

# **Popplet for Higher Education: Supporting Organization and Collaboration**

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## **Introduction**

This article shares an innovative, technology-based approach to teaching using an old tool, the graphic organizer, in a web-based platform. Popplet is a Web 2.0 tool that allows users to quickly and simply create visually appealing graphic organizers that integrate text, image, video, and Internet resources to organize and present information. Popplet also supports collaboration as multiple users may develop a graphic organizer together and comment on each other's work. Strategies for using Popplet in higher education as a means of supporting Universal Design for Learning principles are provided.

## **Framework**

In Foundations of Instructional Technology, a course in a Master of Education program with concentration in technology facilitation, an instructor integrated components of the Universal Design for Learning (UDL) framework and enhanced organizational support through the use of a web-based graphic organizer. The UDL framework calls for teachers to consider multiple means for representation of content, multiple means for students to demonstrate knowledge and multiple means for engagement and motivation in learning (CAST, 2013). Application of UDL framework principles in classrooms can enhance learning for a diverse range of learners; much as universal design in architecture (i.e., automatic opening doors, dropped curbs) has enhanced accessibility for a wide range of users (Rose & Meyer, 2002). UDL is regularly advocated in K-12 schools and has been encouraged in research literature for higher education.

Gradel and Edson (2009) endorsed the need for UDL in higher education citing the increased diversity of student learning needs in classrooms today as rationale for the need to provide multiple means to engage learners, represent content, and demonstrate knowledge. Further, they identified Web 2.0 tools as a prominent resource for educators as they seek to integrate UDL principles into their assignments and activities. In their work, Gradel and Edson (2009) provided an example of content mapping using a web-based graphic organizer and traditional note-taking as means for supporting the learning needs of students. Other research also supports the value of graphic organizers to facilitate student acquisition and organization of knowledge (Phillips & Nagy, 2014), enhance critical thinking skills (Atay & Karabacak, 2012), and foster improved planning and monitoring during inquiry activities (Hagemans, van der Meij, & de Jong, 2013).

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## Making it Work

Previously, whiteboard and document camera/LCD projector were utilized to display graphic organizers created during class discussions. For example, a first day of class activity involved students in the development of a graphic organizer to represent the many and varied influences on teacher technology decision-making. In subsequent class sessions the graphic organizer was revisited and new influences on teacher technology decision-making were added based upon course content learning. This approach became problematic as the whiteboard needed to be erased at the end of each session and a paper document for use with the document camera became too cluttered with information. An interactive whiteboard may have remedied the situation, but one was not available in this classroom. The Web 2.0 tool, Popplet, offered features that would meet both course learning objectives and the physical constraints of the learning environment.

Popplet is freely available in a limited form at [www.popplet.com](http://www.popplet.com) or through the iTunes store as an iPad application. Reasonable subscription rates are available for the full feature version of the application which will allow for not only the development of graphic organizers, but also for the collaborative development of graphic organizers by multiple users. Both were employed in the foundations course.

Popplet is intuitive to use. Upon opening the application the user is prompted to make a Popplet through a clearly labeled button. A new workspace opens where Popples (what textboxes are called in Popplet) can be created to begin visually organizing and arranging information. Double clicking in the workspace creates a new Popple. Each Popple has design and formatting tools visible immediately upon creation. With these tools Popple color and size can be changed, drawing may be completed, and files (i.e., video, audio) may be uploaded. A comment box is also included with each Popple so that collaborators can comment on one another's work. Popples may be connected simply by dragging a line from one Popple to another.

Initially, Popplet was used by the instructor to support the development of the aforementioned graphic organizer on influences to teacher technology decision-making. The tool was utilized by connecting an iPad (using HDMI cable adapter) to an LCD projector so that students could see the organizer displayed at the front of the classroom. Students were also able to add to the organizer by approaching the iPad at the front of the classroom. The graphic organizer was saved and used again in subsequent class sessions as a tool for organizing course content learning and as a platform for collaboration (Figure 1). Students were pleased with the ease and clarity of use for Popplet. During discussions, they expressed how helpful it was to have one place where course learning was summarized graphically, providing both visual and text-based organization. In this way the UDL principle for providing multiple means of representation of content was supporting the varied learning needs and styles of students. The initial success of this approach led to a subsequent use where students contributed individually using their own computing devices outside of the regular course meeting time.

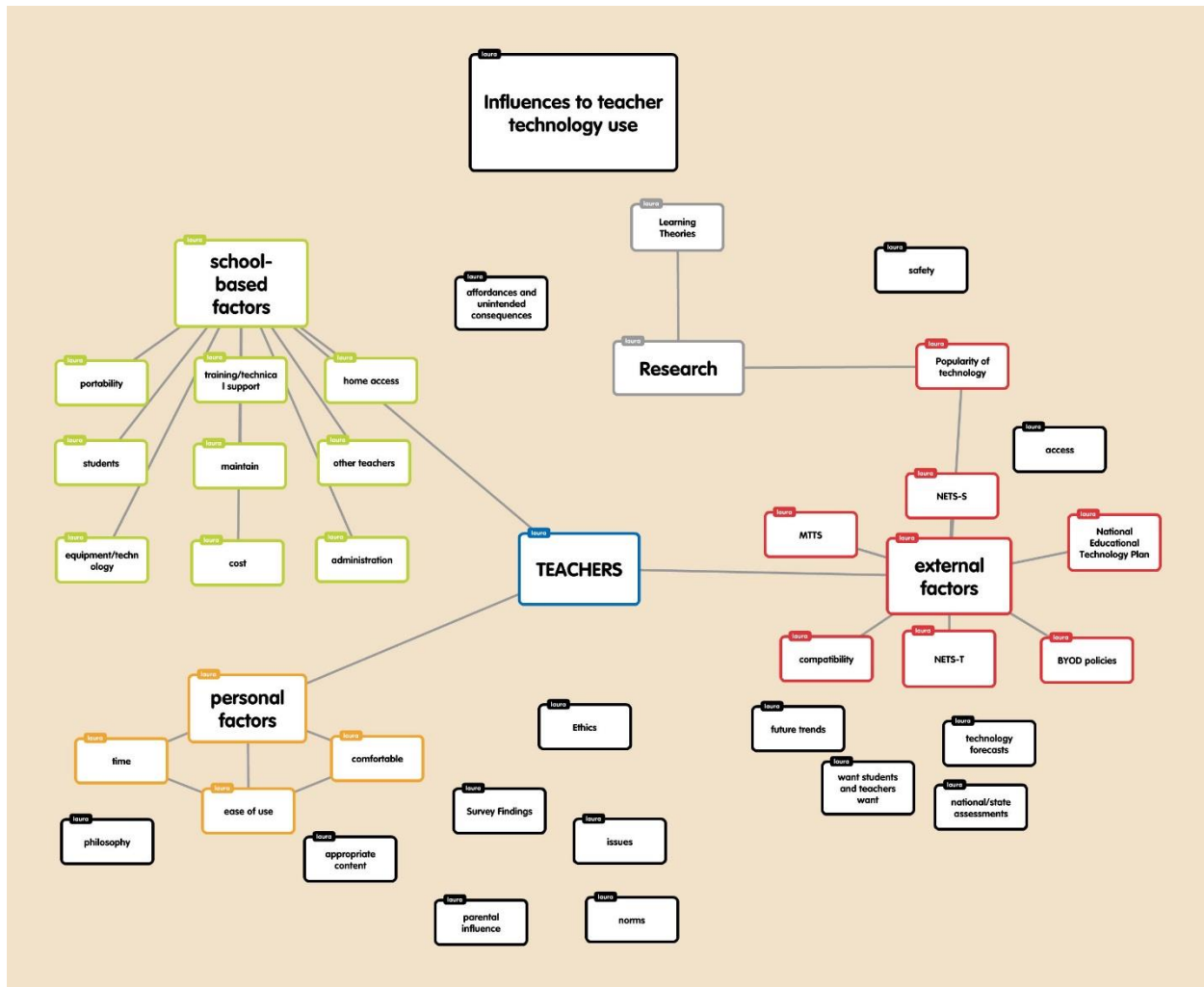


Figure 1. Influences on teacher technology decision-making. This figure illustrates how Popplet was used in a whole class face-to-face setting.

Multiple modules of study are presented in the foundations course. With each, Popplet was regularly utilized for organization and collaboration in both the whole class setting and in individual settings remote from the classroom. To begin the course, a common definition of technology was needed. After much discussion, consensus was reached on a definition. The definition needed to be placed in the context of classroom learning in order for students to fully understand the field of instructional technology, its origins and present status.

Popplet was utilized to help organize information through a technology timeline (Figure 2). Each of the eight students in the course were assigned a time period to research. They were to obtain a definition of technology/classroom technology from their assigned time period and to provide a few examples of classroom technology from the era. Using collaborative features in Popplet the instructor was able to add collaborators via email invitation. Then, each student had editing access to the class Popplet and was able to add their research in a new Popplet below their assigned time period. Subsequent class discussion followed.

Later in the course, learning theory, instructional paradigms, and conceptual frameworks were introduced. Again students shared their knowledge by placing this information on the timeline below the appropriate time period from its origin or prevalence in use. In the subsequent class session this supported dialogue by looking at the types of technologies that were in use in classrooms when certain instructional approaches were prevalent. For example, through Popplet observations, students noted the use of drill and practice software aligned with Behaviorism. Next, students learned of prominent figures in the field (e.g., Papert) and seminal research (e.g., Apple Classrooms for Tomorrow) and again placed these on the graphic organizer timeline. This process continued throughout the duration of the course. In this way multiple means for representing information were provided by the instructor, students were able to express their knowledge in this digital platform (as well as through other traditional classroom assignments and activities), and students were motivated to learn by their use of Popplet as a means for collaboration and as a means for visual representation of content.

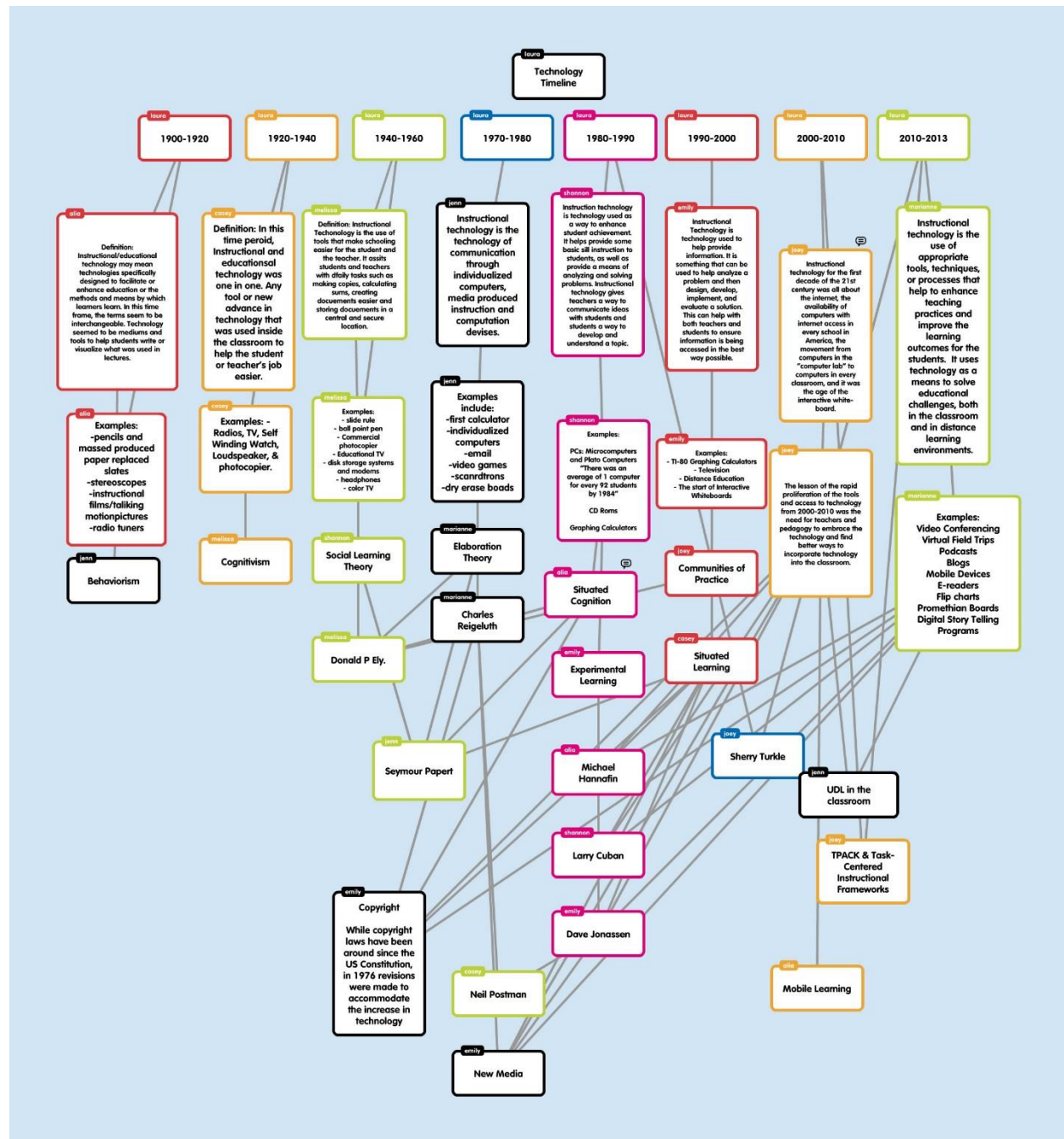


Figure 2. Technology timeline. This figure illustrates how Popplet was used by students to create a timeline.

Utilizing Popplet as a means to incorporate UDL principles into higher education coursework was effective in organizing course content and also supported technology-assisted management of learning. As a note, the instructor subsequently utilized Popplet with a faculty colleague while discussing/organizing research data too.

## Future Implications

The relevance of this technology-enabled approach to teaching in higher education lies in its simplicity. Instructors are familiar with graphic organizers, the pedagogical approach described is not dependent on any specialized training or professional development, and no software needs to be installed to begin use of Popplet. As a Web 2.0 tool facilitating research-based best practices, Popplet, supports the integration of technology into instruction to enhance organization of content, to engage learners through collaboration, and to provide an innovative analysis and feedback method for students.

This is an innovative approach for use in higher education as traditional graphic organizers are fixed, static documents. With Popplet, students and instructor can easily discuss and move ideas within their popples. They can add media-based examples to further clarify meaning and they can do all of these things in both face-to-face and online settings. A feature that is especially helpful in the online setting is the ability for students/instructor to post comments and questions directly to a popple. In this way collaboration is enhanced and dialogue is further organized given the direct connection to a specific popple/content topic.

The features of Popplet support instructor/peer feedback and collaboration. This benefits learners as they are provided multiple perspectives on content and challenged to make meaning in new ways. Similarly, through the graphical interface some learners may be challenged to present their learning in new ways; while other learners may benefit from the opportunity to have content presented using multiple means for representation.

Given the initial successes with Popplet, instructor continued use is likely in the future. However, it should be noted that small class size may have played a role in the successful implementations described. Given a larger class size (i.e., greater than 10), the Popplet tasks may have become too cluttered or overlap of student generated content may have become repetitive. In such cases, students may need to be divided into groups of no larger than eight. Popplet is not content dependent and could be successfully used to support varied learning needs, foster critical thinking, and enhance organization and management of course content. An instructional modification may include the use of AirServer (available at [www.airserver.com](http://www.airserver.com)) as a means of untethering the iPad (or any mobile device) from cables connecting to a projector. This would allow for convenient passing of the device from student to student, while still projecting the Popplet at the front of the classroom for ease in visibility by all.

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