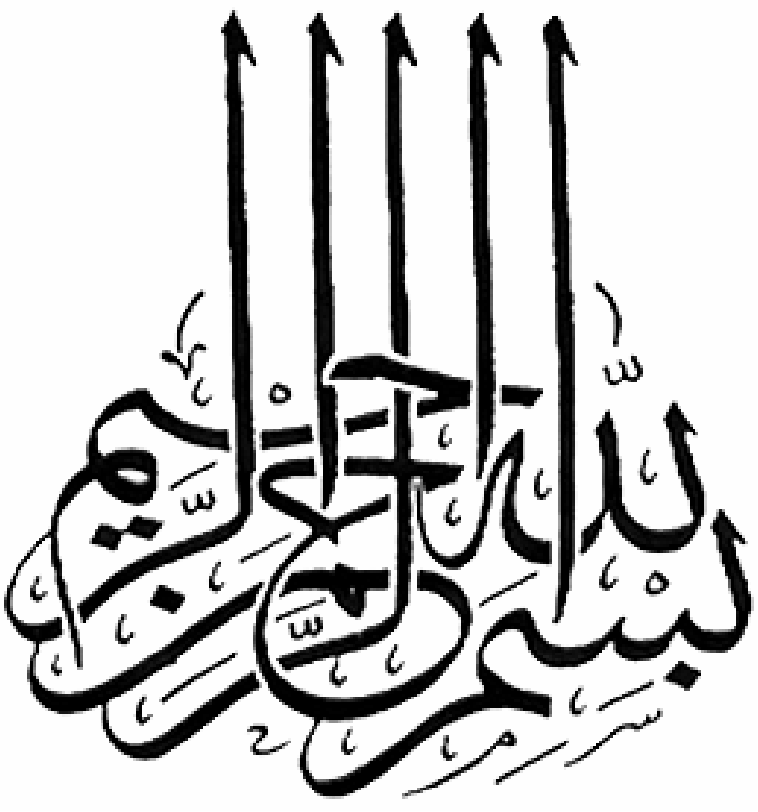
بسم الله الرحمن الرحيم

A Study on Shade Selection and Duplication

Thesis submitted to the Faculty of Oral and Dental Medicine,
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for the Master Degree " Dental Materials "

By

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Abstract:

The aim of this study was to investigate the effect of some factors on shade selection and duplication. Fifty dentists participated in this study as observers and divided into five groups, according to their color vision, gender and clinical experience. Each group had been examined before and after training on shade selection by a software program. Shade selection in vivo was also assessed visually and instrumentally. Fifty-four metal-ceramic specimens were prepared and classified into three groups according to the different technicians who built up the veneering ceramic of the specimens. Each group was further subdivided into three subgroups according to the ceramic thickness. The duplicated shades of the specimens were evaluated instrumentally. Color vision and training had significant effect on shade selection. There was moderate degree of correlation between the visual and instrumental techniques in vivo. The effect of ceramic thickness on the duplicated shade was dependent on the inter-technician variability. High inter-technician variability was noticed in contrast to the low intra-technician variability.

Keywords:

Shade selection
Shade duplication
Color vision deficiency
Gender
Clinical experience
Training
Shade guide
Spectrophotometer
Ceramic *thickness,*
Inter-technician variability
Intra-technician variability

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Dedication

To my family for their extreme effort

To Prof. Dr. Ahmed Nour El-Din Ahmed Habib

and Prof. Dr. Taheya Ahmed Moussa,

who really adopted me during this thesis

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Introduction

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An attractive smile is the ultimate objective of esthetic dentistry that adds to the personal communication skills. The ability of a restoration to match the color of the adjacent natural teeth is an integral part of its success. Color matching may be the only parameter of treatment with which the patient is concerned. Failure to match the proper color of the teeth may lead to failure of mechanically and biologically successful restoration. Up to 80% of the patients expressed their dissatisfaction with the perceptible color of their dental restorations [(1)]. Thus, proper color reproduction is considered to be one of the most complex and frustrating problems in restorative dentistry.

Although visual shade selection is the most frequently applied technique in dentistry, controversy still exists whether this technique is reliable or not due to individual variations. In an attempt to obtain more scientific and consistent shade measurements, instruments such as colorimeter and spectrophotometer were introduced. However, it is not clear whether the use of instrumental shade selection technique would provide an additional advantage in esthetic dentistry.

Despite the fact that proper color reproduction for direct esthetic restoration is totally the dentist responsibility, yet other technical and manipulative variables may still play a role in the resultant shade of indirect restoration. Consequently, the proper color reproduction of indirect restorations depends not only on the proper shade selected by the dentist, but also on the proper shade duplicated by the technician.

Thus, this study was designed to investigate the effect of some individual variations on visual shade selection as well as to assess shade