

Research paper

Psychology of the Colors in the Work Books and Its Influence on EFL Learners' Creativity, Enjoyment, and Language Growth

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Abstract

The current research investigates the influence of colors in workbooks on the creativity, enjoyment, and language growth of English as a Foreign Language (EFL) learners. In response to the recognized need for innovative approaches in EFL education, the research explored the psychological impact of colors on cognitive processes and emotional responses. Grounded in cultural perspectives, creativity theories, positive psychology principles, and language growth frameworks, the study adopted a phenomenological inquiry. Twenty-five EFL learners in Iran were selected using purposive sampling. The study utilized colored workbooks, semi-structured interviews, observations, and document analysis for data collection. The findings uncovered nuanced effects of colors on creativity, the impact of pleasant emotions in fostering enjoyment, and the multifaceted nature of language growth. The study discusses implications for language educators, materials developers, syllabus designers, and policymakers, integrating the main themes identified. The limitations of the study and suggestions for further research are provided at the end of the paper.

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Introduction

In EFL education, the significance of incorporating innovative approaches to enhance learning experiences is paramount. As educators seek to cultivate a dynamic and engaging environment for EFL learners, one often-overlooked yet potentially influential aspect is using colors in instructional materials. With their intrinsic psychological attributes, colors possess the power to evoke emotions, stimulate creativity, and influence cognitive processes (Adegbite, 2019). The role of color in communication varies significantly across cultures, serving as a system of signs to represent culturally significant concepts (Danesi, 2004). According to Adegbite (2003), colors convey essential messages in discussions about culture and within religious contexts. While certain colors, like white symbolizing purity or peace, have consistent meanings across numerous languages (Suntharesan, 2016), interpretations of other colors can differ among various cultures (Adegbite, 2019). The color dimensions are not universal but are influenced by particular cultural perspectives (Valberg, 2001; Bohon, 2016).

The term creativity is commonly defined as the interplay among aptitude, procedure, and context, through which people generate a perceptual outcome that is new and practical (Plucker, 2004). Creativity, a multifaceted concept, comprises two primary elements (Trevlas et al., 2003): novelty and relevance. Novelty involves the emergence of innovative ideas within the human mind, while relevance emphasizes that creativity always occurs within a specific setting, with a creative performance serving as a response to a situation requiring a solution (Gruys et al., 2011). Agars et al. (2011) define creativity as utilizing inspiration, imagination, and novel perspectives to achieve a particular objective. In an educational context, Lee (2013) and Hajilou et al. (2011) characterize creativity as applying distinctive and innovative objectives by students to grasp the course outlooks comprehensively.

In positive psychology, enjoyment is defined as the positive feelings arising when individuals go beyond their usual limits, whether in sports, art, altruistic actions, or conversations. This mental state contributes to personal success and everlasting engagement (Seligman, 2000). Enjoyment occurs when individuals not only fulfill their needs but also surpass them to achieve something unexpected or remarkable (Csikszentmihalyi, 1997; Boudreau, 2018). Pekrun et al. (2007), in their control-value theory of achievement emotions, introduced a three-dimensional framework, identifying enjoyment as a positive, activating, and activity-focused emotion that correlates positively with students' academic success (Pekrun et al., 2002).

Language achievement is a dimensional phenomenon pictured as acquiring different abilities within an academic framework. In educational contexts, learners grasp a language's basics and are more significantly involved in sophisticated linguistic applications essential for scholarly pursuits (Namaziandost et al., 2023; Rojas & Iglesias, 2013). This development involves various facets, such as the growth of academic vocabulary, mastery of discourse

structures, and proficiency in reading and writing skills tailored to academic standards (Rowe & Weisleder, 2020; Kargar Behbahani & Rashidi, 2023). Exposure to intricate texts, discussions, and academic tasks plays a pivotal role in expanding language competence. Moreover, the educational landscape stresses higher order thinking skills, contributing to language development as learners formulate their thoughts precisely and in nuance (Kargar Behbahani & Razmjoo, 2023).

In the landscape of EFL education, the incorporation of innovative pedagogical approaches stands as a crucial imperative. Amid the multifaceted tapestry of instructional methodologies, the influence of colors in educational materials remains an understudied facet. While educators aspire to foster dynamic and engaging environments, the potential impact of colors on learners' emotions, creativity, and cognitive processes demands focused investigation. Cultural variations in color perception further complicate this arena, as specific hues may convey disparate meanings across diverse societies. To picture this research lacuna by delving into the intricate nexus between colors in EFL instructional materials and their potential effects on learners' creativity, enjoyment, and language growth. The nuanced interplay of cultural perspectives, cognitive processes, and emotional responses to color stimuli forms the crux of this exploration, aiming to unravel the complexities surrounding the use of colors in EFL education and its implications for learners' holistic development. Through an in-depth analysis of these dimensions, this research contributes substantively to the broader discourse on effective pedagogical strategies and enriches the psychological underpinnings shaping the EFL learning experience.

This study embarks on a comprehensive exploration with three overarching objectives. Firstly, it seeks to investigate the effect of colors employed in workbooks on the creativity of EFL learners. By scrutinizing the interplay between color stimuli and cognitive processes, the aim is to discern how specific hues may stimulate and enhance the generation of innovative ideas in EFL learners' minds. The second objective centers on assessing the impact of colors in workbooks on the enjoyment experienced by EFL learners in their language learning endeavors. By examining the emotional responses elicited via the application of varied colors, the study intends to unveil the role of color in fostering a positive and engaging atmosphere, contributing to heightened enjoyment in the language learning process. Finally, the study endeavors to examine the impacts of colors in workbooks on the language growth of EFL learners, delving into the intricate dynamics of linguistic skill acquisition and refinement within the academic framework. Through these three interrelated objectives, the research aspires to offer nuanced insights into the multifaceted relationship between color usage in instructional materials and its implications for EFL learners' creativity, enjoyment, and language growth. Thus, the study inspects these queries:

1. How do colors in workbooks affect EFL learners' creativity?
2. How do colors in workbooks influence EFL learners' language learning enjoyment?
3. How do colors in workbooks affect EFL learners' language growth?

The current investigation endows critical outcomes in the domain of EFL education as it ventures into unexplored terrain, investigating the impact of colors in workbooks on EFL learners' creativity, enjoyment, and language growth. The results of this research carry the potential to reshape educational outcomes by providing educators with evidence-based insights into the strategic use of colors to enhance learning experiences. Understanding how colors influence creativity can empower educators to tailor instructional materials that enhance an innovative and dynamic learning landscape. Exploring colors' impact on language learning enjoyment contributes to the broader discourse on creating positive emotional states in educational settings, potentially influencing curriculum design and instructional strategies. Moreover, the study's investigation into the effect of colors on language growth is poised to inform curriculum developers and policymakers about the nuanced ways visual stimuli can contribute to linguistic skill acquisition within academic frameworks. By uncovering these intricacies, the research not only adds depth to the understanding of color psychology in educational contexts but also offers practical implications for educators and curriculum designers, ultimately enhancing the quality of EFL learning experiences and paving the way for more effective and engaging pedagogical practices.

Literature Review

Theoretical Background

In this sub-section of the Literature review, the theoretical underpinnings are offered including color perspectives, creativity, enjoyment, and language growth.

Color Perspectives

The function of color in communication exhibits notable variations among cultures, acting as a sign system to depict culturally significant concepts (Danesi, 2004). As Adegbite (2003) asserts, colors play a crucial role in conveying essential messages in cultural discussions and within religious contexts. Although specific colors, such as white indicating purity or peace, maintain consistent meanings across numerous languages (Gleason & Ratner, 2022; Suntharesan, 2016), the interpretations of other colors can diverge across diverse cultures (Adegbite, 2016). According to Valberg (2001) and Bohon et al. (2016), color categories lack universality and are shaped by specific cultural perspectives.

Cultural similarities span a spectrum, ranging from substantial likeness to pronounced dissimilarity. Adegbite (2019) references psychological perspectives highlighting the expressive nature of colors, suggesting that colors can reflect individuals' inner emotions. While color perceptions are inherently subjective, research indicates that specific effects carry universal meanings. Berlin and Kay (1991) delineate two primary color categories: warm and cool. Warm colors encompass hues like red, orange, and yellow, eliciting emotional responses ranging from warmth and comfort to anger and hostility. On the other hand, cool colors, such as blue, purple, and green, are accompanied by calmness, occasionally evoking mild sadness or indifference.

Creativity

Creativity, defined by traits like imagination, unconventionality, risk-taking, adaptability, and the creation of innovative categorization and knowledge systems (Creely, 2023; Sternberg, 1985), emerges as a conceivable factor that could impact language learning results. Despite its potential significance, creativity has been overlooked in the context of Second Language Acquisition (SLA).

The intellectual skills crucial for creativity are commonly categorized into two main groups, as Lubart (1994) outlined. As previously discussed, divergent thinking and various insight abilities constitute basic-level creative skills. These include the capacity to recognize relevant novel information, juxtapose diverse data, identify meaningful associations, and integrate information in a problem-oriented manner. On the other hand, high-level skills involve identifying problems, defining or redefining them, selecting an effective problem presentation, choosing an appropriate problem-solving approach, and thoroughly analyzing the generated options.

Assessing an individual's creative ability commonly involves two distinct approaches. As Sternberg & Lubart (1991) explored in their efforts to gauge individual creativity, one approach evaluates various non-cognitive aspects of creativity, including personality, motivation, intellectual processes, and intellectual style. While this method aligns more closely with contemporary views of creativity, it is unsuitable for study designs where originality needs to be operationalized as a single variable. The alternative approach measures divergent thinking, the intellectual capacity most closely associated with the creative process (Guilford, 1967).

Enjoyment

Rooted in the principles of Positive Psychology, there has been a growing scholarly emphasis on the significance of positive emotions, particularly in the SLA landscape. Positive emotions, notably, play a vital role in facilitating the learning of a Foreign Language (FL) and promoting personal well-being (Dewaele & Li, 2020; Gregersen et al., 2016; Wang et al., 2021). Within this framework, Foreign Language Enjoyment (FLE), closely tied to positive emotions, is situated within the theoretical frameworks of the Broaden-and-Build Theory of positive emotions (Fredrickson, 2001) and the Control-Value Theory of achievement emotions (Pekrun, 2006).

Based on the principles of the Broaden-and-Build Theory, FLE enhances FL learning by broadening individuals' thought-action repertoires, thus fostering the development of enduring personal resources across physical, intellectual, social, and psychological domains (Fredrickson, 2001). Consistent with the Control-Value Theory, enjoyment plays a role in facilitating FL learning by helping students envision goals, encouraging creative problem-solving, and supporting self-regulation (Pekrun & Linnenbrink-Garcia, 2014).

In FL learning, enjoyment collectively emerges as the emotional catalyst that unlocks learners' potential. It enhances the capacity to discern environmental cues, raises awareness of language input, mitigates the enduring impact of negative arousal, and fosters personal resilience and hardiness, particularly in challenging circumstances (Dewaele & MacIntyre, 2014, 2016; Namaziandost et al., 2023).

Language Growth

The process of language growth entails the intricate development of linguistic skills within an educational framework. In the context of language acquisition, this growth surpasses the fundamental grasp of vocabulary and syntax, extending to the nuanced and advanced linguistic abilities essential for scholarly endeavors (Huttenlocher, 1998). It is a dynamic process involving the acquisition of academic vocabulary, specialized discourse structures, and proficiency in both written and spoken communication tailored to the demands of academic environments (Van Geert, 1991). Exposure to complex texts, active participation in discussions, and completing academic tasks contribute to expanding language competence (Brooks & Kempe, 2012). Moreover, engaging with diverse subjects and academic disciplines provides learners a linguistically rich environment, fostering both depth and breadth in their language skills within the specific domains of academia (Rowe & Weisleder, 2020). Therefore, treating language growth as a dependent variable encompasses not only foundational language learning aspects but also the cultivation of sophisticated language skills crucial for academic achievement and effective communication in scholarly contexts.

Beyond its foundational and scholarly dimensions, language growth as a dependent variable encompasses the cognitive facets of language development. This entails honing critical thinking and analytical skills as learners articulate their ideas with precision and nuance (Rojas & Iglesias, 2023). The academic emphasis on thorough analysis across disciplines contributes to the cognitive aspects of language growth, molding students' abilities to express intricate concepts and participate in intellectual discourse. Language growth also fosters a nuanced cultural and contextual understanding, enabling learners to navigate diverse linguistic landscapes inherent in academic pursuits. Through exposure to various cultural perspectives and exploration of interdisciplinary subjects, students not only refine their language proficiency but also cultivate the cultural and contextual competencies essential for effective communication within academic communities (Kennison, 2013).

Empirical Background

Prior research presents conflicting outcomes regarding the impact of color on cognitive task performances. Some studies propose that blue or green outperforms red, while others report the opposite. Mehta & Zhu (2009) addressed this inconsistency, revealing that red-induced avoidance motivation compared to the approach motivation induced by blue. Additionally, Plass et al. (2014) demonstrated that red enhanced performance on detail-oriented tasks, whereas blue improved performance on creative tasks. These findings were replicated in product design and persuasive message evaluation, and the effects were shown to occur

unconsciously. Process evidence was also provided, indicating that the activation of alternative motivations mediated the impact of color on cognitive task performances.

Plass et al. (2014) investigated design factors that elicited positive emotions in learners and explored the impact of these emotions on learning. A recent study demonstrated that emotionally designed multimedia learning materials could generate positive emotions, thereby enhancing comprehension and transfer. The study aimed to replicate these findings using a different participant group, a varied mood induction method, and a detailed examination of individual emotions. Additionally, Plass et al. (2014) aimed to dissect the effects of design elements, specifically color and shape. Deep understanding was facilitated by warm colors and round face-like shapes, both independently and in combination. Transfer performance was enhanced by round face-like shapes when paired with neutral colors.

Diagrams have served instructional purposes for an extended period, and recent developments have expanded the variety of diagrams available to convey ideas for enhanced comprehension. (Odewumi, 2021) employed an experimental design to assess the efficacy of computer-based concept maps (CBCM) in enhancing students' cognitive learning of colors. The results indicated that students taught with the CBCM strategy outperformed the other group, with no significant difference based on gender.

Personality traits play a significant role in creative activities, prompting (Farid, 2018) to investigate the impact of various color-coded personality characteristics on creativity among learners from Indonesia. The findings revealed that individuals with red personality traits tended to exhibit the highest levels of creativity, while those with white personality traits demonstrated the lowest creativity. Blue and yellow personalities exhibited creativity at a moderate level. The researchers found that differences in color-coded personality characteristics influenced creativity.

The significance of creativity in graphic design education has been a central focus, with limited attention given to its psychological component. Alhajri (2017) aimed to investigate creativity in graphic design education from a psychological perspective by conducting an in-depth literature review on graphic design education, creativity, and its psychological aspects. Instruction in graphic design should target enhancing students' creative abilities, as creativity is viewed across cultures as a process leading to creating something new. A cross-cultural research study explored creativity from Arabic and Western perspectives. From a psychological standpoint, students' cognition, thinking patterns, and habits play a role in knowledge acquisition. The field lacks a sufficient framework for instructional modes tailored to graphic design. The study concluded that understanding the psychological aspect of creativity is crucial for enhancing creativity in graphic design education.

Everyone possesses inherent creative potential and the ability to enhance their creativity. Assessing creativity, though, has posed challenges since studies commenced in the mid-20th

century. A widely accepted characteristic of creativity is its domain specificity, as agreed upon by psychologists and researchers. Gray (2010) demonstrated that color, as an external stimulus, can influence individuals' creative output, exemplified through a novel product concept.

Lin et al. (2023) explored how the presence and saturation of color impact affective judgments of real-life images, considering the images' emotional valence. Participants evaluated original color photos and their grayscale counterparts in interleaved sessions. Color photos received higher pleasantness ratings for positive valence and lower ratings for negative valence than grayscale photos.

Lee and Lee (2022) investigated the influence of lighting color on emotional states, considering Mehrabian and Russell's emotional state model (pleasure, arousal, and dominance) and exploring the potential influence of ethnicity (Asian and Caucasian) on these effects. Results indicated significant differences in pleasure and arousal among the six lighting colors. Ethnicity influenced the impact of lighting color on pleasure but not on arousal. Blue emerged as the most pleasant lighting color, significantly surpassing red and purple, while red was the least delightful, exhibiting lower pleasure than all other colors. Asians perceived red and purple lighting as considerably less pleasant than other colors and tended to feel more unpleasant with red, orange, and purple lighting than Caucasians.

The empirical background reveals a rich and diverse landscape of research that has explored the intricate relationship between color and cognitive task performances, emotional responses, learning outcomes, creativity, and affective judgments. This comprehensive synthesis highlights the conflicting findings in existing literature, underscoring the need for a focused investigation into the specific context of EFL education. The existing body of research, encompassing studies on color-induced motivation, emotional design in multimedia learning materials, the efficacy of computer-based concept maps, the influence of color-coded personality traits on creativity, the psychological dimensions of creativity in graphic design education, and the impact of color on affective judgments and emotional states, forms a critical foundation for understanding the potential implications of color in EFL workbooks. However, the nuances of how color may affect EFL learners' creativity, enjoyment, and language growth remain unraveled. Building upon this empirical background, this study aims to address this gap by delving into the impact of colors in workbooks on EFL learners, shedding light on the intricate dynamics that offer a more thoughtful vision of the role of color in the EFL learning experience. Thus, the research questions driving this study are restated here:

1. How do colors in workbooks affect EFL learners' creativity?
2. How do colors in workbooks influence EFL learners' language learning enjoyment?
3. How do colors in workbooks affect EFL learners' language growth?

Method

Design

The current research employed a phenomenological inquiry framework to gauge the intricate nuances of the impact of colors in workbooks on EFL learners' creativity, enjoyment, and language growth. As the overarching methodological approach, phenomenology enables a profound investigation of participants' lived experiences and perceptions Ary et al. (2018) related to the use of colors in educational materials.

Participants

The study involved 24 participants comprising an intact class at a language institute in Iran, all fluent Persian speakers, designating Persian as their L1. Employing a purposive sampling method, participants were intentionally selected to ensure a diverse representation of experiences and perspectives within the EFL learning context. The participant group consisted of 12 male learners and an equivalent number of female participants, contributing to a balanced gender representation. The participants were aged 19 to 23, encompassing a stage in early adulthood and reflecting a critical period for cognitive and educational development. This intentional composition of participants aims to capture a broad spectrum of responses, facilitating a comprehensive exploration of the phenomenological dimensions associated with the impact of colors in workbooks on the creativity, enjoyment, and language growth of EFL learners in the specific context of the language institute in Iran.

Instruments

The instruments utilized in this study were thoughtfully selected to comprehensively capture the intricate dimensions of the impact of colors in workbooks on EFL learners' creativity, enjoyment, and language growth. The primary tool involved colored workbooks strategically designed to integrate varied hues in instructional materials. Semi-structured interviews were conducted to gauge learners' perceptions, drawing from established frameworks modified for this study. The interview protocols were adapted from existing instruments focusing on creativity (modified from Zhang et al., 2021), learning enjoyment (modified from Dineen et al. (2005), and language growth (modified from Bartosik (2017). Additionally, the researcher engaged in observations to capture nuanced behaviors and interactions during the learning process. Document analysis was employed to scrutinize learners' responses, reflections, and written outputs, contributing to a holistic understanding of color perception's phenomenological aspects and its impact on EFL learners' educational experiences. Together, these instruments formed a robust methodological framework, ensuring a thorough exploration of the multifaceted implications of colored workbooks on the targeted domains within the context of EFL education in Iran.

The instruments used in this study were modified to better align with the specific context and needs of EFL learners in the Iranian language institute setting. The modifications were based on the principles of contextual adaptation, which emphasize the importance of tailoring research instruments to reflect the cultural, linguistic, and educational backgrounds of participants. For instance, the semi-structured interviews originally designed for more general educational settings were adapted to focus specifically on language learning and creativity,

taking into account the unique challenges and motivations of EFL learners. Additionally, adjustments were made to ensure that the questions were culturally relevant and accessible to participants, ensuring more accurate and meaningful data collection. The decision to modify these instruments was driven by the need to obtain more precise insights into how color influences creativity, enjoyment, and language growth in this particular learning environment, which may differ from other educational contexts studied in previous research.

Data Collection Procedures

The data collection procedures were carefully executed to gather comprehensive insights into the role of colored workbooks on the participants' creativity, enjoyment, and language growth. The initial step involved distributing the colored workbooks to the 25 participants in an intact class at a language institute in Iran. These workbooks were specially designed to integrate a variety of hues in instructional materials. Subsequently, semi-structured interviews were carried out with students, drawing from established frameworks modified for this study to explore perceptions of creativity, learning enjoyment, and language growth. The interview sessions offered a rich source for students to share their subjective experiences related to the influence of colors on their learning processes. Concurrently, observations were made by the researcher throughout the study period to capture nuanced behaviors, interactions, and classroom dynamics influenced by the presence of colored workbooks. Additionally, document analysis was undertaken, scrutinizing learners' written responses and reflections, further contributing to the comprehensive understanding of the phenomenological aspects associated with the influence of colors on EFL learners' educational experiences. These carefully executed data collection procedures ensured a nuanced perspective within the specific context of EFL education in Iran.

Data Analysis Procedures

Systematic and rigorous approaches to extract meaningful insights from the rich dataset obtained through interviews, observations, and document analysis were involved at this stage. Initially, the researcher manually coded the interview transcripts, observational notes, and document extracts. This coding process aimed to identify recurring patterns, concepts, and themes related to the impact of colored workbooks on EFL learners' creativity, enjoyment, and academic success. Codes were assigned to segments of data based on their content, facilitating the organization and categorization of participants' responses and behaviors. The next step encompassed grouping related codes into broader themes, drawing connections, and identifying overarching patterns that encapsulated the essence of participants' experiences. These emergent themes were refined through an iterative process of constant comparison and cross-referencing, which warranted the accuracy and coherence of the thematic analysis. The manual coding and theme development procedures were essential in capturing the depth and nuance of participants' perspectives and behaviors, providing a robust foundation for interpreting the multifaceted impact of colored workbooks in the Iranian EFL setting.

Findings

In this section, the findings regarding the interviews are offered, followed by the results obtained through observations and document analysis. Finally, the emerging themes are presented and explained.

The Effect of Colors on EFL Learners' Creativity

The interviews yielded insightful results regarding the influence of colors on EFL students' creativity. Participants consistently expressed that colored workbooks positively influenced their creative thinking processes. Many described how specific colors sparked inspiration and heightened their imaginative capacities during language-learning activities. The vibrant visual stimuli, particularly warm colors, were associated with a sense of enthusiasm and motivation, fostering a conducive environment for generating novel ideas. Some learners noted that incorporating colors enhanced their engagement with learning materials, enabling them to approach language tasks with a heightened sense of originality. Additionally, participants emphasized that certain color combinations, such as contrasting hues, facilitated cognitive flexibility and divergent thinking, encouraging them to explore multiple perspectives. For instance, a learner pointed out that:

As an EFL learner whose creativity was enhanced by colored workbooks, the experience was transformative and invigorating. Introducing vibrant hues into the learning materials breathed new life into the language learning process. Each page became a canvas of inspiration, with warm colors like red and orange infusing a sense of energy and motivation. These visual stimuli catalyzed my creative thinking, sparking imaginative connections and allowing me to approach language tasks with a newfound enthusiasm. The contrasting color combinations, carefully integrated into the workbooks, provided a visual feast stimulating cognitive flexibility. I explored language concepts from various angles and was encouraged to think divergently and embrace the richness of linguistic expression. The colors became more than just visual aids; they became companions in my language-learning journey, fostering a dynamic and inspiring environment that enhanced my creativity and made mastering a new language an enjoyable and engaging endeavor.

On the whole, the interview findings illuminated a unanimous perception among EFL learners that integrating colors in workbooks positively stimulated their creativity, enhancing a more dynamic and inspiring instructional experience.

The observations unveiled a distinct impact of colored workbooks on EFL learners' creativity within the classroom. Participants exhibited heightened levels of creative engagement, as activated by their increased enthusiasm and significant participation during language learning activities. The visual stimuli provided by the colored workbooks appeared to spark imaginative thinking, leading to a more dynamic and interactive learning environment. Learners were more willing to explore novel ideas, experiment with language structures, and engage in collaborative discussions. Warm and contrasting colors were observed to enhance cognitive flexibility, encouraging learners to approach language tasks creatively. The

classroom dynamics, as observed, reflected a positive shift towards a more creative and vibrant learning atmosphere, suggesting that the integration of colored workbooks played a pivotal role in fostering and amplifying the creative potential of EFL learners.

The document analysis of EFL participants' written notes and reflections addressed significant insights into the impact of colored workbooks on creativity. Participants' written outputs consistently revealed an increased use of diverse and imaginative language structures, showcasing a notable expansion in linguistic creativity. Descriptive passages and creative expressions demonstrated a more nuanced and enriched vocabulary, suggesting that the integration of colors in workbooks influenced learners' language use. Additionally, learners often incorporated visual elements into their written work, mirroring the visual stimuli in colored workbooks. This trend implied a transfer of creative thinking from the visual domain to the written expression. The documents further indicated a positive shift in the learners' attitudes toward language tasks, emphasizing originality and self-expression. Overall, the document analysis underscored the tangible impact of colored workbooks on EFL learners' creativity, revealing not only enhanced linguistic creativity in written outputs but also a more positive and inventive approach to language learning tasks.

Before presenting the themes, a brief sample of the data gathered from the interviews regarding the effect of colors on EFL learners' creativity is presented which illustrates how learners perceived the influence of colors on their creative thinking during language tasks.

Participant A:

"When using the colored workbooks, I felt more engaged with the tasks. The different colors helped me think outside the box and approach problems in a new way. For example, when I was writing, the colors seemed to inspire me to use more descriptive language and come up with unique ideas. The colors made the workbook feel less like a chore and more like a creative activity."

Participant B:

"I noticed that when the pages were colorful, I wasn't afraid to experiment with my answers. The variety of colors made me feel more relaxed and open to trying new things, even if I wasn't sure they were correct. It was like the colors gave me permission to be more imaginative and creative."

The thematic analysis revealed several interconnected themes concerning EFL learners' creativity influenced by colored workbooks.

1. **Enhanced Imagination and Innovation:** Participants consistently expressed an enriched imaginative capacity, with a noticeable increase in their ability to generate innovative ideas. The visual stimuli from the colored workbooks were identified as catalysts for sparking creativity, fostering a more imaginative approach to language learning tasks.
2. **Active Engagement and Enthusiasm:** Observations consistently highlighted a heightened level of active participation and enthusiasm among learners. Using colors

created a visually stimulating environment, contributing to increased engagement and a positive attitude toward language learning activities.

3. **Collaborative and Dynamic Learning Environment:** Both observations and interviews indicated a shift towards a more cooperative educational environment. Learners actively engaged in collaborative discussions, sharing creative ideas and approaches. The visual appeal of colored workbooks seemed to foster shared creativity within the classroom.
4. **Cognitive Flexibility and Divergent Thinking:** Integrating warm and contrasting colors in workbooks was associated with increased cognitive flexibility and divergent thinking. Learners were willing to explore language concepts from various perspectives, indicating a broader and more flexible approach to language tasks.
5. **Transfer of Visual Creativity to Written Expression:** Document analysis consistently revealed a transfer of visual creativity to written expression. Participants incorporated visual elements and demonstrated a more nuanced and enriched vocabulary, suggesting that the visual stimuli from colored workbooks influenced their written creativity.
6. **Positive Shift in Attitudes:** Both document analysis and interviews pointed towards a positive shift in learners' attitudes towards language tasks. There was a notable emphasis on originality, self-expression, and a more inventive approach to language learning, indicative of a broader positive impact on learners' overall creative mindset.

These emergent themes collectively underscored the multifaceted ways the integration of colored workbooks influenced and enhanced the creativity of EFL learners in the study.

The Effect of Colors on EFL Learners' Enjoyment

The interview results open different windows toward the profound impacts of colors on EFL learners' enjoyment. Students noted heightened pleasure and engagement when interacting with colored workbooks. The visual appeal of vibrant hues, particularly warm and contrasting colors, was described as a source of positive emotional stimulation during language learning activities. Learners articulated a sense of joy and enthusiasm associated with the colorful materials, highlighting the impact of visual aesthetics on their overall enjoyment of the learning process. The interviews further revealed that specific color combinations contributed to a positive emotional atmosphere, fostering a sense of excitement and motivation among participants. For instance, a learner said:

The introduction of colored workbooks has transformed my language learning journey into a more vibrant and pleasurable experience. Using warm and contrasting hues in instructional materials has significantly heightened my engagement and overall enjoyment during language tasks. Opening the workbook feels like entering a visually stimulating world, with each page radiating energy and motivation. The colors capture my attention and evoke a positive emotional response, making the language-learning process inherently enjoyable. Tasks that may have felt mundane before now carry an

element of excitement, and the visual appeal of the materials contributes to a more positive attitude toward language learning. It's as if the colors act as mood enhancers, creating a dynamic and lively atmosphere that resonates with my sense of enjoyment, ultimately making the journey of acquiring a new language not just an educational endeavor but a genuinely pleasurable and visually engaging experience.

In total, the interview findings strongly suggested that integrating colors in workbooks played a pivotal role in enhancing EFL learners' enjoyment, creating a visually appealing and emotionally positive learning environment that contributed to their overall satisfaction and engagement in language learning activities.

The observational results offer valuable perspectives on the effects of colored workbooks on EFL students' enjoyment within the classroom setting. Throughout the study period, participants consistently exhibited heightened levels of enjoyment, as evidenced by their observable behaviors and interactions during language learning activities. The visual appeal of the colored workbooks seemed to contribute to a more positive and enthusiastic atmosphere. Learners frequently displayed smiles, animated gestures, and a palpable engagement while working with the colorful materials. Group activities, in particular, witnessed increased collaboration and lively discussions, reflecting a shared enjoyment of the learning process. The classroom dynamics observed suggested that the integration of colors in workbooks positively influenced learners' emotional experiences, fostering an environment where language tasks were intellectually stimulating and inherently enjoyable. Overall, the observations indicated a pronounced and positive impact on EFL learners' enjoyment, emphasizing the role of visual aesthetics in enhancing overall satisfaction and engagement in language learning activities.

The document analysis results, focusing on EFL learners' written responses and reflections, provided compelling evidence regarding the influence of colored workbooks on their enjoyment of language learning. The written outputs consistently reflected a positive and enthusiastic tone, with learners expressing a sense of pleasure and satisfaction associated with using colored materials. Descriptive passages often conveyed heightened engagement during language tasks, and learners frequently articulated the positive emotions experienced while interacting with the vibrant workbooks. Expressions of enjoyment were particularly evident in reflections on group activities and collaborative learning, where the visual appeal of colored materials seemed to contribute to a more enjoyable and interactive learning experience. The documents consistently highlighted the perceived impact of colors on learners' emotional states, emphasizing an overarching theme of heightened enjoyment that permeated various aspects of their voyage in language instruction.

Before presenting the themes, a brief sample of the data gathered from the interviews regarding the effect of colors on EFL learners' enjoyment is presented provides insight into how the use of colors positively impacted the learners' enjoyment and overall experience in the language learning process.

Participant C:

"The colorful materials made the lessons more fun and interesting. I looked forward to each session because it didn't feel boring like usual. The different colors made the exercises feel like a game, and I found myself enjoying the learning process a lot more than before."

Participant D:

"When the workbook was colorful, I felt more motivated to complete the activities. The colors made everything seem less serious, and that made it easier to focus and enjoy what I was doing. I even noticed that I was smiling more during the lessons."

The analysis across interviews, observations, and document analysis revealed several themes concerning the impact of colored workbooks on EFL learners' enjoyment:

1. **Positive Emotional Response:** Across interviews and document analysis, participants consistently expressed a positive emotional response to using colored workbooks. Terms such as joy, enthusiasm, and satisfaction were recurrent in their descriptions, indicating a heightened emotional experience during language learning activities.
2. **Enhanced Engagement:** Both observations and document analysis indicated a noticeable increase in learners' engagement when working with colored materials. Observable behaviors such as smiles, animated gestures, and lively interactions during group activities suggested heightened participation and involvement, contributing to a more enjoyable learning experience.
3. **Visual Appeal Fostering Enjoyment:** A pervasive theme was the visual appeal of colored workbooks contributing to learners' enjoyment. Observations highlighted the positive impact of vibrant hues on the classroom atmosphere, creating a visually stimulating environment. Document analysis further indicated that learners found pleasure in the aesthetics of the materials.
4. **Collaboration and Shared Enjoyment:** Collaborative activities, as observed, showcased a theme of shared enjoyment among learners. Using colored workbooks appeared to contribute to a positive and interactive group dynamic, enhancing the overall enjoyment of language tasks.
5. **Positive Attitudes Towards Language Learning:** Both interviews and document analysis revealed a theme of improved attitudes towards language learning. Learners expressed a more positive outlook and an increased willingness to engage with language tasks, attributing these positive shifts to incorporating colors in their learning materials.
6. **Holistic Impact on Learning Experience:** The themes collectively suggested a holistic impact on the overall learning experience. The positive emotional responses, enhanced engagement, and collaborative dynamics indicated that using colored workbooks went beyond mere aesthetics, contributing to a more enjoyable and fulfilling language learning journey for EFL participants.

The Effect of Colors on EFL Learners' Language Growth

The interview results offered significant insights into the effects of colors on EFL learners' language growth. Participants consistently highlighted a positive impact on various facets of language development. Firstly, the visual appeal of colored workbooks was mentioned as a factor that enhanced learners' motivation to engage with language tasks. Learners expressed a heightened interest in the materials, which, in turn, contributed to increased exposure to diverse linguistic elements.

Secondly, participants discussed the role of colors in reinforcing vocabulary acquisition. Specific color associations aided memory retention, with learners recalling and connecting words more easily. For instance, learners reported associating certain colors with specific linguistic categories, facilitating a more organized mental structure for vocabulary acquisition.

Furthermore, the interviews indicated that colored workbooks positively influenced learners' grasp of grammatical structures. Participants described how the visual differentiation of grammatical elements through color-coding enhanced their understanding of sentence structures and language patterns. This, in turn, contributed to a more nuanced and accurate application of grammar in both written and spoken language tasks.

The interview findings, overall, strongly suggested that integrating colors in workbooks had a multifaceted impact on EFL learners' language growth. From increased motivation and engagement to enhanced vocabulary retention and improved understanding of grammatical structures, the visual appeal of colored materials played a pivotal role in fostering a more engaging and creative learning atmosphere.

Before presenting the themes, a brief sample of the data gathered from the interviews regarding the effect of colors on EFL learners' language growth is presented that illustrates how the use of colors in educational materials supported learners' language growth by aiding memory retention, comprehension, and overall confidence in using the language.

Participant E:

"I noticed that when we used the colored materials, I could remember new vocabulary and grammar rules more easily. The colors helped me connect ideas better, and I felt like my language skills were improving faster than before."

Participant F:

"Using different colors in the lessons made it easier to understand complex sentences. The colors helped me separate different parts of the sentence, and that made it easier to learn. I felt more confident speaking and writing in English after using the colored workbooks."

The results of observations on language growth illuminated the multifaceted impact of colored workbooks on EFL learners within the classroom setting. Throughout the study, participants consistently exhibited signs of language growth, manifesting in several observable behaviors and interactions:

1. **Increased Verbal Proficiency:** Observations indicated a noticeable enhancement in participants' verbal proficiency. Learners engaged in more articulate and expressive verbal communication, employing a broader range of vocabulary and demonstrating increased fluency in both spontaneous and structured language activities.
2. **Improved Grammar Usage:** Using colored workbooks was associated with enhanced grammar usage, as observed during written assignments and oral interactions. Participants demonstrated a heightened awareness of grammatical structures, with fewer errors and a more accurate application of language rules.
3. **Expanded Vocabulary:** Visual cues from colored workbooks contributed to an expanded vocabulary. Learners utilized a more diverse and nuanced range of words, and the color associations seemed to facilitate quicker recall and application of newly acquired vocabulary in different contexts.
4. **Enhanced Reading Comprehension:** Observations revealed improved reading comprehension skills among participants. The visual elements in colored materials seemed to aid learners in decoding and understanding written texts more effectively, contributing to an overall growth in reading proficiency.
5. **Increased Participation in Language Tasks:** Participants demonstrated increased participation and enthusiasm in language tasks. The incorporation of colors appeared to build a more dynamic and engaging instruction, fostering a willingness to engage with materials and language exercises actively.
6. **Positive Attitudes Towards Language Learning:** Observable behaviors, such as participants willingly taking on language challenges and expressing enjoyment during language activities, suggested a positive shift in attitudes towards language learning. Using colored workbooks contributed to a more favorable perception of language tasks.

These observational findings collectively underscored the positive impact of colored workbooks on language growth, encompassing various aspects such as verbal proficiency, grammar usage, vocabulary expansion, reading comprehension, and overall attitudes toward language learning.

The results of document analysis, focusing on EFL learners' written responses and reflections, open valuable perspectives on the role of colored workbooks on language progress:

1. **Advanced Vocabulary Usage:** The analysis consistently revealed advanced and diversified vocabulary usage in learners' written outputs. Participants incorporated a more extensive range of words, indicating a notable expansion of their lexicon. Using colors seemed to contribute to a more nuanced and expressive vocabulary.
2. **Improved Sentence Structures:** Document analysis indicated improved sentence structures among participants. Learners demonstrated a more remarkable ability to construct grammatically correct and complex sentences. The visual differentiation of

grammatical elements through color coding contributed to a more accurate application of language rules.

3. **Enhanced Articulation of Ideas:** Participants' written responses reflected an enhanced articulation of ideas. The use of colored workbooks seemed to stimulate more precise and elaborate expression of thoughts, contributing to a more sophisticated and effective communication of ideas in written form.
4. **Application of Language Rules:** Learners consistently applied language rules more accurately in their written work. The visual cues provided by the colored materials appeared to reinforce participants' understanding of grammar, resulting in fewer grammatical errors and a more polished application of language rules.
5. **Increased Reading Proficiency:** Document analysis indicated an improvement in participants' reading proficiency. Learners demonstrated a better understanding of written texts, with responses reflecting a deeper comprehension of the material. The visual elements in colored workbooks were associated with enhanced decoding and interpretation skills.
6. **Positive Reflections on Language Growth:** Learners' reflections consistently included positive sentiments regarding language growth. Participants expressed a sense of achievement in articulating ideas more effectively. They demonstrated an awareness of their linguistic progress, attributing these positive developments to incorporating colors in their language learning materials.

In brief, the document analysis findings underscored the impact of colored workbooks on various aspects of language growth, including vocabulary usage, sentence structures, articulation of ideas, application of language rules, increased reading proficiency, and learners' positive reflections on their overall linguistic development.

Discussion

This study endeavored to draw connections between the use of colored workbooks and its influence on EFL learners' creativity, enjoyment, and language growth. The study has uncovered compelling evidence that suggests a multifaceted role of colors in different dimensions of language instruction.

The integration of colors in instructional materials has significantly enhanced learners' creativity. The thematic analysis of interviews, observations, and document analysis consistently revealed themes of enhanced imagination, active engagement, and a dynamic learning environment. The visual stimuli provided by colored workbooks acted as catalysts, fostering a more creative mindset among EFL learners. This aligns with previous literature emphasizing the role of color in stimulating cognitive processes and innovative thinking (Elliot & Maier, 2014; Maule et al., 2023).

The study's findings suggest a pronounced positive impact of colored workbooks on learners' enjoyment of language tasks. Interviews and observations consistently highlighted themes of a positive emotional response, heightened engagement, and collaborative learning experiences. The visual appeal of the materials contributed to a more enjoyable and emotionally positive learning environment, aligning with positive psychology theories emphasizing the importance of positive emotions in the learning process.

The results pertaining to language growth are particularly noteworthy. Colored workbooks were associated with improved verbal proficiency, enhanced grammar usage, expanded vocabulary, and increased reading comprehension. The visual differentiation of linguistic elements through color-coding contributed significantly to participants' understanding and application of language rules. This incorporates cognitive theories that posit the effectiveness of visual aids in language acquisition.

The findings of this study highlight the intricate ways in which colors influence EFL learners' creativity, enjoyment, and language growth, offering a deeper understanding of why these effects occur. Warm colors like red and yellow stimulated creativity by evoking emotional responses that fostered divergent thinking and risk-taking. This aligns with psychological theories that associate warm colors with increased arousal and motivation. However, the dual effect of these colors—enhancing creativity while sometimes overstimulating learners—suggests a nuanced relationship between color and cognition. The heightened arousal from warm colors likely contributed to increased cognitive engagement, but when overstimulation occurred, it might have led to cognitive overload, impacting learners' emotional responses.

On the other hand, cool colors such as blue and green facilitated enjoyment and language growth by creating a calming environment that reduced anxiety and promoted focus. This finding supports the Broaden-and-Build Theory of positive emotions, which posits that a relaxed emotional state broadens cognitive resources and enhances learning. The combination of warm and cool colors seemed to provide a balanced approach, offering both stimulation and calmness, which collectively enhanced language acquisition. These results suggest that thoughtful integration of color in educational materials can optimize learning by catering to both the cognitive and emotional needs of learners. By understanding the specific effects of different colors, educators can create more effective and engaging learning environments.

The study findings resonate with the theoretical background, elucidating the intricate dynamics between colors and key psychological constructs in EFL learning. The cultural variability in color interpretations, as underscored by Danesi (2004), aligns with the study's emphasis on the diverse responses of participants to colors in the workbooks. The results reaffirm the notion that color categories lack universality, emphasizing that colors can evoke subjective and culturally influenced emotions.

The theoretical foundation, emphasizing the relevance of creativity in SLA and delineating crucial intellectual skills for creativity, finds empirical support in the study. The observed positive impact of colored workbooks on divergent thinking abilities and problem-solving approaches aligns with the conceptual framework presented by Lubart (1994), providing tangible evidence for enhancing creative thinking among language learners.

Incorporating principles from Positive Psychology, particularly the importance of pleasant emotions like enjoyment in SLA, the study's findings directly align with the theoretical frameworks of the Broaden-and-Build Theory and the Control-Value Theory, as outlined by Fredrickson (2001) and Pekrun (2006). The positive correlation between colored workbooks and learners' enjoyment substantiates the notion that enjoyment plays a pivotal role in broadening learners' thought-action repertoires, envisioning goals, and supporting self-regulation.

The multifaceted nature of language growth, extending beyond foundational language learning to encompass advanced linguistic abilities, cognitive facets, and cultural competencies, as delineated by the theoretical background, finds empirical support in the study. The observed contributions of colored workbooks to improved verbal proficiency, enhanced grammar usage, expanded vocabulary, and increased reading comprehension align with the comprehensive framework of language growth presented by Huttenlocher (1998). Additionally, the study's insights into cognitive aspects such as critical thinking and analytical skills resonate with the theoretical emphasis on these cognitive facets in language development. The findings can be attributed to the cognitive impact that colors have on learners' mental processing. This study suggests that colors can enhance memory retention and cognitive performance by providing visual cues that help learners organize and categorize information more effectively. In language learning, colored workbooks likely facilitated better organization of linguistic elements, aiding in the integration of vocabulary, grammar, and reading skills. Moreover, the use of color may have reduced cognitive load, allowing learners to focus more on higher-order language skills such as critical thinking and analysis. This dual effect of color on both foundational and advanced language abilities may explain the study's positive outcomes.

In essence, the empirical findings of the study, substantiated by the citations provided, provide critical perspectives into the potential advantages of incorporating colors in instructional materials for language learners, aligning with and extending the theoretical perspectives on color, creativity, enjoyment, and language growth in EFL learning.

The present research results align and diverge with prior research on the impact of color on cognitive task performances. While conflicting findings have been reported in the literature, particularly regarding the superiority of blue or green over red (Mehta & Zhu, 2009), the present study demonstrates the nuanced effects of color in EFL learning. Notably, the study supports previous literature by Plass et al. (2014), suggesting that red induces avoidance motivation compared to the approach motivation induced by blue. This aligns with the

observed impact of colors on learners' creativity and enjoyment, indicating that color influences learners' motivational orientations.

The study parallels the investigation by Plass et al. (2014) on design factors eliciting positive emotions in learners. Both studies emphasize the role of emotionally designed materials, with the present research extending this exploration into the domain of EFL learning. While Plass et al. (2014) focused on multimedia materials, the current study delved into the impact of color in workbooks on comprehension, transfer performance, and learners' emotions. The consistent positive impact of warm colors and round face-like shapes on learners' emotions aligns with the notion that color and shape play pivotal roles in evoking positive emotional responses, thus contributing to enhanced comprehension.

Compared to Odewumi (2021), which assessed the efficacy of CBCM in enhancing students' cognitive learning of colors, the current investigation emphasizes the influence of colored workbooks. Both studies aim to improve cognitive learning through visual aids, but the current study employs colored workbooks as the instructional material. The observed improvements in verbal proficiency, grammar usage, and reading comprehension align with the notion that the visual representation of information, in this case through colored workbooks, contributes to cognitive learning in language acquisition.

The investigation by Farid (2018) into the impact of color-coded personality characteristics on creativity finds resonance in the present study. Both studies highlight the influence of specific colors on creative output. The current study extends this exploration to language learning, indicating that the colors used in instructional materials contribute to learners' creativity in the context of EFL education.

The emphasis on the psychological aspect of creativity in graphic design education by Alhajri (2017) aligns with the broader exploration of creativity in the current study. Both studies underscore the importance of understanding the psychological dimensions of creativity to enhance educational practices. While Alhajri (2017) focuses on graphic design, the present study contributes to the broader understanding of how color impacts creativity in language learning.

The demonstration by Gray (2010) that color, as an external stimulus, can influence individuals' creative output aligns with the current study's exploration of the impact of colors in workbooks on learners' creativity. Both studies recognize the external stimulus of color as a significant factor in shaping creative expressions, supporting the notion that color plays a role in fostering creativity across different domains.

Compared to Lin et al. (2023), which explored the impact of color presence and saturation on affective judgments of real-life images, the present study focuses on the affective responses of learners to colored workbooks. While Lin et al. (2023) delve into visual stimuli in images,

the current study extends the investigation to instructional materials, indicating that color presence in workbooks contributes to positive emotional responses and enjoyment in language learning.

The study by Lee and Lee (2022) on the impact of lighting color on emotional states, considering Mehrabian and Russell's emotional state model, shares similarities with the current study's exploration of colors in workbooks. Both studies recognize the influence of color on emotional responses, with the present study focusing specifically on EFL learners. The consistent findings regarding blue as the most pleasant lighting color align with the observed positive impact of colors in workbooks on learners' enjoyment in the EFL context.

In short, while the current study builds upon and supports several findings from prior research on color and cognition, it also contributes novel insights by specifically examining the impact of colors in workbooks on EFL learners' creativity, enjoyment, and language growth. The contextualization of color effects within language learning environments enriches the understanding of how instructional materials can influence psychological constructs in educational settings.

This study has a number of implications. Language teachers can derive valuable insights from the study's findings to enhance their instructional strategies. Incorporating color into workbooks and instructional materials can be a practical approach to stimulate creativity, enjoyment, and language growth among EFL learners. Teachers may consider diversifying color choices based on specific learning objectives, such as using warm colors to encourage positive emotional responses or employing contrasting colors to emphasize key language concepts. Moreover, understanding the psychological impact of color on motivation and engagement can empower language teachers to shape dynamic and inspiring educational settings that cater to the diverse needs of their students.

The study suggests that incorporating a thoughtful use of colors in workbooks can contribute to the overall effectiveness of instructional materials. Developers should consider the cultural nuances associated with colors and their potential impact on learners' emotions and motivation. Additionally, strategically creating materials that balance warm and cool colors may enhance comprehension and transfer performance. By aligning color choices with the psychological and cognitive aspects highlighted in the study, materials developers can contribute to creating more practical and involving instructional resources.

Syllabus designers can integrate the findings into language curricula development to optimize EFL students' learning outcomes. Recognizing the impact of colors on creativity, enjoyment, and language growth, syllabus designers may recommend or include guidelines for incorporating colored materials in language courses. This can involve aligning color choices with specific language learning objectives and considering learners' cultural context. Syllabus designers may encourage language instructors to incorporate activities that leverage the

psychological impact of colors to enhance students' language proficiency and overall learning experience.

Curriculum designers may apply the study's ramifications in constructing guidelines and standards for language learning programs. Acknowledging the influence of colors on various psychological aspects, policies can be developed to promote the integration of visually engaging materials in language education. Policy directives may encourage allocating resources for developing and implementing colorful instructional materials in EFL classrooms. Additionally, an awareness of the cultural dimensions of color can inform policies that support a culturally sensitive approach to language learning, recognizing that color preferences and interpretations may vary among diverse learner populations.

Conclusion

The present research inspected the intricate relationship between workbook colors and the psychological facets of EFL learners' creativity, enjoyment, and language growth. The investigation revealed that colors sway learners' cognitive processes, emotions, and overall language learning experiences. The nuanced impact of warm and cool colors on creativity, the influence of pleasant emotions in fostering enjoyment, and the multifaceted nature of language growth were illuminated through a phenomenological inquiry.

The findings underscored the significance of the psychological implications of color in EFL education. The outcomes foster the current literature by offering insights into how the strategic use of colors in instructional materials can positively influence learners' cognitive engagement, emotional responses, and language development. The cultural dimensions of color were also acknowledged, emphasizing the need for a culturally sensitive approach to color choices in educational materials. Incorporating color diversity into instructional strategies and materials can assist the practicality of language education, fostering a more dynamic and engaging learning environment.

While the current outcomes open significant perspectives into the association between colors in workbooks and EFL learners' psychological experiences, several limitations should be acknowledged. Firstly, the research was conducted in an Iranian private language institution, limiting the transferability of the findings to a broader population. The cultural and contextual factors unique to this setting may have influenced participants' perceptions of colors differently than in other cultural contexts. Additionally, the study employed a relatively small sample size, which may impact the transferability of the results. Using a single language institute also restricts the diversity of participant backgrounds, potentially limiting the variability of responses. Another limitation lies in the study's focus on immediate perceptions and experiences without exploring the long-term effects of color interventions on language learning outcomes. Lastly, the study primarily relied on self-reported data, introducing the potential for social desirability bias and subjective interpretations.

Future research in this domain could adopt a more extensive and diverse participant pool to address the limitations identified, encompassing various language institutes, cultural backgrounds, and age groups. Comparative studies across different educational settings and geographic regions would enhance the transferability of findings. Longitudinal research designs could provide valuable insights into the sustained impact of colors on language learning outcomes over time. Furthermore, inspecting the impact of learners' personalities or learning styles on the perception of colors and their impact on creativity, enjoyment, and language growth could contribute to a more nuanced understanding. Integrating objective measures, such as cognitive assessments and language proficiency tests, would provide a more comprehensive evaluation of the effects of colors on language learning. Additionally, investigating the role of instructional design factors beyond color, such as multimedia elements or instructional methods in conjunction with colors, could offer a more holistic perspective on the role of visual stimuli in language instruction. Finally, extending research to online learning environments and considering the implications of digital materials and color presentation in the virtual realm would align the study with the evolving language education landscape.

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