

## Information Overload: Navigating CS Resources Without Reinventing the Wheel

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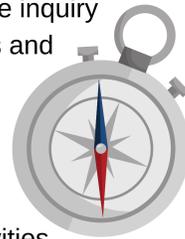
### OVERVIEW

This NSF-funded project builds the capacity of an established research practice partnership (RPP) to address equity in CS education for underrepresented students. The Computer Science Teaching and Learning Collaboratory (CS-TLC) is a curated forum of a diverse group of education stakeholders designed to facilitate and leverage the exchange of knowledge and expertise and to promote collective inquiry regarding the most efficient and effective way to navigate existing resources and opportunities in CS.

### THE CHALLENGE OF INFORMATION OVERLOAD

There are already many excellent CS curricula and resources including lesson plans and classroom activities available to both novice and experienced CS teachers. There is also a plethora of professional learning opportunities they can choose from. The challenge is how to make an informed choice about CS resources that provide the best match to the unique needs and circumstances of teachers and students.

This is not a new problem. Information overload is a well-documented unintended effect of today's complex and rich information environment (1), which increasingly impedes users' ability to access and retrieve relevant resources in a timely and efficient manner (2). Modern information retrieval requires searching, identifying, finding, and evaluating relevant information, and then organizing it in a way that ensures efficient and effective use (3). In theory, information and communication technology can greatly improve this process, but ultimately it is the way users use such technology that determine its usefulness. It is therefore common to engage users themselves in the process of co-designing and testing such knowledge management and collaboration platforms. An important goal of CS-TLC is to engage members of the RPP in a co-design process that will ensure the end product is both useful and sustainable.



### THE CO-DESIGN PROCESS

The extant information science literature provides numerous prescriptions regarding how to individuals can manage information overload (4). However, such user-oriented solutions are useful only to the extent that the systems people interact with are user-friendly. Engaging users themselves in a systematic process co-designing the system they will ultimately use is increasingly considered best practice (5). This iterative process progresses through a series of five steps, which each step building on the previous one:

- Step 1:** needs assessment (understanding the needs of diverse group of users, e.g., novice vs. experienced CS teachers).
- Step 2:** access (taking stock and curating available resources or existing repositories of resources)
- Step 3:** knowledge management (classifying and organizing resources in the most intuitive way to users and their needs)
- Step 4:** ranking (screening and ranking available resources for quality, relevance, and potential for broad application)
- Step 5:** maintenance (setting procedures and tools for users to add and share additional resources, including the one they create).

### VISION ARTICULATION

One of the first steps of the co-design process is conducting an exercise where users are asked to envision what the end program will look like. Below are ideas raised by the group:



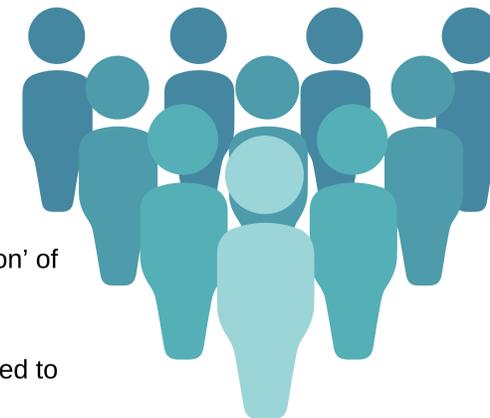
Given information is ever changing, should we have guidelines on how often to update our sources?



Can we create a 'capsule collection' of CS resources?

What are the basic pieces you need to underpin everything else?

What are the most versatile and foundational items?



Should each teacher be free to access and use any resource they want?

Or do different circumstances warrant different norms and procedures?

Is there a place for a PLC team to support choices about CS resource use?

### The critical question..

How does one take control of their CS resource environment?

#### References

- (1) Koltay, T. (2018). The bright side of information : Ways of mitigating information overload. *Könyvtári Figyelő*, 28(1). Retrieved from <http://search.proquest.com/docview/2052630399/>
- (2) Bawden, D., & Robinson, L. (2009). The dark side of information: overload, anxiety and other paradoxes and pathologies. *Journal of Information Science*, 35(2), 180-191. <https://doi.org/10.1177/0165551508095781>
- (3) American Library Association. (1989). Presidential committee on information literacy: Final report.
- (4) Shrivastav, H., & Hiltz, S.R. (2013). Information overload in technology-based education: A meta-analysis. *AMCIS*.
- (5) Sanders, E. B. N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *Co-design*, 4(1), 5-18.



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