Developing Institutional Learning Analytics 'Communities of Transformation' to Support Student Success

Leah P. Macfadyen
The University of British Columbia,
1866 Main Mall,
Vancouver, BC, V6T 1Z1, Canada
+1 604 809 5013,
leah.macfadyen@ubc.ca

Dennis Groth, George Rehrey
& Linda Shepard
Indiana University
Maxwell Hall, 750 E. Kirkwood Ave
Bloomington, IN 47405, USA
+1 812 855 8783,
dgroth@indiana.edu

Jim Greer
University of Saskatchewan
105 Administration Place
Saskatoon, SK, S7N 5A2 Canada
jim.greer@usask.ca

Douglas Ward &
Caroline Bennett
University of Kansas
135 Budig Hall, 1455 Jayhawk
Blvd, Lawrence KS 66045, USA
+1 785 864 7637,
dbward@ku.edu

Jake Kaupp
Queen's University
Fac. of Eng. & Applied Science
Kingston, ON, K7L 3N6, Canada
jake.kaupp@queensu.ca

Marco Molinaro &
Matt Steinwachs
University of California, Davis
1335 Grove, Davis, CA 95616,
USA
+1 (916) 860-2108,
mmolinaro@ucdavis.edu

ABSTRACT

Institutional implementation of learning analytics calls for thoughtful management of cultural change. This interactive half-day workshop responds to the LA literature describing the benefits and challenges of institutional LA implementation by offering participants an opportunity to learn about and begin planning for a program to actively engage their faculty as leaders of data exploration around the topics of student success. This session will share experiences from five institutions actively engaged in fostering Learning Analytics Communities (LAC) by identifying key issues, sharing lessons learned, and considering structural frameworks that are transferable to other institutional contexts. Structured discussion and activities will engage participants in developing an action plan for exploring the establishment of a LAC on their own campus.

CCS Concepts
• **Collaborative and social computing**→**Empirical studies in collaborative and social computing.** •**Applied computing**→**Education**

Keywords
Institutional learning analytics; change management; faculty engagement; communities of transformation; student success; learning analytics fellows program.

1. WORKSHOP BACKGROUND

1.1 Institutional Learning Analytics and Cultural Change

Institutional implementation of learning analytics calls for thoughtful management of cultural change. In addition to technical and infrastructure planning, researchers and institutions engaged in LA planning have identified that effective implementation of institutional learning analytics requires strategic efforts to engage the community in conversations about the potential for learning analytics to improve student success, and to generate excitement and engagement by key stakeholders (students, faculty, instructors, senior administrators) [1,2,3]. As social marketing theorists [4] and change management experts [5,6] have pointed out, change in habits, practices and behaviours is not brought about by simply giving people large volumes of logical data [7]. Overcoming individual and group resistance to innovation and change calls for planning processes which create conditions that allow participants to both think and feel positively about change – conditions that appeal to both the heart *and* the head.

1.2 Communities of practice support positive change
Research suggests that communities of practice have positive effects on teaching development, and that faculty engagement in such communities leads to positive changes in teaching behaviors. [8,9,10]. Moreover, faculty who engage in systematic inquiry on student learning in their own classrooms and programs (Scholarship of Teaching and Learning or SoTL) report a wide range of benefits, including documented improvements in the quality of their students' learning, more of their students achieving higher standards, and an increased interest in positively influencing teaching in their department beyond their own practice [11,12]

1.3 Development of LA Communities (LACs)
In order to increase the use of big data for informed decision-making in higher education, we must expand its use to the departmental and course levels, and that means faculty ownership of research questions and emerging research processes. LACs offer the potential to bring faculty of all ranks into the learning analytics conversation early, and allow them to lead data exploration projects and share their findings with colleagues and peers. Such programs can be conceptualized as fostering institutional 'Communities of

Transformation' [13] that can address both individual faculty and broader systemic change, and create innovative spaces that have the potential to shift institutional and disciplinary norms. This workshop will describe and share our experience with establishment of institutional LACs that can foster enthusiasm about the affordances of learning analytics and their potential to support student success and improved teaching and learning.

1.4 Workshop Organizers

Indiana University Bloomington launched its *Student Learning Analytics Fellows Program*[1] in 2015 [14,15], and is now leading a multi-year project to expand the concept in partnership with Bay View Alliance (BVA)[2] partner universities: the University of British Columbia, the University of Kansas, Queens University and the University of Saskatchewan. This workshop will be led by and will draw on the experiences of LAC leaders in these institutions.

2. WORKSHOP DETAILS

This half-day workshop will help participants create a plan for building a campus community devoted to using learning analytics to improve teaching and learning. It will explore the challenges and successes from similar programs at universities in the BVA, lead participants through exercises in setting goals, creating meaningful questions, and encourage involvement from faculty and departments for data-driven decision making at the course, program and curricular levels. The ultimate goal of this workshop is to enable adoption of a community-based model for engaging faculty and departments in data-driven decision making throughout all levels of the institution.

2.1 Workshop Activities

The workshop will start with a brief self-assessment on the needs of individual campuses, and the challenges participants are likely to encounter in using learning analytics to improve teaching and learning. The self-assessment will also allow the session facilitators to understand participants' range of contexts and perceptions about learning analytics.

Workshop leaders will then draw on their various institutional experiences to help participants address a series of topics and questions:

- **Program goals:** How can institutions create communities of transformation around learning analytics? How can we expand faculty inquiry about student success from the course level to the curricular level? How are we facilitating the use of LA by faculty, departments, and campus leaders? How have we sourced or generated examples of data-driven decision making that have led to improved student success?

- **Establishment of community:** In what ways might LACs differ from other types of Faculty Learning Communities (FLCs)? How can we capitalize on the naturally occurring research expertise of faculty at our institutions? How can we best facilitate interdisciplinary collaborations throughout the inquiry process?

- **Types of research questions explored:** What types of questions work best in tying learning analytics to teaching and learning? Which have driven research in existing LACs? How have these questions been answered and refined over time?

- **Data collection and management:** What types of data are most valuable in addressing questions about teaching and learning in individual courses and in departmental curricula? How has this data been collected from various sources and managed to increase efficiency of delivery to faculty investigators?

- **Supporting faculty LA research**: What methods best support faculty-led LA research (especially those not familiar with data-rich social science research methods)?

Throughout this workshop, participants will be encouraged to use an action-plan worksheet that takes into consideration their own institutional contexts and which will form the basis for a subsequent engagement activity designed to help them identify local goals and stakeholders surrounding an LAC. By the end of the workshop participants will have created an action plan for exploring the development of such communities on their own campuses.

In the part one of the engagement phase, participants will brainstorm goals and stakeholders from their institutions. In part two, they will interact with others at their tables (the populations of which might be rearranged to match similar institution types) as they build out an action plan for exploring the establishment of an LAC on their own campus.

2.2 Workshop Outcomes

Participants will:

- Evaluate learning analytics readiness on their campus.

- Learn how other institutions have used data-driven decision making to improve student success.

- Identify key issues relevant to establishing faculty ownership of learning analytics projects, personalizing them for their institutional contexts.

- Identify potential stakeholders involved in learning analytics efforts at their institutions.

- Develop an action plan for creating a learning analytics community on their campus.

3. ACKNOWLEDGMENTS

4. REFERENCES

[1] Macfadyen, L. P. and Dawson, S. 2012. Numbers are not enough. Why e-learning analytics failed to inform an institutional strategic plan**. *Educational Technology & Society*, 15, 3, 149–163.

[2] Macfadyen, L. P., Dawson, S., Pardo, A., and Gašević, D. 2014. Embracing big data in complex educational systems: The learning analytics imperative and the policy challenge. *Research & Practice in Assessment*, 9, 17-28. http://www.rpajournal.com/dev/wp-content/uploads/2014/10/A2.pdf

[3] Ferguson, R., Macfadyen, L. P., Clow, D., Tynan, B., Alexander, S., and Dawson, S. 2014. Setting learning analytics in context: Overcoming the barriers to large-scale adoption. *Journal of Learning Analytics*, 1, 3, 120-144.

---

[1] http://citl.indiana.edu/programs/grants/learninganalytics-CFP.php

[2] http://bayviewalliance.org/

http://epress.lib.uts.edu.au/journals/index.php/JLA/article/view/4077/442

[4]   Kotler, P. and Zaltman, G. 1971. Social marketing: An approach to planned social change. *Journal of Marketing,* 35, 3-12.

[5]   Kavanagh, M. H., and Ashkanasy, N. M. 2006. The impact of leadership and change management strategy on organizational culture and individual acceptance of change during a merger. *British Journal of Management,* 17, S81-S103.

[6]   Kotter, J. P. 1996. *Leading Change*. Harvard Business School Press, Boston, MA.

[7]   Kotter, J. P., & Cohen, D. S. 2002. *The Heart of Change*. Harvard Business School Press, Boston, MA.

[8]   Cox, M.D. 2001. Faculty learning communities: Change agents for transforming institutions into learning organizations. *To Improve the Academy*, 19, 69-93.

[9]   Sorcinelli, M. D., Austin, A. E., Eddy, P., and Beach, A. 2006. Creating the future of faculty development: Learning from the past, understanding the present. Wiley/Jossey-Bass, San Francisco, CA.

[10] Stes, A., Min-Leliveld, M., Gijbels, D. and Van Pategewm, P. 2010. The impact of instructional development in higher education: The state-of-the-art of the research. *Educational Research Review*, 5, 25-49.

[11] Chasteen, S.V., Wilcox, B., Caballero, M.D., Perkins, K.K., Pollock, S.J., and Wieman, C. J. 2015. Educational transformation in upper-division physics: The Science Education Initiative model, outcomes, and lessons learned. *Physical Review Special Topics Physics Education Research*, 11, 2, 020110.

[12] Huber, M. T., and Hutchings, P. 2005. *The Advancement of Learning: Building the Teaching Commons*. Jossey-Bass, Inc., San Francisco, CA.

[13] Kezar, A. & Gehrke, S. 2015. Communities of Transformation and Their Work Scaling STEM Reform. *Pullias Center for Higher Education*: http://www.uscrossier.org/pullias/wp-content/uploads/2016/01/communities-of-trans.pdf

[14] Rehrey, G. and Sauer, M. 2016. *Collaborating for student success: Indiana University's student learning analytics program*. Presentation at Tools for Evidence-based Action Conference, Davis, CA.

[15] Siering, G. and Shepard, L. 2017. *Promoting data-driven decision-making through a learning analytics fellows program*. ELI Annual Meeting, Houston, TX.