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The Impact of Business Analytics on Education Sectors-A Study

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Abstract

Business analytics is believed to be an enormous boon for organizations also as in emerging education sectors. Since it helps offer timely insights over the competition, helps optimize business processes, and helps generate growth and innovation opportunities. As organizations start their business analytics initiatives, many strategic questions, just like the thanks to operationalize business analytics so on drive the foremost value, arise. Recent Information Systems (IS) literatures have focused on explaining the role of business analytics and thus the necessity for business analytics. However, little or no attention has been paid to understanding the theoretical and practical success factors related to the operationalize of business analytics. The primary objective of this study is to fill that gap within the IS literature by empirically examining business analytics success factors and exploring the impact of business analytics on education sectors. Through a qualitative study, we gained deep insights into the success factors and consequences of business analytics. Our research informs and helps shape possible theoretical implementations of business analytics.

Keywords*: Business analytics, Grounded Theory, Success Factors, Appreciative Inquiry, Framework, Business Analytics, Education and Training*

I. Introduction

In recent years "Business Analytics" (BA) have attracted burgeoning interest among practitioners and academia due their immense potential (Waller and Fawcett, 2013). Chen et al. (2012) explored how the possible impacts of "Big Data" reach all facets of business. A study conducted by IBM Institute for Business Value together with MIT Sloan Review revealed the importance of knowledge to business leaders. The topic has been embraced in special issues in leading journals including Harvard Business Review, MIT Sloan Review, MIS Quarterly, with more to follow from International Journal of Production Economics, International Journal of Production Research, International Journal of Operations and Production Management and lots of others. However, despite increasing contributions, the sector remains in its infancy. Waller and Fawcett (2013), in their seminal paper, identified the necessity for blending Data Science,

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Predictive Analytics and large Data (DPB) in supply chain network design. The facility of "Big Data" has also found immense application within the Banking, Financial Services, and Insurance (BFSI) domain, health, sports and should other sectors. Shah questioned the investment policies of companies expecting significant returns on investment in Big Data, as this will be useless without appropriate training. However, most past studies revolved around applications of "Big Data" and its usefulness in various fields, with few examining the need for training to make a pool of talent who can work with "Big Data".

The objectives of our present study:

1. To spot desired skills for "Business Analytics"

2. To propose a theoretical framework for education and training for BA; and

3. To stipulate further research directions. To deal with these, subsequent section of the paper discusses the importance of BA.

Purpose – The aim of this paper is to identify Business Analytics (BA) skills and further propose an education and training framework for a successful career in BA.
Design/methodology/approach – This study adopts a review of extant literature and appreciative enquiry (AI) which can be a quasi-ethnographic approach to identify the skills required for BA.
Findings – The study helps to identify skills for BA and supported extant literature and AI, proposes a theoretical framework for education and training for a successful career in BA. Research **limitations/implications**– The paper presents a theoretical framework, but it's to be validated through empirical data.
Practical implications – this study has outlined skills for BA. The authors have also proposed a theoretical framework which can further help a tutorial or training institute to embrace the framework to teach young undergraduates or graduates to accumulate BA skills. It's getting to also motivate an institution to structure their curriculum for a BA program.
Social implications – This research may be a timely one to develop necessary skills for being successful in BA career and successively contribute to the well-being of businessmen and society.

Importance of Business Analytics:

BA is defined as "an integration of knowledge and technology that accesses, integrates, and reports all available data by filtering, correlating, and reporting insights not attainable with past data technologies" (APICS, 2012). According to the Department of Business-Innovation and Skills (2013), BA is an emerging phenomenon which reflects higher dependence on data in terms of growing volume, variety and velocity. BA has been identified as one of the critical differentiators for any organization and much attention has been paid to its impact on organizations' values.

The program builds a solid foundation in Data Science & Analytics by covering industry standard tools and techniques through a practical, industry oriented curriculum. The program assumes no prior knowledge of coding in Python, R or SQL and begins from fundamentals. By the end of the program the

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candidates have a deep understanding of statistical techniques critical to Data Analysis and they are able to create Analytical models using real life data to drive business impact.

Table I presents an on-exhaustive list of BA applications.

Table I presents research claims that need further investigation.

In spite of the growing popularity of BA, we propose that the critical challenge preventing organizations maximally exploiting "Big Data" and world class technology is lack of adequate skills.

Table I: some important applications Business Analytics

References Applications of BA

Table I Some important applications of Big Data and Business Analytics (BDBA)

References	*Applications of BDBA*
Langley (2014)	Study conducted on logistic service providers suggested 97 percent of shippers and 93 percent of 3PLs feel that improved data-driven decision making is essential for future supply chain success
Waller and Fawcett (2013)	BDBA can have major impact on supply chain network design and management
Tweney (2013)	Study reveals that big retailers are leveraging Big Data to improve customer service, reduce fraud and implement just-in-time systems
Wilkins (2013)	BDBA can help in a manufacturing environment to improve quality, logistics, and order fulfillment cycle
Kiron (2013)	In operations management BDBA can be used for managing customer relationships and operations risk and improve production efficiency
Davenport *et al.* (2012)	In a retail environment real-time information leads to voluminous data that becomes unstructured when not properly managed, but with proper treatment can be used for predicting desired outcomes
Manyika *et al.* (2011)	BDBA can be useful to support global manufacturing and supply chain innovation by creating data transparency, improving human decision making and promoting innovative business model

II. Methodology

AI, termed a discipline of positive change, has evolved counter to dominant inquiry, a system which focuses on the negative. However, most critiques of the AI approach are supported potential bias thanks to the utilization of positive questions. Hence, we adopt a balanced approach which tries to spot both the positive and negative, then look for ways to use the positive to assist transform the negative. AI involves four stages: discovering, dreaming, designing, and action. In the discovery stage the researcher attempts to unearth what is good in the seemingly bad situation. In the design stage a blueprint is prepared to guide participants toward the goal(s) dreamed in the previous phase; and in the action stage participant(s) execute the blue print. In our present study, due to time constraints, we have included only three stages of AI in a quasi-ethnographic approach which reflects the microscopic view of data-richness embodied in fill scale ethnographic studies.

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III. Data-Collection

I have interviewed ten Employees of business analytics for various sector companies situated in Chennai region of Tamilnadu, Mumbai and the Pune region of Maharashtra, and also few students of Private institutes those who are learning BI and Business Analytics using Skype due to their busy schedules. They were initially reluctant to participate; however, when I explained about research objectives, they became excited and agreed to share their valuable time with us. I used probing questions to gain as much depth as possible. Using the principles of AI and ethnographic research, we engaged the respondents and attempted to uncover their true feelings, with more emphasis on the positive about their lives as BA professionals.

Business-Analytics-Profession

All interviewees responded to this question, feeling that their IT skills blended with communication skills helped them to enter into this profession. Second, their passion to read and explore further has helped them to grow faster. However, some of them further indicated that these skills are not enough where data were voluminous and unstructured. They also feel that they do not have an exact solution for these challenges.

Advantages and disadvantages of Business Analytics Field.

Advantages:

- You are more likely to work on a variety ofprojects which reduce the potential for boredom and complacency.
- You meet new challenges on a regular basis, and network with and learn from, a range people.
- As a result, you develop new skills from new challenges and people you encounter on the way.

Disadvantages:

- You usually do not receive any kind of entitlements or benefits such as health care or employee shares.
- If your personal circumstances change, i.e., if there is a loss in your family or an illness, you are not paid for time away from work hence a potential loss in significant income.
- Opportunities to attend formal training, conferences and workshops are usually limited, unless you pay for it out of your own money.

Business Intelligence and impacts of BI on existing business analytics.

- One would be using business intelligence for business analysis - in other words, you derive the intelligence from all the data you have in the organization and through advanced analytics and business analytics you gain insight into that intelligence and data to make informed decisions. The business intelligence solution market is morphing into advanced analytics in a self-serve

environment for business users so this type of analysis is now available for pretty much every size of business and can empower all you team members.

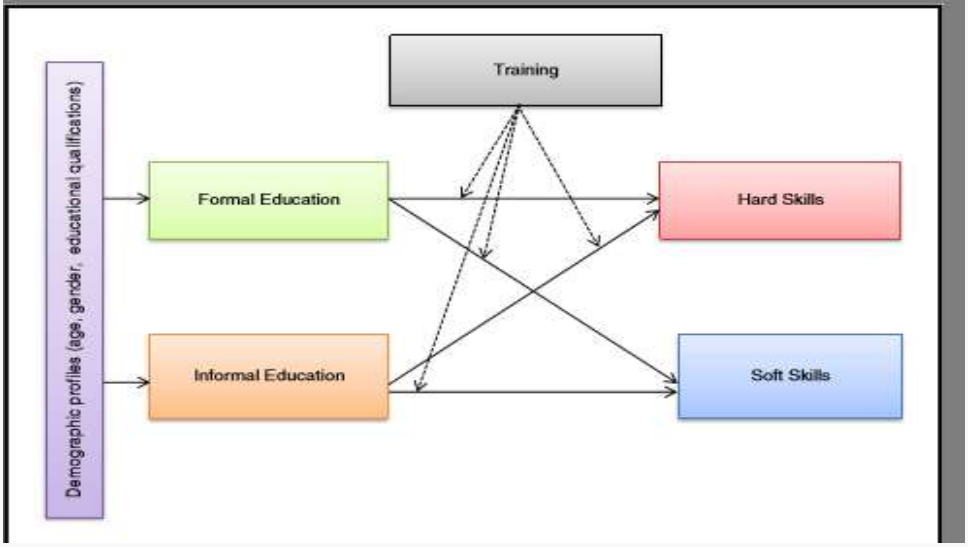
- **Skills required for Business Analyst are**
- A Good Communicator
- Inquisitive
- A problem solver
- A critical thinker
- A visualizer
- Both detail-oriented and a big picture thinker
- Technical skills for business analytics
- Statistical languages
- Statistical software
- The four types of analytics
- Descriptive

Table II 3A skill set

Hard skills	*Soft skills*
Statistics	Leadership ability
Forecasting	Team skills
Optimization	Listening skills
Quantitative finance	Learning
Financial accounting	Positive attitude
Multivariate statistics	Communication skills
Multiple criteria decision making	Interpersonal skills
Marketing	Patience
Research methods	Passion
Finance	

Note: Authors own compilation

Figure 1 Education and training framework for BDBA skills



The building blocks of our conceptual framework (Figure 1), based on review of extant literature and our AI, are further explained as follows.

Formal education

Refers to education offered through conventional teaching universities or colleges where there is direct interaction between instructors and learners. Here, we assume a direct linkage between formal education and hard and soft skills, as shown in Figure 1.

Informal education

Informal education is as old as humanity, but has received increasing attention in recent years. Compared to formal education it is highly flexible as the learning pace is adjusted to the pace of learners. In our conceptual framework we have assumed a direct linkage between informal education and hard and soft skills for BBA.

Training

Most literature has used education and training interchangeably; however, Cross (1996) clearly differentiated between them. Education can be measured by tenure of learning whereas training is about building skills. If education is not supported by proper training, the learning outcome may not translate into desired skills. Here we have assumed that the impact of education is moderated by appropriate training.

Demographic profiles

In our assumptions we have controlled for the age, gender and educational qualifications of the learner. This will further help us to understand differences in learning attitudes.

Based on the above framework following are all the details of Business Analyst Courses in India

Some of the Business Analytics courses offered by the most popular colleges for Business Analytics in India are listed in the table below. The exact programmes and durations may vary with college; this information is just to give you a rough estimate:

Courses	Duration
MBA in Business Analytics	2 years
Postgraduate Programme in Business Analytics	2 years
Executive Programme in Business Analytics (EPBA)	6 to 12 months
Certificate in Business Analytics	1 month
Postgraduate Programme in Business Analytics & Big Data	2 years
Certificate in Big Data and Analytics	6 months
Postgraduate Certificate in Predictive Business Analytics	10 months to 1 year
PGDM Programme with specialisation in Analytics	2 years
PGDM with specialisation in Business Intelligence and Big Data	2 years
Executive Program in Business Analytics and Business Intelligence	6 to 12 months

Eligibility and Selection Process for Business Analytics Courses

- Since most of the courses mentioned above are post-graduate diploma or certificate courses, you will be required to pursue at least a graduation degree in any field to be eligible for these courses.
- Candidates who have studied accounting, financial modeling, management principles, business law, communications or marketing in graduation are considered ideal for these programmes.
- Most of the good b-schools offering the above programmes will require you to have at least 3 to 6 years of work experience to suit the requirement of the course.
- Enrollment in most of the PGDM programmes is done on the basis of entrance exams like CAT, CMAT, MAT, GMAT, etc.
- Some of the institutes may also conduct Personal Interviews before ensuring your seat in a Business Analytics programme.

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Top Colleges offering Business Analytics in India

College	Course(s) Offered
Indian School of Business, Hyderabad	Certificate in Business Analytics - 1 year
IIM Calcutta, IIT Kharagpur and ISI Kolkata	Post Graduate Diploma in Business Analytics (Joint Programme) - 2 years
IIM Bangalore	Business Analytics & Intelligence - 8 months
Great Lake Institute of Management, Chennai	Post Graduate Programme in Business Analytics & Business Intelligence - 1 year Business Analytics Certificate Programme - 6 months
SP Jain Institute of Management and Research (SPJIMR), Mumbai	Analytics for Business Executive Certificate Programme in Big Data Analytics
SDA Bocconi, Mumbai	Executive Programme in Business Analytics - 10 months

Scope of Business Analytics in India

Data has taken the center space on the worldwide stage together of the foremost valuable assets for a corporation. As more and more firms starting leveraging data for business growth, the necessity for people that can build processing and analysis systems will only increase. Study of market trends has revealed that the need for Business Analysts in the upcoming decade is expected to grow at a rate higher than most of the currently trending careers.Although there are few Indian firms that pay good packages to business analysts, there are a number of the highest consultancies within the country that hire candidates for top paying business analyst profiles. Some of the consultancies also hire freshers for profiles like assistant business analyst, etc. The scope of getting an honest job is very hooked in to your experience in any industry and therefore the institute from where you've got pursued your certification.

Some of the careers that professionals in the field of Business Analytics can go for are:

- IT Business Analyst
- Data Business Analyst
- Financial Analyst

Some of the top companies in India for Business Analyst professionals include:

- IBM
- Accenture

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- S&P Global
- American Express

Business Analyst Salary in India

Business Consultant is a high paying job provided that you have pursued your diploma or certificate from a reputed college or university. The average salary of a business consultant is Rs. 8, 95,187 per annum. Your experience will highly influence the profile and salary that you will get.Highly experienced professionals are paid close to Rs. 25 to 30 lakh per year. As a business analyst, you will be responsible for process improvement, IT Consulting, IT consulting, client interaction and pre-sales.Business Analytics is a professional course that has abundant scope for growth in the future. Working professionals who opt to pursue a Business Analytics course from top management schools often manage to get offered six-figure salaries by some of the top companies in India. It is a viable career path, especially for people who are interested in problem-solving and data analysis.

Program Specific Outcomes – MBA Business Analytics

PSO1. To comprehend the practice of iterative, methodical exploration of an organization's data with emphasis on statistical analysis. Business analytics is used by companies committed to data-driven decision making to automate and optimize business processes.

PSO2. To anticipate needs and the analytical perspective provides clearer insights through data visualization and the data gathered is vital for statistical analysis, which in turn is essential for decision making.

PSO3. The strategic perspective focuses on the holistic impact of the initiative. It's the most "big-picture" approach, usually focusing on competencies, competitive advantage, and overall systems and supported by evidence of best-practice, linkages to strategic objectives and reference to market influences.

PSO4. The Competitive advantage of analytics is multi-disciplinary activity: the value from insight comes not from the activity but from the execution, A business intelligence (BI) and analytics strategy empowers with the right information at the right time.

PSO5.The Advanced analytics tools enable deeper insights and discovery that will challenge business assumptions using data can help companies save thousands of pounds, improve their procurement efficiency, develop their marketing strategies, support business growth and, critically, differentiate themselves from competitors.

IV. Conclusions

Business Analytics has immense potential to increase organizational value, provided that we have enough talent with sufficient hard and soft skills to meet BA challenge. In this paper an attempt has been

made to understand the skill set required for a successful career in BA. Although the subject has attracted burgeoning interest from academia and practitioners in recent years, hardly any literature, with the notable exception of Waller and Fawcett, has focused on the skills set required for a successful career in BA. From this study I came to conclusion that Business Analyst program in various Indian university or colleges which built a very good plat form for emerging MBA-BA post graduate. Further research directions: I can see how BA can be very useful for an organization to enhance its values. However, there remain immense opportunities to study the skills gap in BA.

V. Further research directions include:

1. Education and training for successful careers in BA could bead dressed through a Special Issue of a leading journal such as Industrial and Commercial Training.

2. The present study can be extended to include additional factors like leadership, country culture, government support and institutional drivers to further understand the impact of education on creating BDBA skills among aspiring professionals.

3. To further explore the BA field, an interpretive approach may help researchers to explore the antecedents of the likes and dislikes of BA professionals, while a positivist approach using survey methods can further help to establish causal relationships.

4. Impacts of BDBA on supply chain network design and its performance may be explored.

5. The role of BDBA can further be explored in forecasting demand of short PLC products in highly uncertain environments.

6. Empirical research can be conducted to predict the buying behavior of customers for any product, further helping to provide the missing link in forecasting science.

7. A study can be conducted on match and mismatch between learning ability and BA skills. This can further help to design an appropriate education and training framework for specific learners. Indeed, we believe that our study outcome may trigger a response among our research community and practitioners to resolve the existing debate regarding shortage of talent to address BA challenges.

References

1. Anderson-Lehman,R., Watson,H.J., Wixom,B.H.andHoffer,J.A.(2004), “Continentalairlinesflieshighwith real-time business intelligence”, MIS Quarterly Executive, Vol. 3 No. 4, pp. 163-76. APICS (2012),“APICS2012bigdatainsightsandinnovationsexecutivesummary”,APICS,availableat:www. apics.org/docs/industry-content/apics-2012-big-data-executive-summary.pdf (accessed August 30, 2014).

2. Bean (2014), “Big data fatigue?”, MIT Sloan Review Blog, June 23, available at: http://sloanreview.mit.edu/ article/big-data-fatigue/ (accessed September 30, 2014).

3. Chen, H., Chiang, R.H. and Storey, V.C. (2012), “Business intelligence and analytics: from big data to big impact”, MIS Quarterly, Vol. 36 No. 4, pp. 1165-88. Cross, J. (1996), “Training vs education: a distinction that makes a difference”, Bank Securities Journal, available at: www.internettime.com/Learning/articles/training.pdf (accessed July 15, 2014).

4. Davenport, T.H. and Harris, J.G. (2007), competing on analytics: The New Science of Winning, Harvard Business Press, and Boston, MA. Davenport,T.H.,Barth,P.andBean,R.(2012), “How ‘bigdata ‘isdifferent”,MITSloanManagementReview, Vol. 54 No. 1, pp. 43-6.

5. Davenport, T.H., Harris, J.G. and Morison, R. (2010), Analytics at Work: Smarter Decisions, Better Results, Harvard Business Press. Department for Business-Innovation and Skills (2013), “Seizing the data opportunity: a strategy for UK data capability”, available at: www.gov.uk/government/uploads/system/uploads/attachment_data/file/34764/12p120c-guide-to-bis-2012-2013.pdf (accessed August 17, 2014).

6. Katharaki, M., Prachalias, C., Linardakis, M. and Kioulafas, K. (2009), “Business administration training seminar for public sector executives: implementation and evaluation”, Industrial and Commercial Training, Vol. 41 No. 5, pp. 248-57.

7. Kiron, D. (2013), “Organizational alignment is key to big data success”, MIT Sloan Management Review, Vol. 54 No. 3, pp. 1-n/a. Langley, J.C.J. (2014), “2014 Third-Party logistics study: the state of logistics outsourcing”, Capgemini Consulting, 56pp, avilable at: www.capgemini.com/resource-file-access/resource/pdf/3pl_study_report_ web_version.pdf (accessed August 27, 2014).

8. LaValle, S., Lesser, E., Shockley, R., Hopkins, M.S. and Kruschwitz, N. (2011), “Big data, analytics: and the path from insights to value”, MIT Sloan Manage. Rev., Vol. 52 No. 2, pp. 21-. Manyika, J.,

9. Chui, M., Brown, B., Bughin, J., Dobbs, R., Roxburgh, C. and Byers, A.H. (2011), “Big data: the next frontier for innovation, competition (p 9) and productivity”, technical report, McKinsey Global Institute.

10. Mithas,S.,Lee,M.R.,Earley,S.,Murugesan,S.andDjavanshir,R.(2013), “Leveragingbigdataandbusiness analytics”, IT Professional, Vol. 15 No. 6, pp. 18-20. Provost, F. and Fawcett, T. (2013), “Data science and its relationship to big data and data-driven decision making”, Big Data, Vol. 1 No. 1, pp. 51-9.Rao, M.S. (2014),

11. “Enhancing employability in engineering and management students through soft skills”, Industrial and Commercial Training, Vol. 46 No. 1, pp. 42-8.Shah, S., Horne, A. and Capellá, J. (2012), “Good data won’t guarantee good decisions”, Harvard Business Review, Vol. 90 No. 4, pp. 23-5.

12. Sharma, R., Mithas, S. and Kankanhalli, A. (2014), "Transforming decision-making processes: a researchagendaforunderstandingtheimpactofbusinessanalyticsonorganizations",EuropeanJournalofInformation Systems, Vol. 23 No. 4, pp. 433-41.

13. Tweney, D. (2013), "Walmart scoops up Inkiru to bolster its 'big data' capabilities online", available at: http:// venturebeat.com/2013/06/10/walmart-scoops-up-inkiru-to-bolster-its-big-data-capabilities-online/ (accessed August 11, 2014). Waller, M.A. and Fawcett, S.E. (2013), "Data science, predictive analytics, and big data: a revolution that will transform supply chain design and management", Journal of Business Logistics, Vol. 34 No. 2, pp. 77-84.

14. Wilkins, J. (2013), "Big data and its impact on manufacturing", available at: www.dpaonthenet.net/article/ 65238/Big-data-and-its-impact-on-manufacturing.aspx (accessed August 13, 2014). Wixom, B., Yen, B. and Relich, M. (2013), "Maximizing value from business analytics", MIS Quarterly Executive, Vol. 12 No. 2, pp. 37-49.

15. Huang, T.C.K., Liu, C.C. and Chang, D.C. (2012), "An empirical investigation of factors influencing the adoption of data mining tools", International Journal of Information Management, Vol. 32 No. 3, pp. 257-70.

16. Lycett, M. (2013), "'Datafication': making sense of (big) data in a complex world", European Journal of Information Systems, Vol. 22 No. 4, pp. 381-6. Nagle, T. and Sammon, D. (2014), "Big data: a framework for research", in Phillips-Wren, G. et al. (Eds), DSS 2.0-Supporting Decision Making with New Technologies, Vol. 261, IOS Press, pp. 395-400.