Title: Cluster analysis in educational research: Let's start with the research question!

Dr Emma Howard

Abstract:

Cluster analysis is widely being used in educational settings to gain insights into student learning; with the most popular clustering methods being k-means and hierarchical clustering. The choice of clustering method for a research study is often influenced by previous similar studies. However, the motivation for a study, variables of interest, and appropriate clustering method are all connected. To examine this relationship, this presentation uses the Open University Learning Analytics Dataset (OULAD), a well-established open access educational data set, and the ouladFormat R package.

Drawing on studies citing the OULAD, eight motivations for clustering are identified. This presentation will discuss the educational context, variables of interest and clustering methods for two motivations (the early identification of at-risk students and the identification of similar groups of learners). For each motivation, two clustering methods are implemented and their solutions contrasted. The preferred cluster solution may be influenced by educational factors associated with the motivation or original research question.

This is joint work with Arthur White (TCD) and Jason Wyse (TCD).