Book Review

An Analytics Handbook: Moving From Evidence to Impact

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The book *An Analytics Handbook: Moving From Evidence to Impact*edited by Linda L. Baer and Colleen Carmean (2019) represents a collection of studies on the emerging topic of big data used in educational institutions to facilitate student success through effective communication, acceleration of information, and proper nudging students toward better options in their academic endeavors. Split into three main parts; the book identifies the primary reasons for an uncompromised implementation of analytics to gather, translate, and leverage data in a cyclic manner from simply reporting to instigating persistence and learning out of the whole process.

Supported by evidence-based materials and findings, the book tends to represent a plethora of new insights about analytics and its use for data translation aimed at the academic success of students and other people involved. Deriving from the definition of analytics presented by Linda L. Baer as a set of software tools, machine-learning techniques, and algorithms used for capturing, processing, indexing, storing, analyzing and visualizing data (p. 3), others who contributed to the book go further in highlighting what analytics is not. It relates to the arguments that it is not about reporting, data analysis, and a provision of patterns of what should go next. In other words, the authors focus on the value of analytics in fostering the motivational and intellectual potential of students through different software applications, machine learning, artificial intelligence, learning, and course management systems, and so on to improve the institutional grasp of the decision-making process to increase the extent of student success.

Data is not merely about 'dead numbers,' as there might be practical approaches to analytics in getting, gathering, and sharing data following the ethical concerns. At this point, the authors touch on the issue of student involvement in a broader discourse on the use of big data and analytics serving in the best interests of both colleges/universities and students. The issue of student privacy has a straightforward relation to the ongoing disclosure of confidential information by technological giants like Google and students' awareness of the problem, making them unlikely to engage in data analytics used in colleges and campuses. However, the chapter authored by Jill Frankfort, Colleen Carmean, and Ross E. O'Hara, highlights that contemporary technologies have proved their significance in managing routine lives of individuals, and it serves as a prerequisite for embracing the role that data-informed nudging can play as a student success strategy (p. 63). Starting with the improvements in communication between students and their tutors, professors, advisors, and other members of the staff, there is a need for making these interactions extended, reaching out to more students in their daily queries and features associated with academic success.

The book details the paradigmatic shifts still occurring in the field of big data associated with higher education and leadership perspectives. The primary approach is to ask particular questions as to What? When? Why? and How? powerful predictors in the data can be searched utilizing pattern matching. In this respect, Colleen Carmean and Melissa Lavitt recommend having Chief Data Officers in colleges and universities to keep the process of data management going on for the sake of creating a federated community of curious and learner-centered data explorers (p. 38). It will foster student involvement in the process of discovering new frontiers of data usage and analytics to improve performance and augment personal grasp of the vital processes and valuable experiences across college campuses. Overall, the book serves for bridging content expertise in educational programs to various student services aimed at reaching the final goal of successful graduation.

Looking at the book from a broader perspective, it opens a new page in investigating the use of big data for student success amid the current frantic-paced, ever-changing, and technology-driven academic environment. Introducing data science, strategic way of thinking, decision-making, and leadership, it focuses on encouraging more communication and interaction strategies to keep students in touch with their daily activities and specific duties so that not to lose track of the maximum value they can get out of analytics and big data.

Moreover, each study in the book touches on the transformative design of analytics referred to as higher education, relying heavily on the leadership perspective of explaining, communicating, and handling the contemporary frantic-paced environment.

On the other side, the book is valuable due to its proper explanation of the complex concepts of big data and analytics relevant to the field of higher education. It encompasses the multifaceted sphere of learning analytics as a milestone between learning and teaching. In this respect, both students and faculty members willing and acting to improve their academic prospects through enhanced learning and teaching will add an essential competitive advantage to their institutions. This argument is strong based on a clear perception of the power of data, leading to positive change with all associated transformations. Moreover, some of the studies focus on data remaining in silos as a concrete problem of not dealing with analytics properly. It is relevant not only to higher education but also to the fields of healthcare, real estate, law enforcement, and so on. The growing amounts of data in educational establishments need more alignment and understanding so that to share them among students and for the sake of their success.

The strength of the book is in its practical application of theory and resources to make it understandable for a broad audience of readers. It gives examples of different software appropriate for use in colleges and campuses with their extended application favoring personalized and customized guidance for students, although they may suffer from some challenges, hardships, and mismatches on their academic path.

However, its strategic significance and meaning refer directly to initiating a global approach to a widespread embrace of big data and analytics as an enhanced way to get rid of just reporting and analyzing. Machine learning used in tagging and targeting specific information and artificial intelligence employed for the unsupervised search of information have become significant techniques for pattern matching and their interpretation in terms of human contextualization. In turn, it serves to shift from diverse types of data to the possibilities beyond imagination.

One of the weaknesses of the book relates to the repeated mentioning of the same terms and concepts. The first two studies have already introduced a holistic conceptualization and specificity of the main terms of big data, data science, analytics, and others. While reading the book, it seems like the same study is going on cyclically. Another weakness is that the book lacks evidence and empirical findings from other countries' higher education systems and their technological breakthroughs in using big data analytics. The experience of European and Asian countries would be an asset in the overall discussion.

Nevertheless, the book is a valuable source of information on the implications of big data and analytics in higher education with its overarching significance and meaning for the future achievements and breakthroughs in the field of academic success. It determines the link between enhanced teaching and learning coming from an expert evaluation of content and available technologies to introduce and further support data-informed and data-driven approaches to the creation of data culture regulated and further guided by a group of data explorers.

Reference

Baer, L.L. & Carmen, C. (Eds.) (2019). An analytics handbook: Moving from evidence to impact. Ann Arbor, MI: Society for College and University Planning.