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Open Annotation Data as Learning Analytics: Public Workflows, Analyses, and Visualizations to Support Educator Open Learning

This presentation discusses open data as learning analytics (LA). We report empirical findings and share analytic processes from the Marginal Syllabus, a professional development initiative that convenes conversations with K-12 teachers and higher education faculty about educational equity via open web annotation (OWA; Author & Blinded, 2018). Extending research examining open data as LA (Gruzd et al., 2016), we detail how OWA data produced during educators' conversation can be collected, analyzed, and visualized as LA to understand and support open professional learning (Author & Blinded, in review).

Web annotation in education (i.e. Novak et al., 2012) is often disconnected from open education developments and seldom produces open data. However, standards-compliant OWA technologies, like Hypothesis, make available open data (i.e. annotations, multimodal content) and metadata (i.e. timestamps, tags) that can be studied as LA. While some LA research uses web annotation technology to generate data about learners (i.e. D'Mello, 2017), many annotation efforts have yet to widely embrace open technologies and data. To address this gap, we facilitate an ongoing, public professional development initiative that collects, analyzes, and visualizes open data as an open educational resource (i.e. Atenas & Havemann, 2015) so that LA associated with OWA become accessible to educators, researchers, and designers.

First, we will describe LA associated with a single Marginal Syllabus OWA conversation. Our methodological approach collected OWA data from the Hypothesis API and used open-source software to build workflows that format and visualize open data as LA. We automated these steps to identify descriptive statistics, conduct social network analysis, and visualize OWA conversation density. Together, these LA provide insight about participation in the focal Marginal Syllabus conversation, how educators interacted, and how OWA organized collaboration (Author & Blinded, in review).

Second, we will showcase how Marginal Syllabus' open workflows are accessible to other researchers. We have developed a means of real-time extraction, transform, and access (RETA) of Hypothesis open data as LA. RETA provides high-level analyses about educator use of Hypothesis, like total and temporal participation metrics (i.e. annotations, replies, threads), and graph visualizations of conversations. RETA is a public and free web service, providing baseline analysis methods to any URL containing Hypothesis OWA; accordingly, our processes for collecting, analyzing, and visualizing LA are publicly accessible and reproducible, via GitHub, for any researcher studying OWA as LA.

References

Atenas, J., & Havemann, L. (Eds.). (2015). *Open data as open educational resources: Case studies of emerging practice*. London, UK: Open Knowledge, Open Education Working Group.

Author & Blinded. (In review).

Author & Blinded. (2018).

D'Mello, S. (2017). Emotional learning analytics. In C. Lang, G. Siemens, A. Wise, & D. Gasevic (Eds.), *Handbook of learning analytics* (pp. 115-127). Society of Learning Analytics Research.

Gruzd, A., Paulin, D., & Haythornthwaite, C. (2016). Analyzing social media and learning through content and social network analysis: A faceted methodological approach. *Journal of Learning Analytics*, 3(3), 46-71.

Novak, E., Razzouk, R., & Johnson, T. E. (2012). The educational use of social annotation tools in higher education: A literature review. *The Internet and Higher Education*, 15(1), 39-49.