actions are the outward expressions of this self-conception—manifested in one's behavior, preferences, emotional responses, and overall life philosophy. These actions represent elicited responses rooted in deeply held beliefs, making color a vehicle through which identity and values are communicated. In the context of BTLED students, this model offers a meaningful lens to understand how color influences decision-making, classroom behavior, and self-expression. It emphasizes that colors are not just decorative or superficial elements but act as modifiers that shape how students feel, engage, and relate to themselves and others. Carale's model highlights the profound psychological role that color plays in shaping individual identity, emotional regulation, and behavioral outcomes—making it a crucial consideration in educational settings and personal development.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue VII, July 2025

The Conceptual Framework of Adverbial Effects of Colors

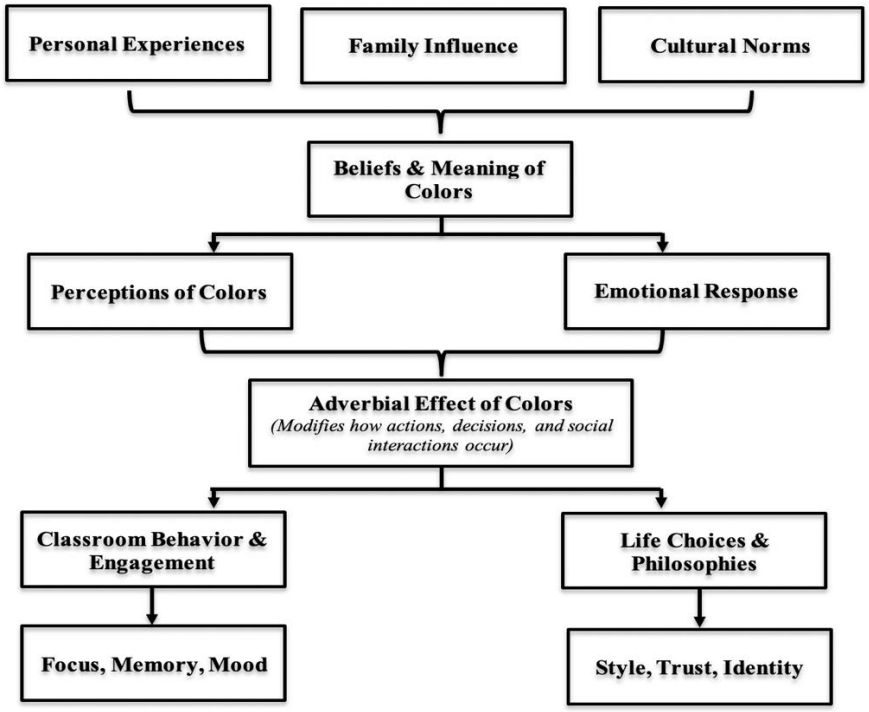


Figure 4: The Conceptual Framework of Adverbial Effects of Colors

The Conceptual Framework of Adverbial Effects of Colors illustrates how colors influence human behavior, perception, and identity in a manner comparable to how adverbs function in language—modifying the tone, intensity, and quality of actions. This influence is not isolated or objective; rather, it emerges through layers of social, personal, and cultural meaning-making. The framework posits that individuals develop their color perceptions through a complex interplay of personal experiences, family upbringing, and cultural context. These elements form an internal meaning system that shapes emotional, psychological, and behavioral responses to color stimuli.

This process aligns with Vygotsky's Sociocultural Theory, which emphasizes that learning and meaning are socially mediated. According to Vygotsky, individuals acquire knowledge and internalize values—including symbolic meanings like color—through interaction with more knowledgeable others within a cultural setting. Thus, a student's understanding of the color red, for example, may initially come from parental cues, classroom norms, or cultural practices (e.g., red for celebration or danger). These social interactions act as scaffolding, enabling the learner to integrate and personalize the symbolic meanings of color over time. In this way, the adverbial effects of colors are co-constructed socially before being internalized as personal interpretations.

Further reinforcing this idea is Bandura's Social Cognitive Theory, which highlights the role of observational learning, self-efficacy, and reciprocal determinism in behavior formation. Individuals do not merely react to color—they observe how others use and respond to it, internalize these reactions, and then adjust their own behavior accordingly. For instance, a student who notices that bright, warm colors are used in collaborative learning spaces might associate those colors with enthusiasm, productivity, or group cohesion. Over time, such associations influence their choices—perhaps decorating their own study space with similar hues or reacting more positively in color-rich classrooms. Bandura's concept of self-efficacy is particularly relevant here: a student's belief in their ability to function effectively in a color-influenced environment (e.g., a red-themed competitive event) will affect their motivation, emotional response, and performance.

Together, these theories highlight that the adverbial effects of color are not passive or innate, but actively constructed and continuously reshaped through social experiences and individual interpretation. The conceptual framework suggests that the meaning of color becomes embedded in one's identity and actions through iterative processes of social engagement, reflection, and adaptation. This meaning system then functions as a subtle modifier of how individuals perceive and carry out actions—impacting learning engagement, emotional regulation, interpersonal behavior, and self-conception.

In educational settings, this framework has practical implications. Understanding how color operates as an adverbial force can help educators and designers create environments that align with learners' social and cultural experiences, thereby enhancing motivation, reducing anxiety, and fostering a stronger sense of belonging. It also underscores the importance of considering learners' cultural capital, prior knowledge, and observed behaviors, as these factors directly shape how the adverbial effects of color will manifest in their educational and social lives.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue VII, July 2025

Ultimately, the framework reveals that colors are not merely aesthetic additions but integral, socially-informed elements that shape **how** students feel, learn, behave, and understand themselves and others—just as adverbs shape the nuance of an action within a sentence.

V. Conclusions:

The adverbial effects of color refer to the psychological, emotional, and behavioral influences that color exerts on individual perception, action, and social interaction. These effects are not static or universal but are shaped by personal experiences, cultural backgrounds, and social contexts—similar to how adverbs modify meaning in language. A person's understanding of color is constructed over time through interactions with family, peers, school environments, and the broader community. These influences help form internal belief systems that guide one's emotional responses, life choices, and philosophies.

In this way, color functions as a socially mediated modifier of experience, aligning with Vygotsky's Sociocultural Theory and Bandura's Social Cognitive Theory. Through observation, interaction, and reflection, individuals internalize the symbolic meanings of colors, which in turn shape their identity and behavior. In educational settings, the strategic use of color can enhance engagement, emotional regulation, and cognitive development. Color is not merely a visual enhancement—it is a powerful pedagogical and psychological tool that can support inclusive and responsive learning environments.

Beyond the classroom, color continues to influence how people see themselves, relate to others, and interpret the world around them. It informs branding, communication, and even social harmony by shaping aesthetic preferences and emotional connections. Ultimately, the adverbial effect of color reveals the deep interconnection between perception, emotion, identity, and behavior, highlighting the subtle yet profound ways color helps individuals make meaning of their experiences and the world they inhabit.

VII. Recommendations:

Instructional Practices and Student Engagement

Teachers should be attentive to students' favorite colors and consider them when designing learning materials or environments to foster a sense of familiarity and motivation.

Incorporate a variety of colors purposefully in group activities and instructional strategies to enhance collaboration and engagement.

Integrate color-coding techniques in lessons to support memory retention and improve content organization.

Encourage students to use color creatively in their projects to stimulate imagination, expression, and ownership of learning.

Incorporate colors thoughtfully across all teaching components—including strategies, classroom environment, instructional materials, and assessments—to inspire learning and promote sustained engagement.

Classroom Environment and Design

Use calming colors (e.g., soft blues, greens) to create a relaxed and welcoming atmosphere that supports emotional safety and peer connection.

Apply a balanced color scheme in classroom design:

Use cool tones (e.g., blue, green) in concentration zones such as lecture areas.

Use warm accents (e.g., yellow, orange) in areas designated for creativity and interaction.

Avoid overstimulation by maintaining neutral or subdued tones on primary surfaces, introducing vibrant colors selectively through accents and materials.

Pedagogical Customization

Use color-coding systems in notes, diagrams, and learning aids to enhance organization and boost students' ability to recall and connect concepts.

Match colors to specific tasks to optimize focus and productivity:

Use warmer hues for detail-oriented activities.

Use cooler hues for creative or abstract tasks.

Inclusivity and Student Empowerment

Ensure color use is inclusive by pairing it with other modalities such as images, audio, and spatial design to support diverse learning preferences and needs.

Engage students in selecting classroom color elements to promote cultural relevance, a sense of ownership, and belonging within the learning environment.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue VII, July 2025

Institutional and Cultural Considerations

Select colors for representing classes, departments, or institutions with cultural universality in mind, recognizing their potential to shape public perceptions and community identity.

Assessment and Evaluation

Conduct longitudinal studies to evaluate the academic, psychological, and social impacts of color-based interventions in educational settings.

In the field of Business:

Business should keep an eye on evolving color trends

Packaging and presentation of any products should be carefully based on the most dominant colors that represent the culture, climate, and traditions of the place.

Eco-conscious business should adopt natural, earth- toned colors in their packaging and branding to communicate their commitment to the environment.

The acceptability of products and palatability can influence the effective application of colors, which would have an adverbial effect on taste.

The psychology of colors can influence the prior experience of the product before the customers have tested or used the product. Therefore, strengthening color application in all products representing a group of people or the community will make the product more acceptable.

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