HOW GPA, GMAT, WORK EXPERIENCE, AND AGE PREDICT MBA STUDENTS' READINESS FOR THE 4TH INDUSTRIAL REVOLUTION

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ABSTRACT

This case study investigated how MBA students' undergraduate GPA, GMAT, work experience, and age difference predict their performance in the global, leadership, integration, decision making activities needed for the 4th Industrial Revolution characterized by robotics, artificial intelligence, the Internet of Things, etc. The research findings would enable admission officers to make improvement on admission criteria and policies to ensure that MBA students possess the ability to learn the skills that are most important for success in the 4th Industrial Revolution. The findings indicate that (a) the GMAT score is a significant predictor of students' decision making outcomes, (b) MBA students' age difference is a significant predictor of their leadership performance outcomes, and (c) the undergraduate GPA and work experience had no significant impact on MBA students' global, leadership, integration, and decision making outcomes in their MBA courses.

Keywords: The 4th Industrial Revolution, GPA, GMAT, Work experience, Age difference, Global, Leadership, Integration, Decision making.

INTRODUCTION

The world is entering the 4th Industrial Revolution or Society 5.0 characterized by the convergence of emerging technologies such as robotics, artificial intelligence, nanotechnology, quantum computing, biotechnology, the Internet of things (IoT), decentralized consensus, fifth-generation wireless technologies (5G), 3D printing, and fully automated vehicles for smart homes, smart cities, and smart nations. The convergence and connectivity of such emerging technologies are fundamentally altering the way we live, work, and relate to one another. This transformation is unlike anything human beings have experienced ever before (e.g., Nakanishi, 2019; Schwab, 2016). A 2016 report, *The Future of Jobs* published by the *World Economic Forum,* identified 10 most important skills people need to thrive in the 4th Industrial Revolution: (1) complex problem solving, ranked as the top one on the list, followed by (2) critical thinking, (3) creativity, (4) people management, (5) coordinating with others, (6) emotional intelligence, (7) judgment and decision making, (8) service orientation, (9) negotiation, and (10) cognitive flexibility (World Economic Forum, 2016).

To prepare business leaders who will succeed in the 4th Industrial Revolution, business colleges accredited or trying to be accredited by the International Association to Advance Collegiate Schools of Business (AACSB) are required to identify the key assurance of learning (AOL) curricular outcomes for all their graduates at both undergraduate and graduate levels, respectively. For example, the key AOL curricular outcomes for the MBA (Master of Business Administration) graduates with accounting, finance, information systems, and other concentrations are GLIDE (Global, Leadership, Integration, Decision Making, and Ethics) performances at an AACSB-accredited business college of a Midwest state university. To assure that the incoming MBA students would be able to perform successfully in their program and on their jobs, the graduate office set admission criteria such as undergraduate grade point average (GPA), Graduate Management Admission Test (GMAT) score, work experience, etc. as predictors of how students will perform academically in MBA programs and on the jobs. For example, the Graduate Management Admission Council (GMAC) (2018) stated that the GMAT exam is a standardized test designed to test skills that are highly important to business and management programs and to predict how test takers will perform academically in MBA programs. The exam assesses analytical writing and problem-solving abilities, along with the data sufficiency, logic, and critical reasoning skills that are vital to real-world business and management success. However, the GMAT exam does not assess test takers' creativity, which was ranked by World Economic Forum (2016) as the third of the 10 most important skills people need to thrive in the 4th Industrial Revolution. Similarly,

the AOL goals of the MBA students' Global, Leadership, Integration, Decision Making, and Ethics performances at the business college in this case study also neglected the MBA students' creativity performance.

Furthermore, previous research reported mixed finings of whether or not undergraduate GPA, GMAT score, work experience, or age difference successfully predict MBA student performance in terms of communication, teamwork, decision making, leadership, planning and organizing (e.g., Burton & Wang, 2014; Kass & Bommer, 2012; Pratt, 2015). Kass and Bommer (2012) found that the combined use of undergraduate GPA and the GMAT verbal and quantitative sections successfully predicted performance in the MBA program. However, these measures did not successfully predict the competencies that underlie managerial effectiveness, including communication, teamwork, decision making, leadership initiative, and planning and organizing. These competencies were better predicted, albeit imperfectly, by the analytical writing section of the GMAT.

Pratt (2015) examined factors commonly employed as the MBA applicant evaluation criteria to see if these criteria are important in determining an applicant's potential for success. The findings indicated that the GMAT is not a significant predictor of student success when considering factors such as undergraduate GPA and work experience. Furthermore, the results showed that undergraduate GPA alone can be employed as an admission criterion and indicator of potential success instead of the GMAT.

PROBLEM AND PURPOSE STATEMENTS

The problem of this case study was to investigate whether MBA students' undergraduate GPA, GMAT score, work experience, and age difference are the significant predictors of these students' performance outcomes in the global, leadership, integration, decision-making activities.

The purpose of the study was to provide the MBA admission officers with the information regarding the impact of MBA students' undergraduate GPA, GMAT score, work experience, and age difference on their performance outcomes in the global, leadership, integration, and decision making activities, which are highly important for them to thrive in the 4th Industrial Revolution. With such information, the admission officers are able to make improvement on admission criteria and policies to ensure that MBA students possess the ability to learn the most important skills for their success in the 4th Industrial Revolution.

RESEARCH METHODS

The research sample of this case study was a group of 176 MBA students with accounting, finance, information systems, and logistics and supply chain management concentrations at an AACSB-accredited college of business of a Midwest state university. The MBA student performance outcomes were collected from 176 MBA students who were taking the spring of 2018 MBA courses. The performance outcomes included only their GLID (Global, Leadership, Integration, and Decision Making) performance data because students' E (Ethics) performance data was not scheduled for collection in 2018. The collected data were analyzed by *IBM SPSS Statistics 25th* edition for frequency counts, cross-tabulations, and regression analysis. The .05 alpha-level was set to identify any significances relating to independent and dependent variables.

The research design of this study included these 176 MBA students' undergraduate GPA, GMAT score, work experience, and age as multiple predictor variables and the MBA students' GLID performance outcomes as dependent variables.

The **G**lobal performance criteria consist of G1-Understand the environments (economic, political, legal, social and cultural), G2-Formulate solutions that incorporate environmental differences, G3-Gather data about competition in the industry, G4-Draw conclusions using competitive data, and G5-Solution recommended is appropriate given environmental data

The **L**eadership performance criteria consist of L1-Explains relevant leadership theories discussed in case study, L2-Apply leadership theories effectively to solutions, L3-Assessment of personal leadership strengths & weaknesses, and L4-Relates lessons from leadership theories and personal assessment to personal career.

The **I**ntegration performance criteria consist of I1-Identify strategic issues related to situations presented in the case analysis, I2-Effectively scans internal and external data across business disciplines, I3-Creates alternatives that represent successful integration across disciplines, and I4-Select a recommended solution that emphasizes analysis and integration.

The **D**ecision Making performance criteria consist of D1-Articulates the decision situation and criteria, D2-Identifies and describes key decision alternatives, D3-Uses data to correctly identify likelihood of outcomes (favorable/unfavorable), D4-Uses data to assess impact of outcomes (favorable/unfavorable), and D5-Makes an informed decision and provides support.

The performance criteria are on a 3-point scale with 1 = Below Expectations, 2 = Meets Expectations, and 3 = Exceeds Expectations.

HYPOTHESES

The study raised four hypotheses as follows:

H_1: Undergraduate GPA is a significant predictor of MBA students' GLID performance outcome.
H_2: GMAT score is a significant predictor of MBA students' GLID performance outcome.
H_3: Work experience is a significant predictor of MBA students' GLID performance outcome.
H_4: Age difference is a significant predictor of MBA students' GLID performance outcome.

FINDINGS

The undergraduate GPA, GMAT score, years of work experience, and age difference of the MBA students who took Spring 2018 MBA courses are presented in Tables 1, 2, 3, and 4 as following.

Table 1. Undergraduate GPA

Group*	Frequency	Percent
G1	30	17.1
G2	83	47.2
G3	63	35.8
Total	176	100.0

* GPA <3.0=G1; 3.0-3.5=G2; >3.50=G3

Table 2. GMAT Score

Group*	Frequency	Percent
G1	28	15.9
G2	73	41.5
G3	34	19.3
G4	41	23.3
Total	176	100.0

* GMAT score <480=G1; 480-550=G2; 551-600=G3; >600=G4

Table 3. Work Experience

Group*	Frequency	Percent
G1	24	13.6
G2	44	25.0
G3	31	17.6
G4	30	17.0
G5	47	26.7
Total	176	100.0

* Zero year=G1; 1-2=G2; 3-4 yrs=G3; 5-6 yrs=G4; 7 or more yrs=G5

Table 4. Age Difference

Group*	Frequency	Percent
G1	41	23.3
G2	74	42.0
G3	35	19.9
G4	14	8.0
G5	12	6.8
Total	176	100.0

* Younger than 25=G1; 25-29=G2; 30-34=G3; 35-39=G4; 40 or older=G5

H1 assumed: "Undergraduate GPA is a significant predictor of MBA students' GLID performance outcome."

As Table 5 presents, the regression analysis identified that the MBA students' undergraduate GPA was not a significant statistical predictor of these students' global, leadership, integration, and decision performance outcomes in their MBA courses. Therefore, H1 is rejected since the p values of all the GLID performance outcomes are greater than 0.05. In addition, the R squares ranging from 0.000 to 0.022 mean that at most only 2.2% of the variation of some GLID performance outcomes can be explained by the variability of MBA students' undergraduate GPA.

Table 5. Regression Analysis of Undergraduate GPA to MBA Students' GLID (Global, Leadership, Integration, and Decision Making) Performance Outcome

Model: Independent V → Dependent V	R	R Square	Adjusted R Square	F	df1	df2	Sig. (p)	p-value
H1: GPA [a] → G1-Understand the environments (economic, political, legal, social and cultural)	.004[a]	0.000	-0.006	0.003	1	174	0.959	p > 0.05
→ G2-Formulate solutions that incorporate environmental differences	.000[a]	0.000	-0.006	0.000	1	174	1.000	p > 0.05
→ G3-Gather data about competition in the industry	.011[a]	0.000	-0.006	0.023	1	174	0.880	p > 0.05
→ G4-Draw conclusions using competitive data	.017[a]	0.000	-0.005	0.049	1	174	0.825	p > 0.05
→ G5-Solution recommended is appropriate given environmental data	.008[a]	0.000	-0.006	0.012	1	174	0.912	p > 0.05

→ L1-Explains Relevant Leadership Theories Discussed in Case Study	.036[a]	0.001	-0.004	0.224	1	174	0.636	p > 0.05
→ L2-Apply Leadership Theories Effectively to Solutions	.044[a]	0.002	-0.004	0.345	1	174	0.558	p > 0.05
→ L3-Assessment of Personal Leadership Strengths and Weaknesses	.011[a]	0.000	-0.006	0.023	1	174	0.880	p > 0.05
→ L4-Relates Lessons from Leadership Theories and Personal Assessment to Personal Career	.012[a]	0.000	-0.006	0.027	1	174	0.869	p > 0.05
→ I1-Identify strategic issues related to situations presented in the case analysis	.119[a]	0.014	0.008	2.498	1	174	0.116	p > 0.05
→ I2-Effectively scans internal and external data across business disciplines	.102[a]	0.010	0.005	1.831	1	174	0.178	p > 0.05
→ I3-Creates alternatives that represent successful integration across disciplines	.137[a]	0.019	0.013	3.328	1	174	0.070	p > 0.05
→ I4-Select a recommended solution that emphasizes analysis and integration	.147[a]	0.022	0.016	3.863	1	174	0.051	p > 0.05
→ D1-Articulates the Decision Situation and Criteria	.051[a]	0.003	-0.003	0.448	1	174	0.504	p > 0.05
→ D2-Identifies and Describes Key Decision Alternatives	.068[a]	0.005	-0.001	0.811	1	174	0.369	p > 0.05
→ D3-Uses Data to Correctly Identify Likelihood of Outcomes	.063[a]	0.004	-0.002	0.687	1	174	0.408	p > 0.05
→ D4-Uses Data to Assess Impact of Outcomes	.080[a]	0.006	0.001	1.107	1	174	0.294	p > 0.05
→ D5-Makes an Informed Decision and Provides Support	.075[a]	0.006	0.000	0.983	1	174	0.323	p > 0.05

[a.] Predictors: (Constant), GPA Score Groups: <3.0=1; 3.0-3.5=2; 3.51+=3.

H$_2$ assumed: "GMAT score is a significant predictor of MBA students' GLID performance outcome."

The regression analysis shown in Table 6 indicates that MBA students' GMAT score was a significant statistical predictor of these students' decision performance outcomes with the *p* values ranging from 0.000 to 0.001. By contrast, these students' GMAT score was not a significant predictor of their global, leadership, and integration performance outcomes as their respective *p* values were between 0.152 and 0.954. Therefore, H$_2$ is accepted only as a significant predictor of MBA students' decision making outcome since their *p* values of 0.000 and 0.001 are less than 0.05. The R squares of decision performance outcome ranging from 0.062 to 0.081 mean that 6.2% to 8.1% of the variations of MBA students' decision performance outcomes can be explained by the variability of these students' GMAT score. The B values of unstandardized coefficients (0.289 through 0.379) in the decision performance variables suggest that by increasing one scale point of MBA students' GMAT score group, their decision performance outcomes would increase by 28.9% to 37.9%, respectively.

**Table 6. Regression Analysis of GMAT Score to MBA Students' Global,
Leadership, Integration, and Decision Performance Outcome**

Model: Independent V → Dependent V	R	R Square	Adjust. R Square	F	df1	df2	Sig. (p)	p-value	Unstandardized Coefficient B
H2: GMAT [a]									
→ G1-Understand the environments (economic, political, legal, social and cultural)	.060[a]	0.004	-0.002	0.623	1	174	0.431	$p > 0.05$	0.077
→ G2-Formulate solutions that incorporate environmental differences	.043[a]	0.002	-0.004	0.328	1	174	0.568	$p > 0.05$	0.055
→ G3-Gather data about competition in the industry	.040[a]	0.002	-0.004	0.280	1	174	0.597	$p > 0.05$	0.049
→ G4-Draw conclusions using competitive data	.056[a]	0.003	-0.003	0.547	1	174	0.461	$p > 0.05$	0.069
→ G5-Solution recommended is appropriate given environmental data	.056[a]	0.003	-0.003	0.548	1	174	0.460	$p > 0.05$	0.071
→ L1-Explains Relevant Leadership Theories Discussed in Case Study	.024[a]	0.001	-0.005	0.103	1	174	0.748	$p > 0.05$	0.027
→ L2-Apply Leadership Theories Effectively to Solutions	.004[a]	0.000	-0.006	0.003	1	174	0.954	$p > 0.05$	0.005
→ L3-Assessment of Personal Leadership Strengths and Weaknesses	.014[a]	0.000	-0.006	0.034	1	174	0.854	$p > 0.05$	0.016
→ L4-Relates Lessons from Leadership Theories and Personal Assessment to Personal Career	.029[a]	0.001	-0.005	0.146	1	174	0.703	$p > 0.05$	0.033
→ I1-Identify strategic issues related to situations presented in the case analysis	.089[a]	0.008	0.002	1.388	1	174	0.240	$p > 0.05$	0.124
→ I2-Effectively scans internal and external data across business disciplines	.064[a]	0.004	-0.002	0.720	1	174	0.397	$p > 0.05$	0.088
→ I3-Creates alternatives that represent successful integration across disciplines	.077[a]	0.006	0.000	1.027	1	174	0.312	$p > 0.05$	0.107
→ I4-Select a recommended solution that emphasizes analysis and integration	.108[a]	0.012	0.006	2.066	1	174	0.152	$p > 0.05$	0.153
→ **D1-Articulates the Decision Situation and Criteria**	.280[a]	0.079	0.073	14.747	1	174	0.000	*p < 0.05*	0.379
→ **D2-Identifies and Describes Key Decision Alternatives**	.285[a]	0.081	0.076	15.326	1	174	0.000	*p < 0.05*	0.339
→ **D3-Uses Data to Correctly Identify Likelihood of Outcomes**	.276[a]	0.076	0.071	14.280	1	174	0.000	*p < 0.05*	0.349
→ **D4-Uses Data to Assess Impact of Outcomes**	.249[a]	0.062	0.057	11.469	1	174	0.001	*p < 0.05*	0.289
→ **D5-Makes an Informed Decision and Provides Support**	.254[a]	0.065	0.059	11.981	1	174	0.001	*p < 0.05*	0.289

[a] Predictors: (Constant), GMAT Score Groups: <480=1; 480-550=2; 551-600=3; 601+=4.

H3 assumed: "Work experience is a significant predictor of MBA students' GLID performance outcome."

The regression analysis illustrated in Table 7 shows that the MBA students' years of work experience were not a significant statistical predictor of these students' global, leadership, integration, and decision performance outcomes in their MBA courses. Therefore, H_3 is rejected since the *p* values of all the GLID performance outcomes are greater than 0.05. In addition, the R squares of 0.000 through 0.009 mean that at highest only 0.9% of the variation of some GLID performance outcome can be explained by the variability of MBA students' years of work experience.

**Table 7. Regression Analysis of Work Experience to MBA Students' Global,
Leadership, Integration, and Decision Making Performance Outcome**

Model: Independent V → Dependent V	R	R Square	Adjust. R Square	F	df1	df2	Sig. (*p*)	*p-value*
H3: Work Experience [a]								
→ G1-Understand the environments (economic, political, legal, social and cultural)	.029[a]	0.001	-0.005	0.144	1	174	0.705	p > 0.05
→ G2-Formulate solutions that incorporate environmental differences	.044[a]	0.002	-0.004	0.332	1	174	0.565	p > 0.05
→ G3-Gather data about competition in the industry	.092[a]	0.009	0.003	1.493	1	174	0.223	p > 0.05
→ G4-Draw conclusions using competitive data	.083[a]	0.007	0.001	1.193	1	174	0.276	p > 0.05
→ G5-Solution recommended is appropriate given environmental data	.048[a]	0.002	-0.003	0.395	1	174	0.531	p > 0.05
→ L1-Explains Relevant Leadership Theories Discussed in Case Study	.018[a]	0.000	-0.005	0.057	1	174	0.811	p > 0.05
→ L2-Apply Leadership Theories Effectively to Solutions	.057[a]	0.003	-0.002	0.576	1	174	0.449	p > 0.05
→ L3-Assessment of Personal Leadership Strengths and Weaknesses	.057a	0.003	-0.002	0.576	1	174	0.449	p > 0.05
→ L4-Relates Lessons from Leadership Theories and Personal Assessment to Personal Career	.087[a]	0.008	0.002	1.341	1	174	0.248	p > 0.05
→ I1-Identify strategic issues related to situations presented in the case analysis	.049[a]	0.002	-0.003	0.416	1	174	0.520	p > 0.05
→ I2-Effectively scans internal and external data across business disciplines	.069[a]	0.005	-0.001	0.831	1	174	0.363	p > 0.05
→ I3-Creates alternatives that represent successful integration across disciplines	.052[a]	0.003	-0.003	0.479	1	174	0.490	p > 0.05
→ I4-Select a recommended solution that emphasizes analysis and integration	.061[a]	0.004	-0.002	0.643	1	174	0.424	p > 0.05
→ D1-Articulates the Decision Situation and Criteria	.037[a]	0.001	-0.004	0.240	1	174	0.624	p > 0.05
→ D2-Identifies and Describes Key Decision Alternatives	.035[a]	0.001	-0.005	0.211	1	174	0.647	p > 0.05
→ D3-Uses Data to Correctly Identify Likelihood of Outcomes	.044[a]	0.002	-0.004	0.342	1	174	0.560	p > 0.05
→ D4-Uses Data to Assess Impact of Outcomes	.048[a]	0.002	-0.003	0.394	1	174	0.531	p > 0.05
→ D5-Makes an Informed Decision and Provides Support	.011[a]	0.000	-0.006	0.020	1	174	0.887	p > 0.05

[a.] Predictors: (Constant), Years of Work Experience Groups: 0 year=1; 1-2=; 3-4=3; 5-6=4; 7+=5.

H4 assumed: "Age difference is a significant predictor of MBA students' GLID performance outcome."

As Table 8 shows, the regression analysis indicates that MBA students' age difference was a significant statistical predictor of these students' leadership performance outcomes with the *p* values ranging from 0.002 to 0.025. In contrast, these students' age difference was not a significant statistical predictor of their global, integration, and decision performance outcomes as their respective *p* values were between 0.133 and 0.965. Therefore, H_4 is accepted only as a significant predictor of MBA students' leadership performance outcomes since their *p* values of 0.002 through 0.025 are less than 0.05. The R squares of leadership performance outcomes ranging from 0.029 to

0.052 mean that 2.9% to 5.2% of the variations of MBA students' leadership performance outcomes can be explained by the variability of these students' age difference. The B values of unstandardized coefficients (0.173 through 0.236) in the leadership performance variables suggest that by increasing one scale point of MBA students' age group, their leadership performance outcomes would increase by 17.3% to 23.6%, respectively.

Table 8. Regression Analysis of Age Difference to MBA Students' Global, Leadership, Integration, and Decision Performance Outcome

Model: Independent V → Dependent V	R	R Square	Adjust. R Square	F	df1	df2	Sig. (p)	p-value	Unstandardized Coefficient B
H4: Age Group [a]									
→ G1-Understand the environments (economic, political, legal, social and cultural)	.114[a]	0.013	0.007	2.275	1	174	0.133	p > 0.05	0.133
→ G2-Formulate solutions that incorporate environmental differences	.102[a]	0.010	0.005	1.843	1	174	0.176	p > 0.05	0.118
→ G3-Gather data about competition in the industry	.077[a]	0.006	0.000	1.027	1	174	0.312	p > 0.05	0.086
→ G4-Draw conclusions using competitive data	.087[a]	0.007	0.002	1.312	1	174	0.254	p > 0.05	0.096
→ G5-Solution recommended is appropriate given environmental data	.095[a]	0.009	0.003	1.591	1	174	0.209	p > 0.05	0.110
→ L1-Explains Relevant Leadership Theories Discussed in Case Study	.169[a]	0.029	0.023	5.114	1	174	0.025	p < 0.05	0.173
→ L2-Apply Leadership Theories Effectively to Solutions	.190[a]	0.036	0.031	6.538	1	174	0.011	p < 0.05	0.215
→ L3-Assessment of Personal Leadership Strengths and Weaknesses	.221[a]	0.049	0.043	8.916	1	174	0.003	p < 0.05	0.236
→ L4-Relates Lessons from Leadership Theories and Personal Assessment to Personal Career	.229[a]	0.052	0.047	9.623	1	174	0.002	p < 0.05	0.236
→ I1-Identify strategic issues related to situations presented in the case analysis	.003[a]	0.000	-0.006	0.002	1	174	0.965	p > 0.05	0.004
→ I2-Effectively scans internal and external data across business disciplines	.045[a]	0.002	-0.004	0.346	1	174	0.557	p > 0.05	0.055
→ I3-Creates alternatives that represent successful integration across disciplines	.051[a]	0.003	-0.003	0.451	1	174	0.503	p > 0.05	0.065
→ I4-Select a recommended solution that emphasizes analysis and integration	.021[a]	0.000	-0.005	0.076	1	174	0.783	p > 0.05	0.027
→ D1-Articulates the Decision Situation and Criteria	.063[a]	0.004	-0.002	0.691	1	174	0.407	p > 0.05	0.078
→ D2-Identifies and Describes Key Decision Alternatives	.032[a]	0.001	-0.005	0.179	1	174	0.673	p > 0.05	0.035
→ D3-Uses Data to Correctly Identify Likelihood of Outcomes	.038[a]	0.001	-0.004	0.254	1	174	0.615	p > 0.05	0.044
→ D4-Uses Data to Assess Impact of Outcomes	.008[a]	0.000	-0.006	0.012	1	174	0.913	p > 0.05	0.009
→ D5-Makes an Informed Decision and Provides Support	.052[a]	0.003	-0.003	0.477	1	174	0.491	p > 0.05	0.054

[a]. Predictors: (Constant), Age Groups: <25 years old=1; 25-29=2; 30-34=3; 35-39=4; 40+=5.

DISCUSSION

Based on the findings, four conclusions were made. First, MBA students' GMAT score is a significant predictor of these students' decision making outcomes in the MBA courses. The higher in the GMAT score, the better in decision making performance. But the study did not identify significant impact of GMAT score on other performance outcomes such as global, leadership, and integration. The findings of the current case study might explain why the previous research resulted in mixed findings such as the GMAT verbal and quantitative sections successfully predicted performance in the MBA program. However, these measures in the current case study did not successfully predict the competencies that underlie managerial effectiveness, including communication, teamwork, decision making, leadership initiative, and planning and organizing. These competencies were better predicted, albeit imperfectly, by the analytical writing section of the GMAT (Kass & Bommer, 2012).

Second, MBA students' age difference is a significant predictor of these students' leadership performance outcomes in their MBA courses. The more senior in age the students are, the better in leadership performance they would demonstrate. However, the study did not identify significant effect of age difference on the global, integration, and decision making performance outcomes. This finding appeared to be an important indicator of potential success in the MBA program.

Third, MBA students' undergraduate GPA and work experience had no significant impact on these students' global, leadership, integration, and decision making performance outcomes in their MBA courses. These findings of the current case study did not support Pratt's findings (2015) that the undergraduate GPA was an indicator of potential success in the MBA program instead of the GMAT.

Finally, while creativity was ranked by World Economic Forum (2016) as the third of the 10 most important skills people need to thrive in the 4th Industrial Revolution, none of the four MBA admission criteria (undergraduate GPA, GMAT, work experience, and age difference) assessed MBA applicants' creativity potential. Similarly, the AOL goals at the business college in this case study only focus on MBA students' Global, Leadership, Integration, Decision Making, and Ethics performances. The MBA students' creativity performance was neglected totally.

ADMINISTRATIVE AND PEDAGOGICAL IMPLICATIONS

First, the findings of this exploratory case study provide references for the MBA admission officers when they review and improve the MBA admission criteria and policies. Since GMAT score and age are significant predictors of MBA students' decision making and leadership performances, which are very important skills now as well as for the 4th Industrial Revolution, GMAT score and age factors should continue to be included as the admission criteria for the future admission.

Second, the creativity skill has been ranked by World Economic Forum (2016) as the 3rd of the 10 most important skills people need to thrive in the 4th Industrial Revolution. But the undergraduate GPA, GMAT score, work experience, or age difference all failed to assess MBA students' creativity potential. Therefore, the MBA admission officers need to consider adding a new admission criterion to measure MBA students' creativity potential.

Third, the assurance of learning goals (AOL) of the college in this current case study are that the MBA students achieve successful performances in the Global, Leadership, Integration, Decision Making, and Ethics activities. Obviously, this skill set missed the creativity component, a very important skill for MBA graduates to thrive in the 4th Industrial Revolution of the 21st Century (World Economic Forum, 2016). Therefore, educators should consider including teaching creativity in the curriculum to ensure that MBA students will be able to thrive in the 4th Industrial Revolution.

RECOMMENDATIONS FOR FURTHER RESEARCH

The findings of this case study are limited to the MBA student performance outcomes from one semester of their MBA courses. Further research is recommended as following:

1. An MBA curriculum review needs to be considered on whether or not the curriculum delivers the knowledge and skill set with which MBA graduates are able to thrive in the 4th Industrial Revolution of the 21st Century.

2. A replication of the study may be considered to exam the impact of undergraduate GPA, GMAT score, work experience, and age difference on MBA student performance outcomes during the whole MBA program.

3. A replication of the study could be conducted in the MBA programs of the AACSB-accredited colleges of business in Asia, Europe, and Latin America state universities, respectively, to see if any similarities and differences exist between U.S. and Foreign MBA students.

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