

Advancing Actionability in Learning Analytics by Uniting Diverse Stakeholder Perspectives

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Abstract: The pursuit of actionability in learning analytics has long been a central aim, yet the knowledge base related to improving it has remained relatively sparse and disconnected. This workshop aims to initiate unifying discussions on how “actionability” can be conceptualized for the learning analytics community. During the workshop, we will define and refine actionability from various stakeholder perspectives: technical (for tech developers), design (for designers), self-regulated learning (for learners), and classroom orchestration (for teachers); and then explore how these perspectives can be used to inform the development of analytics tools, learning designs, and impact measurement. Through diverse discussions and consolidation efforts, this workshop seeks to develop a comprehensive framework with tangible implications and foster a network of interested researchers and practitioners in actionable learning analytics.

Keywords: Actionability, learning analytics, human-centered design, orchestration, self-regulated learning

1 WORKSHOP OBJECTIVES

1.1 Background and Relevance

The intent to offer insights into learning that are “actionable” has been a core tenet of learning analytics from the field’s inception (Siemens, 2013). That this goal of making an impact on practice remains more aspirational than realized has been noted by multiple papers, both those examining prior impact (Ferguson et al., 2016) and those considering how the situation might be rectified (Dimitriadis et al., 2021). Increased attention to developing learning analytics that are not only technically rigorous but able to be effectively used by teachers, students, and other educational stakeholders to improve learning can be seen as part of a larger move toward human-centered learning analytics that takes people's situations, needs, and goals as the starting point (Buckingham Shum, Ferguson, & Martinez-Maldonado, 2019). For example, recent work has started to bring actionability to the forefront, anchoring it as part of fundamental inquiry for impactful learning analytics research (Dimitriadis et al., 2021; Jørnø & Gynther, 2018; Jung & Wise, 2024).

While the importance of the actionability of learning analytics may be acknowledged widely, the knowledge base related to improving it has remained relatively sparse and disconnected. This may be due both to the fact that many researchers do not have the opportunity to concretely address actionability in authentic learning situations and that those who do have approached the challenge in quite different ways. For example, harkening back to the “actionable insights” language of business

analytics, some have focused on the effective presentation of useful information that can be acted upon to improve learning (Susnjak, Ramaswami, & Mathrani, 2022). From this perspective, there is a growing interest in tool design that ensures that metrics are not only informative but also motivational to prompt particular actions (Dimitriadis et al., 2021). Work taking this view often emphasizes human-centered design approaches, involving stakeholders in design to identify actual needs and preferences that can inform the design decisions (Wiley, Dimitriadis, & Linn, 2023). A related approach to actionability involves embedding actions or links to action in analytics tools; for example, pre-written messages from instructors can be programmed to send automatically to students with certain levels of activity in an online system as tracked by the analytics (Pardo, Jovanovic, Dawson, Gašević & Mirriahi, 2019). In contrast to the technical perspectives described above, other work has emphasized the social aspects of actionability, considering end-user routines and integration of analytics into their practices. From these perspectives, actionability depends not only on the types of information provided and visualization cues but on broader social systems of activity, taking into consideration such factors as teacher orchestration and student self-regulated learning (Amarasinghe et al., 2022; Klein et al., 2019). In this view, actionability is not simply a property of the analytics but also the larger learning system into which they are embedded. This allows for a broader perspective on the impact of analytics in teaching and learning activities, including both direct behaviors and decisions based on analytics, as well as more holistic or implicit ways that analytic information can feed into the ways these systems operate (Wise & Jung, 2019).

1.2 Objectives and Outputs

This workshop will initiate unifying discussions on how “actionability” can be conceptualized for the learning analytics community; first articulating and refining the concept of actionability in learning analytics from different stakeholders' perspectives; and then exploring how these perspectives can be used to inform (a) the creation of learning analytics tools, (b) learning designs that incorporate such tools, and (c) measurement of learning analytics impact. During this process, we will strive to initiate divergent discussions, later incorporating various aspects of actionability into a consolidated framework with concrete implications. This workshop is expected to produce (1) a clear articulation of the consolidated conceptualization of actionability with implications for learning analytics research and design (2) a written artifact that will be published for dissemination and feedback from the community (e.g., a mailing list) and (3) a network of researchers and practitioners.

2 ORGANIZATIONAL DETAILS

2.1 Duration and Format of Event

The workshop is planned to be a half-day, face-to-face event. The workshop will take the format of interactive workshop, where a maximum of 20 participants with a shared interest in actionable learning analytics are expected to engage in presentations and small-group discussions.

2.2 Call for Papers and Pre-Workshop Tasks

A call for short (2-4pp) papers related to any of the perspectives on actionability described above (information design, tool functionality, teacher orchestration, student self-regulation) or additional ones identified by participants (open call) will be released and circulated via relevant listservs (e.g., Learning Analytics google group, International Society of the Learning Sciences listserv) and personal

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networks. Submitted papers will be peer-reviewed by the organizers and those submitting papers. A maximum of six papers will be selected based on their relevance and contribution to different perspectives on actionability. Participants will also be able to attend as regular (not presenting) contributors; they will be asked to complete a survey before the workshop, which will ask about their experience and interest in the different perspectives on actionability.

2.3 Planned Activities

Part 1. Introduction to the workshop

- Short introductory presentation by the organizers about the workshop theme and goals, and overall (implicit/unclear) definitions of actionability with respect to related areas of research in the field such as human-centered learning analytics and teacher orchestration.
- **Introductory presentation** by the organizers, sharing the concept of actionability in learning analytics from different stakeholders' perspectives based on the literature synthesis: (1) technical aspect (for technology designers and developers), (2) information presentation (for designers), (3) self-regulated learning (for learners), (4) classroom orchestration (for teachers). This set of perspectives will be used as a starting point for discussing the concept of actionability.

Part 2. Different perspectives on actionability for different stakeholders

- **Brief talks** presented by the accepted paper presenters about their research experiences related to each of the perspectives on actionability.
- Participants will follow a World Café script, engaging in multiple rounds of small-group activities, each with a specific question. Four groups, aligned with the four main perspectives, will be formed (if additional perspectives are identified, additional groups can be added and a faster rotation speed introduced). Each 15-minute round allows participants to switch tables and discuss a different perspective. Organizers, acting as table hosts, will facilitate each round, welcoming new groups to the table and summarizing previous discussions on the assigned perspective. To facilitate group work, the Miro software (<https://miro.com>) will be used for brainstorming and synthesis of shared insights.
- **Group work for specifying conceptualization and producing implications:** Each round will start by asking participants to collaborate on a shared whiteboard to refine the concept of actionability from each of the perspectives. They will also identify key considerations, issues, and contributing factors for each perspective, incorporating them into specifications. Then, participants will brainstorm how each of the perspectives can be used to inform: (a) the creation of learning analytics tools, (b) learning designs that incorporate such tools, and (c) measurement of learning analytics impacts. During this activity, participants will be provided with 1-2 concrete examples of learning scenarios that they can relate to.
- **Sharing conceptualization and implications across groups:** Once the group work is done, the organizers will ask participants to look at the synthesized work from the prior steps across the perspectives. All attendees may engage in a discussion to integrate and/or identify points of synergy and tension among the multiple perspectives.

Part 4. Discussions on Next Step

- The workshop will conclude with a return to the first part. Participants will be invited to collectively brainstorm potential research directions and/or practical steps based on their

workshop participation. They will be asked to fill out their contact information, research agenda, and willingness for potential collaboration in a co-working document that others can view and edit together.

2.3 Expected Outcome and Dissemination

The outcomes of the workshop will be published as an open-access report for the wider community, while disseminated to all workshop participants using the mailing lists. This report will synthesize key outcomes including conceptualizations, considerations, and implications of actionability as well as the accepted papers.

2.4 Communication and Dissemination

An online Google website will be created and used for posting a call for papers and informing potential participants of relevant information. The call for papers will be published via the website, and direct invitation contact to specific research teams whose works have been addressing actionability in learning analytics. The website will serve as a central repository for materials, group interactions, workshop archives, and ongoing dissemination and networking.

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