CAPITALIZING ANALYTICS FOR CORPORATE LEARNING AND DEVELOPMENT

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Abstract

Technology has revolutionized learning platforms. The first International Conference on Learning Analytics and Knowledge (LAK) in 2011 has spurred up the emergence of learning analytics. Learning analytics (LA) is the third wave of large-scale developments in instructional technology that began with the advent of the learning management system(Malcolm Brown,2011).It is a multidisciplinary approach which deals with computer science, statistics, psychology and other subjects in the field of learning. World is going round with data. Analytics helps in crunching data which has influenced all the learning and development processes at the corporate level. LA implies data driven approach in learning environment.LA is young and an emerging concept which has potential to change learning paradigm. Technology Enhanced Learning (TEL) helps in enhancing learning through technological strategy and tools. Learning analytics (LA) is a domain where TEL converges. Application of artificial intelligence, information retrieval, statistics, and visualization in learning is called learning analytics.LA assist in Interpretation of educational data set for facilitating learning process. It helps in conversion of educational data into actionable data for fostering learning. Learning Analytics is the application of sophisticated analytic tools of business intelligence, web analytics, academic analytics, educational data mining, and action analytics in the field of learning. Analytics tools enable the statistical evaluation of data to understand the trends. These patterns are then used to better predict future events and make informed decisions aimed at improving outcomes (Educause, 2010). This is a descriptive paper which has reviewed literature on Learning Analytics and its associated significant concepts which can act as a game changer in the field of learning.

Keywords Academic analytics, Action research, Educational Data Mining, Learning Analytics.

Introduction

Goldstein and Katz (2005) coined the term which describe the application of the principles and tools of business intelligence to academia. Their goal was to study the technological and managerial factors that impact how institutions gather, analyze, and use data. Campbell and Oblinger (2007) used a narrower definition of the term academic analytics. Norriset al.(2008) further emphasized the importance of using educational data to act in a forward thinking manner in what he referred to as Action analytics included deploying academic analytics to produce actionable intelligence. Learning analytics is the use of intelligent data, learner-produced data, and analysis models to discover information and social connections for predicting and advising people's learning(Wikipedia).Learning analytics is the use of data and models to predict student progress and performance, and the ability to act on that information(Next Generation Learning Challenges).Arnold(2010) spoke of analytics as a tool whereby institutions would have the potential to create actionable intelligence on student performance, based on data captured from a variety of systems.

Research Methodology

Learning analytics is the innovative learning tools, this paper is conceptual in nature; details have been explored from the secondary sources. Discussions among stakeholders were also conducted to check awareness about learning analytics and their operation at the organizational level.Less number of researches has been found on this topic at India level so scope of quantitative research is promising on this topic

Conceptual analysis:

Learning analytics seeks to capitalize on the modelling capacity of analytics: to predict behaviour, act on predictions, and then feed those results back into the process in order to improve the predictions over time (Eckerson, 2006)as it relates to teaching and learning practices. Currently however, the built in student tracking functionality in most CMS/LMS are far from satisfactory (Hijon andCarlos, 2006) and do not offer sufficient learning activity reports for instructors to effectively tailor learning plan that meet the needs of their students (Zhanget al.
, 2007). Thus, the study and advancement of learning analytics involves: (1)the development of new processes and tools aimed at improving learning and teaching for individual students and instructors,and (2) the integration of these tools and processes into the practice of teaching and learning.
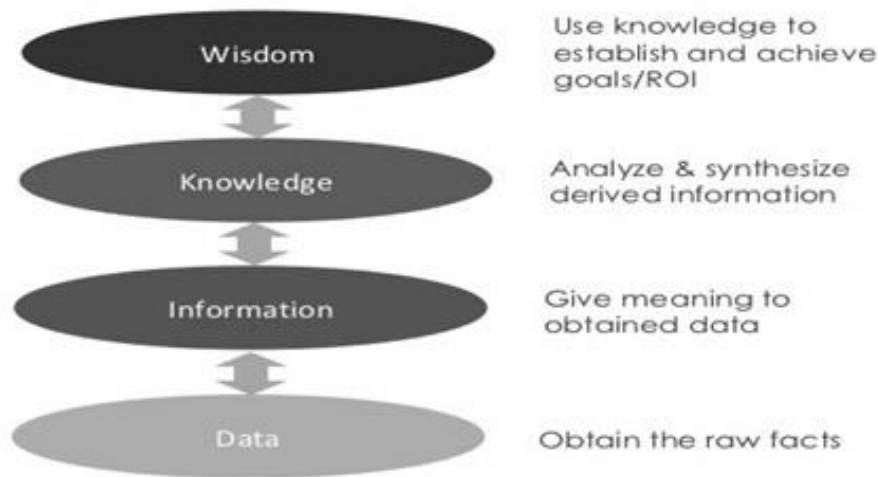
Learning analytics process

In his development of an actionable knowledge conceptual framework for business, Baker (2007) used a much older (He traces it back to the 1800s).

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Intelligence Continuum

Wisdom — Use knowledge to establish and achieve goals/ROI

Knowledge — Analyze & synthesize derived information

Information — Give meaning to obtained data

Data — Obtain the raw facts

Baker's depiction of the Knowledge Continuum, 2007

Diagramme:Baker's depiction of Knowledge Continuum

Niall Sclater,2015 suggested following components for Learning Analytics:

A learning analytics processor – a tool to provide predictions on student success and other analytics on learning data to feed into student intervention systems.

A staff dashboard – a presentation layer to be used by staff in institutions to view learning analytics on students. Initially this presentation layer will be focussed on the learner but dashboards for managers, librarians and IT managers could also be developed.

An alert and intervention system – a tool to provide alerts to staff and students and to allow them to manage intervention activity. The system will also be able to provide data such as methods and success, to be fed into an exemplar "cookbook" on learning analytics.

A student app – based on requirements gathering with staff and students. Integration with existing institutional apps will be supported.

A learning records warehouse – a data warehouse to hold learning records gathered from a range of institutional data sources. We will define an output interface and also support integration with a common set of institutional systems.

Learning analytics can be considered as an important tool in the learning process. Institutional application of learning analytics can keep the right track record of the entire learning process for organizational decision making. To effectively implement learning analytics at the organizational level required guidelines and policy to overcome complexity and challenges and for further smooth execution. Learning Analytics also required to be guided by proper framework.Niall Sclater in November 2016 suggested Jisc Model Institutional Learning Analytics Policy,Draftv0.1,which has been discussed in the below mentioned points.

Jisc Model Institutional Learning Analytics Policy.Niall Sclater, Nov 2016,Draftv0.1

Introduction

1.The collection and use of data about students and their learning is providing new opportunities for institutions to support learners and to enhance educational processes. Learning analytics systems present visualizations of student learning activity and provide predictions of attainment. These will be used at [institution] to assist current students in achieving their study goals, and to help us improve our overall provision of education.

2. The institution will use learning analytics to help meet the following strategic objectives: [e.g. increasing retention and progression, improving attainment].
These are key elements of the [Learning and Teaching Strategy / other relevant strategies].

3.The [University/College] will ensure that learning analytics is deployed for the benefit of students, with complete transparency about the data that is being captured, processed and used. All activities in this will comply with the institution's Data Protection Policy [link –and this should ensure compliance with the Data Protection Act 1998].

Responsibility

4.Overall responsibility for learning analytics at [University/College] is held by [senior leader responsible for learning analytics].

Responsibility for relevant areas of activity is allocated as follows:

•The collection of data to be used for learning analytics
-[e.g. IT Director]

•The anonymisation or de-identification of data where appropriate
-[e.g. IT Director]

•The analytics processes to be performed on the data, and their purposes
–[e.g. PVC Learning & Teaching]

•The interventions to be carried out on the basis of the analytics
–[e.g. PVC Learning & Teaching]

•The retention and stewardship of data used for and generated by learning analytics –[e.g. Registrar]

5. Analytics presented to students are intended to help them understand how their learning is progressing, and suggestions may be made as to how they can improve their practices. Students are responsible for assessing how they can best apply any such suggestions to their learning.

Transparency and consent

6. Students are informed about how their data will be processed when they agree to the [e.g.data processing consent notice / computing regulations] upon registration. Data will be collected for learning analytics in compliance with [these documents].

7. The data for learning analytics comes from a variety of sources, including the student record system and the virtual learning environment. The Student Guide to Learning Analytics [link to document in student section of institutional website] will clearly specify:

•The data sources being used for learning analytics

•The specific purposes for which learning analytics is being used

•The metrics used, and how the analytics are produced

•Who has access to the analytics, and why

•Guidance on how students can interpret any analytics provided to them

•The interventions that may be taken on the basis of the analytics

8. Students will be asked for their consent for any automated prompts or suggestions to be sent to them, based on the analytics. These may include emails, SMS messages or app notifications.

9. Learning analytics is separate from assessment. Metrics derived from data sources used for learning analytics will not be used for the purposes of assessment.

Confidentiality

10. Personally identifiable data and analytics on an individual student will be provided only to:

•The student

•[University/College] staff members who require the data to support students in their professional capacity

•Third parties which are processing learning analytics data on behalf of the institution. In such circumstances the [University/College] will put in place contractual arrangements to ensure that the data is held securely and in compliance with the Data Protection Act.

•Other individuals or organizations to which the student gives specific consent

11.[University/College] IT staff will have access to systems and data in order to maintain proper functioning of systems rather than to access any individual's data.

Sensitive data

12.The Data Protection Act 1998 defines categories of "sensitive data" such as ethnicity or disability. Any use of such data for learning analytics will be fully justified, and documented in the Student Guide to Learning Analytics Validity

13. The quality, robustness and validity of the data and analytics processes will be monitored by the [University/College], which will use its best endeavors to ensure

that: Inaccuracies and gaps in the data are understood and minimized

•The optimum range of data sources to achieve accurate predictions is selected

•Spurious correlations and conclusions are avoided

•The algorithms and metrics used for predictive analytics and interventions are valid

•Learning analytics is seen is its wider context, and is combined with other data and approaches as appropriate Student access to personal data

14. Mechanisms will be developed to enable students to access their personal data, and the learning analytics performed on it, at any time in a meaningful, accessible format. Students have the right to correct any inaccurate personal data held about themselves.

15. Students will also be able to view any metrics derived from their data, and any labels attached to them.

16.On occasion it may be considered that access to the analytics may have a negative impact on the student's academic progress or wellbeing. In these cases they may be withheld from the student. However, if the student requests it, all their personal data and analytics will be made available to them.

Interventions

17.A range of interventions may take place with students. The types of intervention and what they are intended to achieve are documented in the Student Guide to Learning Analytics [link]. These may include:

Prompts or suggestions sent automatically to the student via email, SMS message notification (subject to the student's consent) Staff contacting an individual on the basis of the analytics if is considered that the student may benefit from additional support

18. Interventions, whether automated or human -mediated, will normally be recorded. The records will be subject to periodic reviews as to their appropriateness and effectiveness. Minimizing adverse impacts

19. The [University/College] recognizes that learning analytics cannot present a complete picture of a student's learning, and that predictions may not always be accurate.

20. Students will retain autonomy in decision making relating to their learning; the analytics are provided to help inform their own decisions about how and what to learn.

CONCLUSION

Data is everywhere and analytics add value to the data. Growing interest in data and analytics in education, teaching, and learning raises the priority for increased, high-quality research into the models, methods,

technologies, and impact of analytics. Two research communities -- Educational Data Mining (EDM) and Learning Analytics and Knowledge (LAK) have developed separately to address this need. This paper argues for increased and formal communication and collaboration between these communities in order to share research, methods, and tools for data mining and analysis in the service of developing both LAK and EDM fields.

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