The Readiness of Universities to Use Predictive Learning Analytics for Students’ Retention and Academic Success

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Abstract: The article proposes an analysis of the readiness level of universities for using the predictions available through systems of learning analytics, in order to ensure the academic success of students, especially for those at risk of dropout. The proposed approach aims to highlight the need for connections to be established between the determinant factors of the success of the studies, as it turns out from the categories of already collected data through Learning Management Systems, versus information derived from recent studies conducted by using the students' perspective. They show fewer links with measures based on meritocracy or employment prospects in the labour market, than with qualitative indicators connected with the development of the skills that students consider relevant, in particular, the orientation towards embodied and emotional success, the formation of critical and reflective thinking that conditions the satisfaction of completing the studies seen as a "continuous challenge", especially to make authentic choices for the professional future. Based on an improved inventory of indicators, including qualitative ones, which also value students’ opinions, data collection through early warning systems can be significantly improved so that intervention strategies can be configured to support students in situations "of risk". Beginning with this premise, we conclude by highlighting some challenges for the management of human resources necessary for the implementation of the predictions of learning analytics in universities, in order to increase the retention rate of students, devoting special attention to stimulating teachers’ metacognitions in order to identify the areas of intervention at the level of the didactic activities.

Keywords: learning analytics; students retention; processual perspective of learning; qualitative variables; learning predictors; “big data”/ "small data”; academic success; holistic approach.

1. Introduction

The article focuses on the orientation towards the involvement of the teachers and students in order to determine the academic success, based on an approach built "from bottom up", using "small data" benchmarks, derived from the analysis of processual perspective of learning and the learning analytics built within the “big data” systems available in the university environment.

In line with the intention to determine a holistic construction of a "bottom up" approach, we propose to analyse two necessary elements: the need to consider qualitative variables within the "learning analytics", by referring to the life cycle of the studies and the degree of preparation of the effective implementation of an approach based on "small data", through roles assigned to the teachers from the universities, in order to retain students and ensure their academic success.

2. The context of approaching the success of higher education (HE) studies as a way of enhancing students' perceptions about the quality of learning

Academic success is a complex concept, a thematic report made at EU level (Vossensteyn et al., 2015, p. 14) offers a suggestive description in this regard: ”Not only is study success a multidimensional concept — including dropout, retention, study progress, study duration, completion and transition into the next-level study or the labour market — it is also influenced by a wide variety of factors at various levels, such as education structures and pathways to higher education, national policies, financial and other incentives, institutional structures, teaching and learning approaches, curriculum design and student background characteristics and the interrelations between all of these.”

Realising a comparative radiography at the level of national and international policies in the field, the report retains as a conceptual delimitation to be used for the success of the students' studies as follows: „The study success comprises all major achievements of students in the higher education system, including dropout/persistence, completion of a degree and time-to-degree.” (Vossensteyn et al., 2015, p.15).

The interest of the universities towards ensuring the students’ academic success is easy to understand in the context in which the investment costs with the initial training of students can be seriously affected, by an alarming increase of the phenomenon of early leaving of the
studies, which determines the urgency of identifying the factors that favour the retention, but also of the appropriate measures to decrease the action of this complex variable, at the level of universities.

However, “although there are many studies focusing on factors that may have an impact on the study success of individual students, research on study success policies and their effectiveness is rare, particularly research taking an international comparative perspective. In addition, the data that is available across Europe on study success is diverse in terms of availability, data collection methods, definitions, and usage.” (Vossensteyn et al., 2015, p.8).

In this context, of the limited availability of data on the studies success, it should be remembered that the academic success also involves a side that is strongly oriented and determined by the students themselves, which implies a strong investigation about the qualitative variables related to the analysis of the processual perspective of learning.

From this perspective, any definition of educational success cannot ignore what Beilin names as “a type of contract” between a student and institution, whereby students are judged on their performance of certain tasks and if deemed satisfactory “they will be granted varying levels of approval and ultimately a diploma…that presumably bestows on its possessor increased power (in the form of social and cultural capital, and in the form of credentials).” (Beilin, 2016).

But is this a contract conducted on an equitable basis, given that it is also concluded with students whose access to higher education was traditionally less accessible?

From this point of view, instead of complaining that students aren’t “college-ready”, considering a group of authors from Southern Oregon University, institutions need to become more “student-ready.” (McNair et al., 2016).

In this modified socio-cultural context that requires inclusion and success by treating students' stratifications and marginalization, the responsibility at the level of the university is currently taking different forms, from financial support measures addressed to the students who are in situations of risk of leaving the studies for socio-economic reasons and up to programs of learning support and social integration in the university environment.

For example, we can mention several types of student retention programs in the US. The University of Oregon’s Bridge South University program supports students to make the transition to college, by sustaining social, emotional and academic strengths through "bridge" type seminars,
mentoring, peer-to-peer, study and social groups, cultural and civic involvement activities; "inclusive counselling" programs for first year students; implementation of a mobile application that supports the coordination of every aspect of student life (programming, campus locations, office hours, registration, housing, financial aid etc.) (Southern Oregon University, 2019, pp. 16-22).

Such examples represent attempts at the institutional level, regarding the procedural approach of student retention through additional support services, in line with the purpose of ensuring the successful completion of higher education studies.

Although we can agree that "academic success" is a complex concept, as the responsibilities at the level of policy in the field of states and universities are becoming more visible, it becomes necessary to admit that the analysis of the involvement of the main "actors" of the studies, the students themselves and the teaching staff, could provide valuable answers for the intention to stimulate students retention during the course of the academic studies.

3. To what extent the success of the studies is a problem of using the processual learning perspective made by teachers and students?

In order to configure ways of reporting students from current generations to the success of academic studies, it is interesting to find out what their perceptions are about this phenomenon.

A retainable perspective is provided by O'Shea and Delahunty, who underline that the perception of “first-in-family” students, participants in the study, highlights the approach to academic success from a triple perspective: as a form of validation, as “defying the odds”, respectively as a form of visible behaviour, including an emotional manifestation of success. (O'Shea & Delahunty, 2018, p.1068).

We can notice preliminary, that the investigated students associate less academic success with external measures, financial or consisting of additional support services of education and/or counselling offered by the university, as well as with specific elements of learning, related to motivational constructions, to the activation of the personal potential of knowledge and behavioural manifestation, including by means of activating the socio-emotional intelligence.

Among the relevant aspects that influence the achievement of academic success in the case of “first-in-family” students, the investigated subjects mentioned their additional efforts, necessary for the construction of
"a high sense of belonging within the university", additional need for support and feedback with validation from teachers, and also "the ability to simply keep going despite obstacles or barriers to participation, often expressed as self-praise, admiration for their capabilities or their tenacity to persist." (O'Shea & Delahunty, 2018, pp.1069-1070).

For such students, the future fiscal or employment benefits of academic success are only partially reflective of their sense of achievement.” As a visible way to show academic success, the interviewed students used terms such as: "happiness", "pleasure", "being passionate", "gaining respect" or "pride", the terms exemplifying a counter-action from data based on meritocratic approaches that no longer communicate "anything useful about individual experiences in higher education.” (Walker, 2003).

Therefore, the students' capabilities approach, sustained by the study authors, focuses on the need of higher education institutions to harness, activating the students' personal learning desires and aims, rather than taking a "top-down" approach, which means a way of approaching and influencing academic success, starting from the analogy with the economic environment based on expanding the markets, while trying to meet the specific needs of the new consumer categories, in the case of the present analysis, of the students who need to learn differentially to "consume" knowledge in order to become future producers of knowledge and innovation. Such inclusion through learning identifies alternative perspectives of success and may contribute to the deconstruction of students' individual anxieties, associated with situations of „being judged or seen as incapable.” (Burke et al., 2016, p.43).

The fact that, different perspectives on the nature of success are not necessarily mutually exclusive, is significant, but could be viewed as complementary goals, by supporting all categories of students for the desired personal achievement. By accepting multiple forms of success reporting at policy level, and at the level of opinion of students themselves, it may be encouraged to recognize how different understandings of the meanings of academic success can be balanced. This recognition would simultaneously enhance the diversity of the university's student population, as a generator of accepted heterogeneity of the experiences lived during the life cycle of the higher education studies.

Therefore, the learning and reflection opportunities that universities offer should be the same amount of "genuine choices" opportunities for all students. This is a deeper understanding of choice, based on opening up rights and the individual's future” to have and do and be what they value being and doing.” (Walker, 2008).
Although the choice cannot be guaranteed exclusively by participating in university study programs, the configuration of processual learning perspective, based on the support and extension of thinking and reflexivity that favours the development of critical capacities, may be of greater concern to the higher education sector because, including previous school history of the individual, the level of commitment to the current studies, as well as the emotional intelligence scores have been shown to be correlated or are predictors of risk situations (Sparkman et al., 2012).

Therefore, the approach we use in the study about student retention, in order to achieve personal forms of academic success, will be based on the analysis of challenges related to configuring a strategy for using the collected, modelled and used data regarding the specific of processual learning perspective and results obtained. We will focus on capturing the current state of preparation in the university in relation to the possibility of starting such a path, a state of preparation that we will detail, first, from the perspective of the data necessary for the construction of the necessary model of learning analytics.

In the context in which universities have and operate with students' “big data” systems, we intend to illustrate the process of a data retention strategy, which requires the completion of several pre-preparation stages and of operationalized analytical framework. In addition, this development of an analytical solution should be designed in a way that works in aggregation with the stakeholders of the operational environment, such as staff, existing procedures and information systems currently used at the institutional level.

4. Setting up the approach of student retention in higher education through the construction of learning analytics based on the university's “big data” system

4.1. The current stage of capturing “big data” through the academic study life cycle

Given that, currently the availability of specific data on retention and academic success is limited, the problem that arises is the construction of such databases, although the reference frameworks for approaching the success of studies differ between types of higher education institutions and study programs offered by them. We do not intend to interfere with this complicated variable of reflecting the diversity of university study programs at the level of university database constructions, except to the extent that we admit that the factors of analysis of learning process will certainly differ
within the construction of a learning analytics, as a structure and mode of action.

The starting point for building a learning analytics approach\(^1\) is found at the level of databases about existing students at the level of each university, based on which the monitoring measures are carried out, at least quantitatively, of the studies of the annual cohorts of students, at the level of study life cycles.

The first question, before establishing the "big data" needed to initiate a student retention operation, aims to clarify the type of studies life cycle, the starting and ending points being associated with the academic calendar. Thus, it is facilitated the preliminary alignment to the information systems already existing in universities. In completing these initial data, we can consider a more tinted representation of the characteristics of the student cohorts, not only demographically, socially or statistically.

For example, a qualitative predictor of learning, at the initial level, might consider data derived from interviews or motivational essays realized by students admitted for first year of studies. Such data sources regarding students, can guide the teaching staff in designing courses and applications starting from the preliminary motivations expressed by students in relation to the learning process. Such variables collected from the beginning of the life cycle of the studies and reflected in their dynamics during the decisive moments of the studies, established at the faculty and specialization level may be initial factors for predicting the learning in favour of the early limitation of the effects of an eventuality risk of early leaving studies.

Such intervention with predictive value, correlated with databases specific to the beginning of the study life cycle, is already practiced by some universities that have developed "early alert systems" (EAS) as technological solutions to improve not only the learning environment, but also to effectively support students. This is the case of a university where “using a total of 16,142 observations captured between 2011 and 2013, we examined the relationship between EAS and the student retention rate. The results indicate that when controlling for demographic, institution, student performance and workload variables, the EAS is able to identify

\(^1\) Learning analytics is an approach based on the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs (Siemens, 2011). As a research and teaching field, Learning Analytics sits at the convergence of Learning (e.g. educational research, learning and assessment sciences, educational technology), Analytics (e.g. statistics, visualization, computer/data sciences, artificial intelligence), and Human-Centered Design (e.g. usability, participatory design, sociotechnical systems thinking).
students who have a significantly higher risk of discontinuing from their studies.” (Villano et al., 2018).

However, it is often found that "learning analysis tends to focus more on predictions than on interventions" (Siemens, 2011). In other words, for the EAS case, how do we use the data provided by the early warning system? Who should make decisions based on the data received and what should change, if, for example, for a percentage of students we have information that they are, since the beginning of the studies, at risk of leaving the studies they’ve just started? In addition, using the assumption that the university has an early warning system, which we have admitted is based particularly on quantitative and statistical data, to what extent it periodically captures, at least quantitative data, based on which we derive successive predictions for population of students predisposed to leaving school early?!

In fact, the retention of students by reference to their life cycle of studies means much more than early warning based on certain types of social, demographic data or semester/annual grades. For example, Australian institutions have an attrition type call ‘census’ (milestones). The ‘census’ attrition is a type of attrition that happens as a result of students deciding that a course wasn’t suitable and decided to withdraw usually by transferring to another course, because an attrition event occurs as a response of the symptoms and causes that are building up, ultimately triggering the event (Huang et al., 2018).

Given the time frame required to trigger the "at risk" student retention, it becomes necessary to determine when we should start looking for symptoms and causes of the risk of dropping out and when to start an intervention, "at the right time". We should also be concerned about estimating the time required to perform an intervention, as the time period elapsed between the "manifest risk" checkpoint and the student retention point, to allow optimal implementation of the recovery intervention, otherwise, its implementation being possible to fail or not be able to lead to the desired results.

4.2. The dynamics for the stage of capturing "big data" regarding the qualitative variables of the learning process

The need to complete "big data" regarding the moments of the life cycle of studies, both from the moment of starting them, and especially, during the studies, with data regarding the quality of the studies, that is to say "learning issues", implies the capture of series of data with regarding the
processual perspective of learning, respectively the progress/regressions recorded by the students during the studies.

By placing ourselves in an approach of analysing the process of learning, we can distinguish the fact that some universities already implement informatics instruments of "learning management analysis" (LMA) systems meant to provide personalized interventions to support learning by students and teachers, these systems being used more often in the form of “distance education”.

Learning management systems (LMSs) that combine content delivery, discussion forums and quiz and testing allow student learning activities to be monitored, and from analysis, the teacher can provide remedial solutions to support students and help them grow (Khine, 2019). According to Huang et al. (2018), “learning analytics can help identify the status of students and the problems they face in the learning process.”

A longitudinal study conducted in higher education in U.S.A. regarding interventions based on the use of learning analytics, and including 24 case studies, shows us that the intervention practices were the most frequently focused on increasing student performance, providing personalized feedback and improving their retention (Wong & Li, 2019).

The common types of data involved students’ online learning behaviours, study performance, demographic data and information about the course selected. The most used methods of intervention involved providing personalized recommendations and viewing learning data.

The interventions led to results such as improving the performance of the study, retention in the course attendance, as well as productivity and efficiency in learning and teaching processes. The challenges targeted a wide range of issues, including the scalability of the intervention, the conditions of implementation or the evaluation of the effectiveness of the intervention. The results suggest that the intervention based on predictors of learning has potential for extension, but more empirical studies are needed, even with zero or negative results, to support long-term effectiveness and sustainability.

We note, for example, some relevant data from the qualitative variables used in the universities included in the Wong and Li (2019) analysis: ”provide live feedback from students to lecturers, and improve the students’ attitude, attention and concentration during classes” (user-input feedback such as vote), ”enhance students’ self-awareness, self-reflection and sense-making through the use of a learning analytics dashboard” (learning traces of students, such as time spent on a course, resource use - e.g. wiki and blog - and social media use - e.g. Twitter), ”improve the effectiveness of tracking students’ learning process in
LMSs” (log files of LMSs - e.g. content view, task submission, forum view and participation - performing the actions, ID and length of posts being acted on), ”provide pedagogical intervention based on students’ participation in online discussion” (log files and posts in the discussion forum (e.g. actions such as viewing/creating/editing/deleting posts, time and date, ID of users), ”distinguish different types of student online and offline learning behaviours to support teachers’ proactive remediation - Field observations of students collected during class” (e.g. engaged/disengaged behaviours using the learning system and log data from the system), ”improve students’ long-term mastery of skills” (results of retention tests (based on the percentage of the number of questions answered correctly), and the speed to master relevant skills), ”provide feedback to students through dashboard as an intervention tool” (students’ performance in courses) etc.

Among the qualitative factors of the learning processes monitored in the longitudinal study, in relation to the frequency of their use by students, we note some examples that we can correlate with the academic success factors specified by students in the study conducted by Sarah O'Shea and Janine Delahunty and that we mentioned in the beginning of the article: ”participants collaborated on complex knowledge work projects in creative and productive ways, recommended actions were shown for advisors’ reference” (including ‘encourage’ students to keep doing well, ‘explore’ students’ progress in more detail or ‘engage’ students immediately to assess possible academic difficulties), ”different learning traces were visualized for students’ self-awareness and reflection and understanding about peer behaviours” (the tool had a potentially higher impact for students working in groups on the same topic than for students working individually on different topics) (O'Shea & Delahunty, 2018).

The results of the analysis were provided to the students to frame the interpretation of the approach as an integral activity of a course, with clear objectives and expectations, to provide retention tests personalized considering the students' knowledge levels and to resume the tasks if they fail in the tests retention, based on the proactive remediation offered by teachers on topics that students needed to learn, but which they were facing without being able to properly understand and use them.
5. Challenges for the extension phase of teachers' use of “big data”/“small data” regarding the process of learning for sustaining interventions that reduce early studies leaving

We intend to continue to approach, the necessary step to prepare the use of learning analytics predictions from the procedural perspective of the delimitation of the learning state "captured for a certain moment" to the students at risk of leaving the studies, by correlating with the need to involve teaching staff, as an essential factor that will have to manage change. We envisage the change by identifying ways of attracting students to learning processes with an alternative design, by practicing emergent flows of personalized support and stimulating the creative and socio-emotional potential of the students.

We observe, therefore, as starting points, as within the complex approach of constructing an intervention to support student retention based on learning analytics, that qualitative predictors can be identified, used and managed closely by teachers and students themselves. We have previously exemplified some qualitative factors of the learning processes, already used in several universities, but the list of possibilities can be much longer and diversified with predictors that can follow as many aspects that remain waiting for regulatory steps to be taken by teachers and students.

The teachers are those who have an essential role to play in transforming the ideas collected from "predictive learning analysis" (PLA) into support and effective interventions to help the student in the learning processes. However, for many teachers, it is a challenge to be able to filter the relevant information from the "virtual learning environment" (VLE) into the PLA tools and access data with predictive value about their students. In short, information about the inadequacy of studies in relation to students, predictions without action, have a limited value because "the relative lack of design and the evidence of the intervention make it difficult to replicate the validation and scaling of the potential impact of learning analyses.” (Fritz & Carpenter, 2019, p.12).

In a qualitative study, van Leeuwen (2018) examined the perceptions of seven teachers when weekly analytical reports were made available, which allowed them to find that analytical ideas of learning influence teachers' behaviour, by opening interaction and communication between teachers and students in pedagogical interventions. In a four year study involving 34 teachers, McKenney and Mor (2015) indicated that the teachers’ professional development was enhanced (i.e., they learn from the process) by engaging
with learning analytics software and that teachers were able to develop better curriculum materials.

On the other hand, in the example provided by the PLA type system, designed at Open University UK, the actual practices of the teachers indicated a variation of the degree and the quality of their involvement in learning analyses according to: frequency of access to predictive data, analysis predictive data, and especially how teachers acted on these data to support students. It has been found that frequent use of the PLA system has influenced better completion and retention rates, as it can improve students' performance through relevant implications at the level of redesigning the curriculum, through "live" or retrospective changes. This may require conformation or modifications to teaching activities or course/seminar plans to reflect the delivery of additional activities that may support certain student cohorts and meet their learning needs. Alternatively, the PLA could be used retroactively to inform the design of a course, such as the uniform spreading of work throughout the weeks, to ensure that students will meet the requirements and manage to submit tasks on time (Herodotou et al., 2019).

In a recent attempt to present a holistic model design, a group of authors wonders if "universities are ready to tap into the potential benefits that data and analytics will bring to them”, considering that the difference and the challenge are not limited to the problem of retaining students, but, more broadly, to the implementation of data analysis within institutions (Huang et al. 2018).

The “big data” derived from the use of learning predictors provide quite versatile information about teaching and learning situations, which require interpretations regarding correlations between student behaviour and learning. Therefore, in order to reach the implementation of this data produced by learning analytics, teachers are the ones who should come up with "small data", that is, what Martin Lindstrom (as cited by Sahlberg, 2018, p. 342016) defines as "tiny clues that reveal big trends. In education, these small clues are often hidden in the invisible fabric of schools. Understanding this fabric must become a priority for improving education.”

“Small data” is being used in designing new marketing strategies for companies at risk of losing clients, helping them to understand better the nuances of human behaviour. The “small data” in the field of education refer to phenomena and events that occur at the transactional level of learning generated between teachers and students and which, if used “in timely”, with empathy and personalization of learning, can generate early decisions and interventions, with real chances of retention by the students in situations "at risk.” (Sahlberg, 2018).
In other words, the state of preparation of the learning analytics system leads us to enable the use of “small data”, that is to enable teachers to reflect and perform alternative metacognitions regarding the quality of teaching, while empowering students to engage in reflection on their own learning in order to combine this information in differentiated and alternative ways of improved learning.

If the “big data” about capturing the learning process presents the advantages of the data volume, as well as the processing speed, when we discuss the intentions of ensuring academic success, the readiness measures need to be oriented towards capturing the qualitative variety of the data, but also their truthfulness, and here the effective involvement of teachers and students at risk can make the most significant contributions.

The construction segment of the learning analytics, on the other hand, brings the advantages of the possibility of designing predictors of future learning more efficiently, but, also, at this stage, the intervention of the teachers is decisive, so that they have the ability to detach small data”, that is, those essential conclusions that can capture “the state of retention moment”, “the necessary purpose of the moment which requires differentiated learning interventions”, the alternative modes of possible action and, last but not least, the estimated amplitude of the interventions that can be focused on learning processes, which may affect some students or which may change the paradigm of learning at the level of an entire study program.

Therefore, academic success can be analysed and determined from the perspective synthesized suggestively by Pasi Sahlberg, “(...) the ideal solution for sustainable improvement of education is a mature combination of big data and small data. One thing seems certain: If you don’t start leading through small data, you will be led by big data and spurious correlations.” (Sahlberg, 2018, p.45).

6. Conclusions

6.1. Some reflections with applicability at the university level or what does preliminary readiness mean for the use of learning analytics to determine the students studies success?

In order for a university to move towards a data-based paradigm in terms of ensuring the premises of students' academic success, the process is one that requires careful preparation and support throughout the institution, as the project of a data-based and analytical strategy, because "partially
developed" solutions are unlikely to be accepted and funded by the university.

The framework will be ensured by the understanding the specific context in which the retention factors that are related to the course of study, respectively to the process of learning, are analysed. Using as an analogy the experience of customer analyses from the economic model of building competitive services based on consumption, retaining students will be more effective if their concerns and opinions about how they should learn are taken into consideration more often.

On the other hand, without the relevant "big data" (quantitative and qualitative) being available, it is impossible to apply any analysis. Without the ready-made tools of the computer system, analytical results cannot be adequately provided to substantiate the intervention strategy and without the staff involved (including students) being trained, the system tools and services cannot be used effectively to inform and conduct any action. We distinguish a focus of the approach on two important phases: the "get-ready" phase and the “in-action” phase (Huang et al., 2018).

Given the complexity and dimension of the changing model, it is desirable to introduce a preliminary piloting phase, which can be implemented at the faculty level, with a limited number of specializations, but taking as a reference point the existence of a relevant number of students in "risk" situations and who initially intend not to continue their studies.

Piloting the student retention model based on the use of learning analytics can also allow the implementation of the evaluation stages of the interventions performed and their impact, so that the possible risks associated with changes in the learning paradigm can be managed faster and without any extended implications at institutional level.

Although there are currently only a few attempts to use holistic learning analytics approaches, as the student population grows and in the context of the multitude of digital data derived from learning environments, predictors of student learning data add another layer of complexity which in fact affects obtaining a holistic approach by reference to a complexity of facets and factors.

Last but not least, a student retention solution will be mapped to the university operational environment, which means folding in the context in which the relevant predictors are extracted from the relevant data sources. Therefore, for operational reasons, it is useful to outline an institutional strategy that allows the implementation of the learning analytics system according to the needs of the pilot structure and the workflow of the
operational unit represented by students, teachers and process supervisors of learning that can emerge on modified bases.

6.2. Recommendations at national policy level in order to stimulate the studies success

Beyond the possible intentions of universities to try to use “big data” and predictors derived from learning analytics, in order to increase the success of student studies, the potential for using this kind of data can also be effectively used by governments for planning and designing future policies education in relation to coherent interventions to sustain the retention of students during their academic studies.

Some such recommendations applicable to public policy projects may consider:

❖ establishing pilot projects for addressing student retention within the study programs, the approach based on learning analytics presented in this article, being a variant to consider;

❖ training the teaching staff from universities to use the tools of learning analytics (“big data” and “small data”) in order to differentiate the emergent learning processes, applicable to the students, during the life cycle of studies;

❖ highlighting the need to create new support professions, associated to the higher education segment, professions to support without replacing, traditional teaching roles, but also other functions normally encountered in private companies, such as: learning process analyst, profiler of support services for training categories, etc.

❖ proposing studies of analysis of the optimal routes of organizing the learning during the study programs in universities versus the implementation of the profile of "successful graduate" at the level of employers and based on the expectations of current students.

Therefore, without being able to say about the use of learning analytics, that it can be a universal solution for ensuring the academic success of students, we can only imagine the impact of possible interventions based on “small data” and learning process predictors on profiling curricular scenarios for future study programs offered by universities, if they were correlated with the needs of students to ensure access to professions that do not currently exist in the labor market.
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