Active and Transformative Learning for the Integration of Artificial Intelligence in Business Schools' Educational Programs and Curricula

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Abstract

In recent years, Artificial Intelligence has evolved as a streamline theme for information systems and computer sciences educational curricula in higher education. In this research we investigate the utilization of the Active and Transformative Learning paradigm for the integration of Artificial Intelligence courses in the curricula of Business Schools. For this purpose, our research is organized as follows. First, we communicate the determinants of an ATL strategy proposed by the authors, and then we provide a benchmark for AI courses in various business schools curricula. Last but not least we communicate the outline of two proposed initiatives for the integration of Artificial Intelligence in Business Schools training programs both undergraduate and postgraduate. The first one is entitled AI for Next Generation Decision Making Capability and the other one AI for Innovation and Entrepreneurship. In both cases we integrate our proposition with ten ATL student-driven activities.

Keywords: *Active and Transformative Learning, Curriculum Development, Artificial Intelligence, Business Schools, Innovation, Business Information Systems*

1. Business schools in the Era of Artificial Intelligence

The recent developments in Artificial Intelligence, challenge the design, implementation and provision of high-quality educational programs and degrees that utilize and promote the potential of this robust, disruptive technology in higher education. Business schools, traditionally offer programs and degrees that reflect and utilize the value proposition of various technologies in the core business disciplines. New Learning Technologies have been utilized overtime for active and transformative learning as well as for knowledge dissemination [1-14] In another direction Business Schools in our times, have also to offer flexible educational programs, including double majoring, multiple minors and also transformative training programs for preparing students to the future jobs' requirements. In this sophisticated context, we do have to strategize the integration of the AI in the Business Schools curricula. Towards this direction we do have to provide some guiding principles for the adoption of AI in the context of programs in Business Schools. In the next few paragraphs we elaborate on an initial metaphor for the added value of the AI. In fact, we communicate briefly five metaphors of this strategic alignment of AI with business Schools portfolio.

Metaphor 1: AI as a brand-new core business process: Artificial Intelligence has a disruptive capacity for the entire business and its core operations. Beyond this fact to our own perception Artificial Intelligence must be considered a s a brand-new holistic business process. From this direction educational programs in Business Schools have to introduce this in core managerial courses and also to provide the details for the unique value mix, including resources, methods, business value, etc.

Metaphor 2: AI as robust technical capability for data-driven decision making: Artificial Intelligence has complicated technical details, algorithms, models and methods. At the context of a Business School, artificial intelligence has to be communicated in terms of technical sophistication with emphasis on business aspects that addresses. This dimension is quite demanding since business school students have to be equipped with knowledge related to maths, logic, decision making and data-driven decision making.

Metaphor 3: AI as a robust enabler of new business models: Artificial intelligence has the capacity to disrupt industries, businesses and also has the ability to define new markets. From this perspective

AI can be also introduced to business school curricula as a robust enabler of new business models. In this case students at undergraduate and post graduate courses and programs have to focus on the unique value proposition and the revenue models of new AI-enabled business models.

Metaphor 4: AI as a multiplier of value proposition in all core-business functions: A rational approach for the introduction of AI in business schools' programs is by emphasizing its role as a multiplier of the unique value proposition in all core-business functions. This could be communicated by integrating in traditional courses special sections scenarios for the next generation AI-enabled core business processes and functions. Also, it could be introduced in Honors courses where students from all disciplines and majors could elaborate on this dimension.

Metaphor 5: AI as a brand-new Innovation and Business Excellence Capability: Artificial intelligence is a bold Innovation. It can be also seen as an incubator for bold innovation in diverse areas. From this point of view, new training programs in Business Schools can capitalize on this future. New co-design approaches for resilient Master Degrees on AI-Enabled Innovation and Business excellence, must be considered as a key priority.

One more vital component in this direction is also related to the active and transformative learning approach that must be adopted for the successful introduction of AI in Business Schools' Curricula.

To our strategic proposition a 6-pillar approach **CO-MO-S-PE-DE-A (Competence – Models – Strategy – Performance – Development – Active Learning) can** be utilized with more technical guidelines for the specification of the training and educational strategy of new AI majors and degrees in Business Schools. These include the following 360 degrees items:

- **Competence**: Skills and Competencies. It is related to a well-defined set of skills and competencies that are updating the skillset of students and trainers.
- **Models**: Data, Models, Methods and Algorithms. It is about the technical complexity of the Artificial Intelligence, covering all the diverse aspects of Data, Models, Methods and Algorithms that are applied to AI services, applications, systems.
- **Strategy**: Business Processes, Business Goals, Competition. It is related to the Business aspect of the Artificial Intelligence and its alignment and disruption to the classical agenda of Business Strategy, Competition and Processes.
- **Performance**: Analytics, Benchmarks, KPIs and Outcomes. This pillar that has to be covered in the educational programs of AI in Business Schools, it is related to the new generation of Performance measurement that AI enables and promotes.
- **Development:** Research, Development, Innovation, Industry, Sustainability. This pillar is also covering the requirements of new educational curricula in terms of research and development and innovation and entrepreneurship capability. Especially in Business Schools this aspect has to developed and supported with contributions from other domains as well.
- **Active and Transformative Learning**: Holistic approach. This is also related to a new approach for an education out of the box. With deployment of open educational resources, open source tools and out-of-the-box packaging and delivery of educational content beyond time and space constraints.

2. A strategic proposition for the integration of AI in Business School's curricula

In this section we provide a short description of one course for undergraduate students and one Master Program for Business School students. The first one is entitled AI for Next Generation Decision Making Capability for Business School students and the other one AI for Innovation and Entrepreneurship. In both cases we integrate our proposition with ten ATL student-driven activities.

Course: AI for Next Generation Decision Making Capability for Business School students

Duration: 40 hours

Section	Duration (hours)	Active and Transformative Learning Strategy (indicative assessments)
Foundations of AI for Business	4	• Select a business function. Elaborate on the capacity of AI to disrupt this function
Models: Data, Models, Methods and Algorithms	12	• Identify an open data set and discuss how the application of an AI model can add value and support a new service with business value
Strategy: Business Processes, Business Goals, Competition	4	• Identify a unique strategy for an AI-enabled business service. Identify the targeted market and competition
Performance: Analytics, Benchmarks, KPIs and Outcomes	4	• Identify KPIs for the measurement of AI-enabled business services
Development: Research, Development, Innovation, Industry, Sustainability	16	• Present briefly in 2 pages an innovative service for an AI-enabled innovative service for Tourism, Health, Entertainment, Shipping, Finance, Human Resources Management
Deliverables:		• A managerial report for introducing a new AI-enabled business service • A mock-up prototype of your service

Lab Session: Use any AI toolkit for models, e.g. Auto-prep models, Cloud Services or commercial AI services e.g. SAS, Amazon Web Services, SAP, Oracle

M.Sc. AI for Innovation and Entrepreneurship

Courses	Duration (hours)	Indicative Titles of Suggested Courses for the MSc Program
1 course on Foundations of AI for Business	20	1. Foundations of AI for Business
3 courses on Models: Data, Models, Methods and Algorithms	60 (3x20)	2. AI Data Foundations 3. AI Models and Methods 4. AI Modelling and Problem Solving
1 course on Strategy: Business Processes, Business Goals, Competition	20 (1x20)	5. Business Strategy and AI alignment/disruption
1 Course on Performance: Analytics, Benchmarks, KPIs and Outcomes	20 (1x20)	6. AI enabled Decision Making and Performance
3 courses on Development: Research, Development, Innovation, Industry, Sustainability	60 (3x20)	7. AI enabled Research Excellence 8. AI enabled Innovation 9. AI enabled Entrepreneurship
1 Thesis project	60 hours	10. Thesis

The proposed structure reflects the strategic framework introduced in section 1 of this paper. A more detailed description of the courses together with full coverage of the Active and Transformative Learning Strategy will be communicated to one of our future books.

3. Implications and Discussion

In this position paper, we tried to communicate a resilient and sustainable approach for the integration of the Artificial Intelligence in Business Schools' Educational Programs and Curricula in undergraduate and postgraduate level. Our main purpose was 3-fold. Fist to provide an overarching strategic

framework for this introduction including the 6-pillar approach CO-MO-S-PE-DE-A (Competence – Models – Strategy – Performance – Development – Active Learning). Then we tried to interpret the value components of this strategic approach for discussing two different initiatives for the integration of AI in business schools' curricula. Last but not least, we elaborated briefly on some indicative Active and Transformative Learning strategies.

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