

Nasar, J. L., & Troyer, D. (2013). Pedestrian injuries due to mobile phone use in public places. *Accident Analysis & Prevention*, 57, 91-95.

Peters, A. (2017, October 27). The crosswalk of the future moves and changes to prioritize pedestrians. Retrieved from <https://www.fastcompany.com/40481550/the-crosswalk-of-the-future-moves-and-changes-to-prioritize-pedestrians>

Orland, K. (2017, November 27). Study: Pokémon Go led to increase in traffic deaths, accidents. Retrieved from <https://arstechnica.com/gaming/2017/11/study-pokemon-go-led-to-increase-in-traffic-deaths-accidents/>

Mohd Syazwan, S., Deros Baba, M., Nur Zarifah, H., Aqbal Hafeez, A., & Noor Faradila, P. (2017). Prevalence of distracted pedestrians while crossing: a study of Malaysia's situation. In S.A. Che Ghani, W.A. Wan Hamzah, and A. Alias (Eds.), *Proceedings of the 2nd International Conference on Automotive Innovation and Green Vehicle (AiGEV 2016)*. Cyberjaya: EDP Sciences.

The Local. (2016, April 8). Smartphone zombies wreak havoc on cities. Retrieved from <https://www.thelocal.de/20160408/study-smartphone-zombies-wreak-havoc-on-cities>

Zakaria, J., & Ujang, N. (2015). Comfort of walking in the city center of Kuala Lumpur. *Procedia-Social and Behavioral Sciences*, 170, 642-652.

---

# COMPARATIVE ANALYSIS OF VISUAL ELEMENTS IN RUNNING APPS

---

Noorhaslina Senin, Siti Shahida Kamel,  
and Maizatul Nurhuda Saadon

### Abstract

The advancement of mobile phone technology has led to the rise of various mobile apps with health and fitness has been one of the growing app's categories. Among the favourite apps under these categories are running apps, which designed to at least track runners speed, distance travelled, calories burned and mapping runners' route. Most of these running apps user interface relies on visual elements that allow the user to interact with the apps and to gain further information on their physical activities. Current research on the fitness apps mainly focuses on the motivation and behavioural change attributes without looking further in depth on the role and the visual element used in interface design itself. Thus, this raises the issue of examining the visual elements represented by the running apps from graphic design. This study is only focusing on analysing and comparing the aesthetics for the interface design between top five running apps available on the App Store. Visual Elements extracted from literature reviews are used as analysis factor for the running apps. This paper identifies the similarity and differences between the visual elements used among the running apps. Data from this research will help to gain a basic understanding of the visual elements for future running apps development.

**Keywords:** Running; mobile app; visual elements; aesthetic

### Introduction

Nowadays health and fitness apps are gaining popularity because it does not require extra hardware but take advantage of the smartphone environment. Statistic report in July 2017 display Health and Fitness apps at number nine out of twenty for most popular Apple App Store categories (Statista, 2017). Before that, Health and Fitness Apps was the fifth fastest growing apps categories as in 2016 (Statista, 2017).

Today, with thousands of health and fitness apps available in the market consumers are identifying and using the apps to (1) support their health decision-making and (2) assist in self-management of their disease or maintain wellness (Cummings, Borycki & Roehrer, 2013). There is many health- and fitness-related mobile apps. Hence, this paper focusing on free running apps available on the App Store. There is so much choice when it comes to choosing a running app, big-name brands such as Adidas, Nike, Under Armour, and Puma all sporting their apps and other popular and competitive apps from Runkeeper, Runtastic, Strava, and the Endomondo (Stables & Sawh, 2017).

These running apps allow the user to track their physical activities such as walking and running; map users run using phone's GPS and provide statistics for the duration, distance, average pace, and calories burned. Data collected from users' activities are presented with graphical methods in a more clear and effective way. By visualising the data captured in their day-to-day lives, users are better prepared to make informed decisions about their health outcomes (PSFK Lab, 2014). This is where the understanding and use of visual elements is vital to convey the complex data into clear and meaningful data to the user.

### Fundamentals of Visual Elements for User Interface Design

User interface design is a subset of a field of study called human-computer interaction (HCI), and it is the part of a computer and its software that people can see, hear, touch, talk to, or otherwise understand or direct (Galitz, 2007). Interface design, in short, can be defined as the design of the visual paradigms used to create action or understanding (Fling, 2009). Successful interface design is the one that users immediately notice the important stuff while the unimportant stuff did not get noticed or included at all (Garret, 2011).

Visual elements play an essential role in the visual design, which requires graphic treatment when it comes to the interface design. Design affects the user's response with expectations in mind about what's appropriate, trite or original, and dull or interesting (Tidwell, 2011). Kurosu and Kashimura's research has shown that people perceive more-aesthetic designs to be easier to use than less-aesthetic designs—whether they are accessible or not (as cited in Galitz, 2007, p. 46). On the other hand, the importance of aesthetics can be the view of three different angles: the design perspective, the psychological perspective, and the practical perspective (Tractinsky, 2013) but this research is only focusing on the design aspect in specific the visual elements.

It is fundamental to apply the principles of interaction design when designing for the application. Among the principles are aesthetics, anticipation, autonomy, colour, consistency, default, and discoverability (Tognazzini, 2014). According to Tognazzini, there are three core principles under aesthetics: (1) Aesthetic design should be left to the graphics or visual designer; (2) Fashion should never outdo usability; and (3) User test the visual design as thoroughly as the behavioural design. All these principles should be considered for in-depth research on the interface design in future research.

The numbers of visual elements may vary and depends on whether it is a primary visual element or its visual elements for screen based. A fundamental visual element encompasses line, shape, form, texture, value, and colour. According to Hass, point, line, and plane are the building blocks of design. From these elements, designers create images, icons, textures, patterns, diagrams, animations, and typographic systems (as cited in Lupton & Phillips, 2014, p.14). About screen-based design, there are eight visual elements: colour, value, texture, shape, form, space, line, and type (Lynda.com, Inc., 2016).