Technological Resources to Encourage Self-Regulated Learning Behavior and Learning Analytics Support in Virtual Learning Environments

Prof. Rafael Dias Araújo Universidade Federal de Uberlândia, Brazil





Rafael Dias Araújo Universidade Federal de Uberlândia



• Education:

- PhD in Computer Science UFU, Brazil
- Visiting Research Scholar at the University of Pittsburgh, USA

• Research topics:

- Adaptive and Intelligent Systems
- Learning Analytics
- Educational Games
- Research groups:
 - <u>http://ubimedia.facom.ufu.br/</u>
 - https://www.nees.ufal.br/
- Google scholar:
 - https://scholar.google.com/
 citations?user=nFnB49cAAAJ





https://sol.sbc.org.br/journals/index.php/rbie/



BRAZILIAN JOURNAL OF COMPUTERS IN EDUCATION

CURRENT ARCHIVES ANNOUNCEMENTS ABOUT -

About the Journal

Brazilian Journal of Computers in Education (Revista Brasileira de Informática na Educação) - RBIE (ISSN print: 1414-5685; online: 2317-6121), created in 1997, is a publication maintained by the Special Committee on Computers in Education (Comissão Especial de Informática na Educação - CEIE) of the Brazilian Computing Society (Sociedade Brasileira de Computação - SBC) in partnership with researchers and universities from Brazil and abroad.

	Q SEARCH	
	MAKE A SUBMISSION	
-5685; (<u>Comissão</u> · SBC) in	LANGUAGE	
	English	
	Português (Brasil)	
	Español (España)	

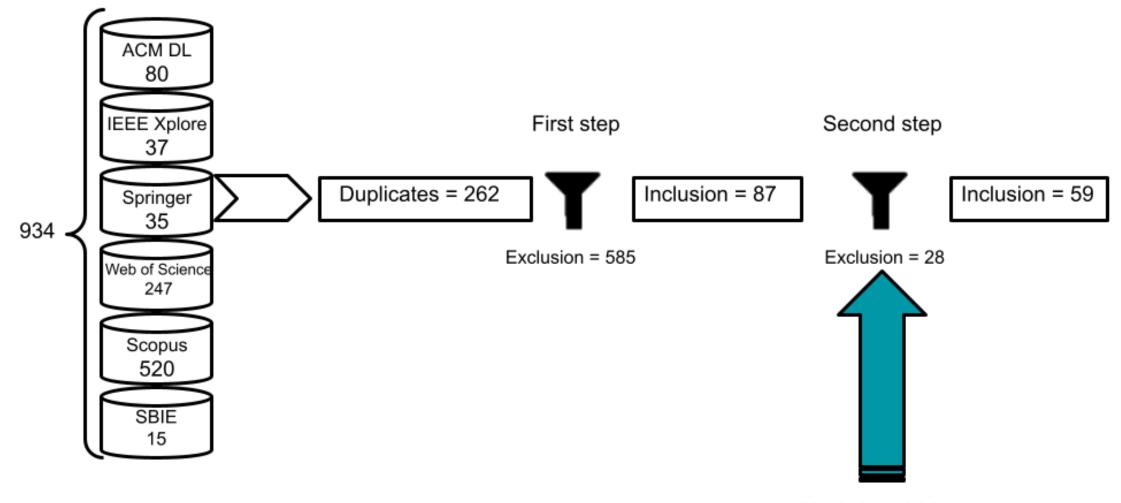
raraujo 0 🗸

Virtual Learning Environments can be used in different contexts, in formal or informal education, and in different modalities, whether face-to-face, distance, or hybrid. In any of the cases, they can **support** selfregulated learning processes. Going further, certain resources can **encourage** these processes in order to make them **more efficient**.

Systematic Literature Review

- RQ1: Which intervention strategies and/or technologies have been used to stimulate self-regulatory capabilities in Virtual Learning Environments?
- RQ2: In which contexts and levels of education have these tools been used?
- RQ3: Which SRL models are mostly used in this context?

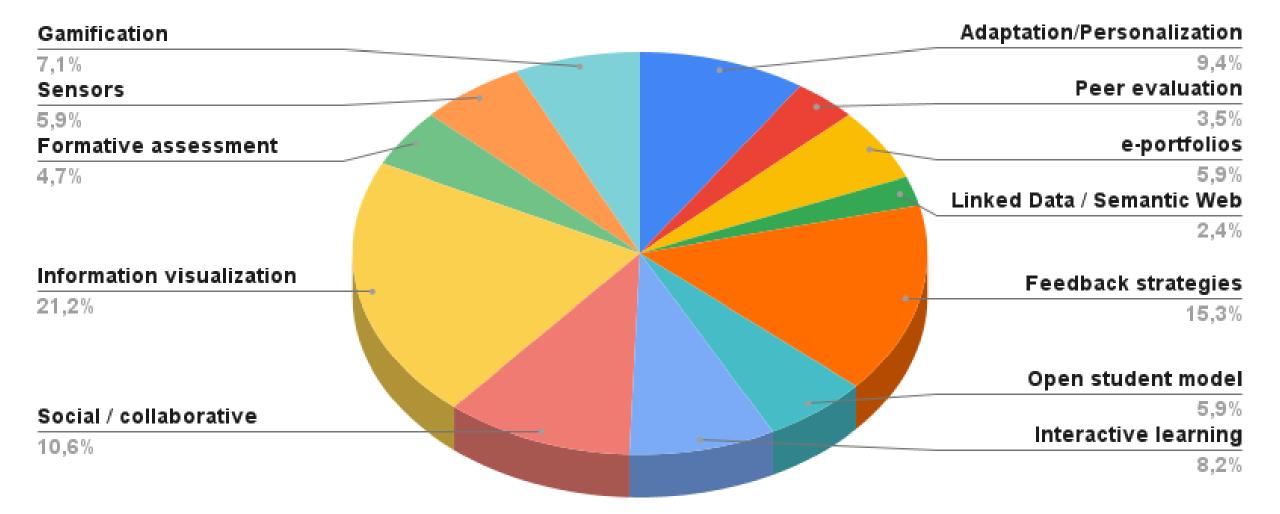
Geycy Lima, Juliete Costa, Fabiano Dorça & Rafael Araújo (to appear): An Analysis of Technological Resources to Encourage Self-Regulated Learning Behavior in Virtual Learning Environments in the Last Decade. International Journal of Learning Technology.

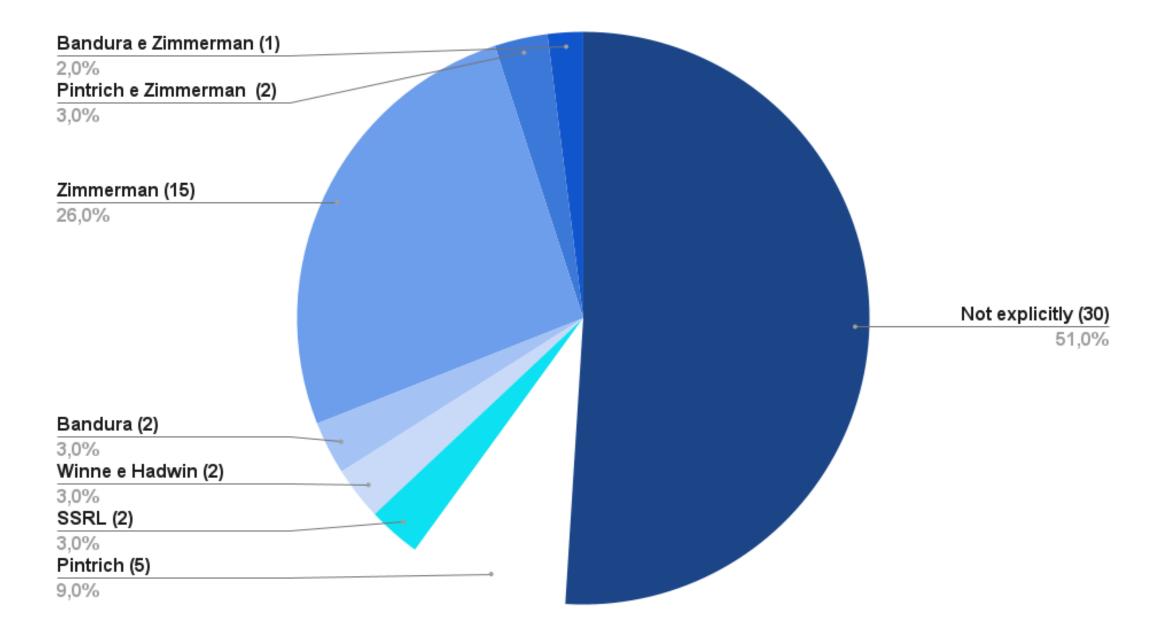


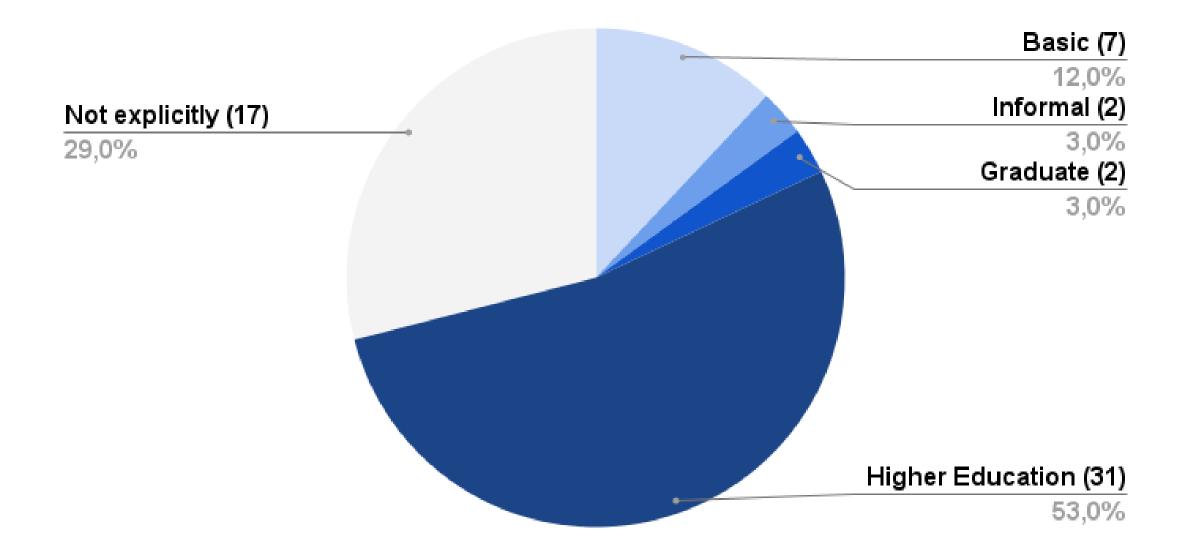
Weighted Kappa

Table 6Technological interventions to stimulate SRL.

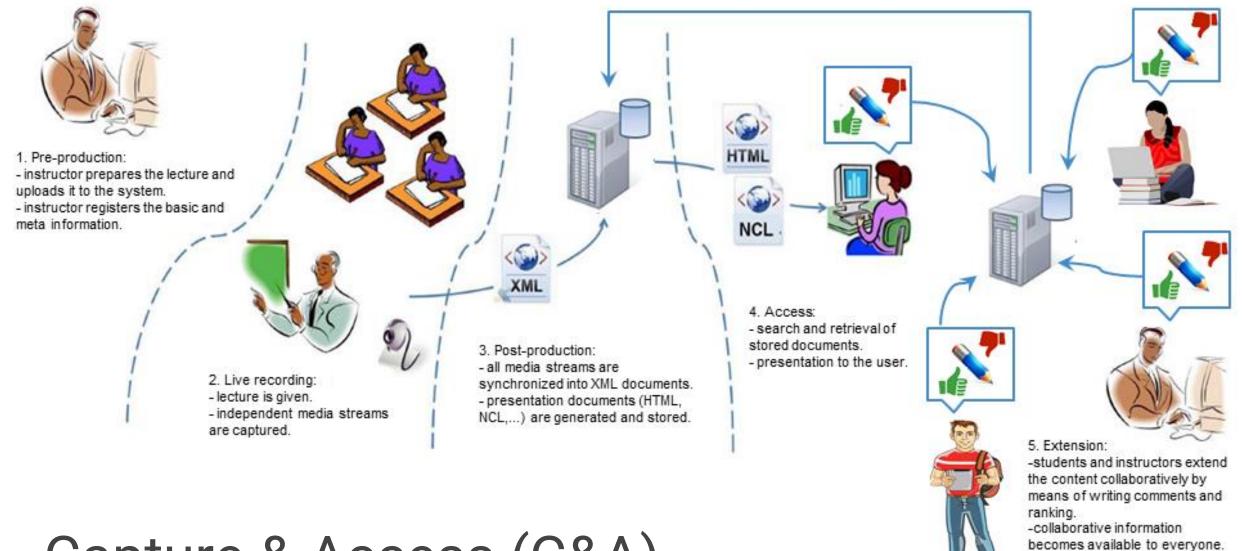
	SRL phases		
Technologies	Preparatory	Execution	Evaluation
Adaptation / Personalization /	Х	Х	Х
Recommendation			
Peer evaluation		Х	Х
e-portfolios			Х
Linked Data / Semantic Web	Х	Х	Х
Feedback strategies	Х	Х	Х
Open student model			Х
Interactive learning resources	Х	Х	Х
Social / collaborative features	Х	Х	Х
Information visualization	Х	Х	Х
Formative assessment			Х
Sensors		Х	Х
Gamification	Х	Х	Х







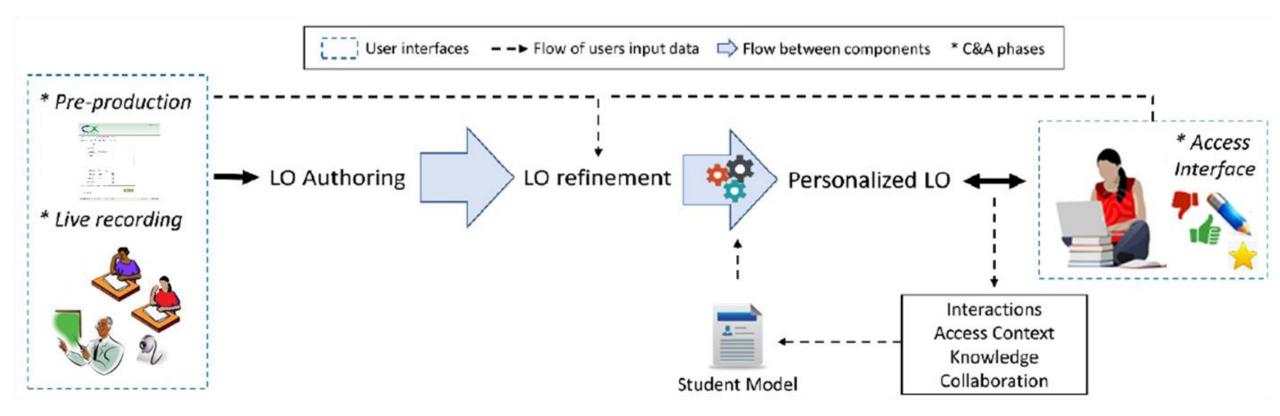
Exploring **behavior** in online learning sessions



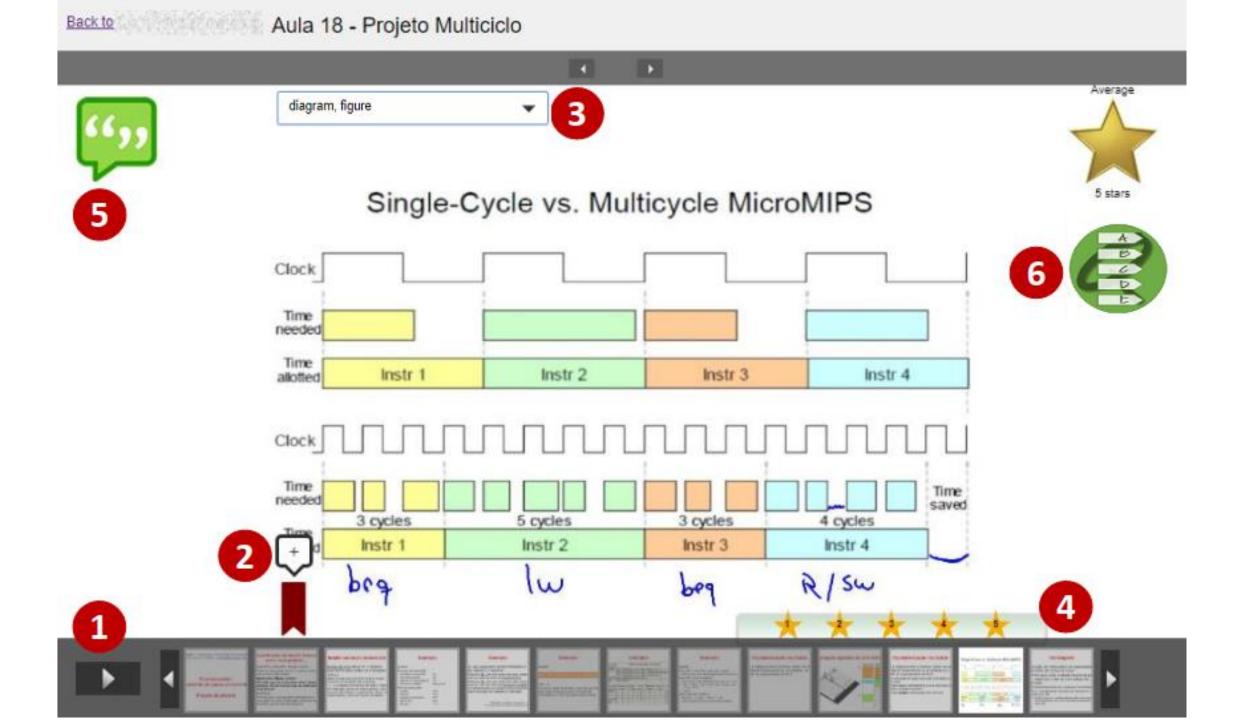
Capture & Access (C&A)

Classroom eXperience

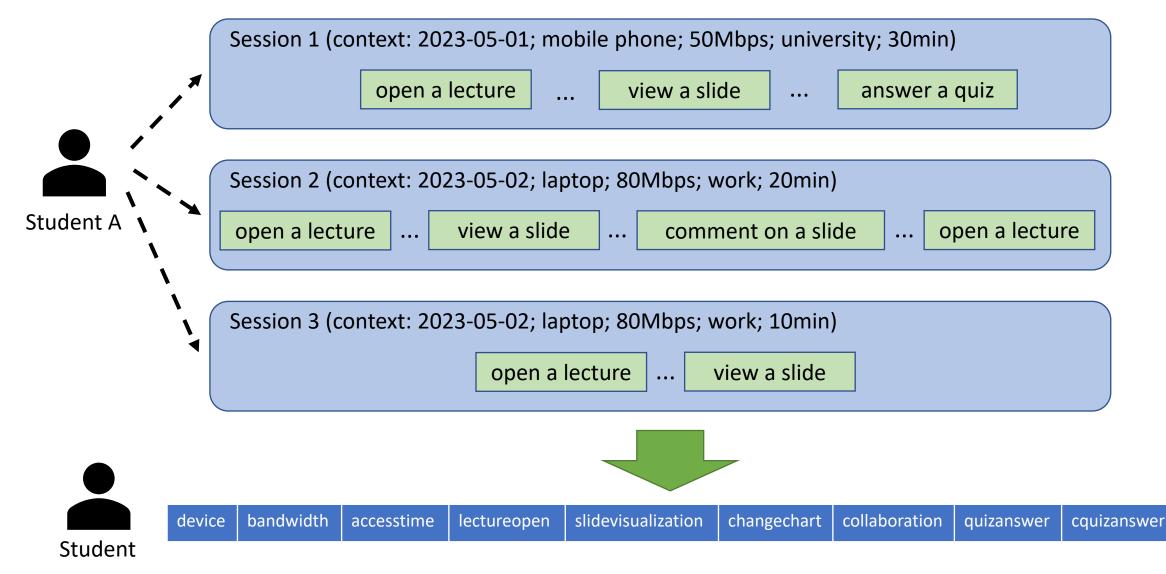


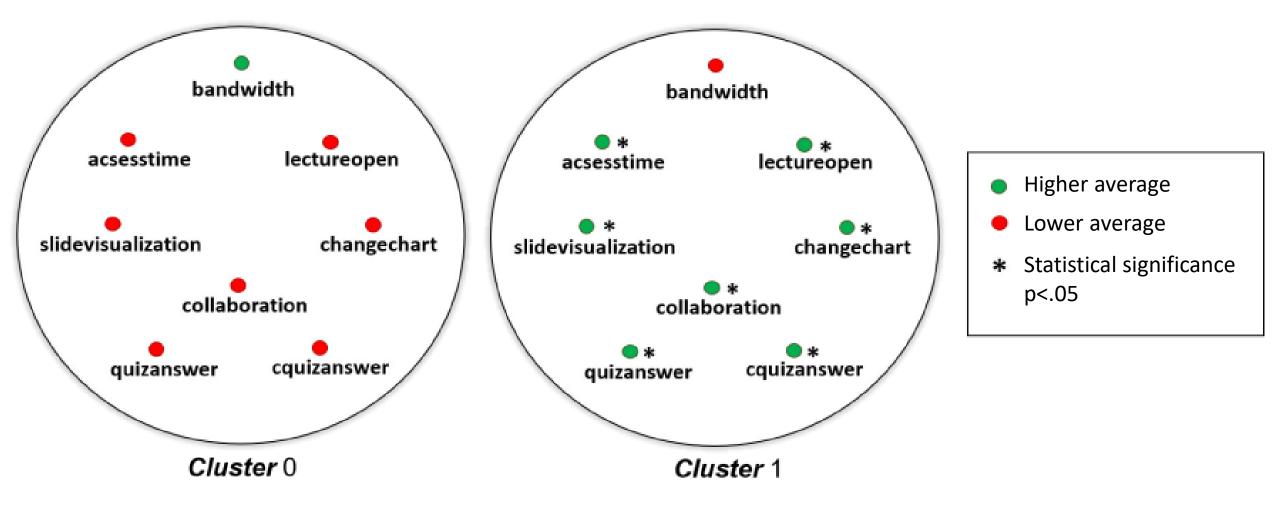


http://cx.facom.ufu.br/



Aggregating learning sessions





Key takeaways

- Longest access time and the use of more collaborative features also showed evidence of more correct responses to quizzes (which are also nonmandatory activities)
 - Self-assessment and proactivity are characteristics related to self-regulation
- New studies that intersect information about system usage and previous information about students' profile are needed to better understand the role of each type of technology for encouraging self-regulation
- We are still doing educational data mining (we still need for metrics and interventions, such as personalization)

Design characteristics are important increase the chances of success the VLE: usability, interactivity, accessibility, reliability, communication, flexibility, feedback, quality of content and courses...



Vielen Dank! Muito obrigado!

rafael.araujo@ufu.br https://www.facom.ufu.br/~rafaelaraujo/



