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/



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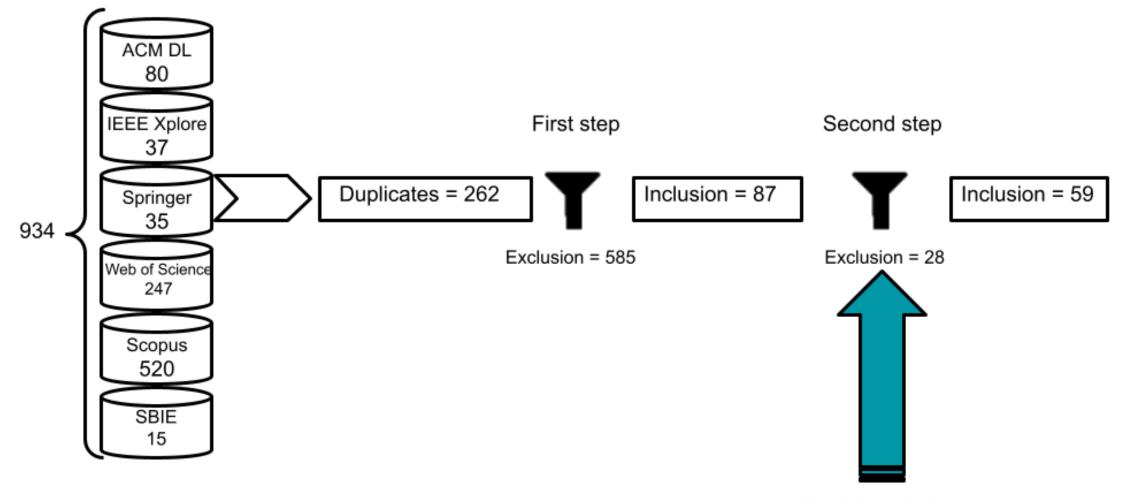
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Virtual Learning Environments can be used in different contexts, in formal or informal education, and in different modalities, whether face-to-face, distance, or hybrid. In any of the cases, they can **support** selfregulated learning processes. Going 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?

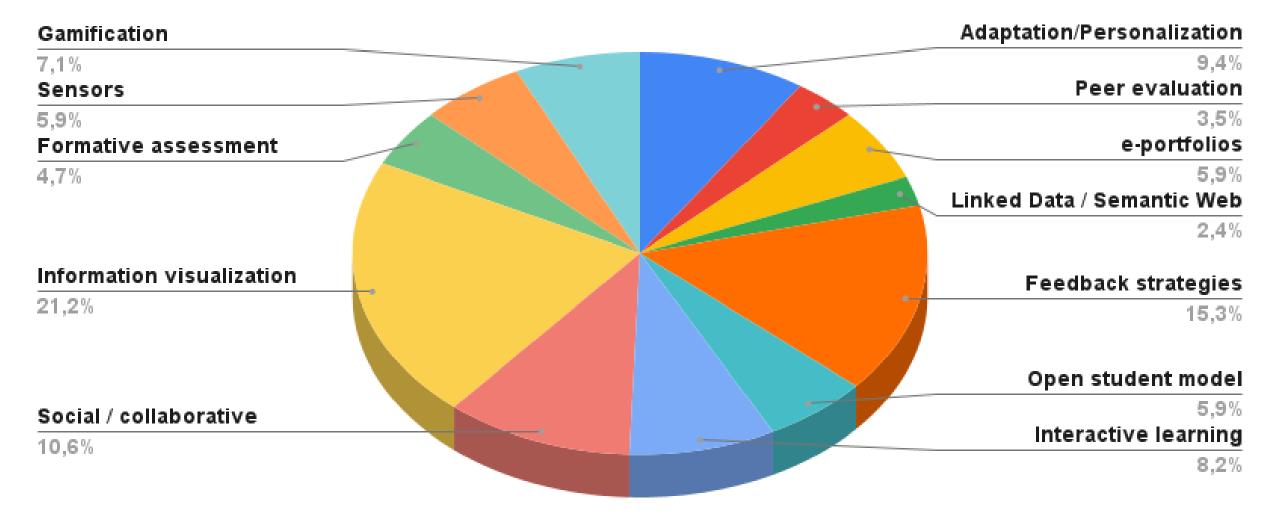
Geycy Lima, Juliete Costa, Fabiano Dorça & Rafael Araújo (to appear): An Analysis of Technological Resources to Encourage Self-Regulated Learning Behavior in Virtual Learning Environments in the Last Decade. International Journal of Learning Technology.

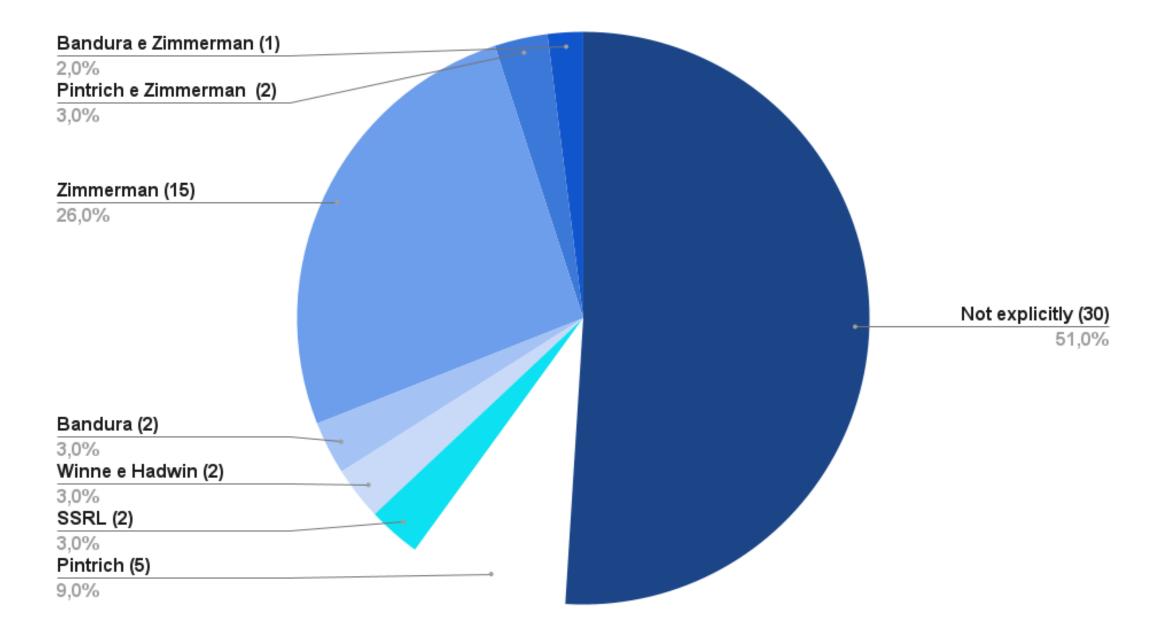


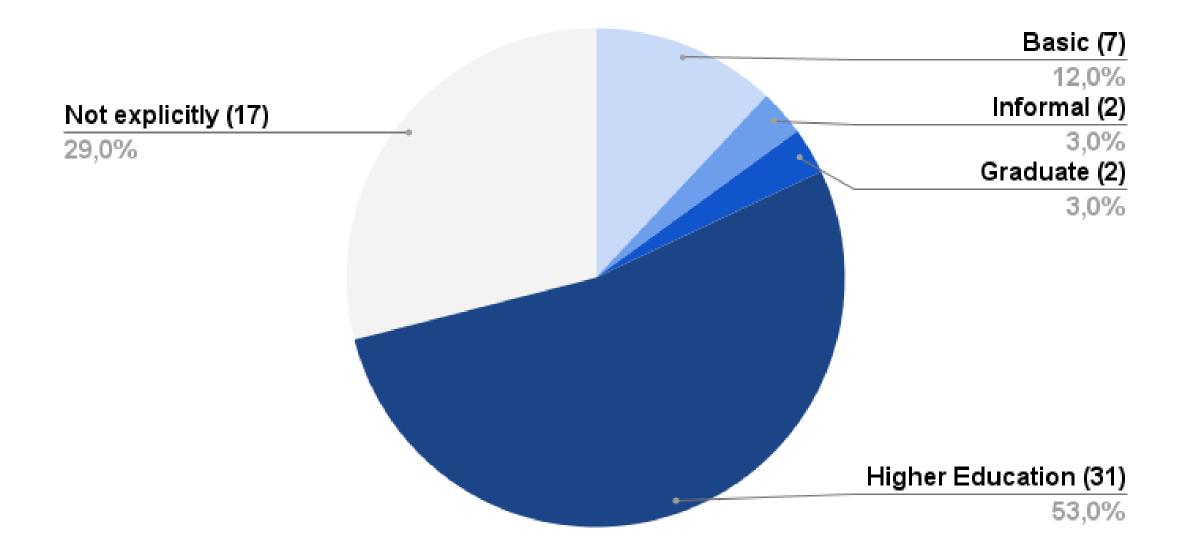
### Weighted Kappa

**Table 6**Technological interventions to stimulate SRL.

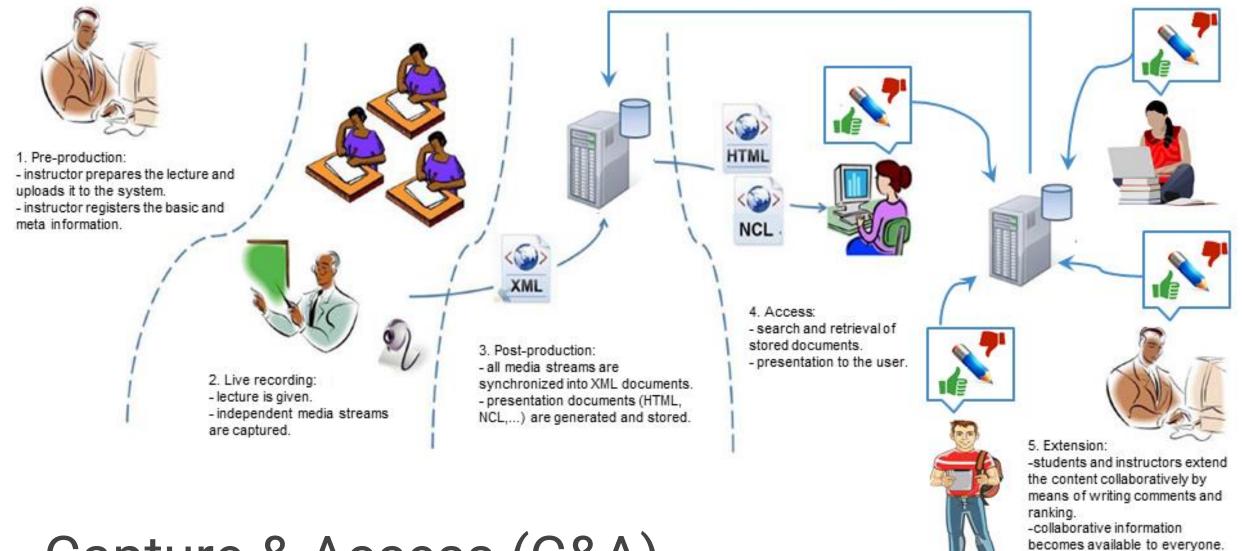
|                                 | SRL phases  |           |            |
|---------------------------------|-------------|-----------|------------|
| Technologies                    | Preparatory | Execution | Evaluation |
| Adaptation / Personalization /  | Х           | Х         | Х          |
| 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          |







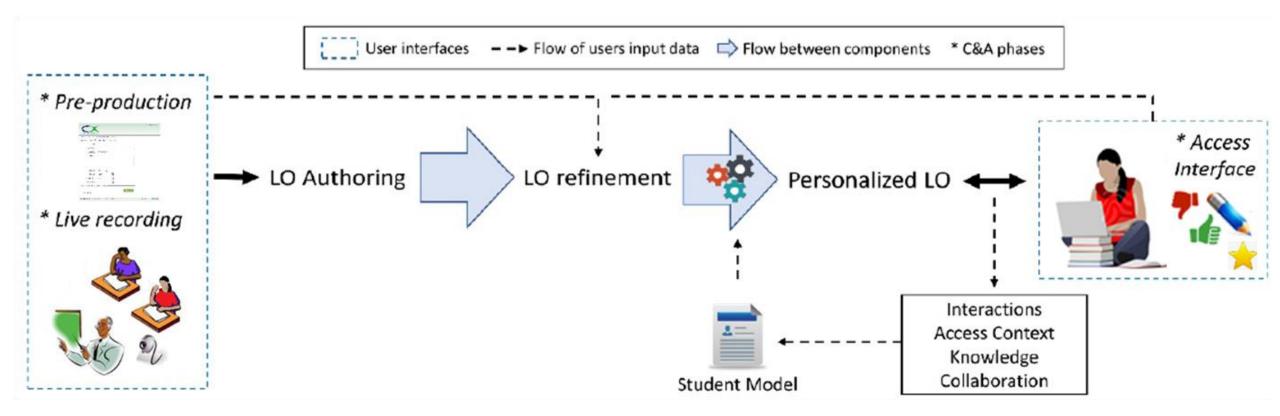
# Exploring **behavior** in online learning sessions



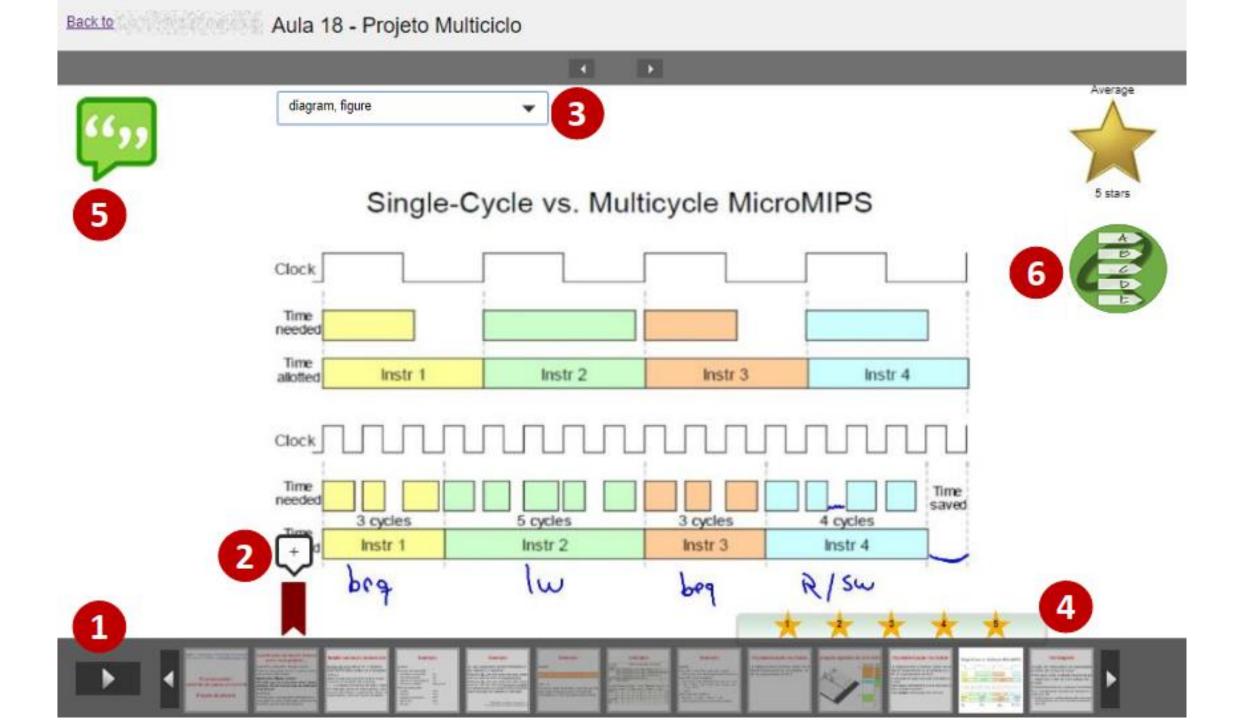
## Capture & Access (C&A)

## Classroom eXperience

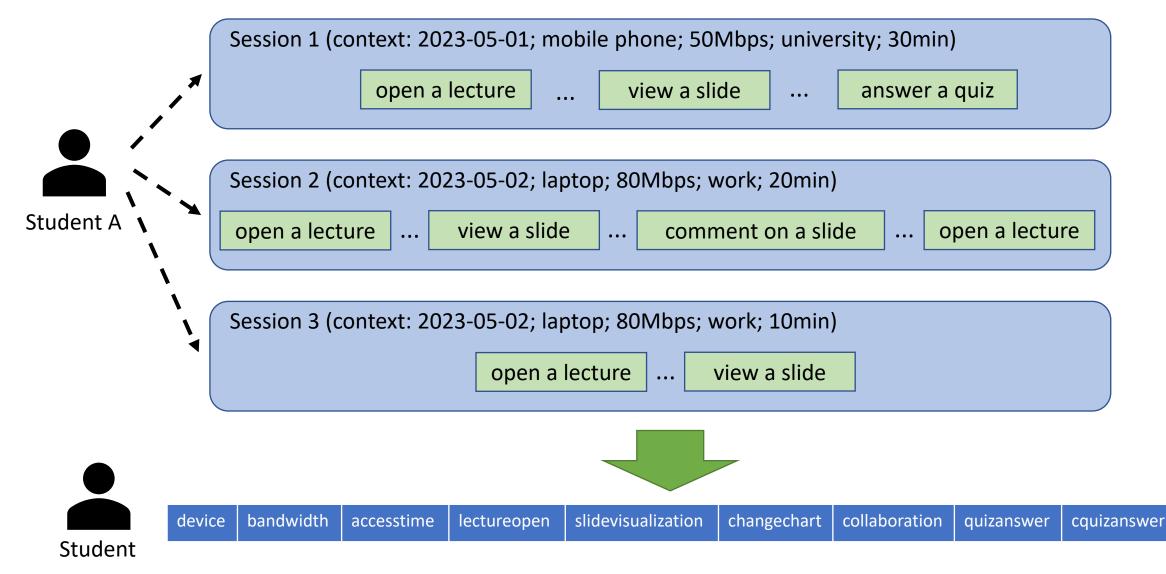


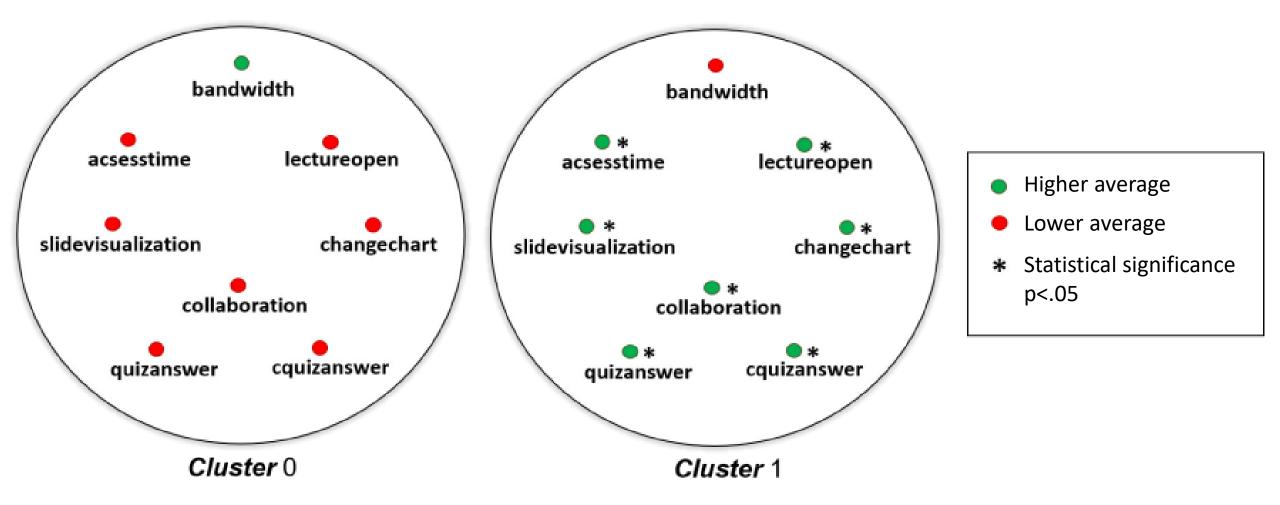


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# Aggregating learning sessions





## 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/



