Peer Tutoring Orchestration

Streamlined Technology-driven Orchestration for Peer Tutoring

Lighton Phiri[1] · Christoph Meinel[2] · Hussein Suleman[1]

[1] University of Cape Town, Cape Town, South Africa
[2] Hasso Plattner Institute, Potsdam, Germany

CSEDU 2017 · Porto, Portugal · April 21–23 2017

About us (1)

https://commons.wikimedia.org

About us (2)

About us (3)

ICT4D Centre for ICT for Development

Home | About | Members | News | Research Themes | Projects | Events | Publications | Contact

Introduction

Formal learning spaces can become effective by supporting educators with orchestration.

Orchestration is extremely challenging

Contemporary orchestration is extremely challenging and arguably ad hoc.

Streamlined orchestration—attainable through explicit organisation of enactment activities—could potentially make educators more effective.

Streamlined Orchestration (Computers & Education 2016). Lighton Phiri, Christoph Meinel and Hussein Suleman.

Technology-driven organised orchestration for peer tutoring

The objective of this work was to investigate the applicability of technology-driven organised orchestration when applied to the peer tutoring educational setting.

The case of large-scale peer tutoring

Peer tutoring involves smaller manageable groups of students learning with or from each other.

However

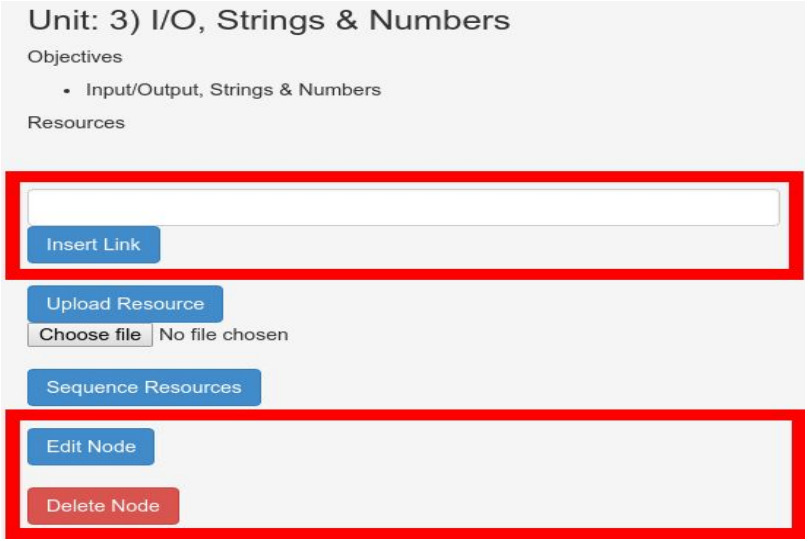
- **Tutors sometimes lack experience.**
- **Tutorial sessions are usually lack structure.**

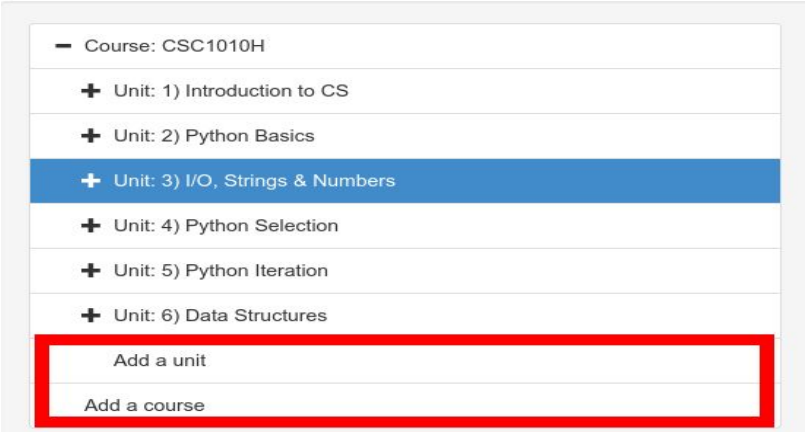
Peer tutoring model in study context

Course	Students	Tutors	Tutorial Groups
CSC1015F	754	38	12
CSC1017F	165	9	3
CSC1010H	80	6	5
CSC1011H	26	2	2

Peer tutoring orchestration toolkit

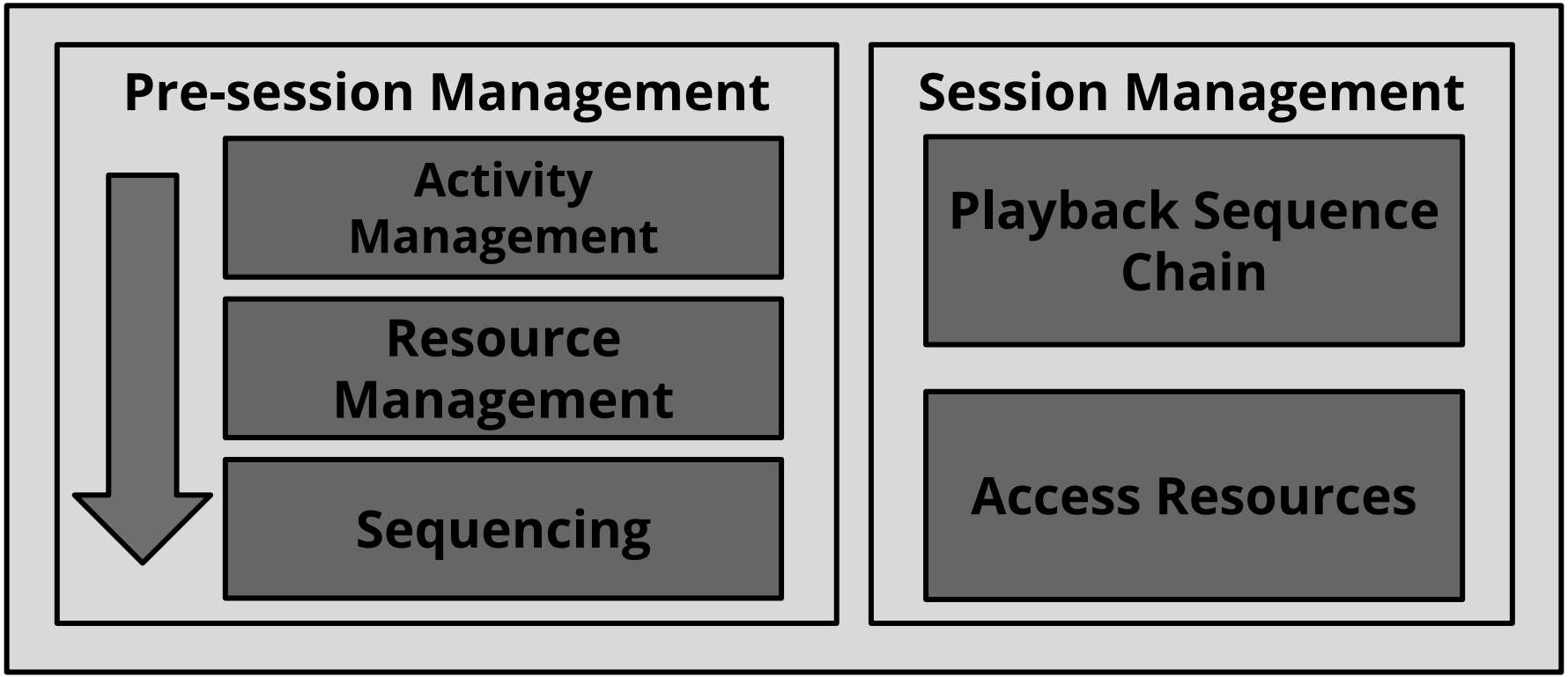
Implementation based on IMS Global Simple Sequencing standard. *Directed path* used for toolkit.





Source: http://simba.cs.uct.ac.za/indefero

Peer tutoring toolkit functionality

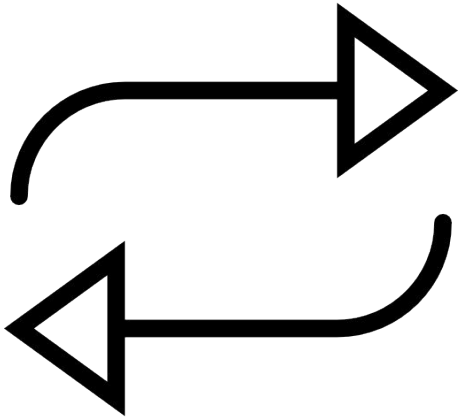


Instrumentation

- Orchestration load and usability measured.
  - NASA Task Load Index (NASA-TLX) used to measure orchestration load.
  - Perceived Usefulness and Ease of Use used to measure usability.

Evaluation setup

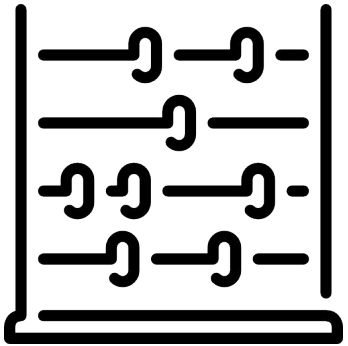
- **Laboratory study involving 24 tutors for first year Computer Science modules.**
  - **One-on-one hour-long sessions.**



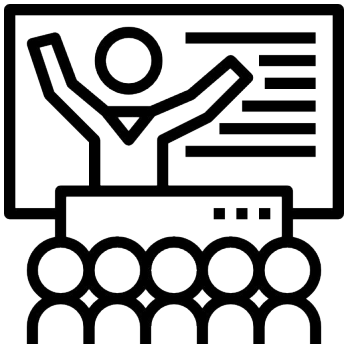
Participants demographics

- **Participants' levels, experience and courses tutored were noted. Tools used in sessions noted.**

Level of study

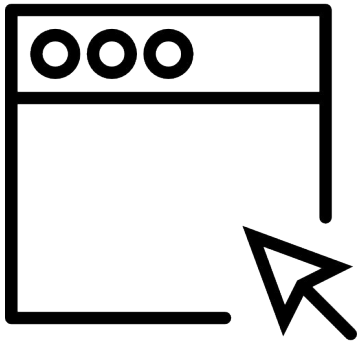


Experience Tutoring



Courses Tutored

Evaluation procedure



Tasks

NASA-TLX

PUEU

- **Three tasks conducted: (1) activity management, (2) resource management and (3) sequencing.**

Evaluation procedure

Tasks

NASA-TLX

PUEU

- **Pairwise comparison of six NASA-TLX subscales**
- **Rating of each of the six NASA-TLX subscales**

Evaluation procedure

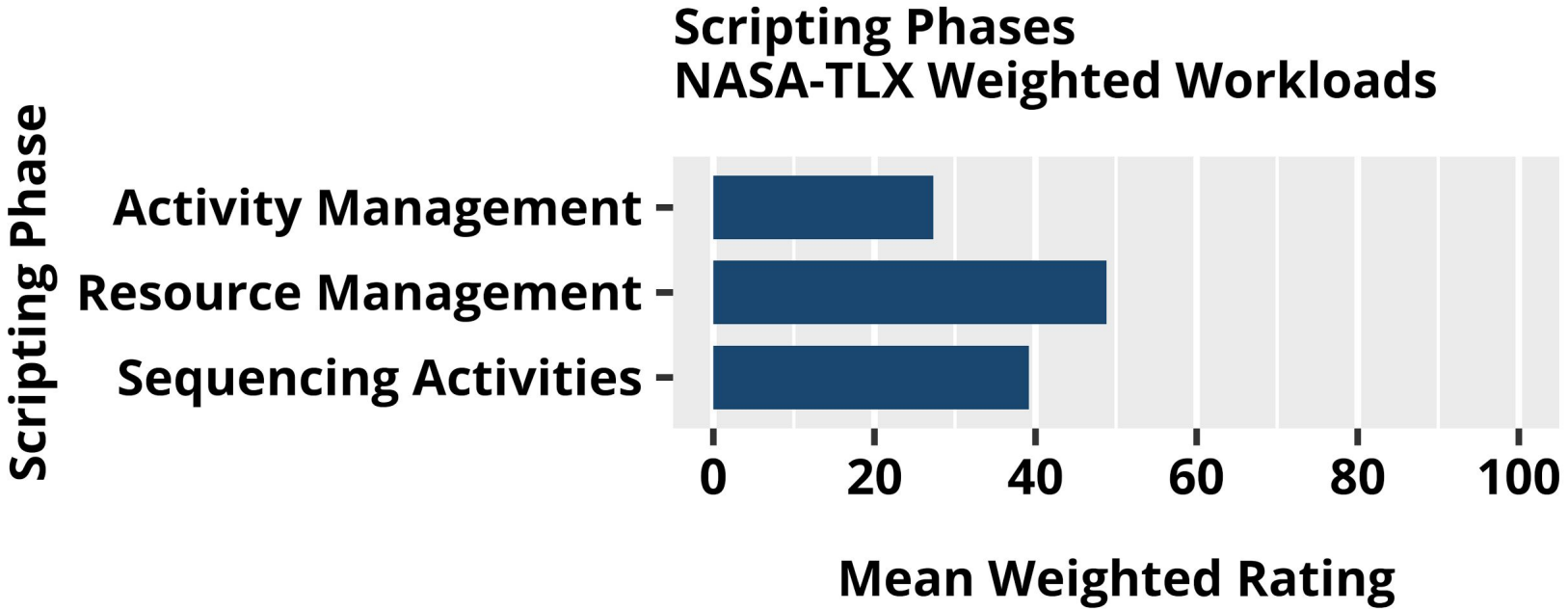
Tasks

NASA-TLX

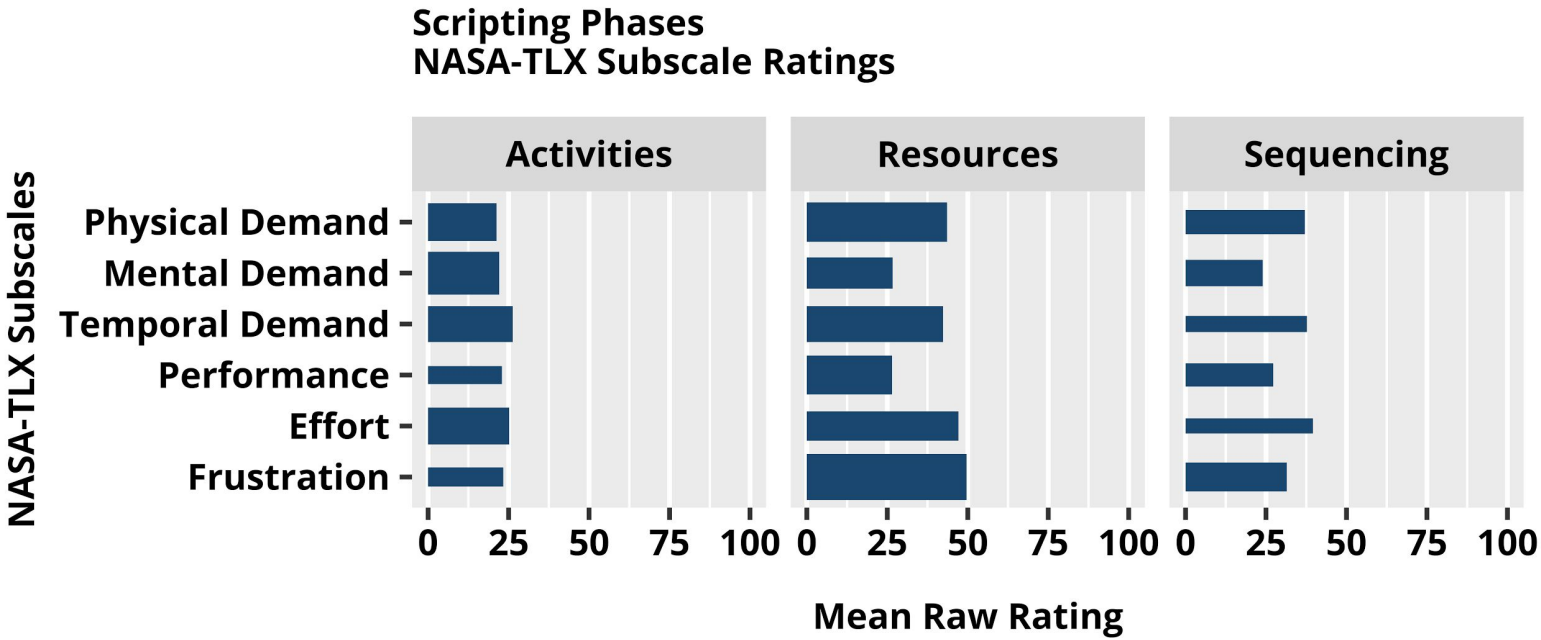
PUEU

- **PUEU questionnaire after completing the three experimental tasks.**

Organised orchestration imposes acceptable workload



Resource managed imposes the most workload



Perceived usefulness scores

A.	Perceived Usefulness	5.12 (1.14)
1.	Accomplish tasks quickly	4.50 (1.67)
2.	Improve job performance	5.42 (1.18)
3.	Increase productivity	5.25 (1.15)
4.	Enhance effectiveness	5.38 (1.41)
5.	Easier to do my job	4.71 (1.63)
6.	I would find system useful	5.46 (1.41)

Perceived ease of use scores

B.	Perceived Ease of Use	5.80 (0.85)
7.	Learning system would be easy	6.25 (1.15)
8.	Easy to do what I want to do	5.46 (1.69)
9.	Clear and understandable	5.79 (1.10)
10.	Flexible to interact with	4.83 (1.40)
11.	Ease to become skillful	6.33 (0.82)
12.	I would find system easy to use	6.13 (1.12)

Conclusions and future work

- We set out to investigate the effect of technology-driven organised orchestration when applied to peer tutoring.
  - Organised technology-driven orchestration for peer tutoring is potentially feasible.
  - Toolkit potentially usable and useful.
- An experiment is scheduled to assess viability of the tool, with a focus on the in-session activities.

Thank you for your time!

Questions?

Peer Tutoring Orchestration

Streamlined Technology-driven Orchestration for Peer Tutoring

Lighton Phiri[1] · Christoph Meinel[2] · Hussein Suleman[1]

[1] University of Cape Town, Cape Town, South Africa
[2] Hasso Plattner Institute, Potsdam, Germany

CSEDU 2017 · Porto, Portugal · April 21–23 2017

Backup slides: philosophical argument

Laptop Project@ UCT

Classroom Renewal@ UCT

One Laptop per Child

ICT4RED in Cofimvaba