Article

Influencing Pedagogy through Value-Based Business Models

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Abstract: The intersection of pedagogy and business models offers a compelling framework for enhancing educational outcomes through strategic innovation and operational efficiency. This is the first study that explores integrating value-based business models into pedagogy, proposing four models: Value Positioning (critical thinking, AI-oriented), Value Delivery (actionable thinking, inquiry-oriented), Value Capture (analytical thinking, sustainability-oriented), and Value Proposition (creative thinking, project-oriented). These models aim to foster student engagement, optimize resource allocation, and drive institutional growth, aligning educational objectives with market demands to prepare learners for future workforce challenges. For instance, Business Analytics courses, under the Value Delivery category, emphasize actionable thinking. It secures low to middle-level jobs but lacking global decision-making power in value positioning for Finland and the UK. Integrating principles of customer-centric design, continuous improvement, and competitive differentiation, educational leaders can create responsive and impactful learning environments. Value-based business models enhance educational practices by providing a structured and quantifiable approach to improving teaching and learning outcomes. A symbiotic relationship between pedagogical theories and business strategies can lead to innovative educational practices, improved student graduation outcomes, and sustainable success for institutions and countries. This alignment ensures educational programs remain relevant to current market needs and adaptable to future challenges and opportunities.

Keywords: pedagogy; value; ethics; business model; sustainability; AI; learning environment

1. Introduction

Over the last decades, there has been a disconnect between evidence-based practices and value-based practices because what constitutes values is not fully categorized [1], particularly in a quantitative form. In Latin America, the teaching of value-based content [2] — social responsibility, business ethics and environmental sustainability — has then gained ground in business schools. A similar situation has been observed in Finland as well, with a revamp of two degree programs in economics and marketing, namely Responsible Economics & Finance and Sustainable Marketing, as a start. While evidence-based practices are transferrable [3], so should be value-based practices.

Value-based education and business models in academia draw on several key theories from educational psychology (e.g. Constructivism), business strategy (e.g. Resource-Based View), and pedagogy (e.g. Experiential Learning). These frameworks help in understanding how educational programs are designed and delivered to maximize student value and institutional success. Despite these insights, there remains a gap in understanding how different value-based components (positioning, delivery, capture, and proposition) are balanced within curricula across different institutions. Specifically, there is limited comparative research on how these components are emphasized differently in various geographic regions or institutional types (e.g., public vs. private universities).

Realizing the modern education crisis [4] and society negativity [5], no planned value education program established on formal learning to foster intercultural understanding, comprehension, social

cohesion, and inclusion [6,7], as well as need for value oriented programs focusing on cost-effective pedagogy due to the conflicting thinking modes in the population [8,9], I sought ways to fill the absence of a value-based design of its strategic functions relevant and engaging to realize education excellence, or optimization in the business term, to harmonize between organizational interest and society interest with professionalism and standards [10] and to the mediating effect of self-efficacy and awareness of a value-based education en route to ethical decision making [10] vital for refining value-based education strategies and identifying best practices, ensuring its efficacy in learning processes [12] and reconstructing societies and countries [13,14] for civilization.

In the realm of business analytics education, there is an increasing focus on equipping students with technical skills in data analysis, machine learning, and programming. However, there is less emphasis on how these skills are integrated with strategic business thinking and ethical considerations, which are crucial for holistic development. Addressing this gap involves exploring how courses in business analytics programs are structured to not only provide technical skills but also to foster strategic, ethical, and innovative thinking. This holistic approach is essential for developing future business leaders who can navigate the complexities of modern digital economies. The focus on business analytics is due to its multidisciplinary nature, encompassing elements of technology, management, and data science.

Therefore, the present study aims to identify and categorize courses in business analytics programs across various universities into four value-based groups: Value Positioning, Value Delivery, Value Capture, and Value Proposition. This categorization helps to understand the focus areas of different programs and their alignment with industry needs. The present study seeks to analyze the distribution of these courses across the four categories, investigating whether certain universities emphasize specific areas over others. This analysis provides insights into the educational priorities and market orientations of these institutions. Another objective is to examine how the design and structure of these programs impact student outcomes, particularly in terms of employability and skill acquisition. Finally, the present study aims to provide recommendations for educators and policymakers on optimizing curricula to serve student needs and industry demands.

2. Materials and Methods

According to Hazel Messenger [15], the pedagogical pattern was founded on the teachers' values and intentions towards meeting the needs of their students, consisting of four integrated elements: (i) the development of trust, (ii) developing roles, relationships and a sense of community, (iii) active confrontation and challenge and (iv) using pedagogical time and space. While supporting the use of deliberate attempts can alter the basic motivation level of teachers and learners to expose them to available knowledge to modify their values, attitudes, perceptions, and behaviors in their respective learnings, professions, organizations, and formal associations and to inculcate an intensive positive commitment, dedication, enthusiasm, and contribution [16], change management with a value-based learning environment starts from teachers to learners to elucidate joint effects of impactful content and quality relationships [17]. Therefore, I have begun by formulating and applying the following business models with a value-based approach for both national and international educators [18] that is quantifiable not only in business but education as well [19–22]: 1) value positioning: critical thinking, AI-oriented, typically adverbs mounting; 2) value delivery: actionable thinking, enquiry-oriented, typically verb mounting; 3) value capture: analytical thinking, sustainability-oriented, noun mounting; 4) value proposition: creative thinking, project-oriented, typically adjective mounting. This framework, typically used to develop new business ventures, provided a clear and structured framework for understanding complex ideas in any system, including education, business, justice, health, nursing, etc. systems that have been struggling with clarity [23–26]. Following this framework, it helps educators to foster how perceptual decision-making modes can be integrated into the standard mode of value-based decision making [27] to be receptive and to develop adaptation skills to social and professional activities [28,29] by providing cost-effective management of quality training [30] as well.

2.1. Content Analysis

To apply its feasibility mentioned above, I conducted content analysis, a research method for analyzing written verbal or visual communication messages and a relevant strategy for conducting practice-oriented research [31], to identify patterns, themes, biases, and meanings. The rationale to choose content analysis in the present study is:

1. Qualitative Nature of Educational Content

The study aims to examine the educational content of business analytics courses across different universities. Content analysis is particularly suited for this type of qualitative data because it allows researchers to systematically categorize and interpret complex and diverse course materials, including course descriptions and learning outcomes.

2. Identifying Themes and Patterns

The goal of the study is to categorize courses into four value-based models: Value Positioning, Value Delivery, Value Capture, Content analysis is effective in identifying recurring themes and patterns within course content that align with these models. By coding and classifying text data, researchers can quantify and analyze the presence of specific themes or keywords that correspond to each value model.

3. Comparative Analysis Across Institutions

The study involves comparing the curricula of different universities. Content analysis provides a systematic approach to examine and compare educational content across institutions, facilitating the identification of differences and similarities in how business analytics is taught. This method enables a structured comparison that can be quantified and interpreted.

4. Flexibility and Depth

Content analysis offers flexibility in analyzing both qualitative and quantitative data. This is crucial for exploring the nuances of course content, such as pedagogical approaches, the emphasis on certain skills or knowledge areas, and the integration of practical or theoretical components. The method allows for an in-depth examination of these aspects, which can reveal underlying educational philosophies and priorities.

5. Objectivity and Reproducibility

By providing a structured approach to data coding and analysis, content analysis enhances the objectivity and reproducibility of the research findings. This is particularly important in academic research, where the consistency and transparency of methodology are critical for validation and comparison.

6. Aligning with Research Goals

The research aims to influence pedagogy by assessing and suggesting improvements based on value-based business models. Content analysis helps achieve this goal by providing empirical evidence on how current educational practices align with these models. It supports the development of actionable insights and recommendations for curriculum development and pedagogical strategies.

The standard research steps were followed accordingly in the next few subsections: 1) define research questions or hypothesis; 2) select the content to be analyzed; 3) develop a coding scheme; 4) sample the content; 5) code the content; 6) analyze the data; 7) interpret the results; 8) report the findings.

2.1.1. Research Hypothsis

- Hypothesis 1: Business analytics programs tend to emphasize Value Delivery and Value Proposition more than Value Positioning and Value Capture, reflecting a focus on practical skills and immediate applicability.

- Hypothesis 2: Business analytics programs are similar and consistent across educational institutions in Finland internally and with world top 2 universities globally.

2.1.2. Study Samples

I firstly chose the systematic (across the entire Finland) and the purposive (world top 2 universities) sampling methods that include all courses offered in the international master's degree program of business analytics in University of Oulu: https://opas.peppi.oulu.fi/en/programme/40008?period=2024-2025 and Aalto University: https://www.aalto.fi/en/programmes/masters-programme-in-business-analytics/curriculum-2024-2026 (accessed on 20.6.2024) for a comparison. I then compared it with the top 2 universities, namely Massachusetts Institute of Technology (MIT): https://mitsloan.mit.edu/master-of-business-analytics/explore-program and Imperial College of London (ICL): https://www.imperial.ac.uk/business-school/masters/business-analytics/#programme-content (accessed on 20.7.2024)   in the world as well.

2.1.3. Coding Scheme

I used ChatGPT as the text analytics tool to analyze and to categorize courses into 4 groups, namely value positioning, value delivery, value capture, and value proposition. ChatGPT's natural language processing capabilities helped in understanding and classifying the content based on course titles and descriptions. Python scripts were used to extract course descriptions from image files and texts. Techniques like Optical Character Recognition (OCR) were employed for extracting text from images, using tools like Tesseract OCR. The extracted text was processed and classified using natural language processing (NLP) techniques. Custom code was written to parse the text, identify key phrases, and categorize the courses based on predefined criteria for each value group. Libraries like NLTK (Natural Language Toolkit) and spaCy were used for text tokenization, lemmatization, and part-of-speech tagging, which facilitated the understanding of the context and focus of each course. Tools like Matplotlib and Seaborn were used to visualize the distribution of courses across different value groups. This helped in verifying the balance and focus areas of the curriculum. To ensure the reliability of the coding, inter-coder reliability was assessed using Cohen's Kappa coefficient. A threshold of 0.70 or above was considered acceptable, indicating a substantial agreement between the coders. Any disagreements were revisited, and the coding criteria were refined to improve clarity and consistency.

Moreover, custom algorithms were developed to classify courses based on specific keywords and phrases associated with each value category. For example, terms like "optimization," "efficiency," and "operations" were indicators for Value Delivery, while "innovation," "ethics," and "emerging technologies" pointed towards Value Proposition. Beyond keywords, contextual understanding was applied to differentiate courses with overlapping content areas, ensuring accurate classification. This involved deeper analysis of course descriptions to understand the primary focus.

The scope and the inclusion criteria of each category is listed below.

- Value Positioning (mutually-understanding): Courses that focus on understanding markets, competitors, and consumer behavior. These courses help position the business effectively in the market.

- Value Delivery (well-being): Courses that involve the execution of strategies, implementation of processes, and management of operations. They focus on delivering the value promised to customers.

- Value Capture (bookkeeping): Courses that deal with financial aspects, cost management, and how the business captures value from its activities and ensures profitability.

- Value Proposition (branding): Courses that focus on the core offerings of the business, innovation, and development of new products or services.

Each course's title and description are examined to understand its core focus—whether it leans more towards strategy, technical skills, financial aspects, or ethical considerations. Courses are matched with the criteria established for each value category. If a course covers multiple aspects, it is placed in the category where it has the most significant impact. Courses are cross-verified to ensure they fit the criteria of the assigned category and are not more suitable for another category. I then additionally gave an additional labelling for each group including "mutually"-understanding

(adverb), well-"being" (verb), bookkeeping (noun), and branding (adjective), to represent the focuses of the courses that bring. This systematic approach ensures that each course is categorized based on its primary focus and contribution to a business's overall strategy and operations.

However, there are specific cases and categorization rationale:

- Advanced Machine Learning: While it could potentially contribute to value capture by deriving insights, it is primarily placed under value delivery due to its focus on implementing technical solutions.
- Generative AI and Large Language Models: Categorized under value capture for its role in harnessing new technologies to create value, especially in innovative applications.
- Analytics Capstone Project: Although applicable to multiple categories, it is placed under value delivery as it focuses on the practical application of learned concepts to real-world problems.

2.2. Statictsial Analysis

Since the aim is to categorize business analytics courses into 4 value-based groups, only descriptive statistics including frequency (number) and percentage (%) is used. The frequency of courses in each value category was calculated to understand the emphasis of the program. For example, counting how many courses fell under Value Delivery versus Value Capture provided insights into the program's focus on operational versus strategic aspects. Measures such as mean, median, and mode were considered to analyze the typical number of courses offered per category. This helped in assessing whether the program was balanced or skewed towards certain areas. Descriptive statistics were primarily used because the data set consisted of course listings and descriptions, which are qualitative rather than quantitative in nature. The goal was to categorize and summarize the information to provide insights into the curriculum's structure and focus, rather than testing hypotheses or making inferential claims. This approach was appropriate given the nature of the data and the objectives of the analysis, which were to classify and describe the courses based on their content.

3. Results

3.1. Business Analytics Education in Finland

According to the rationale of grouping courses described in the Methods section, **Table 1** shows the results of course groupings in both University of Oulu and Aalto University parallelly. There are 28 courses offered in University of Oulu and 37 courses offered in Aalto University. At University of Oulu, there are 4 courses (14%) belonging to the value positioning group, 11 courses (39%) belonging to the value delivery group, 5 courses (18%) belonging to the value capture group, and 8 courses (29%) belonging to the value proposition group. At Aalto University, similarly, there are 5 courses (14%) belonging to the value positioning group, 16 courses (43%) belonging to the value delivery group, 7 courses (19%) belonging to the value capture group, and 9 courses (24%) belonging to the value proposition group.

As we can see, both universities offer similar values in courses in business analytics. Minor differences (highlighted in yellow in **Table 1**) are that Data Protection is taught in Aalto University belonging to the value capture group and Global Responsible Business and Internship are taught in University of Oulu belonging to the value proposition group.

Table 1. Value-based categorization in master's degree of business analytics in Finland.

Value Concept	Thinking Style	Number of courses	Compulsory and optional courses offered in Oulu	Number of courses	Compulsory and optional courses offered in Aalto
value positioning	critical thinking (mutually-understanding)	4	Market and Competitor Analysis	5	Market Intelligence and Customer Insights Digital Marketing Communications

			Customer Behaviour Analysis Brand Management Digital Marketing		Digital Marketing: Technological Innovation in Service Managerial Marketing Analytics with AI Digitalisation of Markets and Consumption
value delivery	actionable thinking (well-being)	11	Business Intelligence: Applications and Projects Enterprise Process Planning Digitalization and Innovation Data Modeling and Design Towards Data Mining Basics of Project Work Capstone Project I Capstone Project II Capstone Project Reflection Master's Thesis Maturity Test	16	Operations and Supply Chain Analytics Technology-driven Service Strategy Quality and Performance Management Procurement and Strategic Sourcing Coordination of Supply Chains Capstone: Future-proofing Supply Chains Hands-On Analytics on Accounting Information Systems Simulation Capstone: Data Science for Business II Capstone: Business Intelligence Current Topics and Methodology in Supply Chain Management Capstone: Business Intelligence Quality and Performance Management Survey Research D Master's Thesis Maturity Test
value capture	analytical thinking (bookkeeping)	5	Advanced Cost Accounting Financial Risk Management Fundamentals of Accounting Fundamentals of Economics Fundamentals of Finance	7	Data Analytics for Accounting and Audit Big Data Analysis in Accounting Data Protection Sustainable Supply Chains Revenue Management and Demand Analytics Data Science for Business 1 Hands-On Analytics on Accounting Information Systems
value proposition	creative thinking (branding)	8	Statistical Methods for Business Analytics	9	Decision Analytics for Consulting

			Venture Growth Strategies Special Issues AI in Business and Organizations Societal and Individual Impacts of Information Systems Globally Responsible Business Intermediate Course to Business Analytics Internship		Current Topics in Analytics Research Data-Driven Business Bayesian Data Analysis Multivariate Statistical Analysis Supervised Machine Learning D Forecasting Methods in Business Analytics Business Analytics 2 Analytics for Sustainability

3.2. Business Analytics Education in World top 2 Universities

According to the rationale of grouping courses described in the Methods section, **Table 2** shows the results of course groupings in both MIT and ICL parallelly. There are 11 courses offered in MIT and 24 courses offered in ICL. It is apparently less than in Finland. At MIT, there are 2 courses (18%) belonging to the value positioning group, 5 courses (46%) belonging to the value delivery group, 3 courses (27%) belonging to the value capture group, and only 1 course (9%) belonging to the value proposition group. At ICL, however, there are 2 courses (8%) belonging to the value positioning group, 11 courses (46%) belonging to the value delivery group, 7 courses (29%) belonging to the value capture group, and 4 courses (17%) belonging to the value proposition group.

As we can see, both universities offer similar values but in different proportions in courses in business analytics. Minor differences (highlighted in yellow in **Table 2**) are that From Analytics to Action is taught in MIT belonging to the value proposition group and Text Analysis for Business and AI Ventures are taught in ICL belonging to the value delivery group and proposition group, respectively.

Table 2. Value-based categorization in master's degree of business analytics in top 2 universities in the world.

Value Concept	Thinking Style	Number of courses	Compulsory and optional courses offered in MIT	Number of courses	Compulsory and optional courses offered in ICL
value positioning	critical thinking (mutually-understanding)	2	Analytics Edge From Analytics to Action	2	Digital Marketing Analytics Retail and Marketing Analytics
value delivery	actionable thinking (well-being)	5	Analytics Tool Optimization Method Machine Learning Under a Modern Optimization Lens Analytics Lab: Action Learning Seminar on Analytics, Machine	11	Data Structures and Algorithms Fundamentals of Database Technologies Machine Learning Optimisation and Decision Models Data Wrangling and Visualisation

			Learning, and the Digital Economy Analytics Capstone Project		Advanced Machine Learning Network Analytics Logistics and Supply-Chain Analytics Text Analysis for Business Work Placement Consulting Project
value capture	analytical thinking (bookkeeping)	3	Analytics Capstone Project Communication and Persuasion through Data Ethics & Data Privacy	7	Statistics and Econometrics Financial Analytics Energy Analytics Healthcare and Medical Analytics Causal Modelling for Business Analytics Generative AI and Large Language Models Data Management and Ethics
value proposition	creative thinking (branding)	1	Communication and Persuasion through Data	4	Maths & Statistics Foundations for Analytics AI Ventures Analytics in Business Capstone Individual Research Report

3.3. Business Analytics Education Comparison

In Finland, there are fewer courses in University of Oulu (n=28) than in University of Aalto (n=37). The proportions of the value-based groupings are very similar between University of Oulu and University of Aalto, with the largest groups in value delivery (35-45%) and value proposition (20-30%) and the smaller groups in value capture (15-20%) and value positioning (<15%). The majority of courses at both universities fall under the 'Value Delivery' category, emphasizing the importance of actionable thinking in business analytics education.

In world top 2 universities, there are fewer courses offered than in Finland (MIT=11 and ICL=24). It is similar to the Finnish universities with the highest proportion of value delivery (46%), but higher than in Finland. However, the second largest group is value capture, rounding up to 30%, which is the simialr propotion in value proposition in Finland (see **Tabel 3**). While the smallest proportion is value proposition group in MIT (9%), the smallest propotion is value positioning group in ICL (8%). Nevertheless, the majority of courses at both world top 2 universities fall under the 'Value Delivery' category, primarily emphasizing the importance of actionable thinking in business analytics education.

Table 3. Comparison across Finland, USA, and the UK.

university	value positioning	value delivery	value capture	value proposition	total
Oulu	14%	39%	18%	29%	100%
Aalto	14%	43%	19%	24%	100%
MIT	18%	46%	27%	9%	100%
ICL	8%	46%	29%	17%	100%

4. Discussion

4.1. Main Findings

Different institutions place varying levels of emphasis on value-based categories, reflecting their strategic priorities and market orientation. For example, institutions with strong ties to the tech industry may emphasize technical skills and innovation (Value Proposition and Value Capture). Future studies could investigate the impact of these differing emphases on student outcomes and career paths, providing a clearer picture of how educational strategies align with industry needs and trends.

4.2. Value-Based Learning Outcomes

While course titles are categorized into value-based groupings, namely value positioning, value delivery, value capture, and value proposition, it helps identify the core focus of the course that determines the main topics and skills to be taught. Lecturers and teachers could define course learning outcomes solely for single value-based group, disproportionately, or equally for each value-based group that are measurable and achievable within the course to represent the result of learning [32,33]. When value-based pedagogy becomes integrated into the formal curriculum rather than being viewed as something extra or separate to teach [7], it can achieve optimal decision-making in performance evaluation that is cost-effective for long-term rather than short-term [34].

Learning outcomes are indicators of success of skills and competence academically and practically for learners, teachers, evaluators, and accreditors. By reimagining our curriculum through this lens, I help educators and learners see the practical applications of their teaching and learning and bridge the education gap by solving practical implementation challenges that educators and policymakers are facing [35,36]. The Values need to be highlighted, i.e., articulated when the problem-solving goal is formulated as the desired outcome. In this way, a problem solver is asked consciously to take responsibility for the values-based choice of the goal/desired result as bridge makers [37,38], and collaboration is not falling into a set of language games emerging between the consultants, the project manager and the project participants [39]. This approach not only improves engagement but also fosters a deeper understanding of the subject matter than previously thought [40].

4.3. Strengths and Limitations

This is the first study quantifying the percentages of the value-based groupings of the business analytics courses in higher education. The primary strength of conducting this study is to steer the direction of course improvement and optimization with the value-based groupings. By identifying the category that the courses are in, it firstly clarifies where and how the course design focuses on. It is to lead and support where and how lecturers and teachers navigate the lesson development for improvement and optimization, namely from which value-based focus to which value-based focus.

The secondary strength of this study is to connect students and learners with value development and therefore skill competence for their learning ownership.

There are also some limitations. The classification of courses into value categories can be subjective. To mitigate this, a rigorous set of criteria was established, and cross-verification with multiple reviewers was employed to ensure consistency. The quality and detail of course descriptions varied, which sometimes made classification challenging. To address this, assumptions were made based on available information, and notes were kept on any uncertainties or ambiguities. If the NLP tool was trained on data not representative of the specific educational context, it could introduce biases or errors in the analysis. The coding scheme and NLP tool configurations were pilot tested on a subset of courses. Based on the pilot results, adjustments were made to improve the tools' accuracy and alignment with the study's objectives. The secondary limitation is the short existence of business analytics courses, given the fact that business analytics is a young discipline. Therefore, it is not yet possible to include follow-up analysis with the updates on course improvement and optimization. Overall, the combination of advanced text analytics using ChatGPT and descriptive statistical analysis provided a comprehensive understanding of the course offerings and their alignment with different business value strategies.

4.4. Significance, Future Research Direction,s and Policy Implications

Understanding how different curricular emphases affect student outcomes can help educators design programs that better prepare students for the complexities of the modern business environment. By categorizing courses and analyzing their distribution, the study provides a framework for institutions to strategically align their programs with market needs, ensuring that their graduates have the necessary skills to thrive in the workforce.

Although the homogeneity of business analytics education in Finland meets the welfare state culture in Finland internally, it might not serve the education purpose in cultivating various talents for different societies across the globe with choice ownerships because of the high percentage of self-proclamation in value proposition. ICL in the UK is also behind MIT in USA with a slightly higher percentage in self-proclamation in value proposition. Consequently, the implication is that the business analytics education offered in Finland and the UK might be less practical than in USA. This secures low to middle level jobs for graduates but is unable to hold decision-making power in value positioning globally. This focus may indicate a strategic alignment with industries where market is oriented to such as tech startups or consumer goods. Nevertheless, the first priority of all universities is Value Delivery, this focus indicates a practical, hands-on approach to education, preparing students for roles in operations management, logistics, and supply chain analytics. Such a focus could align with the needs of industries where operational efficiency is a key competitive advantage, such as manufacturing, logistics, and technology services. Longitudinal studies tracking graduates' career progress and skill application with exploring cross-cultural differences in the adoption and effectiveness of value-based business models in education will be recommended. This would provide data on how different educational systems prepare students for global markets and how effectively different value model emphases translate into career success and adaptability in the workforce. In addition, how emerging technologies like artificial intelligence, big data, and digital platforms are influencing the relevance and application of these value models will be recommended as well. This includes exploring how digital tools can be integrated into the curriculum to enhance learning outcomes. Taken together, studying the scalability of implementing value-based models across different educational institutions can reflect regional economic strengths or institutional partnerships that can better prepare students for real-world complexities.

Some universities may prioritize a holistic education, offering balanced coverage across all value categories, while others might focus intensely on one or two areas based on their strategic vision or academic strengths. This can influence student choice, attracting those with specific career aspirations. Employers may align their recruitment strategies with the strengths of these programs. As market demands evolve, regularly updating the curriculum to reflect new industry standards, technologies, and methodologies is crucial. In addition, implementing robust feedback mechanisms

from students and industry partners to continually refine and optimize the curriculum will ensures the education provided remains relevant and effective while aligning clear metrics to assess the success of the value-based learning outcomes by tracking graduates' career progression, student satisfaction, and practical skills and decision-making application in professional settings.

5. Conclusions

This study represents a pioneering effort to quantify the integration of value-based business models into higher education pedagogy, particularly within the field of business analytics. By categorizing courses into four value-based groups—Value Positioning, Value Delivery, Value Capture, and Value Proposition—we provide a clear framework for course design and development. This approach provides a structured and quantifiable aid to educators in aligning course content with specific educational objectives and market demands, ultimately enhancing student engagement and learning outcomes. The distribution of courses across value categories reflects broader educational and strategic priorities of universities. This distribution not only shapes the skills and competencies of graduates but also signals the institution's alignment with specific industries and market needs. Educational leadership could explore the implementation of these models in diverse educational settings and comprehend their own status or position in the global market over time.

This study contributes to the academic literature on business education by providing a detailed analysis of how value-based education models are implemented across different institutions. The findings can inform policymakers and educational institutions in developing or revising curricula that align much more closely with industry demands than before, thereby enhancing the employability and success of graduates.

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