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#DataCreativities: Developing a trans-disciplinary data visualization framework from Arts practice to teaching and learning during COVID19

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Abstract:

Transdisciplinarity and collaboration are key capabilities that need to be fostered by authentic higher education learning environments to prepare our graduates for an unknown future (Barnett, 2012). These capabilities need to be modelled through the practice of academics, and even more so during a global pandemic such as COVID19 in response to the changing ways in which professions, and in particular the arts that have traditionally relied upon face-to-face interaction, have rapidly pivoted to online modes of interaction. In response, this project is conceived as a transdisciplinary collaboration between the University of Melbourne Faculty of Fine Arts and Music (FFAM), the Graduate School of Education (MGSE), the Centre for the Study of Higher Education (MCSHE), the Social & Cultural Informatics Platform (SCIP) and the Melbourne Data Analytics Platform (MDAP). The #DataCreativities collaboration seeks to learn from the data created by the creative industry communities as they rapidly moved to new forms of online interaction in order to survive in a socially distanced environment (for example (Braus & Morton, 2020)). We use this to develop a new framework for data generation and visualization in the context of higher education as a form of feedback loop that can inform innovative pedagogical practice and research (Ferdig et al., 2020).

The project data collection and analysis began by creating visualisations of the teaching and learning activities embodied in the universities learning management system (Canvas) to discover patterns of usage and interaction as the creative arts disciplines switched from studio-based on campus to remote online teaching and learning modes. The analysis of the data visualisations from creative and education domains formed a continuous loop of acting and reacting (Glaveanu et al., 2013) as they rapidly developed new modes of interaction in response to

COVID19. In learning from these data as visual patterns, the project is focused upon identifying new modes of teaching and learning that are sustainable beyond an emergency response to COVID19.

The data visualization project involves the identification of an Ecology of Resources or EoR (Luckin, 2008) that encompasses social media via a hashtag #Datacreativities (Twitter, TikTok, YouTube) open software publishing (Omeka, Figshare) and Altmetrics (Priem et al., 2010) - creating a feedback loop between the model of a COVID19 rapid pivot from face-to-face Arts community to building an online community, and traditional higher education teaching and learning and research practices and metrics (Williams & Padula, 2015). Early stages visualisations helped turn data into information. Collaborative bringing together of our experience and expertise helped turn information into knowledge. Making visualisations of data formed practice-based research (Candy, 2016) transforming abstract data into observable, malleable digital artefacts (Kallinikos, Aaltonen & Marton, 2010). Textual and visual metaphors provide rich foundations for developing new ways of thinking that can lead into new ways of practice, and this is at the heart of this collaboration.

The #DataCreatives collaboration exists in the same online ecosystem as the education and creative industries sectors we seek to study. We have explored three interconnected areas of data sources: 1. Communication, collaboration and process, 2. Data analysis and visualisation, 3. Sharing research and outputs. The Ecology of Resources (Spreadborough et al., 2020) that make up our emergent data visualisation framework include:

1. Communication, collaboration and process
 - a. Zoom
 - b. Microsoft Teams
 - c. Sharepoint
 - d. GitLab
 - e. Twitter
2. Data analysis and visualisation
 - a. Voyant
 - b. Jupyter Notebooks
 - c. TAGSExplorer
3. Sharing research and outputs
 - a. Omeka
 - b. Figshare
 - c. Twitter
 - d. GitLab
 - e. Wordpress
 - f. Mozilla Hubs

The presentation will showcase some of the data visualisations produced by the #Datacreativities team and the mapping between the professional arts community and arts education practice on response to COVID19. The presentation will also outline the emergent data visualisation framework and how the ecology of resources facilitates a feedback loop back into informing teaching and learning and research.

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