RESEARCH ARTICLE

Is information power? Exploring the potential of data and analytics for student representatives

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ABSTRACT

An industrial revolution based on digital technologies and data is rapidly transforming most human activities. In the case of higher education, research on learning analytics has experienced significant expansion and evolution in only a few years. However, there is still a dearth of literature on analytics tools designed to support student representatives, which could generate growing informational and technological asymmetries in higher education. To address this critical gap, this study explored the potential key data required by student representatives for their effective participation as partners in educational improvement and the main benefits that associated analytics tools could offer. To do this, this study used a micro design ethnography and a dialogic approach with participants from a Scottish university. Findings suggest that access to data and analytics could influence the participation of the student body as egalitarian partners. These results reinforce the need for further research.

KEYWORDS

student representatives, data, analytics, students as partners, higher education

The use of data, information and analytics technologies are widely discussed as the centre of a new global industrial revolution and knowledge society that is transforming most human activities. In the critical area of education, over the last decade there has been an exponential growth of research in the field of learning analytics (LA), which is focused on collecting, analysing, and reporting data to support the improvement of students' learning (Lang et al., 2017; Conole et al., 2011). In the last few years, numerous studies have discussed LA tools aimed to help the activities and decisions of a range of higher education (HE) stakeholders. Examples include analytics for individual students, teaching and tutoring staff,

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and academic and institutional managers. However, there is still a lack of literature about analytics applications designed to assist student representatives (reps).

Student reps are historical members of higher education and are a common part of the institution of contemporary universities across the world. In Europe and English-speaking nations, in the last few years there has been increasing interest in the participation of student reps—on behalf of the student body—as partners in teaching and curricular quality improvement (e.g., Klemenčič, 2012a; Quality Assurance Agency for Higher Education [QAA], 2012). Yet, Klemenčič (2011, 2012a) suggests that access to information has a direct influence on the ability of student reps to effectively participate in quality enhancement activities, such as decision-making. Then, it could be argued that the lack of discussion about the use of data and analytics tools by student reps can jeopardise their access to relevant information and pose theoretical risks for the student body's effective participation as egalitarian partners in the improvement of HE. Furthermore, with evolving research on LA applications for other stakeholders, this gap might deepen informational and technological asymmetries in HE, and, consequently, generate growing challenges for the future involvement of the student body as partners in this context.

In order to start addressing this gap and these possible associated problems, this brief paper explores the potential key data and benefits of analytics designed to support student reps' effective participation as partners in teaching and curricular improvement. Following exploratory (Stebbins, 2001) and user-centred approaches (Buckingham Shum et al., 2019) and using a small design ethnography (Salvador et al., 1999) with programme-level student reps from a Scottish university, we identified five potential key datasets and two possible main benefits of analytics for programme-level student reps. This paper concludes by discussing the implications of these findings for student-staff partnerships and LA.

LITERATURE REVIEW

With a scarcity of previous academic research about the use of data or analytics for student reps, in this section we focus on demonstrating that no studies have addressed these topics, justifying the need for exploratory research (Stebbins, 2001). Yet, due to the limited scope of this paper, we cannot include a detailed discussion of all the multiple, vast, complex, and contested topics which surround this gap (e.g., data and analytics technologies, student representation, student-staff partnerships, higher education quality, etc.). Relevant references are offered to provide access to more detailed literature about these related themes. Similarly, while reviewing the literature gap, we purposely avoided "receiving" surrounding conceptual frameworks. As noted by Stebbins (2001), these "received" frameworks could limit the possibilities of the inductive (and user-centred) exploratory analysis and treat participants (student reps) as "automated figures" (Van Maanen, 1988, p. 131) who are manipulated according to the theoretical discourse selected by the researcher(s). Yet, as Stebbins (2001) recommends, a number of links between the findings obtained and relevant contemporary literature are provided in the results and discussion sections.

A lack of studies of analytics for student representatives

Although interpretations vary (e.g., Zuboff, 2019), it is widely recognised that human civilisation is experiencing an information age or knowledge society driven by a new, global industrial revolution centred on information technologies and data (e.g., Schwab, 2017), which is directly or indirectly transforming most human activities. In the critical area of education, and particularly in HE, over the last decade there has been an exponential growth of research in the field of learning analytics, which is focused on the collection, analysis, and communication of digital data to improve student learning (Lang et al., 2017; Conole et al., 2011). In only a few years, LA has been considered one of the main emergent technologies for higher education (Johnson et al., 2016) and has become one of the top ten publication topics in educational technology research (Gašević et al., 2014). Examples in the literature about the use of LA to assist teaching and other staff, to name a few, include tools that analyse data to (a) inform course and curriculum design and improvement (Avella et al., 2016; Armatas & Spratt, 2019), (b) support teaching and tutoring staff to make interventions and improve their own performance (Leitner et al., 2017; Avella et al., 2016), (c) identify future employment opportunities for students (Avella et al., 2016), and (d) assess the cost effectiveness of educational interventions (Wong, 2017). In the case of students, LA research includes examples to (a) help them increase their academic success (Viberg et al., 2018; Leitner et al., 2017), (b) offer them recommendations for course enrolment (Brown et al., 2018; Avella et al., 2016), (c) provide them with feedback or data required to assess their study performance (Wong, 2017; Avella et al., 2016), and (d) to develop self-regulated learning skills (Pardo, 2019).

As illustrated by this literature, the expansion of LA research in these past few years has been fast paced. However, it is important to note that the field is still in an embryonic stage (Tsai et al., 2020). While there are a few examples of mature and institution-wide implementations of LA in HE (e.g., Herodotou et al., 2019), just a handful of studies about the educational effectiveness of LA interventions have been published (see Larrabee Sønderlund et al., 2019; Ferguson & Clow, 2017; Viberg et al., 2018). The ultimate benefit of analytics for education is also an area of evolving debate. A point of discussion linked to a general critique of technology-enhanced learning (TEL) (Bayne, 2015) is that early LA research has been associated with the individualistic *learnification* of education (Biesta, 2005; 2006; 2013), where the social and collective aspects of teaching are ignored or assumed. Another critique connected to the field of critical data studies (CDS) is the argued potential of data and LA to promote consumerist and profit-driven approaches in HE (Selwyn, 2019; Prinsloo, 2019), as well as to discriminate and oppress students and teaching staff (Selwyn, 2020). Similarly, Parkes et al. (2020) note that most of existing LA research has failed to involve students and the risks for these digital tools to become subjected to dominant neoliberal paradigms that reduce education to a *technological practice* (from Freire, 2007). In response, these researchers (ibid) call to reverse these trends by making more human and democratic LA technologies. From a more technical perspective, Buckingham Shum et al. (2019) argued that, to become relevant and successfully adopted in educational practice, LA tools must integrate human- and user-centred design methods (e.g., Jokela et al., 2003; Giacomin, 2014, Gulliksen et al., 2003) to effectively understand and address the needs of teaching staff and students.

In sum, in these first years, LA research and discussions have expanded and evolved, becoming a field of important debates about the present and future of education. Yet, after more than a decade of studies, there is still a critical literature gap about analytics designed to support the activities and decisions of student representatives.

Student representatives, the student body, partnerships, and data

Student representatives are commonly selected by democratic vote to be the spokespersons of the student body and "represent and defend the collective interests" (Klemenčič, 2012b, p.2) in talks and negotiations with teaching and institution staff at course, programme, academic department, and institution-wide levels. The origin of student collective representation goes back at least to the creation of the first Western university (University of Bologna), which was nothing less than founded and controlled by organised students in 1088 (Day & Dickinson 2018, from Janin, 2014). Only decades later the church's master-led model was introduced at the University of Paris to then become the hegemonic form for HE until today (Klemenčič, 2012a, from Haskins, 2002; Day & Dickinson, 2018). Modern forms of student representation started at the University of Edinburgh with the first Student Representative Council in 1884, and, by the mid and late 20th century, student representation had become a common part of universities in most countries, yet not without resistance from academics (Day & Dickinson, 2018). Despite now being commonplace, contemporary student representation has unique characteristics in each context. So, for this limited article, our focus is on the incremental number of contexts that seek to involve student reps as partners in the improvement of HE teaching and curricular quality.

Figure 1. Ladder of student participation in curriculum design
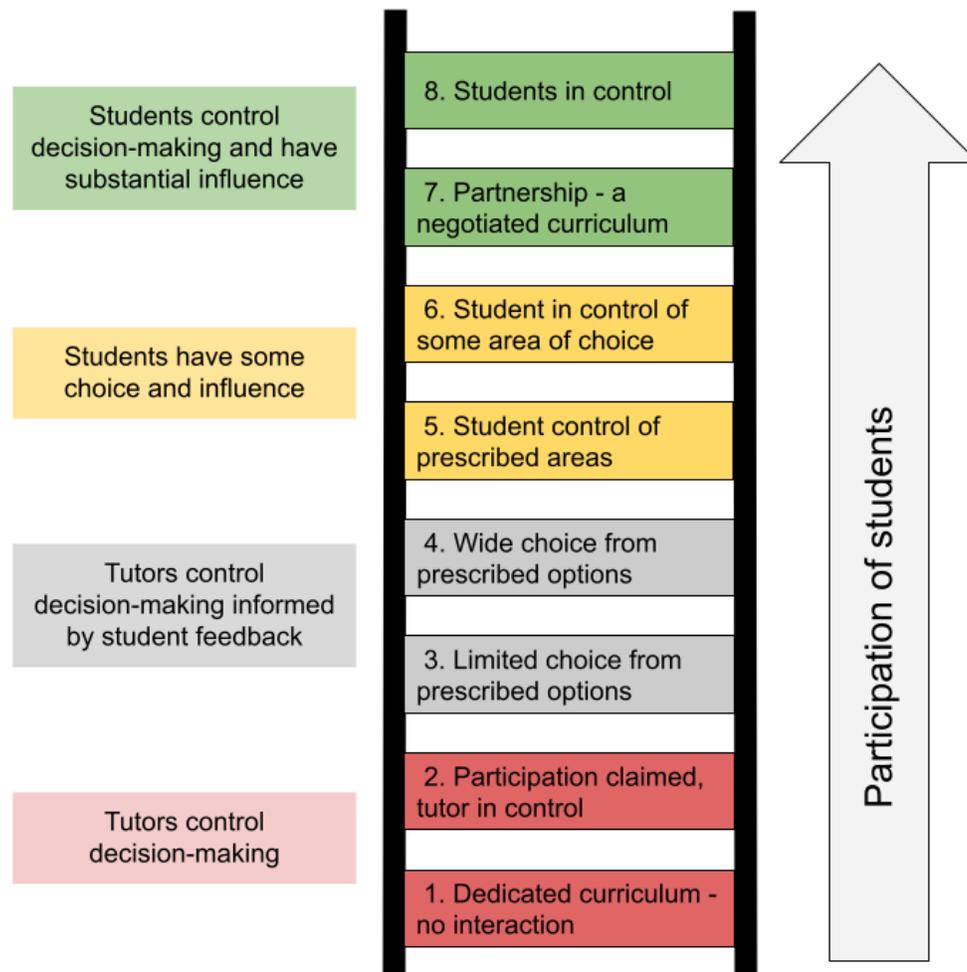
From Bovill & Bulley (2011).

    A recent review of the literature (Ryan, 2015) suggested that, despite no international agreements on what HE quality is, or to how improve it, all HE systems showed a trend of increased interests in student participation in educational quality improvement. While the participation of students in quality improvement can take different forms (see Figure 1), a second international trend (Mercer-Mapstone et al., 2017; Peters & Mathias, 2018) is the growing expectations for the participation of students as partners (SaP) (Bovill & Felten, 2016; Cook-Sather et al., 2014), also referred to as egalitarian student-staff partnerships. In this exploratory study, we focus on a general but fundamental characteristic of these partnerships. As illustrated in Figure 1 (from Bovill & Bulley, 2011), an essential threshold for the participation of students as partners is their effective involvement in decision-making activities (Bovill & Felten, 2016; Cook-Sather, 2014). As Peters and Mathias (2018) note, partnerships go beyond students participating as consumers and have therefore been discussed as a means of critical resistance to the increasing marketisation of HE "where universities are competitive, managerial corporations; academics are employed training providers; students are passive, paying, individualised consumers; and learning is a packaged product" (p. 54). The authors also

note that, as expressed by the UK National Union of Students (NUS) (2013), for students' effective involvement as partners "a meaningful dispersal of power" is needed (p. 8).

In this context of increasing international expectations for student participation in decision-making, several European (e.g., Klemenčič, 2012a) and English-speaking nations and HE institutions (e.g., QAA, 2012) are increasingly aspiring to engage student reps—and through them the student body—as partners in the enhancement of HE. Then, a crucial question is what support—and distribution of power—is required by student reps to ensure the efficacy of their participation in educational improvement decisions. Klemenčič (2012a) mentions the growing efforts in Europe for the professionalisation of student representation to support student reps' ability to fulfill their critical roles. Central for this paper, Klemenčič (2011) also suggested that, beyond skills, accessing information is an essential requisite for all forms of student participation. Furthermore, Klemenčič (2012a) has also proposed that higher access to information constitutes a basis for higher levels of participation, such as involvement in negotiations and decision-making. Thus, it is possible to hypothesize that adequate access to meaningful empirical data (e.g., primary, secondary, qualitative, and quantitative data) could be a condition for the effective involvement of student reps—and the student body—as egalitarian partners in HE enhancement (see Figure 1). Moreover, extending this hypothesis, it is also possible to suppose the need to provide student reps with a similar level of access to data as teaching and institution staff.

In light of this, if the shortage of literature about the use of data and analytics by student reps persists, it could lead to important risks. Firstly, this gap in the literature could in theory pose limitations to providing student reps with access to the best data—and, therefore, key information (Klemenčič 2011, 2012a)—required for their contributions, or even involvement, as partners in decision-making activities. Additionally, in the coming years this gap may contribute to deepening critical informational and technological asymmetries which could add mounting obstacles for the engagement of the student body as egalitarian partners. In all, these risks could in turn create barriers and limitations for partnerships and the improvement of HE in the coming decades. Recognising this critical gap in the literature and these potential impacts, this small study attempted to start identifying the possible benefits (if any) that the use of analytics tools could have for the effective participation of student reps in programmes' teaching and curricular decision-making. To achieve this, this study followed exploratory (Stebbins, 2001) and user-centred design research approaches (Jokela et al., 2003; Buckingham Shum et al., 2019) and used a small design ethnography to answer the following research questions:

1. What data is required by programme-level student reps (if any) in order to have effective participation in teaching and curricular decision-making activities?
2. Considering this potential key data, what are the main possible benefits of analytics tools for student reps?

By answering these questions, we expected to shed initial empirical light on the roles that data and tailored analytics technologies could play in the participation of student reps as partners in the improvement of HE quality. In this way, this study hopes to offer initial insights about these technologies and their possible implications for the relevant literature.

METHOD

Adopted exploratory and design research approaches

Failing to find academic literature about, or examples of, analytics for student reps, this study combined exploratory and design research approaches. Unlike descriptive and explanatory research, exploratory inquiry aims to collect and inductively analyse novel data in order to discover initial patterns about unstudied topics. In this way, exploratory inquiry attempts to inform future, more advanced research (Stebbins, 2001). Additionally, in line with the mentioned recent calls for more relevant and adoptable LA technologies (Buckingham Shum et al, 2019), we adopted human- and user-centred design research approaches (e.g., Jokela et al., 2003; Giacomin, 2014; Gulliksen et al., 2003). In synthesis, these approaches and methods recognise that it is required to understand (i.e., research) the context and needs of the people that are expected to use an artificial system in order to adequately inform its design decisions. Then, the focus of this study is to provide an initial identification of patterns about the potential data needed by student reps and how the use of tailored analytics tools could influence their effective involvement in educational improvement negotiations and decision-making. The methodology used to implement this exploratory-design research approach was a design ethnography with a small number of participants from a Scottish university.

Micro design-ethnography

Adapting design research methods for education

Design ethnography is a popular design research methodology which has been used in numerous fields. Influenced by ethnographic research (Hammersley & Atkinson, 2007), this method has been increasingly applied in contemporary user-centred design practice to generate in-depth understandings of the contexts and needs of the potential users of specific artefacts in order to inform their (re)design (for a classic example, see Bentley et al., 1992). Salvador et al. (1999) suggest that design ethnography "focuses on [identifying] the broad patterns of everyday life [or activities] that are important and relevant specifically for the conception, design, and development of new products and services" (p. 36). Critically, this method aims to identify needs from the narratives of real-life users, and therefore in our case, to explore the data needs and potential benefits of analytics from the perspectives of student reps (Buckingham Shum et al., 2019; Parkes et al., 2020; Peters & Mathias, 2018). Yet, it is important to highlight that, despite its name (e.g., Priestner, 2017), design ethnography should not be equated to traditional ethnographic research (e.g., where months or years of immersion into participants' social worlds are expected) and does not involve the production of design outputs (e.g., prototypes).

Participants and context of study

This micro design ethnography collected data from four programme-level student reps from a large, ancient Scottish university. Two of the participants were early undergraduate and two master's level students. All participants studied different programmes (one was an online-based master's degree programme).

In recent years, UK quality policies for Scottish higher education institutions (HEI) have required universities to "engage students, individually and collectively, as partners in the . . . enhancement of their educational experience" (QAA, 2012, p. 15). As part of this, HEI should agree with the student body to "define and promote the opportunities for any student to engage in educational enhancement" (what the QAA calls a *partnership agreement*) and provide support for reps to represent all students in evidence-based discussions with staff (QAA, 2012, p. 15). While the involvement of student representation should be at all organisational levels, for this study we focused on quality-improvement student-staff meetings at the programme level, which are commonly held once or twice every academic semester.

Data collection and analysis

Data was obtained in a sequence of activities and using different types of data collection methods. First, audio recordings and notes were collected from one-to-one, semi-structured interviews of 30 to 60 minutes' duration held with three of the four participants. These interviews were guided by questions about student representation in the participants' programme, their involvement in educational decision-making instances, and the key data used in these contexts (see Appendix A). The researcher that conducted and analysed the interviews was a PhD student familiar with student representation in Scottish universities who contributed with researcher-participant rapport and trust (e.g., Rossman & Rallis, 2011). After the interviews, we used email correspondence, a review of documents provided, and a short online survey to collect complementary data. Participant observation was not used as interfering in student-staff meetings was deemed unnecessary and problematic.

Recordings and notes from the interviews were thematically analysed to identify common patterns in the contexts and needs concerning participants' roles, as well as a list of potential key datasets and benefits of analytics that could support their work. To validate the interpretations and to ask for further details, email correspondence was used for member-checking (Birt et al., 2016) with a dialogic approach (Harvey, 2015). Then, an inductive, adhoc analysis of the survey responses (see details in Appendix B) helped to explore the prioritisation of the potential key data sets initially identified, as well as the participants' appraisal of the potential key benefits that related analytics solutions could provide to their effective participation in decision-making. Finally, to offer authentic and vivid depictions, results are discussed in a narrative synthesis with extensive use of selected quotes from participants.

Limitations

Several limitations to this study shall be noted. Its exploratory and speculative nature, very small sample, self-selection of participants, and the exclusive involvement of student reps at the programme level and from a single institution result in limitations in the scope and the generalisation of the findings, which should be considered.

RESULTS

Key data needed for effective participation in decision-making
        The analysis of data from interviews, documents, and correspondence with participants resulted in the identification and grouping several potential key datasets which appeared directly connected (Klemenčič 2011, 2012a) to the participants' effective involvement as partners (Bovill & Felten, 2016; Cook-Sather, 2014; Peters & Mathias, 2018) in teaching and curricular decision-making at the programme level. These datasets were then prioritised based on participants' answers to the survey (Appendix A). Figure 2 presents the results of the prioritised potential key datasets identified. Each of these datasets are discussed next and their context illustrated with relevant responses by participants.

Figure 2. Relative priority of potential key datasets needed by for student reps
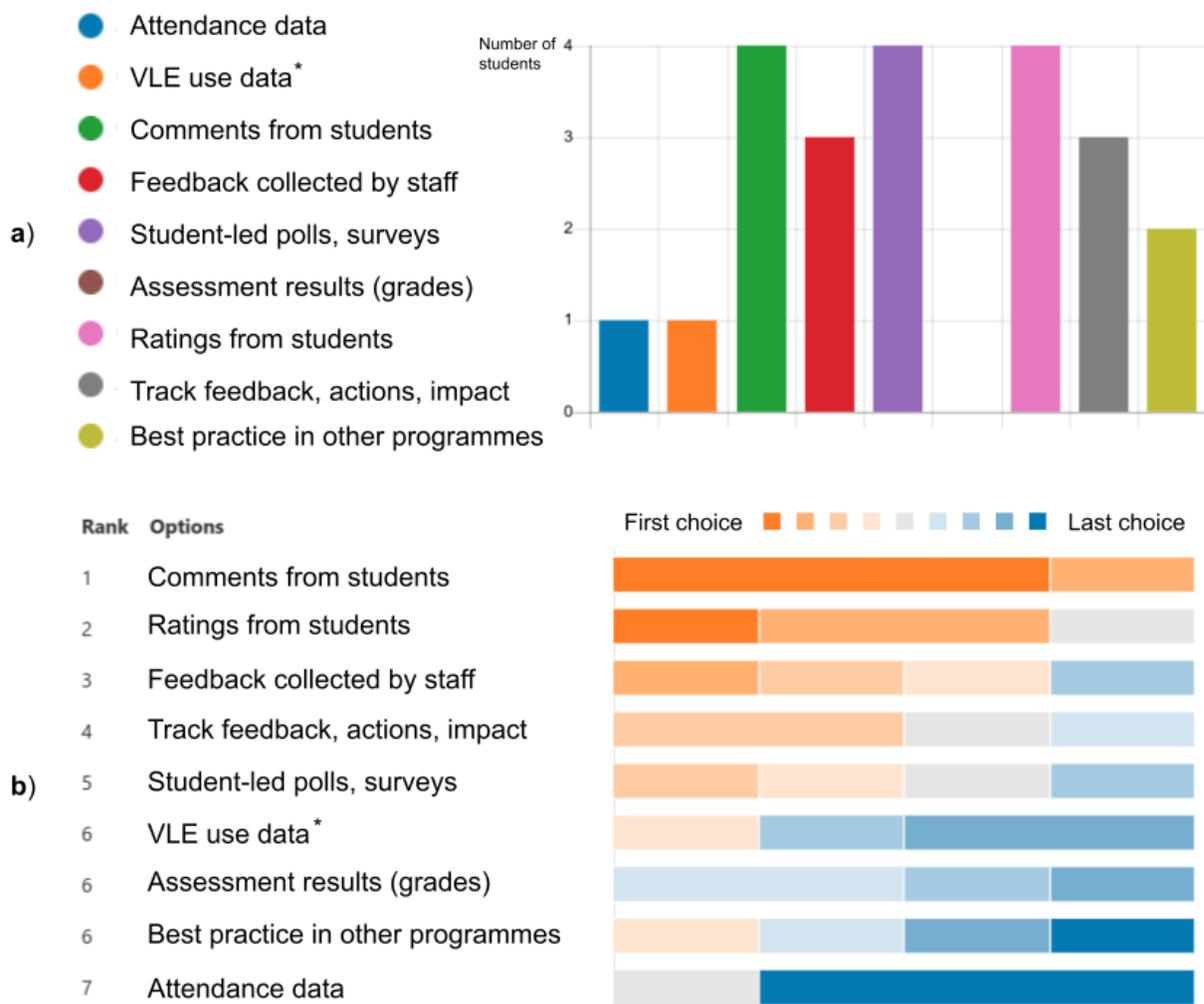
Graph A: Number of participants (out of the four of this study) who "strongly agreed" that the dataset would be useful. Graph B: Ranking given by student reps to these datasets. Image from Google Forms. *VLE: Virtual Learning Environment.

Qualitative comments about learning and assessment activities

The analysis of interviews strongly suggested that qualitative feedback from the student body (i.e., spoken or written comments about different educational aspects of the programme) was the most important data for participants' effective engagement as partners in quality improvement discussions and decision-making. Their responses to the survey seemed consistent with this finding (see Figure 2). A participant illustrated the range of critical aspects for which programme reps required to know the views of their peers, offering a glimpse of the diversity and granularity of the qualitative feedback that reps might need to collect to fulfil their roles:

> [As part of discussions in student-staff meetings you] report [and discuss] feedback, mainly from students from your course, on lectures, issues with assignments, coursework, even teaching space, are the classes Ok, are rooms accessible, transport, how is the support for students having a hard time, also in general student experience . . . about teaching, teaching staff, assignment structure, deadlines, timings . . . , structure of the course, materials we are given, reading lists, if students feel they are learning, if [assessments] are true to what has been taught.

When asked if a hypothetical digital tool to collect and analyse student comments could be useful in this context, the same programme rep agreed. Furthermore, the participant complained that, in their context, all student feedback collection and analysis was "self-directed," implying a lack of sufficient institutional guidance and support:

> I think reps should have access to that [digital tool], [because] all the feedback we received is self-directed, self-structured, all done by us, no set manner to get feedback, no platform, you made [an online] feedback form. You make it.

Another participant also highlighted their efforts and struggle to obtain this crucial qualitative data:

> We tried many different ways to try to get students involved, we send emails, [an online] survey, Facebook page, Facebook chat, announcements in lectures, and invited people to talk to us personally, with personal tutor meetings, tutorials, [yet the feedback obtained was] still a very low yield for a very big programme. You run at people to get feedback.

These challenges seemed to mirror the issue of students' poor response rate in teaching evaluation surveys, a widely discussed topic in the literature (e.g., Adams & Umbach, 2012; Fosnacht et al., 2017).

Quantitative ratings about learning and assessment activities

Following qualitative feedback, our analysis suggested that quantitative feedback (e.g., ratings, Likert-scales) was the second most important information required by programme reps to effectively participate as partners in discussions with staff. The common reason expressed by

some participants was that they needed to weight how representative or biased the opinions received were in comparison with the views held across the student body, which was summarised by a participant:

> One thing we are struggling [with,] we are running behind people to see how representative feedback is. If we have two people, we consider it is representative. . . . It is very difficult to get a representative picture of what is going on because we don't really know.

Another participant reflected on bias being a pervasive problem, and how lacking access to quantified feedback might affect their ability to represent the student body effectively: "Bias is always an issue, it's something I think a lot; I can sit in these meetings and say 'yes, I agree,' but I don't know if I'm representing the views of whole students."

This participant further elaborated about these challenges for the complex discussions with programme teaching staff and about how the access to this data could help in such instances:

> There is a bias. It is difficult to be with staff, and give feedback that is, "everyone is complaining about your course." It is difficult to try to navigate, and when we have raised concerns, staff would generally take a defensive role. Always kind, you don't want to respond to that as it turns in to a kind of argument. Obviously, in this kind of instances, data would be of assistance. . . . "50% students rated the course," but it is often the case we don't have that, it would be more powerful [to say], "98% didn't like this course," or "thought it was misguided."

In this way, quantified student feedback might also be crucial to allow reps to ensure that the range of lived perspectives that compose the student body are actively considered in educational discussions—which has been already discussed as a non-trivial issue for student-staff partnerships (e.g., Felten et al., 2013; Barrineau et al., 2016; Bindra et al., 2018; Cook-Sather et al., 2021).

Data and student feedback collected by the institution and staff
All the participants said they had not been provided with any of the student feedback collected by staff, while their responses to the survey and comments suggested that this data was desirable for them, as explained by a participant:

> There is mid-term feedback [collected] by the school. We don't get access to that. I would love to have access because then I would know what people talk to me are representative of what they say to school, more people fill the thing from the school. . . . I share everything I get to the Student Staff Liaison Committee. . . it would be tremendously helpful.

Overall, our preliminary analysis indicates that if student feedback and other key data collected and considered by staff is not shared with student reps, this appears to generate clear barriers for similar levels of access to information (Klemenčič, 2011, 2012a). This situation could generate informational asymmetries which could raise obstacles for the effective involvement of the student body as egalitarian partners in educational decision-making. Yet, we also noted that the student association and university where this study was conducted had recently started a project to give student reps access to some of the existing data.

Feedback about contingency and specific topics via polls, surveys
Two of the student reps interviewed described how they had created surveys via online forms to collect feedback from students at specific times of the term (e.g., in advance of student-staff meetings). A participant mentioned how these tools had helped to collect more data than in-person feedback requests: "We did two or three lecture announcements, because of lecture announcements and around four people approached, but it's very sparse communication. We sent the survey, Facebook chat. . . . The survey brought the most responses, like 20, some of them were helpful."

In addition to feedback about predefined aspects of courses and the programme as mentioned earlier, our analysis suggested that participants could also benefit from the collection of flexible, "one-off," on-demand surveys or polls about emergent issues, discussions, and decisions of interest. Data about all these topics could help student reps to compare and contrast the data that is already available, and to gauge the views of the student body in relation to critical contingent educational questions and negotiations. Consequently, it could be argued that this data may be crucial to enable the student body to have the flexibility needed to appraise and respond to dynamic, dialogic, unexpected, and unscripted educational matters.

Data to track feedback, improvements, and impact
Beyond access to student feedback about educational plans and activities, responses from participants suggested, and the preferences indicated in the survey reaffirmed, that reps' access to data about educational enhancement processes and impact could also have key influence for the effectiveness of their involvement in the improvement of HE programmes. A student rep explained that a frequent response by staff to the feedback provided was a sort of vague notification: "'We will see what we could do about it.' I do believe some of the points [staff] write down they will try to do something about it, but some of the times it's just 'we will see.'"

This participant then elucidated needs and challenges experienced in relation to tracking student feedback, the enhancement processes, and their impacts:

That's why I'm very after them [the programme's academic staff], so we provided feedback, but we don't really know where that goes. . . . We cannot track what's happening to the feedback [that] we have provided. I got the response that many of these feedbacks are long-term implementations, [so] they can't really tell us because it will happen next year, but I don't need to know [that] you have done something, but [that] you wrote [the feedback] in a piece of paper, and you took the piece of paper to a

meeting, and you shared the piece of paper. . . . It [still exists] in the space . . . instead of just disappear.

The participant also emphasised that the motivation to track things was linked with the need to feed back to students, and hence, to fulfil their roles as representatives of the student body: "I don't need a public campaign. I need to know where the feedback goes, so I can feed back to students, instead of having nothing. . . . That's exactly what I am after, that you can track that [feedback] back."

The desire to track "issues raised" and "action points" was frequently mentioned and underlined as crucial data for reps. As suggested by a participant, examples of things that could be of interest for reps to track included a "record of what changes course organisers or program leads have done in the past in light of negative feedback from students . . . issues, possible solutions, state of implementation. . . . Positive things that need to be maintained."

Furthermore, participants also discussed the limitations posed by lack of access to relevant programme records from previous years: "I don't know . . . what issues have come up in the past, why were they implemented in the past, how have they changed . . . a time-line on these things where I can see [them]."

In synthesis, our analysis indicates that the desire to access data about the enhancement processes and their impact seems to highlight the intention of student reps to have active and valuable contributions as partners in educational decision-making instances. However, this analysis also points to possible challenges that the lack of access to this key information might bring to the implementation of effective student-staff partnerships in HE (Mercer-Mapstone et al., 2017). This was vividly expressed by a participant:

I see my role not just as a feedback channel . . . but also a point of action, where I can do things, where student-staff meetings [we are seen] as a channel of data, we are not involved in the implementation of feedback, and I think that's why they don't tell us more about [where feedback goes]. . . . We can't take action in the discussion.

Main benefits of analytics for student reps

Based on the key datasets identified and prioritised as influential for programme-level student reps' effective involvement in educational decision-making, the potential key benefits of associated analytics solutions were inductively analysed. This analysis was complemented with participants' responses about the main gains of accessing related analytics applications.

Help student reps to better represent the student body

The participants of this study expressed that, thanks to the potential improved access to and analysis of qualitative and quantitative student feedback provided by analytics, student reps could gain a better understanding of experiences and views across the student body. Participants also noted that this could be critical for their effective representation of the diverse perspectives held across the student body in educational decision-making. Participants' described examples in which this could happen. One participant explained that by accessing analytics applications with this data, they could avoid "feeling as if the feedback that you give to lecturers is not representative of the entire program, course, or module." Another said that

"[I could have] more power to effectively present a case for course change [and gain the] ability to convey feelings succinctly or directly rather than anecdotally."

>   *Help student reps make more informed contributions to programme quality enhancement*

The second and connected main potential benefit identified is to help student reps make more informed, robust contributions to teaching and curricular decision-making. The participants' answers to the survey discussed examples of some mechanisms in which this could be achieved:

> [By accessing analytics applications with this data], I could've been quickly aware of what issues are recurrent and common in the course, which would've allowed me to tackle those issues quickly and efficiently.

> [By accessing analytics applications with this data], it would be a lot easier to relate accurate feedback to the staff and to study underlying themes of issues that might be plaguing the course.

Overall, these initial exploratory results then reaffirm the assumption that increased levels of access to data (Klemenčič 2011, 2012a) offered by analytics applications could have implications for the type of participation that students can have in the improvement of HE (Bovill & Felten, 2016; Cook-Sather, 2014; Peters & Mathias, 2018; Parkes et al., 2020).

DISCUSSION

While the findings obtained in this small, exploratory study cannot be generalised, they offer initial insights into the potential of data and analytics for student reps and their relevance for existing discussions. Findings suggest several examples where the access to data seemed to have an important influence for the ability of student reps to participate in the educational negotiations with academic staff. Results also suggest that relevant analytics tools could also have significant impacts for reps' participation in HE enhancement. Recognising student involvement in decision-making as a critical threshold (Bovill & Felten, 2016; Cook-Sather, 2014), these results support the hypothesis that high levels of access to data for student reps are needed for the participation of the student body as partners (Klemenčič 2011, 2012a). Then, the main conclusion of this study is that more sophisticated research and discussions about the use of data and analytics by student reps is necessary—especially for the growing contexts interested in student-staff partnerships (Mercer-Mapstone et al., 2017; Peters & Mathias, 2018).

Future studies may look at issues such as struggles faced by reps to collect data about the educational experiences and perspectives of their peers. These obstacles may limit reps' capacity to represent diverse views of students in discussions with staff. As mentioned, this has been recently highlighted as a problematic issue (e.g., Felten et al, 2013; Barrineau et al., 2016; Bindra et al., 2018; Cook-Sather et al., 2021). Furthermore, in combination with the widely discussed low response rates to enhancement surveys (e.g., Adams & Umbach, 2012; Fosnacht et al., 2017), these challenges might generate important barriers to the improvement of HE. The question of data literacies of student reps also surfaces. In all, we believe that the insights offered by the current study suggest that the use of data and analytics should be considered in future discussions about the enablers for and maturity of student-staff partnerships (Healey &

Healey, 2018), both in HE contexts and beyond where student representation also exists (e.g., Mitra, 2018; Alexander et al., 2019).

This study contributes to the LA literature in several ways. This article provides an example of involving students—in this case, as initial informants—in research on LA technologies. As noted by Parkes et al. (2020), this appears to be missing in LA literature. Furthermore, thanks to the use of a design ethnography, this study offers insights into the perspective and needs of students (reps) as end-users of data and analytics and thereby responds to the calls for more user-centred research and design of LA tools (Buckingham Shum et al., 2019). Finally, these exploratory findings also seem to indicate that the use of data and user-centred LA might directly contribute to the participation of the student body in educational enhancement decisions. Therefore, this paper offers a case where LA tools could support alternatives for HE "that seek to treat students not as consumers or mere numbers" (Parkes et al., 2020, p.122; Peters & Mathias, 2018) and that then avoid limited individualistic, discriminatory, or oppressive understandings of education (Bayne, 2016; Selwyn, 2019, 2020). Yet, to conclude, this study only explored the potential benefits of analytics for student reps. Future studies should also consider and critically examine any challenges and undesired impacts that these technologies could generate in HE and in our complex and fast-changing societies.

This study was approved by an ethics committee from the institution where the research took place.

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APPENDIX A

Interview schedule and prompts*:* Questions used for the interview with participants

THEME	QUESTION	PROMPTS
Profile	In order to better understand the characteristics of participants of this study, could you answer some brief questions about you?	1. Can you tell me your Age & Gender? 2. Nationality & Ethnicity? 3. One or two things that you do in your free time?
Context	To have some understanding about the context of your programme, could you tell me some details about it?	1. Full name of your programme? 2. Size? 3. How many student Reps? 4. How are Reps organised, coordinated? 5. Can you tell me how these meetings develop/are structured?
Key topics	Can you tell me 2–3 key topics/issues related to the student experience of the programme that were discussed with staff in these meetings?	Did you manage to agree with staff on some action plans?
Information used	Can you tell which was the key information/evidence used to discuss these issues?	1. How did you get that info? 2. Challenges accessing/using it?
Further contact	Would it be Ok if I reach you in the next weeks/month with some follow-up questions?	

APPENDIX B

Questions and response options from the participant survey

1) Please mark all the types of information that you "Strongly agree" would be useful to access when discussing course(s) quality and improvement with teaching and school staff (if any). If you are unsure if one option would be really useful or not, please do not mark it.

A. Attendance (If applicable. Anonymised)
B. Course VLE (e.g.,Moodle) Analytics (Anonymised, i.e., Usage of VLE pages and resources by students)
C. Course comments by students (Anonymised, e.g., written opinions or suggestions by students about course learning activities -lectures, tutorials, labs, etc-, course learning resources, course assessment, physical or digital infrastructure used for the course)
D. Results from Institutional-led Course Feedback (e.g., Surveys, Questionnaires, Focus groups. Anonymised)
E. Results from Student-led Course Polls (Anonymised)
F. Results from Course Assessments (Anonymised)
G. Course ratings by students (Anonymised, e.g., course overall satisfaction, satisfaction with learning activities, satisfaction with learning resources, satisfaction with assessment activities, satisfaction with physical or digital infrastructure used for the course)
H. Access to records of student feedback and actions from previous years (e.g., Handover documents, SSLC Minutes)
I. Access to information of things that have worked in other programmes

2) Please rank the options below based on the usefulness of the information for discussing course quality and improvements with teaching staff. Rank them in decreasing order of usefulness: most useful at the top, least useful at the bottom.

A. Attendance (If applicable. Anonymised)
B. Course VLE (e.g., Moodle) Analytics (Anonymised, i.e., Usage of VLE sections and resources by students)
C. Course comments by students (Anonymised, e.g., written opinions or suggestions by students about course learning activities -lectures, tutorials, labs, etc.-, course learning resources, course assessment, physical or digital infrastructure used for the course)
D. Results from Institutional-led course feedback (e.g., Surveys, Questionnaires, Focus groups. Anonymised)
E. Results from Student-led Course Polls (Anonymised)
F. Results from Course Assessments (Anonymised)
G. Course ratings by students (Anonymised, e.g., course overall satisfaction, satisfaction with learning activities, satisfaction with learning resources, satisfaction with assessment activities, satisfaction with physical or digital infrastructure used for the course)

H. Access to records of student feedback and actions from previous years (e.g., Handover documents, SSLC Minutes)
I. Access to information of things that have worked in other programmes
    [Note: The online form allowed to move items up and down. Items in this question were randomly sorted, to avoid bias related with the order in which they are shown initially.]

3. If you had access to the information mentioned in the previous questions, which are the main undesired situations, costs, efforts or risks that you could avoid as a Programme Rep? (if any).

4. If you had access to the information mentioned in the first questions, which are the main desired benefits that you could gain as a Pogramme Rep? (if any)

5. Other suggestions—*Is there any other type of information not mentioned in the previous questions that you think could be important for a Programme Rep to have access to when discussing Course(s) quality and improvements with Teaching and School staff?*