Introduction

Physical activity promotion material meant for lay adults often contain quality issues, which undermine their credibility and usefulness (Thomas & Cardinal, 2020, *Journal of Athletic Training*). Of concern, lay materials with limited credibility and usability have a low chance of promoting end-user health literacy, a strong predictor of prevention-oriented health behaviors (U.S. National Action Plan to Improve Health Literacy). The wide dissemination of such material raises serious question about the equity of physical activity promotion (Hasson et al., 2017, *American Journal of Health Promotion*). Few studies, however, have evaluated the quality of lay material over time (Thomas et al., 2018, *Quest*).

Purpose

In order to conduct a repeated-measures study of the quality of physical activity promotion web articles for lay adults, one experienced researcher (JDT) trained undergraduates on how to use the Suitability Assessment of Materials (SAM) protocol (Doak et al., 1996).

Methods:

- Three undergraduates at the time (ENT, SAL, CNC; Feb.-Aug. 2020) practiced with an adapted version of the SAM protocol (Thomas & Cardinal, 2020, *Quest*) using six web articles that were written in English and not used in the longitudinal study.
- Coding by ENT was compared to JDT; ENT was pre-assigned to evaluate material for the longitudinal study.
- ENT showed acceptable/within coder agreement during the training phase per measures of Krippendorff’s alpha and intraclass correlation.
- To further test his skills, ENT used a random subset of 16 unique web articles that were part of the longitudinal study (Jul.-Aug. 2020). A three-day grace period was used between the coding phases.
- Methods (continued):
  - Debrief discussions throughout the training period revealed several bad habits used in the design of the lay materials.
  - Thus, the post-hoc decision was made to develop “teaching tools” based on these observations.
  - Text profiles were created to provide precise illustration of developer bad habits. Four web articles were used, randomly selected from the subset that ENT used to further test is coding skills. SAL generated the text profiles.
  - The text profiles measured difficult to understand vocabulary (e.g., jargon) and complexity in sentence design (e.g., wordy). She then revised sentences to make the advice easier to read and understand. Reading grade level was measured using the Simple Measure of Gobbledygook (SMOG) method.

Results (continued):

- For the 16 web article subset to the longitudinal study, ENT’s agreement with JDT—the expert coder— ranged from Good / Substantial (both .68) to Excellent / Almost Perfect (both .86) across the SAM’s main categories. ENT’s overall agreement with JDT was Excellent / Substantial (range: .76-.77).
- ENT’s agreement with himself was Excellent / Almost Perfect across all main categories (both > .85).
- The post-hoc text-profile analyses showed an undergraduate could revise text to meet standards for adequate reading grade levels (6-8th grade), showing the potential of the exercise and SAM protocol training to help undergraduates develop their skill in lay communication.

Discussion and Conclusion

- Our results demonstrate that a novice coder can learn to code material with a high degree of fidelity. This contrasts with speculation that the SAM protocol may be too subjective for good coder agreement.
- Four “rules” were identified to have helped the novice achieve fidelity (e.g., review notes often). The training exercise also illuminated several “bad habits” by material developers that limit the educational quality of material (e.g., jargon-filled advice).
- Future work using an action-based research framework would be a promising way to build on this study (Smith & Thomas, 2020). Such initiatives would provide needed training to those who communicate about physical activity. They could also promote greater awareness about barriers to equity in physical activity promotion (Love et al., 2021).