

# Unpacking the ‘Learning’ in Student-Facing Analytics: Metacognition and the Zone of Proximal Development

Joy Galaige, Griffith University, South East Queensland, Australia

Geraldine Torrisi-Steele, Griffith University, South East Queensland, Australia

## ABSTRACT

Founded on the need to help university students develop a greater academic metacognitive capacity, student-facing learning analytics are considered useful tools for making students overtly aware of their own learning processes, helping students to develop control over their learning, and subsequently supporting more effective learning. However, early research on the effectiveness of student-facing analytics is giving mixed results and is casting some doubt over the usefulness of student-facing learning analytics. One factor contributing to doubt over the value of student-facing learning analytics is that their design and implementation remains firmly rooted in the technical domain, with virtually no grounding in the knowledge base of learning and teaching. If the growing investment of resources into the development of student-facing learning analytics systems is to be fruitful, then there is an obvious, urgent need to re-position student-facing learning analytics within learning and teaching frameworks. With this in mind, we use Schraw & Dennison’s model of metacognition and Vygotsky’s zone of proximal development to unpack the ‘learning’ in student-facing analytics and work towards an understanding of student-facing analytics that is more conducive to supporting metacognition and effective learning.

## KEYWORDS

Educational Technology, Higher Education, Learning Analytics, Learning And Teaching, Metacognition, Online Learning, Pedagogy, Student-Facing Learning Analytics, Zone Of Proximal Development

DOI: 10.4018/IJAVET.2019010101

Copyright © 2019, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.

## INTRODUCTION

Data related to learning activities of students is produced as a matter of course whenever students enter learning management systems and interact in some way with content. Hence, learning analytics are essentially a by-product of student interaction with online learning systems. With the proliferation of online learning in higher education, data to sustain learning analytics systems is in abundant supply. Volume and diversity of data is not an issue. What is an issue is the lack of a pedagogical knowledge on which to base the effective design and implementation of learning analytics. To better understand how this state of affairs has arisen, it is useful to briefly discuss the context of learning analytics.

Analytics, or the systematic analyses of data, are not new. In the domain of business and marketing, analytics have long been used, mostly successfully, to acquire business intelligence and provide a knowledge base for business decision-making. In higher education too, initial interest in analytics was sparked by business needs since, in recent times, higher education has experienced a shift towards universities running as ‘competitive businesses.’ Social and economic forces are bearing down on universities, putting the institutions under pressure to become competitive. Hence, akin to other business organisations, the use of analytics in higher education has roots in the need for understanding their customers, improving customer experience, and meeting accreditation policies. The motivation for application of analytics to the need to improve student learning can, in some respects, be considered secondary to policy and business needs, but in reality, this approach obscures teaching and learning as a core business of universities. It must be recognized by institutions that effective learning is integral to the student experience, and thus must be considered central to the needs of the higher education organization.

As discussion turns towards effective student learning, we are compelled to drill down beneath the institutional perspective to consider educator perspectives on learning analytics. A core doing of educators is to try and better understand their learners. The data generated by student interaction with online learning systems (learning analytics) thus naturally attracts interest as an avenue for creating more effective learning environments built on understanding learners. Thus, the first implementations of learning analytics systems targeted the needs of educators (Teasley, 2017). Educators could use analytics to gauge progress of students, identify troublesome concepts, and importantly identify struggling students. Informed by learning analytics, educators can make evidence-based changes to their teaching practices/strategies or put in place more support mechanisms to assist students (Siemens, 2013; Arnold & Pistilli, 2012; Essa & Ayad, 2012). It didn’t take long for educators to also conceive that students may also stand to benefit from being able to access data about their own learning.

The educational argument is that enabling students to see analytics related to their own learning activities (student-facing learning analytics) helps students become overtly aware of their learning practices. Armed with awareness of their learning process, students are more able to identify problematic or missing productive behaviours,

10 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: [www.igi-global.com/article/unpacking-the-learning-in-student-facing-analytics/222745](http://www.igi-global.com/article/unpacking-the-learning-in-student-facing-analytics/222745)

## Related Content

---

### An Innovative Approach of Using Mobile Gaming to Bridge Well-Being, Anxiety, Depression, and Isolation

Robert Costello and Lucy Smith (2022). *International Journal of Adult Education and Technology* (pp. 1-18).

[www.irma-international.org/article/an-innovative-approach-of-using-mobile-gaming-to-bridge-well-being-anxiety-depression-and-isolation/302013](http://www.irma-international.org/article/an-innovative-approach-of-using-mobile-gaming-to-bridge-well-being-anxiety-depression-and-isolation/302013)

### Identifying Predictors of Academic Success for Part-time Students at Polytechnic Institutes in Malaysia

Norhayati Ibrahim, Steven A. Freeman and Mack C. Shelley (2011). *International Journal of Adult Vocational Education and Technology* (pp. 1-16).

[www.irma-international.org/article/identifying-predictors-academic-success-part/59701](http://www.irma-international.org/article/identifying-predictors-academic-success-part/59701)

### Digital Media Literacy Practices for 5th Year Pre-Service Teachers in a PDS Model

Neal Shambaugh (2014). *Adult and Continuing Education: Concepts, Methodologies, Tools, and Applications* (pp. 937-957).

[www.irma-international.org/chapter/digital-media-literacy-practices-for-5th-year-pre-service-teachers-in-a-pds-model/105288](http://www.irma-international.org/chapter/digital-media-literacy-practices-for-5th-year-pre-service-teachers-in-a-pds-model/105288)

### Transformative Learning and Experience: Forging New Learning Links Between the Personal and Political

Ted Fleming (2023). *International Journal of Adult Education and Technology* (pp. 1-13).

[www.irma-international.org/article/transformative-learning-and-experience/324930](http://www.irma-international.org/article/transformative-learning-and-experience/324930)

### Increasing Adult Learner Engagement in E-learning Courses through Learner Case Writing

Rosemary B. Closson and Carmeda Stokes (2011). *Encyclopedia of Information Communication Technologies and Adult Education Integration* (pp. 971-984).

[www.irma-international.org/chapter/increasing-adult-learner-engagement-learning/46621](http://www.irma-international.org/chapter/increasing-adult-learner-engagement-learning/46621)