PR11: The Effects of Experience in Diagnosing Fundus Photography Images among Optometry Students: Insights from Eye Tracking Analysis

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ABSTRACT

Introduction: Diagnosing fundus photography images is a fundamental skill needs to be acquired by optometry students. This study investigated the effect of experience and training in diagnosing the fundus images through the perceptual scan path and eye movement analysis. **Method:** Thirty Optometry students participated in this study and were divided into two groups by their level of experience; Group 1: 20 undergraduate students (low experience) and Group 2: 10 postgraduate students (high experience). Fifteen fundus images representing two common fundus anomalies seen clinically (diabetic retinopathy and glaucoma) and normal fundus appearance, were presented as stimulus on the Tobii TX300 eye tracker. Each subject was asked to diagnose all fundus images while the eye tracker simultaneously record the eye movements. Data were analysed quantitatively (fixation duration) and qualitatively (heat maps and scan path patterns). **Results:** The results from quantitative analysis showed that there was no significant difference between the fixation duration on all fundus images with different levels of experience (p=0.75). Qualitative analysis revealed that the heat maps patterns of Group 2 were more structured and compact compared to the Group 1. In terms of scan path pattern, complex observation patterns were observed in Group 1 compared to Group 2. **Conclusion:** It is evident that Group 1 have more complex cognitive load compared to Group 2, even though the average time spent for each fundus images were not significantly different. The insightful information gained could be used to train and teach students on how to interpret and diagnose fundus images strategically.

KEY WORDS:

Scan path, fundus photography, experience, eye movement, strategies