

Efficacy of color-coded learning models

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Introduction: The learning process is multifaceted and highly individualized, particularly in professional health-science programs. Complex materials being taught in short spans of time necessitates streamlined comprehension. Thus, students must possess strategies that are time-sensitive, effective, and apt for memory consolidation.

Background: Numerous studies have been published on the implementation of color and memory performance. In 2013, Dzulkifli and Mustafar noted the ability for color to improve situational encoding and ultimately memory capability.¹ Just one year after that, Plass et al studied color and shape with regards to overall learning, taking note that positive emotion may be a driver for improved comprehension.² The researchers are particularly interested in color coding as a model for learning optimization across post-graduate education programs.

Methods: To understand and learn effectiveness of color-coded systems, we have developed a questionnaire that will be distributed to current P1 and P2 students with IRB approval. A ranking system using Likert Scale (0-5) will be used to gather information on several key facets of learning such as how students learn, what students do to learn, application of study guide-based learning models, and effectiveness of color-coded study guides in these processes. Furthermore, the investigators included an open-ended question for students to provide their individualized learning preferences and usefulness of the proposed color-coded system.



Visual model:

A screenshot of a document editor interface. The top bar shows a menu with options like 'File', 'Edit', 'View', 'Insert', and 'Form'. Below the menu is a toolbar with various icons for text formatting and editing. The main content area displays a 'HIGHLIGHTER TOOL COLOR KEY' with a list of colors and their corresponding uses: Green = main ideas, Yellow = key concepts, Blue = sites of action, Orange = medication names, and Etc. The text is color-coded to match the key: 'Green' is green, 'Yellow' is yellow, 'Blue' is blue, and 'Orange' is orange. A red heart icon is visible in the bottom left corner of the editor window.

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HIGHLIGHTER TOOL COLOR KEY

- Green = main ideas
- Yellow = key concepts
- Blue = sites of action
- Orange = medication names
- Etc.

Different colors may be chosen throughout.

Conclusion:

Upon completion of this project, it is expected that the results will reflect success of color-based learning, particularly in our accelerated program.

In fast-paced learning environments with high passing standards, there is room for innovation and adaptation that can be incorporated into the curricula.

The researchers are working to complete the survey, collection, and analysis of data. With completion of the research, we are planning to present the results at the American Association of Colleges of Pharmacy (AACP) Annual Meeting (student competition section) in 2023.

References:

1. Dzulkifli MA, Mustafar MF. The influence of colour on memory performance: a review. *Malays J Med Sci.* 2013;20(2):3-9.
2. Plass JL, Heidig S, Hayward EO, et al. Emotional design in multimedia learning: effects of shape and color on affect and learning. *Learning and instruction.* 2014;29:128-140.



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