

ACADEMIC EFFICACY MEDIATES TEACHING METHODOLOGY AND ACADEMIC PERFORMANCE OF BUSINESS EDUCATION STUDENTS

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ABSTRACT

The article aims to investigate academic self-efficacy as a mediator between teaching methodology and students' academic performance. The teaching methodology includes three factors: assessment methods, English language & communication and teaching styles, while the performance is investigated in quantitative modules. The sample is drawn from post and undergraduate students of business from public-sector higher education institutes of Pakistan. To achieve the objectives, structural equation modeling is employed to the data obtained through questionnaire from 300 questionnaires. Overall measurement model confirms convergent, internal consistent reliability and discriminant validity which is legitimate and valid for further investigations. Path coefficients show that T-statistic values are significant therefore, there exists a significant-positive connection between teaching methodology and performance. The results also show that academic self-efficacy mediates the relationship between Teaching style and performance, Assessment method and performance and English language & communication and performance.

Keywords: *Academic Self- Efficacy; Academic Performance; Business Education; Teaching-Styles; Quantitative Courses.*

INTRODUCTION

In today's education, the accountability of classroom teachers has increased strongly while the achievement of students has become a hot topic for debate in the field of education. To become a successful teacher, it is

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crucial to define the factors affecting students' achievements (Pooja, 2017). A successful and well-known educational system must have high quality, reputed, and shining teaching staff. Teachers play a very crucial role in their students' life (Latif et al., 2012). Thus different aspects of the personality of the teachers may improve the academic performance of the students (Zakariaand & Dewa, 2015; Yousef, 2017; Khan et al., 2017; Guirguis & Pankowski, 2017). Therefore, the current study examines the influence of teaching/training methodology on the academic excellence of students in quantitative courses/subjects through academic efficacy as a mediating agent.

According to the accreditation standards of the National Business Education and Accreditation Council (NBAEC) of Pakistan, a significant proportion of quantitative courses should be included in the curricula of business schools such as Statistics, Management studies, and decision sciences (NBAEC, 2016)¹. On the other hand, the higher education commission (HEC)² of Pakistan incorporates different quantitative subjects like Quantitative Decision Making for Business, Business Statistics, Statistical Inference, Research Methodology and Productions & Operations Management (Naqvi et al., 2012)³. HEC makes the quantitative courses as a compulsory prerequisite for BBA and MBA programs. During class, the primary communication channel is English as textbooks, case studies, learning resources and all other adopted learning materials for these programs are in English. All the learning material in the domains of management sciences reflects the culture and intellectual experiences of the West. However, almost all students in Pakistan are Urdu native speakers. Previous studies argue that students of business studies took quantitative courses most difficult and challenging (Mukherjee, 2000; Brookshire & Palocsay, 2005; Blaylock & Hollandsworth, 2008; Naik, 2009; Yousef, 2017). The adverse attitude towards quantitative subjects puts numerous negative consequences for

¹*Educational professional body the "National Business Education Accreditation Council (NBEAC)" is being run under the umbrella of "Higher Education Commission". "NBEAC" accredits educational programs of educational institutions of Pakistan, the programs include Management Sciences programs, Public Administration and Public Administration.*

²*The "Higher Education Commission (HEC)" is a self-governing, sovereign, and constitutional body for prime funding, supervising, regulating, and recognizing the higher education institutes operating in Pakistan.*

³*In the field of Education, Curriculum of subjects is termed as a nation's "throbbing pulse". A nations' steps and phases towards socio-economic development can be judged through viewing curriculum. The HEC after a regular time intervals holds a democratic arrangements by involving DAIs/Universities, R&D institutes and local CC&I (Chamber of Commerce & Industry) to refurbish and revamp the curriculum. HEC also invites contributions and rational feedbacks by emigrant Pakistanis employed in technically-advanced countries in educational and R&D institutions and incorporate their views wherever consider appropriate and approved by "National Curriculum Revision Committee (NCRC)".*

administrators, educators, and especially students (Yousef, 2017). Regardless of the significant impact of assessment method (Lebcir et al., 2008), English language & communication (Asrar et al., 2018; Hussain 2017) and teaching style (Pooja, 2017) on students' academic performance in quantitative courses of business curricula, an extensive review of the literature shows that very little attention has been given in this area of research (Dinu-Bajracharya, 2015; Yousef, 2017). Previously, some studies investigate the direct relationship between teaching methods and academic performance of the students, but the role of academic self-efficacy in learning has ignored (Talsma et al., 2018). Academic self-efficacy is an individual's self-confidence that he/she can attain desired academic goals successfully (Nasa, 2014). Academic self-efficacy has received great attention from researchers as it is considered as a core element of human activity and an extensive thought to be optimistically associated with academic success (Bong et al., 2012; Talsma et al., 2018). Thus the current study aims to inspect the impact of the three-factors model (namely teaching-style, English language & communication, and assessment methods) of Lebcir et al. (2008) on the academic excellence of non-native English under/postgraduate students in quantitative subjects through mediating role of academic self-efficacy. These subjects include Quantitative Decision Making for Business, Business Statistics, Statistical Inference, Research Methodology, and Productions & Operations Management. Previously, researchers correlated the profound teaching style to the preferred learning style in getting upper grades in exams (Canfield, 1992; Miglietti, 1994; Matthews, 1995; Tulbure, 2011), hence revamping the desire and achievement of students (Cafferty, 1980; Wetzel et al., 1982; Welborn, 1986; Miller, 2001; Stitt-Gohdes, 2003). Although, some studies investigate the relationship between teaching methodologies and students' performance, the mediating role of academic self-efficacy remained hidden (Harb & El-Shaarawi 2007; Yousef, 2012, 2017; Lebcir et al., 2008). Therefore, the current study is the first of its nature that fulfill this gap.

Thus, the study boosts the literature on education by first time linking the academic efficacy as a mediator between teaching styles and academic performance of the students. The remaining part of the article is ordered as the next part is comprised of a relevant literature review followed by methodology and data analysis and the last part consists of discussion and conclusion.

LITERATURE REVIEW

Teachers working in higher education institutions duly emphasize students' desires to pursue success in their careers. Competent tutors should communicate their lessons in such a way that improves the learning skills of students regardless of the diversity of courses (Thompson et al., 2004). The top-quality education systems and teachers execute a vital role in the different civilizations of the world (Latif et al., 2012) through the academic achievements of the students (Lebcir et al., 2008; Yousef, 2017).

Assessment Methods, English Language & Communication, Teaching Style, and Students Performance

According to research by Ganyaupfu (2013), different teaching methods are available based on teacher-student interaction and required appropriate implementation standards. The teacher-centered methods enable the students to explore new learning opportunities by realizing their interests. Therefore, learning has adopted a more goal-oriented approach. Finally, teacher-student interaction is used to attract students and led by teachers for a certain period. Although this meta-analysis explores a variety of evidence-based teaching strategies, that allows the students not only to learn but also to develop their primary concerns. But teachers have limited abilities to practice such strategies. For instance problem-solving, co-teaching, reciprocal teaching, inclusion, collaboration strategies depend on interaction with heterogeneous students and faculty to achieve multiple perspectives (Guirguis & Pankowski, 2017).

Enhancement of students learning behavior is reported by several researchers when information is communicated according to students' wishes (Keller, 1987, Miller, 2001, Laight, 2004). In the past, teaching style remained a burning issue among scholars. It is referred to as an inclination towards teaching behavior and conformity between coaching behavior and coaching faith of tutor (Heimlich & Norland, 1994) or with the manner a tutor deals a learning exercise (Davis et al., 1994). Besides "some teaching styles are specified as a label associated with the various identifiable sets of classroom teaching behaviors, which are consistent with the taught content even though such content may be subject to change (Conti & Welborn, 1986)". However, style maybe one's comprehensive tutorial qualities which lasts whatever the set of conditions. The common feature that comes out of these various descriptions is the learning process and teaching manners (Spoon & Schell, 1998). A thematic framework is presented by Lebcir et al. (2008), comprised of three distinctions teachings

styles i.e. English language & communication and assessment methods which are considered to have an impact on students' academic performance. It is evident from the research that English language skills, the pace of lectures, level of details given in lectures, internet sources, individual or group evaluation, and quantitative/qualitative contents of evaluation are key factors regarding academic excellence of overseas students in quantitative modules. According to (Michel et al., 2009), earlier studies find that learning of students is highly affected by active teaching tactics as compared to the passive approach of teaching. Kang'ahi et al. (2012) infer that style of teaching during the lecturer has encouraging impacts on the achievements of students in academia. Ganyaupfu (2013) concludes that the academic achievements of students are significantly and positively influenced by teaching methods.

On the other hand, to become a good teacher requires various skills. Ehindero and Ajibade (2000) suggest that teachers need specific skills for effective teaching e.g. good classroom management, good communication, knowledge updating, and personality development. Unless these basic teaching skills are available, no one can teach effectively. In formal or informal situations, teaching involves a process of communicating basic knowledge and skills that can change behavior (Osakwe, 2009). Because students view communication skills as the characteristics of a good teacher (Zakariaand & Dewa, 2015). According to Khan et al. (2017), student success is directly linked to effective teacher communication. Liberante (2012) believes that the relationship between students and teachers has an unlimited impact on learning.

Therefore, good communication skills are required for better academic performance. Harb and El-Shaarawi (2007) find that English reading, writing, and speaking skills are exhibiting noticeable effect as an instructional language on the academic achievements in business modules of students. In project management courses, (Lebcir et al., 2008) find the English-language as a vital forecaster of academic excellence of overseas students at a British University, and similar findings are reported by (Yousef, 2012) in introductory quantitative courses of non-native English students. Effective teaching requires teachers to have excellent skills in all these areas. Good communication skills are necessary for teachers to interact with their students, classroom management, and carrying out educational activities properly. To teach according to students' abilities, teachers need to use these communication skills to stimulate students (Sng

Bee, 2012). Between English proficiency and academic achievements of students, Feast (2002) find a significant association. Several other researchers find a positive and significant association between language proficiency and academic excellence assessed through TOEFL grades, but the correlation is weak (Heil & Aleamoni, 1974; Riggs, 1982; Abadzi, 1984; Burgess & Greis, 1984; Vinke & Jochems, 1993). According to Pepperl and Trevelyan (1997), English proficiency is the second strongest predictor of overall performance after the GMAT score. English language skills have the highest predictive value of 10% of the variance of performance measures (Ho & Spinks, 1985).

It is the responsibility of a teacher to teach the students to prepare them practically so, that they can cope with all kinds of situations. Teacher communication skills have an important role in students' academic achievement. Therefore, effective communication is essential for student and teachers' success (Osakwe, 2009). Communication skills build relationships between students and lecturers to understand each other and to promote common interests. Communication plays an important role in building the career of students and to motivate them to increase their abilities. Therefore, it is important and necessary for teachers to communicate effectively with students (Asrar et al., 2018).

When it comes to assessment methods, classroom assessment guides students to determine what is important to learn according to their self-perceptions of motivation and ability (Crook, 1988), which gradually shape their attitudes. An individual study is undertaken to reinforce the practice further and to develop continuous learning strategies and skills. The adopted assessment method has been documented to influence students' diverse learning patterns (Schouler, 1998). In contrast, perception of students towards assessment technique of teachers influences the approach of students to learn their modules (Struven et al., 2005). In learning environment, especially web-based learning, "formative assessment strategy" strongly influence the students' achievements (Wang et al., 2006). Qualitative/quantitative content of group or individual assessment and evaluation are significant forecasters of international student's academic achievements in project-management courses (Lebsir et al., 2008) Similarly, Yousef (2012) concludes that academic excellence of non-native English students is influenced by assessment techniques in quantitative modules. Also, Yousuf (2017) finds no impact of assessment methods on academic excellence of students of business administration in

quantitative modules at UAE universities. The following hypothesis are developed on the basis of above discussion;

H₁. Teaching style has significant impact on Academic achievement of students of business administration in quantitative modules.

H₂. English language & communication have significant impact on achievement of students of business administration in quantitative modules.

H₃. Assessment techniques have significant impact on achievement of students of business administration in quantitative modules.

Academic self-efficacy

According to Klassen and Usher (2010), self-efficacy improves performance through different ways: people having high self-efficacy often set more complex goals, give extra efforts, face challenges bravely and show flexibility in hard times. These successes in return increase self-efficacy that outcomes in excellent performance (Stajkovic et al., 2018). Self-efficacy theory (Bandura, 1977) proposes that academic self-efficacy might differ in the performance of job/task complexity. According to Dunbar et al., (2018), self-efficacy is strongly interconnected with academic performance. A meta-analysis of Richardson, Abraham, & Bond, (2012) also concludes the strongest correlation between academic self-efficacy and academic performance. Therefore based on the discussion in section 2.1 and 2.2, we construct the following hypotheses:

H₄. Academic self-Efficacy have significant impact on Academic achievement of students of business administration in quantitative modules.

H₅. Teaching style has significant impact on Academic self-Efficacy of students of business administration in quantitative modules.

H₆. English language & communication have significant impact on Academic self-Efficacy of students of business administration in quantitative modules.

H₇. Assessment methods have significant impact on Academic self-Efficacy of students of business administration in quantitative modules.

The study of Schneider & Preckel, (2017) find academic self-efficacy as a strong predictor of academic performance. There are rare studies that have examined the mediating role of academic self-efficacy. Stajkovic et al., (2018) have explored the mediating role of academic self-efficacy between personality traits and academic performance. The study of Liu, et al., (2018) explores the mediating role of self-efficacy between teacher

support and math engagement. Hoigaard et al., (2015) investigate the mediating role of self-efficacy between school psychological climate and academic achievement, while little is known about the mediating role of academic self-efficacy between teaching methodology and academic performance. Therefore the current study aims to investigate the mediating Role of Academic Efficacy between the Teaching Methodology and Academic performance. Based on the above discussion, the study postulated the following mediating hypotheses:

H₈. Academic self-Efficacy mediates the relationship between English language & communication and performance of students of business administration in quantitative modules.

H₉. Academic self-Efficacy mediates the relationship between Teaching Styles and performance of students of business administration in quantitative modules.

H₁₀. Academic self-Efficacy mediates the relationship between Assessment methods and performance of students of business administration in quantitative modules.

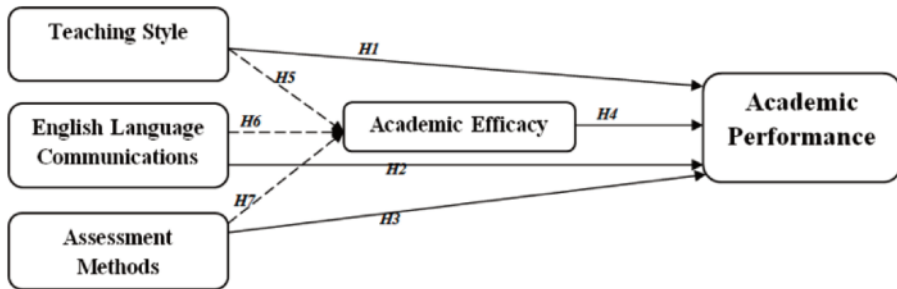


Figure 1: Hypothesized Research Model

DATA AND METHODOLOGY

Students of final years in business studies (belong to major universities in Islamabad, Pakistan) are selected as the population in the current study. As these students have completed their quantitative courses, so they best defined the population. A sample of 400 students is chosen by using a convenience sampling technique and data is collected through a questionnaire personally. 300 out of 400 questionnaires with a 75% response rate are filled by the students. 24 responses are excluded due to incomplete information, so the final respondents are 276 for analysis.

The instrument consists of three parts. The first part contains the items related to quantitative courses and is adopted from (Yousef, 2017). The second part consists of 24 items, 16 items are adopted from the study of Lebcir et al. (2008) that measure teaching style, English language &

communication, and assessment methods. The rest 8 items are adopted from the study of (Muris, 2001) to measure academic self-efficacy. All items are measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) see Appendix –I. To measure the academic performance of the students in introductory quantitative courses, quality points (GPA-grade point average) are used. Structural equation modeling is employed to interpret the relationships through PLS. The quantitative subjects for which GPA is taken to examine the variables of the study are Operations Research, Quantitative Methods for Business, Operations and Production Management, Statistics for Business 1 and 2.

Table 1: Confirmatory Factor Analysis (Cross Loading)

	Academic self-efficacy	Assessment method	English language and communication	Performance	Teaching style
Assessment method	0.731	0.447	0.59	0.021	0.485
	0.673	0.591	0.437	-0.008	0.297
	0.517	0.54	0.432	0.036	0.469
	0.639	0.586	0.368	0.013	0.419
	0.87	0.829	0.717	0.022	0.579
Academic self-efficacy	0.618	0.72	0.579	0.004	0.459
	0.718	0.846	0.425	0.03	0.357
	0.406	0.505	0.155	0.005	0.201
	0.782	0.879	0.596	0.034	0.687
	0.79	0.741	0.63	0.013	0.545
	0.641	0.814	0.66	0.017	0.519
	0.744	0.819	0.536	0.02	0.401
	0.46	0.786	0.612	0.018	0.388
English language and communication	0.664	0.653	0.824	0.013	0.578
	0.564	0.519	0.798	0.022	0.52
	0.599	0.664	0.704	0.022	0.498
	0.526	0.599	0.638	0.02	0.544
	0.451	0.453	0.637	0.01	0.382
	0.48	0.455	0.604	0.01	0.51
Performance	0.026	0.026	0.023	1	0.039
Teaching style	0.377	0.381	0.381	0.008	0.547
	0.456	0.575	0.618	0.021	0.84
	0.46	0.583	0.57	0.041	0.778
	0.364	0.347	0.386	0.037	0.671
	0.669	0.589	0.623	0.032	0.805

Table 2: Item's Loading, Internal-consistency & AVE

	Item Indicators	Loadings for each Indicators	(Reliability) Composite	AVE
Assessment method	AM1	0.731	0.794	0.441
	AM2	0.591		
	AM3	0.54		
	AM4	0.586		
	AM5	0.829		
Academic self-efficacy	ASE1	0.618	0.883	0.645
	ASE2	0.718		
	ASE3	0.406		
	ASE4	0.782		
	ASE5	0.79		
	ASE6	0.815		
	ASE7	0.744		
	ASE8	0.66		
English language and communication	ELC1	0.824	0.855	0.498
	ELC2	0.798		
	ELC3	0.704		
	ELC4	0.638		
	ELC5	0.637		
	ELC6	0.604		
Performance	P1	1	1	1
Teaching style	TS1	0.547	0.853	0.542
	TS2	0.84		
	TS3	0.778		
	TS4	0.671		
	TS5	0.805		

Where TS = Teaching Style, ELC = English Language & Communication, AM = Assessment Method & ASE = Academic self-efficacy

Table 3: Discriminate Validity

	Academic self-efficacy	Assessment method	English language and communication	Performance	Teaching style
Academic self-efficacy	0.803				
Assessment method	0.764	0.664			
English language and communication	0.784	0.598	0.726		
Performance	0.026	0.026	0.023	1	
Teaching style	0.66	0.59			1

RESULTS AND DISCUSSION

CFA (confirmatory factor analysis) is applied to confirm discriminant validity,

convergent validity as well as reliability of items. Items loadings are presented in Tables (1 & 2). As (Anderson & Gerbing, 1988; Bagozzi et al., 1991; Gefen et al., 2000) propose, Loadings of all variables are greater than the “perilous threshold of $\geq .50$ ”. As for as the reliability is concerned, the value of composite reliability must fulfill the requisite threshold value of $\geq .70$. In the current study, the value of composite reliability is greater than the mention threshold value. Such responses from respondents reveal the entire significance of constructs (Bagozzi et al., 1991; Chin, 1998). As recommended the value of AVE is higher than 0.5 for academic self-efficacy and teaching style but around 0.5 in the case of the English Language & communication and Assessment method which is acceptable as studies suggest if AVE approaching 0.5, alongwith a composite-reliability greater than 0.6, the convergent-validity is still acceptable for each construct (Huang et al., 2013). The average variance lies between 0.441 to 0.542 and composite reliability is above 0.7 (Huang et al., 2013). For establishing discriminate validity, the square root of AVE for every latent variable is taken and this value should be greater than other correlation values (Fornell & Larcker,1981). In Table 2, the AVE value for the assessment method is 0.441 and the square root of this value is 0.664 (see Table 3). Table 3 shows all variables (Academic self-efficacy, Assessment method, English language and communication, Performance, and Teaching style) having the square root of AVE is higher than AVE values of the respective variables therefore, the discriminate validity is confirmed and accepted. The overall measurement model confirms convergent, internal consistency reliability, and discriminant validity which is legitimate and valid for further investigates.

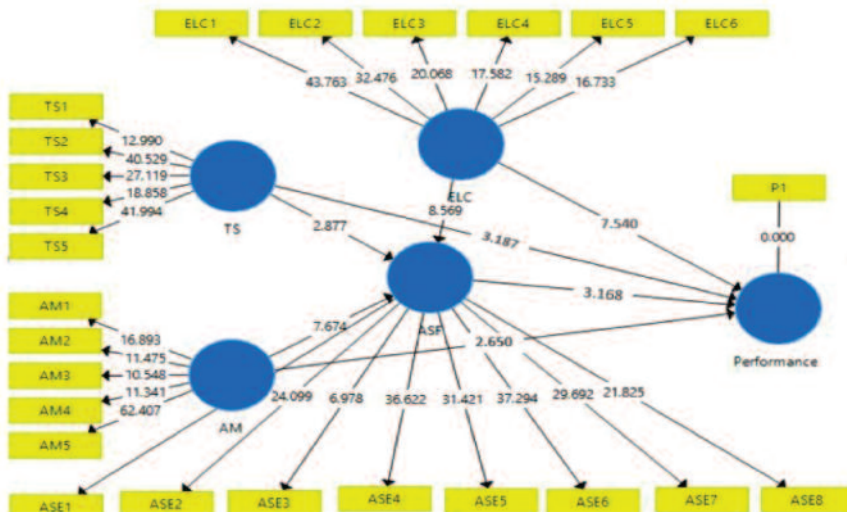


Figure 2: SEM model of study, Where TS = Teaching Style, ELC = English Language & Communication, AM = Assessment Method & ASE = Academic self-efficacy

Table 4: Results for Hypotheses testing using SEM Approach via Mediator

	Hypothesis	ST-DEV	T- Stat	Verdict
Teaching Style → Performance	H1	0.028	3.187	Supported
English language and communication → Performance	H2	0.441	7.540	Supported
Assessment method → Performance	H3	0.037	2.650	Supported
Academic self-efficacy → Performance	H4	0.054	3.168	Supported
Teaching style → Academic self-efficacy	H5	0.045	2.877	Supported
English language and communication → Academic self-efficacy	H6	0.053	8.569	Supported
Assessment method → Academic self-efficacy	H7	0.045	7.674	Supported
Assessment method → Academic self-efficacy → Performance	H8	0.019	5.467	Supported
English language and communication → Academic self-efficacy → Performance	H9	0.023	4.469	Supported
Teaching style → Academic self-efficacy → Performance	H10	0.007	8.447	Supported

The path coefficient can be used to infer and interpret the possible causal relationship between variables in the SEM approach. Table 4 shows that T-statistic values are significant therefore there exists a significant and positive relationship between teaching style and performance, English language/communication and performance, Assessment methods and performance, Academic self-efficacy and performance, teaching style and Academic self-efficacy, English Language & Communication and Academic self-efficacy, Assessment methods and academic self-efficacy. Thus all hypotheses from H1 to H7 are supported and the results of the study are similar to the studies of (Lebcir et al., 2008; Yousef, 2012; Yousef, 2017; Hussain et al., 2017; Schneider & Preckel, 2017). It is also clear from Table 4 that the coefficient can be used to examine the possible mediating linkage between variables in the SEM approach. The results show that academic- self-efficacy mediates the relationship between Teaching style and performance, Assessment method and performance, and English language & communication and performance. Therefore, H8, H9, and H10 hypotheses are supported. The results are supportive of the findings of previous studies (Hoigaard et al., 2015; Stajkovic et al., 2018; Liu, R. D. et al., 2018). Table 5 represents descriptive statistics and correlation, it is clear from the table that the higher mean values show respondents' reactions are more inclination near the agreement side indicating teaching style, English language communications, and academic efficacy significantly influence the academic performance of the students.

Moreover, the correlation among variables is also less than the cut-off value of 0.85 as recommended by (Kline, 2005). The correlation results reveal that there is a positive and significant relationship among variables.

Table 5: Summary Statistics alongwith Correlations

Variables	Mean	S.D	TS	ELC	AM	ASE	Performance
TS	3.67	0.82	1				
ELC	3.74	0.69	.548**	1			
AM	3.86	0.71	.520**	.597**	1		
ASE	3.79	0.77	.615**	.567**	.573**	1	
Performance	3.73	0.82	.568**	.523**	.548**	.545**	1

Where TS = Teaching Style, ELC = English Language & Communication, AM = Assessment Method & ASE = Academic self-efficacy

CONCLUSION

The current study is the first of its nature that introduces academic self-efficacy as a mediator between teaching methodology and students' academic performance. The teaching methodology includes three factors namely assessment methods, English language & communication, and teaching styles (Lebcir et al. 2008). The sample is drawn from students of the final year from business and management feild from public sector higher education institutions of Pakistan. To achieve the objectives, the structural equation modeling is employed by using smart PLS. The overall measurement model confirms convergent, internal consistency reliability, and discriminant validity which is legitimate and valid for further investigations.

Path coefficients show that T-statistic values indicate significant positive relations between independent variables (teaching style, English language/communication, and assessment methods) and dependent variable (performance). Thus all hypotheses from H1 to H7 are supported. The results also show that academic self-efficacy mediates the relationship between Teaching style and performance, Assessment method and performance, and English language & communication and performance. Therefore, H8, H9, and H10 hypotheses are also supported. The study has some implications, the universities must require students to have English proficiency before getting admission to business studies. The teaching faculty should prepare and deliver well-structured lectures at an equitable pace to allow appropriate time for students to understand them. Good use of Web learning platforms can also enhance the performance of students. Moreover, the teachers should engage the students in quantitative courses

through class discussions and encourage the students to participate. Universities should deploy more economic resources to such subjects. Future studies can utilize the methodology in other disciplines of the academic program. The researchers can use the model of this study to compare the performance of a business and non-business students. Private and public sector institutions may also be compared with the model used in the study. Future studies may introduce the moderating impact of gender between teaching methodology and students' performance. Future research may employ mediating role teachers' foreign qualifications between teaching methodology and students' performance, but we rest all these to future research.

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