Teacher Lived Experiences of Learning Analytics Use and Implementation

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Abstract: Digital education technology takes on many forms within schools and its use is growing alongside increasingly globalised and competitive contexts for educational institutions, supported by trends promoted by globally recognised policy influencing organisations. Learning Analytics software collects and processes vast amounts of data about young people to track learning and growth so that teachers may design personalised learning pathways. Critical academic voices are communicating concerns about the contribution the use of Learning Analytics makes to student surveillance, datafication of education, and the erosion of teachers' abilities to make choices based on their own professional knowledge. Critical applied research was conducted to explore the lived experiences of teachers at a private international secondary school in Bogotá, Colombia, and a narrative about shared perceptions of the implementation of Learning Analytics was developed. This paper summarises the study and the conceptual themes uncovered from semi-structured interviews with seven teachers interacting with Learning Analytics. The research revealed that there was a significant lack of confidence in the way Learning Analytics were implemented at the school, primarily resulting from an absence of clear objectives, unsuitable training, and minimal onboarding for new teaching staff.

Introduction

Critical research about education technology has been increasing in response to the expanding and deepening inclusion of EdTech in schools (Bayne, 2015; Broughan & Prinsloo, 2020; Selwyn, 2020; Decuypere, 2021; Watters, 2021; Suoranta, 2022). Among this digital technology is Learning Analytics, used to test student capacity in various contexts; some measure factual and procedural knowledge, some collect information about student attitudes towards various aspects of school life. The data collected in these tools is then used in many ways, for example to track student growth, to design instructional strategies based on the data, and to compare students in and among cohorts, between schools, or even across different nations.

Learning Analytics are seen as a vital tool in the future of education and many international policy influencing organisations promote the use of these tools heavily and uncritically (OECD,

2021; OECD, 2022; UNESCO, 2022). Large EdTech companies have identified schools and universities as a lucrative market for their products (Säfström, 2022; Williamson, 2021). This raises questions about the driving forces of providing digital technologies to educational institutions: are they for the benefit of students and their educational outcomes, or is profitability the main objective of increasing EdTech use (Teräs, 2020)?

Several critical voices have shared concerns about the impact of Learning Analytics on both students and teachers, in various educational contexts (Slade & Prinsloo, 2013; Selwyn, 2019a; Selwyn, 2019b; Corrin, 2019; Okkonen, 2020). The rise of surveillance technology that tracks student behaviour and is used for the control of young people (Foucault, 2020; Slade & Prinsloo, 2013), datafication of schooling that leads to a hyper focus on designing learning experiences for the sake of collecting measurable information (Biesta, 2009; Biesta, 2010), and schooling focused on competition (Sahlberg, 2018) are all connected to an increasing reliance on Learning Analytics (Selwyn, 2015). The implications for student well-being are being highlighted (Slade & Prinsloo, 2013) as well as how Learning Analytics are changing the way teachers do and feel about their work (Teräs, 2022).

Methods

Critical applied research was carried out in a private international school in Bogotá, Colombia, to explore the relationship between the use of Learning Analytics and teacher professional experience in a secondary school (Briggs, 2022). The study was conducted to gain an understanding of the impact of Learning Analytics in the school and was part of a thesis for an MBA in educational leadership at Tampere University of Applied Sciences. The study was a phenomenology and Grounded Theory (Charmaz, 2014; Farrow, 2020) was used as a framework for analysing qualitative data collected from interviewing seven teachers. The teachers shared their perspectives of experiencing the phenomenon of Learning Analytics, and from their response's themes were identified and then grouped into broader concepts. The concepts were then related to develop a shared narrative that answered the research question, *in what ways do learning analytics relate to teacher professional experiences at a private Colombian international secondary school?* To illicit details about teacher professional experiences, teachers were asked to describe their experience from the introduction of the tools to the present, including training they had received and their general feelings about the tools.

The interviews were semi-structured and three supporting research questions were used to drive the interviews:

- *What examples do teachers give of how learning analytics relate to their work?*
- *How do teachers describe their training to read and analyse data from Learning Analytics?*
- *What language do teachers use to describe their feelings about Learning Analytics?*

The researcher was a colleague of the teachers interviewed, this required bracketing (Moustakas, 1994) to be used to exclude pre-existing ideas and perspectives the research had that interfered with the ability to objectively analyse the data. The participants in the study were diverse in age, length of time they had worked at the school, subjects taught and whether they were Colombian

or immigrant. Due to the lack of Spanish fluency of the researcher, the interviews were only conducted in English with teachers who had a good command of the English language, this excluded certain voices from the research. Student perspectives were also not included in the study due to the ethical complexity of research being conducted by their own teacher.

Results and Discussion

Grounded Theory was used as a framework for data processing and analysis to develop a narrative that described the shared experiences that teachers had with respect to the implementation and use of Learning Analytics in their professional work. The narrative was created from organising the descriptions teachers made in their interviews into conceptual themes, these conceptual themes were identified by coding comments into more specific concepts that were grouped together. The broader conceptual themes identified were training, teacher experience, impact on young people, scepticism, and opportunities. These broader themes contained specific concepts such as overwhelm, data volume, data burden and culture, these concepts were grouped together under the broader theme of teacher experience. Whereas low grade shame, high grade stress, and working the system where concepts grouped under the conceptual category of impact on young people. The relationships between and among the broader conceptual themes provided a shared narrative of the experiences and perspectives participants described.

During the interviews all teachers expressed that they had insufficient training to manage the data produced by the tools in a way that made them satisfied with including the data as an element of their work, they all shared that they did not have the time to fully engage with the tools on top of other work obligations and they did not feel as though a strategic objective for specific uses of the tools had been adequately communicated by their leadership team.

Comments shared in the interviews exemplify these perspectives:

> *No, the only training we've ever had is the presentation of the data. How to read the data. We have never in the school had training.*

> *So, in the training I've never seen like "okay we're going to train ourselves in this little component of this test and we're gonna look at it" I never seen like saying like we're, just for this year, gonna get one component.*

The teachers described feelings of overwhelm and a sense of burden in relation to the volume of data available to them and the time it would take to properly use what might be relevant to their classes:

> *You have around 150, students. You're not going to have time to check every single student's data. Like detailed data, because yes, you can get a target. Great. But if you want to dig deeper where are the problems where the strength, where the weaknesses? It's almost impossible with the time. It's not doable.*

In terms of the impact on their students, teachers shared anecdotes from students' emotional responses to their own data, for example, shame associated with low grades, or intimidation of high predictions for future grades. More than one teacher shared stories of having overheard, or being told directly by students, that they could "work the system" and deliberately deflate their predicted grades by performing badly on the test and would therefore not need to work as hard in lessons to meet these predictions:

> *I heard comments of the students saying if you don't do your best in the test, your target will be lower and it's more probable that you're gonna achieve your target. So, I think they know how to work around the tests so that they get different target grades.*

All the teachers described feelings of scepticism that came from mistrust of the data itself, confusion about how to interpret the data, the reductionist nature of providing a number to represent a student's capability, and a lack of relevance of the data for subjects like the performing arts:

> *well, my first impression was that it didn't necessarily match, like the results of the exams didn't match what I saw in my classroom. The students that had the highest achievement levels in the test were not the highest achieving students in my class and I had very low graded students that were doing very well in my class. So, at first I was like this is irrelevant. I don't really know how to use this information. I cannot give a lower target for someone who I know can achieve more based on a test.*
>
> *I find it difficult using [the] data for the art.*

Although many of the reflections and descriptions provided in the interviews were framed from a negative perspective, all teachers pointed to opportunities they could imagine for the inclusion of Learning Analytics in their school and the work they do. They talked about using the data to provide support to students who might otherwise not be identified as requiring targeted educational help, that the data was helpful in supporting previously subjective decisions teachers were making as the Learning Analytics data provided a layer of confirmation and validity to teacher decisions. Another opportunity, expressed by most of the teachers, was for informed differentiated instructional design within their classrooms.

> *Personally? I think if it's used correctly and effectively it's an amazing tool.*
>
> *to be honest with you, I think it's a really good tool if you know, if you have clarity on how you're going to use it and why you're using it.*
>
> *one of our databases that we pay [for] that it's called Gale Pages has the resources categorized by Lexile measurements and that teachers could use like could be like okay I'm gonna differentiate and I'm gonna choose like these readings with the Lexile measure*

The interviews revealed that teachers generally described negative experiences with the inclusion of Learning Analytics at their school and there was scepticism about the benefit of paying for these tools when the perceived impact on learning was so small. The reason for this lack of

impact was put down to insufficient, or an absence of, appropriate and relevant training along with a lack of time to properly implement use of these tools. Each teacher expressed that they wanted to use the tools and could see how they would benefit them as professionals and positively impact their students' learning growth. None of the teachers shared that they thought the technology itself was problematic.

Conclusion

Data collection within schools is not a new phenomenon, but with rapid digital technology development, data collection methods will become more sophisticated and more intertwined with digital algorithms. Claims that this provides teachers with an efficient and objective way to support their students and reduce the time required to analyse test scores does not seem to be supported by the lived experiences of the teachers shared in this study. Greater efficiency is not perceived, and teachers expressed their overwhelm with the volume of data they have access to in combination with a lack of strategic focus to know which data to use and how. Objectivity was desired by some teachers who expressed that there was a need for decision making to be removed from their subjective opinions, outsourcing decisions to data on students collected and organised by Learning Analytics. This sparks questions about the nature of the teaching profession and the erosion of trust and respect for teacher professional judgement when it comes to decisions that impact the way students experience and move through school.

The primary recommendation from this study is to include teachers in the decision-making process around the implementation and strategic objectives for Learning Analytics. Teacher perspectives are valuable as the workload of interacting with the data falls mainly on them. Teachers require adequate time to integrate a new aspect to their work, interacting with data on this scale demands time and space. Teachers also require very clear and specific guidelines for which data and how much of the data they should include in their analysis of students in their classes, so they are not overwhelmed by the sheer volume of information collected about their students.

More research is required to include a wider range of perspectives within the same school, as well as across schools of different contexts, including primary schools, higher education institutions, in addition to specifically focusing on teachers who teach online. Further research that focuses on the experiences of students is also needed to understand how Learning Analytics impacts young people who are the subjects of the Learning Analytics tests.

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