

LINEAR VERSUS WEB-STYLE LAYOUT OF COMPUTER TUTORIALS: WHICH IS BETTER?

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When designing computer tutorials, educators have important decisions to make in terms of the layout of the material. Frequently educators decide between linear or branched tutorials.

Methods: We prepared a computer tutorial for learning how to interpret cervical spine x-rays. The tutorial has 66 screens which include either x-rays or computer graphics on almost every page. The tutorial includes five unknown films for the student to interpret. One version presents the material in a linear sequence with the unknown films heading up “chapters” detailing an important aspect of the task. In the second, branched, version the same screens are accessed through hyperlinks in a frame beside the unknown films.

Evaluation: 137 medical students at two sites participated in a randomized controlled experiment. They interpreted 10 c-spine images and then were randomly assigned to one of the two versions. Afterwards, they re-assessed the same ten images.

Results: The students significantly improved their pre to post-test scores (effect size 0.24; $p < 0.001$) but this was NOT affected by the layout of the tutorial (effect size 0.003; $p = 0.55$). Students randomized to the Linear tutorial spent more time on the tutorial (29.2 min vs 24.3; $p < 0.001$) and were more likely to rate it 5/5 on a Likert rating of how valuable it was (81% vs 55%; $p = 0.002$).

Benefit to Participants: Participants will be able to see, in a quantifiable manner, how these two different layouts can affect students’ experience. Wholesale adoption of certain web-style layouts may not be in the learners’ best interest.