Job stability, anxiety, student well-being, and social contacts: Insights from network data science into educators' feelings and attitudes during the COVID-19-induced school closure

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The current global SARS-CoV-2 pandemic has thrown educators and learners into the necessity of shifting to remote instruction, typically with little prior warning. Since April, we have been carrying out a global study (involving 102 countries) investigating how different groups of teachers and students have been handling the transition to emergency distance teaching and learning. In particular, we have aimed to understand what circumstances, behaviours, attitudes and psychological traits have helped deal with the shift, and what caused difficulty.

The comprehensive, 435-item survey contains sociobiographical variables, situational questions, as well as a battery of psychological testing instruments. Here, working on a subset (representing one target group) of over 700 responses from educators working in 61 different countries, we show how network data science helps reveal easily interpretable clusters of naturally correlating variables (Fig. 1). Among others, we identify beliefs, attitudes and behaviours associated with i) job stability (green cluster), ii) coping with challenges (grey), iii) leadership (purple), iv) social contacts (blue), v) work-home balance (jasper), vi) student well-being (right-side orange), and vii) anger and anxiety (left-side orange). We will discuss these and other findings in more detail, corroborating the potential of cluster detection algorithms for large sets of ordinal questionnaire responses, and the advantage of network visualisation over other hierarchical methods (such as correlation matrices and PCA scatterplots) in terms of ease of recognition of the relationships, their filtering and interpretation, due to the former's spatial graphical layout.

