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The Classroom of the Future: Disrupting the Concept of Contemporary Business Education

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ABSTRACT

Objective: The goal of the article is to discuss and elaborate on the skillset required in education of managers and entrepreneurs to face challenges of their future positions.

Research Design & Methods: The article is of a descriptive character, based on literature review and its constructive criticism. It presents a case study of S P Jain School of Global Management in Dubai/Mumbai/Singapore/Sydney and experts' insights.

Findings: The classroom of the future, based on idea of design thinking lab, equipped with the most modern solutions of Virtual and Augmented Reality (VR, AR), interactive detachable workstations, shareable smartboards and interactive video display walls, seems to be the passport to success in the digital world. Immersive interaction with AI, ubiquitous computing and technology exposure prepare contemporary business students for future working space, encompassing a variety of problems to be solved, allowing to attain new skills and a smooth transit from education to a desired job or entrepreneurship practice.

Implications & Recommendations: The creation of 'future ready' graduates requires an innovative mindset and agility to evolve and adapt continuously, with simultaneous focus on disruptive innovation through digital transformation. Incorporating latest digital technologies and innovations into the learning environment seems to be competitive advantage and the key to success on education market.

Contribution & Value Added: The article in subsequent chapters lists the awaited skills of future entrepreneurs and managers, indicates available solutions and technologies to boost classroom experience and gives a practical example of technology use. Moreover, it indicates transformation pathway for business schools to embrace challenges of the future labour market and equip their graduates with hands-on experience and required skills.

Article type: conceptual article

Keywords: classroom of the Future; business education; economic education

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INTRODUCTION

In the era of the Fourth Industrial Revolution, the paradigm of universities has passed through the chain of significant changes (Drew, 2014). They are now playing the key role in the training process (Mitra, Musingwini, Neingo, & Adam, 2018), currently preparing students for jobs that do not exist yet; to use technologies that have not been invented to solve problems we do not perceive as problems yet (Fisch, McLeod, & Brenman, 2015). The entire concept becomes even more complex at global universities, that must manage international student groups (Ploae, 2016). This approach is extremely important to business school graduates, due to contemporary universities' ongoing focus on passive, one-way lectures with the minimum use of boosting students' creative thinking and problem solving. The educational sector should enhance their entrepreneurial spirit, competitiveness and economic growth (Nowak, 2016; European Commission, 2012) and focus on the development of skills required by the future labour market.

In the times of digital transformation, a simple recipe for the success seems to be hidden in permanent improvements, adjustments and modifications (Westerman, Bonnet, & McAfee, 2014). Organisational ambidexterity has become a must in new digital ecosystems (Hernaus, Miocic, & Aleksic, 2016). However, the approach of the academia regarding the paradigm changes needs to be put under the spotlight. Universities need to reinvent the learning approach to anticipate challenges of the new business ecosystem.

To fulfil the same and showcase hidden opportunities, the main goal of this article is to discuss and elaborate on the skillset required by future managers and entrepreneurs to face the challenges of their forthcoming positions. To achieve it, this conceptual article, descriptive in its nature, will be based on a profound and critical analysis of literature. It will introduce the concept of the classroom of the future to understand the importance of the transition from the blackboard and chalk to an immersive interaction with ubiquitous technology. In its subsequent parts it will define technologies added to classroom experience and define skills required from future graduates. Last but not least, to give a practical example of new approaches and concepts of the classroom of the future in the emerging markets and countries, it will use the case study method, based on the transformation example of S P Jain School of Global Management (SPJ). By using the approach of disruptive innovation, SPJ became the youngest top-ranked business school, listed by Forbes for the 5th. consecutive time as global Top 20 in the 1-year MBA programme category and stated among other institutions like IMD, INSEAD, IE, Cambridge, Oxford, Warwick or Imperial. After the successful establishment of neuroscience, blockchain and IoT labs across its four campuses (Dubai, Mumbai, Singapore, Sydney), SPJ is currently at the point of exploring and implementing innovative approaches and designing its classroom of the future.

Due to the theoretical nature of the article, instead of stating research hypotheses, theoretical propositions will be provided in the results and findings part. Regardless of the limitations of the purposive selection of the business school serving as an example, the case study should be considered as valid, as no other young business school is ranked so highly.

Integrating New Technologies and Student Experience

In the times of digital transformation, a simple recipe for the success seems to be in permanent improvements, adjustments and modifications (Westerman *et al*., 2014). Rodri-

guez, Paredes, and Yi (2016) claim rightly that designing new customer experience seems to be a critical factor for generating competitive advantage over the market opponents. Organisational ambidexterity has become a must in the new digital ecosystems (Hernaus *et al*., 2016). However, in the academia, a new experience has become a must to provide students with the appropriate skillset that will enable them to respond to the challenges of the future. The needs of the students have been evolving and classrooms and campuses should be adaptable to these changes (Cort, Cort, & Williams, 2017).

Universities need to reinvent the approach to learning to overcome the challenge of the new business ecosystem. Numerous authors (Drucker, 1994; Tibbetts & Leeper, 2016; Joshi, 2014) rightly argue that the future is outside the traditional classroom and campus, therefore outside classes and activities should be incorporated. Nowadays, technological disruption has become the reality of the learning process, bringing benefits (Leon & Price, 2016), while e-learning and e-training effectiveness may produce results equal to conventional learning techniques (Arsovski, Stefanovic, & Arsovski, 2007). In the learning process students are not limited to the classroom any more (Chamberlin, 2015).

The concept of the classroom of the future should be capable of providing a new student experience. It seems to be a passport to the success in the new business environment, as students are already grown up in the digital world (Buzzard, Crittenden, Crittenden, & McCarty, 2011). Clem and Junco (2015) define the classroom of the future as 'an engaging social space, bringing forth vigorous conversation and debate while using technologies to help students collaborate, communicate, and build a sense of classroom community'. Coates (2016) conclude that student outcomes should include discovery, achievement, connection and opportunity.

The cornerstone of the concept combines harmoniously the ideas of three elements: technology, pedagogy and space (Lehy, 2016; Baeta & Pedro, 2017) at the same time, in addition, equipping classrooms with most recent technological solutions (Tarabasz & Selaković, 2018). Multiple authors (Baeta & Pedro, 2017; Hill & Epps, 2010; Scott-Webber, Branch, Bartholomew, & Nygaard, 2014), basing their research on the impact of the environmental space on human learning, emphasise the need of rethinking the layout and organisation of the present classrooms, which requires a flexible, modular and adaptable architecture.

Beyond any doubt, the classroom of the future is equipped with the state-of-the-art solutions, devices and technologies (Marinagi, Skourlas, & Belsis, 2013). Immersion into interaction with AI (Timms, 2016), ubiquitous computing (Marinagi *et al*., 2013) and technology exposure prepare the students for future working environment, allowing at the same time going out of the classroom while sitting physically in the classroom. The future classroom is an enabler of being connected, being involved and integrated with different Internet of Things (IoT) elements (Chang, Chen, & Huang, 2015; Sourdot, Smith, Anderson, & Whitworth, 2017).

Having in mind remarks of Wiedmer (2015) that the gap between what is taught by teachers and what the skills for the future are is widening, the question: 'how can the classroom of the future become the passport to success in the digital world?' can be raised.

According to the available literature, it seems that the development of the classroom of the future does not provide a comprehensive response to the need for new student experience without the development of teachers` skills and capacities. Bush, Carr, Hall, and Saulson (2016) pointed out rightly that the future teachers will need to

examine new paradigms in both knowledge and pedagogy. One-size-fits-all thinking will have to be redesigned when it comes to both teaching and learning. To generate a new student experience in the classroom of the future, a tailor-made approach is required (González-Gómez, Jeong, & Rodríguez, 2016).

Some innovative approaches, such as flipped classroom, have proven a positive impact on the success rate of the students involved in business education processes (Findlay-Thompson & Mombourquette, 2014; Leon & Price, 2016). However, there is no evidence related to the success rate of the usage of future technologies in the business education processes. Thus, could one expect a classroom of the future, accompanied with the appropriate changes in the pedagogical and teaching paradigm of the University teachers, to be successful in addressing the emerging student needs and to assure adequate learning outcomes for the decades ahead?

Skills for the Future Business Market

In the era of the Fourth Industrial Revolution, the paradigm of doing business has been significantly changed: business and technology are absolutely connected and intertwined (Lee *et al.*, 2018). The term 'technology-driven business' is not limited to the information-communication technologies and hi-tech companies any more: nowadays, it has a global context and is spread out across all industries, including the creation of new opportunities (Lodwich & Alvarez-Rodríguez, 2017).

Aronoff and Ward (2017) argue that no traditional discipline can prepare and create business leaders of the future. Basic business skills will be just a foundation prepare for the future leadership: responsibility, self-assurance, independence and accountability need to be developed as a core group of leadership skills. Desa, Berger, and Higgs (2016) concluded that critical thinking is among the most important skills business college graduates will need to succeed in in the future workspace and therefore it should be involved in the learning processes in business schools.

With the constant and vibrant changes both in business and in the business ecosystem, academia must develop higher order skills required to drive innovation and provide an education that ignites a student's passion for lifelong learning (Jackson, 2018). Thus, both innovation thinking and lifelong learning should be considered as the critical success factors in the future business environment. The only constant aspects of the future in the technology-driven businesses are change and learning: business of the future seems to be uncertain, complex and dynamic. Moreover, to understand the emergence of the technology-driven businesses, scholars will need more insights into how to manage the technology and how to utilise the characteristics of both high-tech and innovation contexts for the development – such as the above-mentioned complexity, dynamism, and uncertainty (Thornton, Henneberg, & Naudé, 2013).

Moreover, numerous researchers (Oosterbeek, Praag, & Ijsselstein, 2010; Cruz, Sousa, & Goncalves, 2017) emphasise the increasing importance of boosting entrepreneurship spirit among future graduates, which is perceived as one of important roles of the education system (Nowak, 2016; Rachwał, Kurek, & Boguś, 2016). They underline the need for entrepreneurship education due to its impact on skills, competencies and motivation and align it with the need for the digitisation of courses (Cruz *et al.*, 2017). Some researchers (Bedawy & Farag, 2018; Pavlova, Gourova, & Antonova, 2009) easily align the use of ICT and information technology with entrepreneurship skills. All the above mentioned clearly lead to the

conclusion that immersive experience, underlying the concept of the future will become, sooner or later, the reality of every university, business schools in particular.

Having in mind all the considerations mentioned in the literature review section, a business school should provide students with the comprehensive skillset that will consist of the following elements (Cf. Table 1 in conclusions and recommendations):

1. Basic business and entrepreneurship skills.
2. Leadership skills.
3. Teamwork skills.
4. Business communication skills.
5. Business Intelligence capacities.
6. Critical thinking.
7. Design thinking.
8. Innovation skills.
9. Lifelong learning.
10. Understanding technology.

Such a significant modification of the skillset requires immediate action and transformation of business schools. If the reality and the needs of future business are not recognized and incorporated in the learning process, traditional 'chalk and board' business colleges, putting an emphasis only on business skills applicable in the analogue world, may become obsolete. This gives a chance for agile, industry-associated business schools to take over the leadership role in the creation and development of business leaders of the future.

From Chalk and Blackboard Towards the Transformation: Available Solutions

Passive lectures and conventional teaching techniques, basing on chalk and blackboard, are equally outdated for a contemporary student as a Power Point presentation and video-sharing. Descriptive case studies will no longer thrill anybody (Aldowah, Rehman, Ghazal, & Irfan, 2017). With interactive simulation to be only the top of an iceberg, engaging, interactive, immersive, full of interaction with AI, ubiquitous computing and technology seem to be the key to success (Yeoman & McMahon-Beattie, 2018; Hod, 2017; Schneider, 2017). Therefore, the classroom of the future, based on the idea of the design thinking lab, seems to be the passport to success in the upcoming digital world. It is equipped with the state-of-the-art solutions of VR and AR, interactive detachable workstations, shareable smartboards and interactive video display walls. The conventional classroom podium transforms into 'The Professor's Cockpit' with an array of digital interfaces, where the professor can observe and manage all student interactions digitally. These include Facial Recognition, Affective (Emotional) Analyses and Personalised Learning Environment using Advanced Learning Analytics.

An exposure to the available and emerging technologies, immersion into interaction with Artificial Intelligence (AI), omnipresent computing and technology exposure prepare students for future working environment. Moreover, encompassing a variety of problems to be solved enabless simultaneously the acquisition of new skills and a smooth transition from education to desired jobs. Immersed into technology and exposed to design thinking, students will become curious self-learners.

According to research done by Microsoft (Holzapfel, 2018) among 2000 students and 200 teachers, along with inputs from 70 global thought leaders and based on the analysis of

150 previous research – the future of learning will be profoundly social, student-centric, personalised, and supported by technology. The outputs of the research process shall be based on the acquisition of soft skills, as these would be required in 30-40% of jobs in growth industries. At the same time, only 42% of employers believe new graduates will be adequately prepared in terms of social and emotional skills. Despite technology enabling a personalised approach, which is considered as important (Holzapfel, 2018; Microsoft, 2018). This leads to a noticeable increase in the academic performance: 98% of students receiving personalised instructions performed better than traditionally taught students.

Marinagi *et al*. (2013), clearly indicated that the digital learning environment is characterised by the dissemination of knowledge via the Internet. To support distance learning, software tools such as e-tutoring and self-assessment, and communication applications such as chat, forums and video calls can be used as well. Mellow (2005) defines the mobile learning (m-learning) environment as a learning environment supported by mobile devices, such as WebPads, Ultra-Mobile PCs, Tablet PCs, Personal Digital Assistants (PDAs) and smartphones. This M-learning is considered either as a subset of e-learning or an extension of e-learning (Motivalla, 2007). What is a significant factor differentiating the ideas of e-learning and m-learning is 3A aspects of mobility, rightly underlined by Herrington *et al*. (2009). With accessing via mobile, information is available from Anyplace (spacial aspect), Anytime (temporal aspect), and by (individual and collaborative aspect).

The pace of digital transformation is a factor that needs to be taken into consideration as well. Nowadays, mobile devices cannot replace interactive displays, but they complement each other (Smart Tech, 2018). The interactive touch screen (Clear Touch Interactive, 2018), a 360-degree screen (ProDisplay, 2018), a projection wall (Plannar, 2018) or transparent LED Glass (Crystal Display Systems, 2018) allow complete flexibility in the screen type, size and function choice. According to Smart Tech (2018) and Futuresource Consulting (2016), 54% of all display purchases in education are interactive displays, as this feature enables higher engagement and better results. According to Fiorella and Meyer (2015), watching instructors draw illustrations while explaining a topic results in deeper learning than giving the same oral explanation for already drawn illustrations, or remote inking. Sager (2014) pointed out that watching people writing out the content helps others remember more, not only immediately after that but also after a period of time. Moreover, the emphasis is on software presented on such a screen rather than the screen itself, as documented by Filgree Consulting (Smart Tech, 2018). It is not relevant any more if it is whole class collaborative software, student co-creation software, assessment software or gamification software.

Even though interactive screens remain the centre of the operation in the classroom of the future, interactive labs, based on emerging technologies (Sharma, 2018; Dasgupta, 2018; Guha, 2017; Jain, 2017) significantly contribute to the success of Academia. The example of successful digital transformation of SPJ is an additional proofing point. The more immersive the experience – like with Augmented Reality (AR) and Virtual Reality (VR) (Foundry, 2018), the higher the engagement and user experience.

Digital Vision at the Emerging Business School (SPJ Case Study)

With the immersion of the technology and increasing skillset requirements of the labour market, especially in the emerging countries, the paradigm of universities has been changed: universities should predict future needs and navigate their pedagogy to be better suited for tomorrow's needs (Goedegebuure & Schubert, 2017). The paradigm shift has

been recognized by university management: Nitish Jain, President of SP Jain School of Global Management, highlighted five trends to dominate the business school industry in the next few years (Jain, 2018): online and experiential learning, personalised courses, Artificial Intelligence (AI) and robotics, job post creation and urge of CSR.

While the CSR represents a shift of mindset towards responsibility and culture of giving based on philanthropy (Novak & Prischepa, 2016), the other trends are clearly technology-oriented and follow the digital disruption pathway that is constantly speeding (Loveder, 2017). Online, remote and experiential learning are used on regular basis with clear success (Faulds, 2015). Simulations or contest-oriented teaching are in use to facilitate a smoother transition from the student to professional (Ross, Mitchell, & Williams, 2017). On-demand learning and personalisation appear to be another important concept. Customisation of the learning process might be addressed through the adaptive learning systems and various tailor-made approaches and solutions: the automatic detection of learning styles is also beneficial (Feldman, Monteserin, & Amandi, 2015; Truong, 2016). Last but not least, taking the impact of AI and robotics into account is a matter of numerous studies. Ivanova (2017) and Bregman (2017) argue it is possible to rely on the AI and robotics in the extensive processes in business education.

S P Jain School of Global Management, an Australian accredited business school founded in 2004 in Dubai, is the youngest business school highly ranked in Forbes, Financial Times and the Economist, basing its presence on disruptive education, is following a simple philosophy since its establishment: if business is global, business a school shall be exactly the same (Jain, 2017). Its high global rankings among other universities are the outcome of the discontinuous and disruptive approach to the curriculum development, as well as of the global exposure of students to the emerging markets of Mumbai and Dubai, along with the developed markets of Sydney and Singapore. Technology is immersed in the disruptive approach of the school. However, the technology is not a magic bullet (Raj & Seetharaman, 2014) – the transformation process includes the change of the teachers` mindset to achieve the success (Lopukhova & Makeeva, 2018; Selković, Ljepava, & Runić Ristić, 2018).

Guided by its tagline 'leading tomorrow', SPJ is crafting market-ready global leaders, exposed consecutively to three different campuses (Dubai, Sydney, Singapore – post graduate programme or Mumbai/Singapore, Dubai and Sydney for undergraduates). Students are exposed to extensive learning, supported by experts and working professionals to provide hands-on experience, understand market needs and emerging technologies (Kumar, 2018a, 2018b; Guha, 2018). As Sharma (2018) emphasizes, the incorporation of disruptive technologies and integration with students' learning experience are factors significantly distinguishing S P Jain School of Global Management from its competitors. To meet the demands raised in the era of the Fourth Industrial Revolution, the school successfully established Neuroscience Labs and six virtual laboratories in the areas of Blockchain, Internet of Things (IoT), Machine Learning, Application Programming Interface, Cyber Security and AR/VR (Augmented Reality / Virtual Reality) (Dasgupta, 2017; Jain, 2017). Technologies such as Big Data and Machine Learning are used in the decision-making learning process. SPJ has successfully introduced Asia's first classroom-led programmes in Emerging Technologies such as Virtual Reality, Cybersecurity, FinTech and Machine Learning. Moreover, Blockchain and Neuroscience Laboratories serve as incubators, providing scientific tools to aspiring finance professionals and marketers.

Right now, the school is implementing disruptive technologies by itself, by creating the classroom of the future. An internal contest, resulting from 105 team entries from students and faculty members, brought a myriad of innovative concepts for the classroom transformation. Multiple solutions were incorporated in the proposals: interactive screens, node chairs, detachable desks, AR/VR, smartboards, 360 degrees classrooms. Originating from this crowd-sourced proposal, in which students' devices would become the centre of teacher/student interaction, the above-mentioned solutions aim to facilitate the learning process and boost student experience.

As Karl Fisch (Corrigan, 2013) rightly noted, we are currently preparing students for jobs that do not yet exist; to use technologies that have not been invented, to solve problems we do not perceive as problem yet. Therefore, deep understanding of technology as the main factor of market disruption needs to become a daily topic of a contemporary business student – a future entrepreneur and manager. The disruptive approach is at place: students willing to create new ventures, supported by faculty members mentoring them during inside classroom activities supplemented by multiple workshops and incubation labs (Sharma, 2018; Dasgupta, 2017). As the focal point of the thought process is leveraging students' skills, not only familiarising them with available/future technologies, the core part of SPJ's digital transformation is the recent launch of in-classroom tablets with the tailor-made learning software solutions to measure progress in terms of desired skills, not only academic achievements and standing. The same solution is accessible on students' mobile phones. This machine-learning-based software is on the top of organising students' activity on daily basis (submissions, classroom discussion, reaching for uploaded material) and measuring their performance on assigned tasks (based on standard grading). The software is capable of computing in real-time the individual and group percentage of desired soft-skills acquisition: business intelligence, creative thinking, effective communication and teamwork.

The digital disruption affects the support processes as well: S P Jain School of Global Management is currently testing a solution to issue student certificates through blockchain, and is designing a system which will allow students to upload and digitally sign their documents using personal ID and access their mark sheets/certificates on digital lockers (Dasgupta, 2017).

Conclusions and Recommendations

In the age of continuous disruption, the role of business education is evolving at a faster rate than ever. Business schools across the world are being challenged to keep pace with and shape the mindsets of a new generation of leaders who have very different views, values and ambitions, than those that came before them. The creation of 'future ready' graduates requires innovative mindset and agility to evolve and adapt continuously, with simultaneous focus on disruptive innovation through digital transformation. It is estimated that eighty percent of the jobs available in 2030 do not exist yet today (Tencer, 2017). In the future, the technologies of today will be replaced by the technologies, that are yet to be invented. Combined with the progress on the latest digital technologies, S P Jain School of Global Management is successfully embedding the latest technological innovations into the learning environment. Setting up its classroom of the future, SPJ took into account various factors and elements relevant for the efficient business education and skills development. The technology-based classroom, along with the necessary modifications in teaching, learning and skills development, may become a crucial element of the passport

to success and business leadership in the digital world. The table presented below lists previously listed skills along with methods of implementation by SPJ.

Table 1. List of desired skills along with implementation method

Desired skills	Literature source	SPJ implementation
Basic business and entrepreneurship	Cruz *et al*., 2016; Joshi, 2014; Oosterbeek *et al*., 2010; Rachwał *et al*., 2016	Curriculum development (core), industry visits, guest speakers
Leadership	Aronoff *et al*., 2017; Novak & Prischepa, 2016; Wiedmer, 2017	Curriculum development (core), simulations, mobile application
Teamwork	Ceschi *et al*., 2014; Rehman *et al*., 2015	Research capstone projects, SBR (Students Board Rooms), teamwork assignments, simulations, mobile application
Business communication	Ploae, 2016; Ceschi *et al*., 2014	P2E (Passport to Excellence), Public speaking, business presentations, TedX events, mobile application
Business Intelligence	Leon & Price, 2016; Lodwich & Alvarez, 2017	Curriculum development (core & electives), simulations, SBR, mobile application
Critical thinking	Desai, 2016	Curriculum development (core & electives), simulations, SBR, mobile application
Design thinking	Sager, 2014	Curriculum development (core & electives), simulations, SBR, mobile application
Innovation	Hernaus *et al*., 2016; Jackson, 2018; Ceschi *et al*., 2014	Curriculum development (core & electives), simulations, SBR, mobile application, use of labs
Lifelong learning	Corrigan, 2013; Tencer, 2017	Curriculum development (core)
Understanding technology	Aldowah *et al*. 2017; Bedawy & Farag, 2018; Bush *et al*., 2016; Buzzard, 2011; Chamberlin, 2015; Chang *et al.*, 2015, Clem & Junco, 2015; González, 2016; Mariangi e*t al*., 2014; Selaković *et al*., 2018; Schneider, 2017; Tarabasz & Selaković, 2018	Immersive use of technology, AR, VR, block chain, IoT, neuroscience labs, mobile application

Source: own study.

The conducted research is limited due to its theoretical nature, based on literature review. The selection of S P Jain School of Global Management as the case study had a purposive nature, mainly due to the fact of the positions in rankings and the disruptive approach to innovation, but it also resulted from the researchers' affiliation, therefore certain statements may be biased. Future research should not only be of a qualitative nature, with appointing more experts in the domain, but should be mainly based on the quantitative approach, measuring technology adoption and customer experience along with the long term usefulness of the selected approach (skill set acquisition).

Regardless of the Impending developments related to this study, it is obvious that upcoming business education will be impossible without future technologies. The trans-

formation will become a constant process both for businesses and, consequently, business education institutions. The business paradigm, the needs of the market and the skills desired have been changed in the Fourth Industrial Revolution and will pass through the constant process of changes; thus, constant innovation and disruption will be required from the academia to follow and meet the needs of business, both at the emerging and developed markets.

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