

EXPEDITING LAB DIP COLOUR EVALUATION PROCESS THROUGH DIGITAL COLOUR ASSESSMENT AND IDENTIFY THE LIMITATION OF DIGITAL COLOUR TOOLS

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DECLARATION

“I declare that this is my own work, and this thesis/dissertation does not incorporate without acknowledgement any material previously submitted for a degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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The above candidate has carried out research for the Masters/MPhil/PhD thesis/Dissertation under my supervision.

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Signature of the supervisor:

Date:31.07.2025

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ABSTRACT

Achieving consistent coloration is essential for maintaining quality standards in garment production, as variations in dye batches, fabric properties, and environmental factors often lead to discrepancies that compromise product uniformity. This research investigates the potential of digital color tools to enhance color consistency by optimizing the lab dip matching and bulk shade grouping processes. The study explores the potential of advanced digital technologies to enhance the Lab Dip process and bulk shade consistency, with a focus on color mismatches.

It includes an analysis of industry practices and data gathered from textile manufacturers, fabric suppliers, colorists, and practical case studies from garment manufacturing companies. Additionally, it compares digital and traditional color evaluation methods, highlighting the practical challenges and difficulties.

The primary objectives of this research are to assess the effectiveness of digital color tools in streamlining quality control measures, reducing rework due to color inconsistencies, and determining optimal implementation strategies for diverse manufacturing environments. By integrating digital technologies with traditional practices, the study aims to advance more efficient color management systems that align with international textile production standards.

This thesis contributes to the ongoing discussion on digital color management in textile manufacturing by highlighting the limitations of current technologies and suggesting ways to effectively use them for bulk shade grouping and lab dip processes and suggesting a buyer's specific color submission platform for color communication. It aims to enhance efficiency and accuracy in color management, improving product quality and consistency.

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LIST OF ABBREVIATIONS

Abbreviation	Description
CIE	International Commission on Illumination
CMC	Color Measurement Committee
DE	Delta E (difference between two colors)
LD	Lab Dips
US	United States
UK	United Kingdom

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