Network Analysis as a Graphic Design of Cultural Communication in German Studies

"...when students are provided with an organizational structure in which to fit new knowledge, they learn more effectively and efficiently than when they are left to deduce this conceptual structure for themselves."

“To bracket pedagogy in critical discussions of the digital humanities or to completely exclude it from these discussions reinforces an antagonistic distinction between teaching and research, in which time, effort, and funding spent on the one cannibalizes the opportunities of the other.”

MAIN RESEARCH QUESTION
Does using Collaborative Network Analysis (CNA) help students of German establish interpretive connections in writing?

COLLABORATIVE NETWORK ANALYSIS (CNA)
- A web-based application for mapping complex network systems
- An add-on developed in collaboration with educational technologists in the College of Arts and Letters

BACKGROUND
- DIGITAL HUMANITIES: combine computational methods with core humanistic principles to create new ways of knowledge production
- GERMAN STUDIES: grounding in German Studies while developing a Digital Humanities project
- SCHOLARSHIP OF TEACHING AND LEARNING: be the first strategic assessment of student learning outcomes in Digital Humanities

METHODOLOGY

WORDCLOUD: Identify the fifty (50) most frequently used words in student essays

NODES: Identify these words as nodal points in student essays and code them appropriately

EDGES: Count the number of words between adjacent nodes and measure the strength of interpretive connections

ASSESSMENT: Measure the learning outcomes between Essays 1, 2, 3, and 4

DATA
- The following data capture student learning outcomes in two undergraduate advanced German courses (27 students in total). Data of student learning outcomes in the graduate seminar (6 students) are currently being collected.

NODES (Concepts)
- Students were selected for the control group or the experimental group on the basis of two criteria: 1) GPA (fair distribution); 2) prior knowledge of CNA (then belonging to the experimental group).
- In GRM 420, using CNA twice increased students’ ability to identify and establish interpretive connections. No use of CNA in Essay 4 allowed students to fall back upon their old habits of interpretation. The trend line shows their overall improvement, though.

EDGES (Strength of the Interpretive Connection between Concepts)
- In GRM 420, the control group remained consistent in its ability to create edges between nodes. The experimental group demonstrated a dramatic improvement in creating strong edges between nodes.
- In GRM 491, the use of CNA led to a visible improvement in the strength of edges. However, the control group showed a greater improvement.

IMPLICATIONS FOR RESEARCH AND TEACHING
- Make use of CNA for deliberate and carefully associated concepts
- Introduce students early and repeatedly to a new digital
- Integrate digital technology explicitly into the classroom and be explicit about the potential of pedagogical goals and learning outcomes
- Provide students with a range of project samples
- Ideal for assignments that ask for complex, collaborative connections between words and images

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