

## The Size Effects of Keyboards (Keycaps) on Computer Typing Tasks

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**Abstract :** The keyboard is the most important equipment for computer tasks. However, improper design of keyboard would cause some symptoms like ulnar and/or radial deviations. The research goal of this study was to investigate the optimal size(s) of keycaps to increase efficiency. As shown in the questionnaire pre-study with 49 participants aged from 20 to 44, the most commonly used keyboards were 101-key standard keyboards. Most of the keycap sizes (W × L) were 1.3 × 1.5 cm and 1.5 × 1.5 cm. The fingertip breadths of most participants were 1.2 cm. Therefore, in the main study with 18 participants, a standard keyboard with each set of the 3-sized (1.2 × 1.4 cm, 1.3 × 1.5 cm, and 1.5 × 1.5 cm) keycaps was used to investigate their typing efficiency, respectively. The results revealed that the differences between the operating times for using 1.3 × 1.5 cm and 1.2 × 1.4 cm keycaps were insignificant while operating times for using 1.5 × 1.5 cm keycaps were significantly longer than for using 1.2 × 1.4 cm or 1.3 × 1.5 cm, respectively. As for the typing error rate, there was no significant difference.

**Keywords :** keyboard, keycap size, typing efficiency, computer tasks

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