BUSINESS, MANAGEMENT AND EDUCATION
ISSN 2029-7491 / eISSN 2029-6169
2016, 14(2): 210–225
doi:10.3846/bme.2016.322

FACTORS AFFECTING RESEARCH ENVIRONMENT AT SYRIAN BUSINESS FACULTIES: A STUDENT-PERCEIVED MODEL

Bayan KHALIFA[1], Riad ABDULRAOUF[2], Sulaiman MOUSELLI[3]

[1]Department of Management, Faculty of Business Administration, Arab International University, Mazzeh-High Way, Damascus, Syria
[2, 3]Department of Accounting and Finance, Faculty of Business Administration, Arab International University, Mazzeh-High Way, Damascus, Syria
E-mails: [1]bayan.khalifa@outlook.com; [2]riadraouf@hotmail.com; [3]s-mousele@aiu.edu.sy (corresponding author)

Received 2 June 2016; accepted 22 September 2016

Abstract. This study aims at investigating the factors that affect the research environment of business postgraduate students, particularly master students, from the perspective of these students. From the same perspective, it also aims at assessing these factors together with the quality of research environment. A questionnaire survey method was employed. The questionnaire was developed by academics from five business faculties based on relevant studies and was distributed to graduate students enrolled in all of the research business programs at the Faculty of Economics, Damascus University, ending up with 88 valid responses. To explore the factors that may affect research environment, exploratory factor analysis was employed. In addition, multiple regression analysis and t-test were applied to respond to the study purposes. Facilities and industry linkage come to be significant factors in the research environment. However, the results show insignificant impact for each of the research courses, networking, and research skills in the overall research environment. Variations in regard to the availability of these factors were identified with low level of availability for the facilities and industry linkage. The study is one of a kind that investigates factors affecting research environment of postgraduate students and particularly master students. Further and to the best of our knowledge, it is the first study that examines such factors in war conditions, which enables us to understand what students perceive as critical factors influencing their research performance in these conditions. Recommendations to policy makers are presented to develop strategies that respond to students' concerns for a better research environment.

Keywords: business research, facilities, industry linkage, research courses, networking, research skills, Syria.

JEL Classification: I20, I23, I29.

1. Introduction

The Syrian higher education system on the postgraduate level has its unique characteristics. It treats master level as research degree that requires submitting a thesis of at least one year of research as a requirement for awarding the degree (The Ministry of Higher Education in Syria website: http://www.mohe.gov.sy/mohe/). Moreover, master students are expected to deliver high quality research and to publish articles during their master study in order to continue their doctoral studies. Extra points are assigned to students who have international publications, which count for in the selection process for admission to doctoral program (Damascus University website: http://www.damascusuniversity.edu.sy/ce/srd/2011–04–05–10–34–02/2010–10–27–13–20–19/787–2013–04–24–10–02–01). This policy encourages master students to publish both locally and internationally in order to have a better chance of admitting to doctoral programs. Master students at faculties of business and economics are in the core of this policy.

Despite research students' recognition of the importance of having quality international publications, many factors are expected to hinder business master students from conducting research. Factors affecting the performance of master students are quite similar to those affecting academic staff. However, certain specialties exist to accommodate the student case such as the quality of research method modules and the quality of supervision (MATRE 2014).

The majority of prior literature focuses on the factors that affect research performance and environment of academics (Macgregor *et al.* 2006; Sabzwari *et al.* 2009; Billot 2010; Sulo *et al.* 2012; Orlando, Gard 2014), and to a lower extent doctoral students (Walsh *et al.* 2010; Golovushkina 2012; Ismail *et al.* 2013), as the premium source of research, including the research at business schools. However, master students were not foreseen as researchers. Accordingly, factors affecting the research performance of master students were not adequately investigated. This could be attributed to the taught nature of the master programs at the business schools of many western universities.

The objective of this paper is twofold. First, it tries to fill the observed gap in the literature that investigates the factors which affect research performance of postgraduate students and particularly master students, which are rather neglected in the previous literature. Second, given the war conditions in Syria, examining such relevant factors for postgraduate students enables us to understand what students perceive as critical factors influencing their research performance in these conditions. The literature lacks such studies which can give additional novelty to this study. This could help policy makers to develop strategies that respond to students' concerns which could result in a better research environment.

2. The Syrian situation – a struggle for boosting research

The Syrian higher education authorities consider enhancing research quality in all fields, and particularly in Business studies, as a national priority (The Ministry of Higher

Education in Syria website: http://www.mohe.gov.sy/mohe/). However, Syria is witnessing a period of political, economic, and social challenges resulted from the current more than five years crisis. Hence, this research becomes a vital issue for the reconstruction process at both the economic and social levels.

In Syria, scientific research in business is strongly linked to the public higher education system. For many years, higher education had been solely provided by the government for very limited student fees. This is due to political reasons that considered education as a right guaranteed by the government for every person. However, the increasing demand and the arising cost of higher education posed a substantial challenge for the government to fulfill higher education needs, either at the quantitative or at the qualitative level. As a result, the government was encouraged to allow opening private fee-paying universities, which took place in 2001. By the end of 2014, six public universities, seventeen private universities, four public higher institutes, and one private higher institute were operating in the system of higher education in Syria.

In spite of the current government trends towards allowing the private higher education, research programs in Syria are still exclusive for public higher education. Private universities are not yet allowed to open research post-graduate programs. The government claims that the quality of research can only be guaranteed through its public higher education institutions. In 2014, there were 837 and 187 business research students at master and PhD levels respectively, enrolling at public universities and high institutes (The Ministry of Higher Education in Syria website: http://www.mohe.gov.sy/mohe/). Hence, the majority of business research activities are funded by the government with non-government sources remain very light.

Despite the relatively-large number of business research students in Syria, international business research production that is published in referred international academic journals, and indexed in international research databases is considered poor compared to most countries in the Middle East (Khalifa *et al.* 2015). According to the report produced by Khalifa *et al.* in 2015, only 17 Syrian-affiliated researchers in the fields of Social Sciences and Humanities have published their research in journals that are indexed by scopus database[1], including only seven researchers in the field of business. The productivity of research students is even far worse.

The recent awareness of the higher education authorities of the poor production of business research, and its importance led the higher education authorities to apply certain reforms to encourage both research students and academic staff to conduct high quality research, with higher focus on research students as the promising promoters of research (The Ministry of Higher Education in Syria website: http://www.mohe.gov.sy/mohe/). For example, master students are encouraged through awards and extra marks for publishing in

[1] Scopus is the largest bibliographic database containing abstracts and citations for academic journal articles. It is owned by Elsevier and is available online.

national and international journals. These students are supposed to pass eight modules in the first year of their master followed by a thesis. The Ministry of Higher Education, thus, started to encourage master students to publish their research in academic-refereed journals. Further, publishing a minimum of one article has become mandatory to apply for a doctoral program in Syria. Moreover, master graduates with exceptional international publication skills were treated preferably when applying for doctoral programs (Damascus University website: http://www.damascusuniversity.edu.sy).

The current reforms to encourage high quality international research by master students have some positive outcomes but fail to achieve the intended impact. Obviously, it increases the awareness among research students of the importance of conducting high quality research. However, this awareness and the introduced incentives have not been translated into the expected research performance by master students. One of the possible reasons is that research environment does not go along with the higher education authorities' policies and ambitions and there could be many factors that hinder research in business studies.

3. Literature review

The literature on the factors that affect research performance of research students is very narrow (Dogan, Bikmaz 2015) and reflects the specific nature of each educational system. However, the factors that affect the research performance of academic staff are well-researched. Those factors can be split into three main categories according to the concerned level; individual level, institutional level and country level.

On the individual level, personal characteristics of faculty members such as age, gender, civil status, educational attainment, academic rank, and teaching load among other factors were investigated. For example, Conklin and Desselle (2006) found that 35% of the variance in staff research productivity of pharmacy academics is explained by a number of personal factors such as gender, academic rank, the number of hours spent on research activities every week, teaching self-efficacy, research self-efficacy, graduate programming interdisciplinary consensus, stress related to fulfilling academic roles and field of specialization. Quimbo and Sulabo (2014), in a study on the productivity of research staff in five state universities in Philippines, found that educational attainment and teaching load significantly affect research self-efficacy which in turns affects research productivity. Moreover, they found that research experience is a significant determinant of research productivity. On the source of educational attainment, Sahoo *et al.* (2016) found that Indian business faculty members who attain their doctoral degrees from outside India and/or had worked abroad for a few years are more research productive than their counterparts who had such degrees or experience solely from India.

On the institutional level, a mixture of factors that impact research performance of academic staff at faculties and other professional researchers were suggested. Quimbo and Sulabo (2014), for example, investigated the impact of research policy, research

funding, research benefits and incentives on research productivity and found that only research benefits and incentives load significantly on research productivity. Sahoo *et al.* (2016) asserted the institutional importance documenting that business faculty staff at the Indian Institutes of Technology are more research productive than those at Indian Institutes of Management. Other factors suggested by (Bland, Ruffin 1992; Pratt *et al.* 1999; Rix *et al.* 2004; MacGregor *et al.* 2006; Dhillon *et al.* 2015; Lamm 2015; Gregory *et al.* 2016), are: (1) Research management structure transparency and effectiveness, (2) The linkage between research and workloads, (3) New researchers' nutrition, (4) Facilities provided by faculty research management, (5) Effectiveness of research communication mechanisms, (6) Interdisciplinary research collaboration encouragement, (7) External research collaboration encouragement, (8) Relevance of research indicators to individual's own research, (9) Impact of research indicators on individual's own research, (10) Fostering of research mentoring system, (11) Engagement of research students in research activities, (12) Effectiveness of quality assurance mechanisms, (13) Clarity of research priority areas, (14) Natural research concentrations emergence, (15) General opinion on research environment.

On the country level, other factors emerge. The accessibility to research funds is seen as important determinant of research performance especially when government resources are allocated to universities on the basis of research performance (MacGregor *et al.* 2006; Sulo *et al.* 2012; Muscio *et al.* 2013; Gonzalez-Brambila *et al.* 2016). Gonzalez-Brambila *et al.* (2016), for example, revealed that in the Latin America region, investment in R&D is comparatively low, largely depends on public funds, and is highly concentrated in academic research with limited business applications. They also unveiled a lack of connection in the region between those who produce knowledge (academia) and those who use that knowledge (business practitioners). They argued that business schools in the region have a role to play filling this gap by conducting more research with real-world business applications and by fostering innovative entrepreneurship among business school students.

Careful comparison of previous factors indicates that the majority of these factors are only applicable to academic staff and other professional researchers with some relevant to research students and too much emphasis on doctoral students. Most of the doctoral students' studies were focused on supervision issues, the skills and competencies of PhD candidates, communication and networking, and courses (Kim *et al.* 2010; Sachdev 2011; Mohamed *et al.* 2012; Baptista 2014; Philippi 2014; Strandler *et al.* 2014; Olehnovica *et al.* 2015; Baruffaldi *et al.* 2016; Nehls *et al.* 2016). Baptista (2014) addressed the role of emotions in the supervisory and research processes of PhD students. He argued that this experience has been considered, for many PhD students, an intense and demanding "roller coaster". Furthermore, Mohamed *et al.* (2012) suggested that soft skills and thinking out-of-the box skills are the main skills identified by the respondents as determinants of doctoral research students. Moreover, Sachdev (2011) identified the main problem that face research students as isolation and small

research communities. Moreover, Kim *et al.* (2010) identified the main weaknesses in the curriculum. These weaknesses are lack of courses which focus on developing core research competencies, lack of intra- and external funding for dissertation research, and limited access to facilities.

On the basis of the above review of literature on factors affecting performance of research students, and on the exploratory factor analysis conducted in this study, this article investigates the impact of five extracted factors on research environment. In other words, the literature yielded several items that are expected to affect research environment. Thereafter, the analysis came to aggregate five factors based on these items. The factors are research-related courses provided to research students, facilities available to them to conduct research, cooperation between industry and students conducting research, networking, and research skills (Table 1).

Table 1. Factors affecting research environment of research students

Factor	Reference
Research courses	Kim *et al.* 2010
Facilities	Kim *et al.* 2010
Industry linkage	Kahn *et al.* 2012; Mello *et al.* 2015
Networking	Sachdev 2011
Skills	Mohamed *et al.* 2012

4. Methodology

This study aims at determining the factors that affect the research environment at Damascus University in Syria, from the perspective of business research students. It also aims at assessing these factors together with the quality of research environment from the perspective of these students. In order to achieve this purpose, a questionnaire survey method was employed. The questionnaire consists of an introductory section for students' profiles (i.e. gender, age, nationality, department, and education level) and two more sections aiming at achieving the study purposes. The first section consists of ten items targeting the research environment. The second section consists of 54 items that are expected to contribute to enhancing the research environment.

Keeping in mind the international nature of the research environment, the questionnaire was developed by academics at universities in three countries: Damascus University (DU), Arab International University (AIU), and International University for Science & Technology (IUST), Syria; Vilnius Gediminas Technical University (VGTU), Lithuania; and Modern University of Business and Science (MUBS), Lebanon. Subsequently, to embrace the perceptions of the private business sector, the questionnaire was revised and benefited from the comments provided by the Syrian Consulting Bureau for Development & Investment, a private company specialized in conducting macro-

economic and sector studies, especially in the area related to the linkage between industry and university. The stated process yielded a questionnaire in English language. To guarantee students' accurate understanding, the questionnaire items were translated to Arabic by academics in Syria. Items were close ended, and were assessed on a 5-point Likert scale.

Based on the final version of the questionnaire, data collection took place in the period between 7th to 30th July 2014. Questionnaires were distributed to graduate students enrolled in all of the research business programs at the Faculty of Economics, Damascus University. In order to distribute the questionnaire, two means were employed. First, lecturers manually delivered 70 copies of the questionnaire to their students, which resulted in a 100% response rate. Second, due to the current war conditions and in order to reach students at remote locations, the questionnaire was distributed online through the university website, students' Facebook groups, and students' email lists. The number of students that reached the questionnaire through the online channels was estimated by 500. These channels yielded other 18 valid responses with a response rate of 3.6 percent, a usual rate compared to the average of 2 percent reported by Petchenik and Watermolen (2011) for online surveys. Accordingly, the overall valid responses were 88. Respondents' profiles are presented in Table 2. The data was treated through SPSS version 20.

Table 2. Students' profile

Variable	Frequency	%
Gender		
Female	40	45.5
Male	48	54.5
Age		
20–25	40	45.5
26–30	41	46.6
31–35	5	5.7
36–40	2	2.3
Nationality		
Syrian	83	94.3
Palestinian	4	4.5
Jordanian	1	1.1
Department		
Business Administration	12	13.6
Economics	24	27.3
Banking and Insurance	38	43.2
Applied Statistics	5	5.7
Accounting	9	10.2
Education level		
Master (courses)	57	64.8
MPhil	27	30.7
PhD	4	4.5

5. Results

To explore the dimensionality of the questionnaire items, an exploratory factor analysis was applied using varimax rotated principal axis factoring as shown in Table 3. The analysis resulted into six factors with Eigenvalues and factor loadings that, respectively, exceeded the minimums of 1 and 0.3 suggested by Creswell (2012). The factors also fulfilled the minimum criteria (at least three items per factor) of defining a factor (Brown 2015). Accordingly, the authors named the generated factors through driving the concept behind the meaning of the constructed items. Cronbach's alpha, a measure of internal consistency, was found to exceed the minimum of 0.6 suggested by DeVellis (2012) for all of the factors.

To investigate the significant contributions of these factors to the research environment, a multiple regression analysis was conducted.

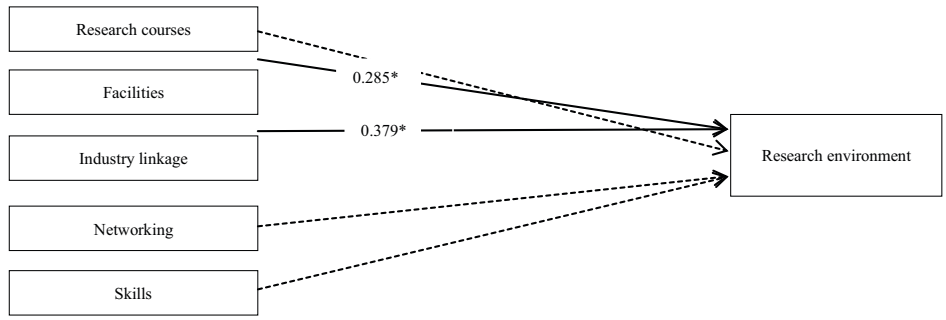
In order to investigate the impact of the five extracted factors: research courses, facilities, industry linkage, networking, and skills on research environment, a multiple regression analysis was run using the following equation,

$$\textit{Research environment} = \beta 0 + \beta 1\ \textit{Research Courses} + \beta 2\ \textit{Facilities} + \beta 3\ \textit{Industry Linkage} + \beta 4\ \textit{Networking} + \beta 5\ \textit{Skills} + \varepsilon$$

Where:

$\beta 0$ is the constant; $\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$, and $\beta 5$; are the sensitivity of research environment to changes in research courses, facilities, industry linkage, networking, and skills respectively; ε is the error term.

The results revealed a significant impact for each of the facilities offered by the university and its linkage with the industry on research environment. The most important factor is industry linkage with a coefficient of 0.379. It indicates that one percentage improvement in industry linkage would enhance research environment by 0.379%. Moreover, the coefficient of 0.285 indicates that one percentage increase in facilities offered by universities, improves research environment, by 0.285% (Fig. 1).



Note: Dashed lines indicate non-significant paths at 0.05.

Fig. 1. Path model

Table 3. Exploratory factor analysis and reliability test

Construct	Item	Factor loading						Eigenvalue	Cronbach's alpha
		F1	F2	F3	F4	F5	F6		
Research environment								4.620	0.723
	Scientific research activity is very prevalent	0.346							
	Quality of research activity is very good	0.373							
	Researchers are financially supported and encouraged	0.505							
	Research conferences and workshops are held regularly	0.497							
	Scientific research is conducted according to the needs of business and industry	0.643							
	A fair evaluation of the quality of research activities is conducted regularly	0.522							
Research courses								3.357	0.717
	There is adequate guidance of lecturers in business research courses		0.614						
	Lecturers' sufficient knowledge of statistics has a major influence on the quality of business research courses		0.543						
	Research courses are equipped with recent methods of research		0.701						
	Qualitative and Quantitative research methodologies are fully covered in the courses		0.680						
Facilities								4.318	0.749
	Internet labs are available and well equipped for research			0.480					
	Electronic resources and data bases are available in the Library			0.727					
	Different research journals are available in the library			0.694					
	Libraries have adequate number of recent business-related textbooks and resources			0.515					
	Librarians provide helpful assistance			0.424					
	There are enough useful textbooks available in the library on new research methodology			0.661					
Industry linkage								4.620	0.684

	Research is linked to practical needs of business and industry	0.607			
	Regular meetings are held with businesses to discuss their needs	0.508			
	Business provide adequate fund and support for research	0.558			
	The research's integration with business is satisfactory	0.421			
	Research methods courses emphasize linking academia to business	0.649			
Networking				4.250	0.698
	Internationalization of research environment at university is important to run scientific research		0.438		
	Organized international conference at university/faculty for sharing scientific results is relevant to run scientific research		0.709		
	Organized special scientific workshops at university/ faculty are required		0.707		
	Strong linkages with industry and university/faculty are required		0.710		
	English language skills are needed		0.564		
Skills				7.316	0.748
	Research methods and tools' skills are needed to be able to conduct better research			0.448	
	Academic writing skills are needed to be able to conduct better research			0.576	
	Decision-making skills (the skills to make timely decisions, to take responsibility for decisions, evaluate the risks and consequences of decisions) are required			0.452	
	Creativity, creative thinking skills (skills to present original ideas, offer innovative and unconventional solutions) are necessary to be able to conduct better research			0.557	
	Presentation skills (skills to communicate clearly and precisely articulate thoughts and ideas clearly explained) are needed			0.580	
	Self-development and self-learning skills are wanted			0.673	

However, the other three factors, research courses, networking, and skills did not show significant impacts on research environment, with p-values that are above 0.05 (Table 4).

Table 4. Direct effects' coefficients

The relationship	Estimate	P-value
Research environment <--- Research courses	–0.021	0.746
Research environment <--- Facilities	0.285*	0.000
Research environment <--- Industry linkage	0.379*	0.000
Research environment <--- Networking	–0.080	0.558
Research environment <--- Skills	0.024	0.859
*significant at 0.05		

To assess the extent to which these factors are available to the business research students at Damascus University, means and one-sample t-test was conducted. Cooper and Schindler (2011) suggested that one-sample t-tests are used when we have a single sample and wish to encounter the difference between observed and expected values. In this study, t-test was employed to investigate the differences between the observed mean values and the neutral values of the study factors, where the neutral value is the middle of the scale used, three. Exhibited in the second-left column in Table 5, the results showed that business research students have negative perceptions towards the quality of the research environment, with the mean of 2.127, that detracted the neutral value of three. They also undervalue each of the research courses, facilities, and industry linkage that are offered by their university, with the means of 2.285, 2.144, and 1.873, respectively. In addition, business research students expressed high scores for each of the constructs of networking and skills, with the means of 4.065 and 4.218, respectively, which exceeded the neutral values of three.

Table 5. T-test for assessing the quality of the research environment and the expected contributors

Construct	Test value = 3			
	Mean	T	Df	Sig.
Research environment	2.127	–13.493–	87	0.000
Research courses	2.285	–7.859–	87	0.000
Facilities	2.144	–11.023–	87	0.000
Industry linkage	1.873	–15.485–	87	0.000
Networking	4.065	9.656	87	0.000
Skills	4.218	11.196	87	0.000

6. Discussion of results

This study aims at investigating the factors that affect the research environment of postgraduate students, particularly master students, from the perspective of business research students. It also aims at assessing these factors together with the quality of research environment from the same perspective.

The results of this article indicate that research students perceive facilities as the dominant factor that affects their research performance. These facilities include, but are not limited to, internet labs, electronic resources and databases, journals and software packages. It is highly expected that this factor will come first in research student perception because in the absence of such facilities, conducting a proper research is unimaginable. The result, however, comes to confirm previous research (e.g., Kim *et al.* 2010). Hence, the main emphasis of higher education authorities should be directed towards making these facilities available to research students. Among all the facilities, electronic resources and databases perceived as the most important elements. Accordingly, the authors invited the Ministry of higher education in Syria and the universities to offer their research students subscriptions to high-quality scientific databases. These subscriptions may include access to latest journal articles and research methodology books to support students in their research.

In the current situation of public funds shortage, and in line with previous research (Kahn *et al.* 2012; Mello *et al.* 2015), research students recognize cooperation with industry in both funding and needs' awareness as the second priority. The overwhelming dependence on public funds of public universities and the current war situation of the country impose great constraints on the funds available to research students with almost no funds made available to research in these universities since the beginning of the war in Syria. More cooperation in the form of regular meetings and partnerships between industry and universities especially in funding new projects will significantly enhance the research performance of research students.

However, our results contradict previous research in regard to the three remaining factors, research courses, networking, and skills (Aguilar *et al.* 2013; Chase *et al.* 2013; Mello *et al.* 2015).The insignificant impact of these factors should not be taken as an indicator of their irrelevance for research nor should be considered as if they are already on place. One reason of research students not considering research courses as essential for their research performance could be that students find alternatives to university research courses in online courses and social media. The results, thus, intensifies the need to develop self-learning skills in order to help students get the most possible benefits from these alternatives. Universities are invited to run workshops and training courses to develop their students as self-learners. Further, they are invited to enhance teaching and assessing methods in a way that avoids rote learning and encourages independence of students. The lack of awareness on the benefits and rewards of networking and research skills could be the reason of students undervaluing these factors. Accordingly, holding conferences, workshops, and seminars to raise awareness of students on these factors could be a plausible solution for the fact.

Responding to the second purpose of the study, which is to assess the extent to which these factors together with an appropriate research environment are available to the business research students at Damascus University, our results show variabilities.

The worth noting result is that students hold negative assessment towards the research environment in their university. Further, they also perceive low availability of each of the facilities and industry linkage, which are identified by these students as significant factors in the research environment.

7. Conclusions and recommendations

This article investigates the perceived impact of five factors on research environment from the point of view of research students at a Syrian business faculty. We find that research students perceive facilities as the dominant factor that affects their research performance. Moreover, research students recognize cooperation with industry in both funding and needs' awareness as the second priority. However, the results show insignificant impact for each of the research courses, networking, and research skills in the overall research environment.

Clearly, those results hold for other public universities offering post-graduate research programs. The results, accordingly, call for the higher education authorities to reform the research environment for a more friendly linkage between industry and universities in a win-win situation. Moreover, minimum, at least, research facilities should be regulated and guaranteed by higher education authorities to ensure the availability of all necessary facilities. Furthermore, allowing private universities to open post-graduate research programs jointly with public universities may overcome the lack of facilities from which public universities suffer while assuring the quality of teaching.

This study is limited to master students in the business field. Therefore, future studies may investigate the factors affecting research environment in other fields which may have different dominated factors. In addition, this study is based on a questionnaire that contains a number of factors predetermined by academics and expected to affect research environment. Thus, future research may conduct interviews or focus groups with students to explore other factors that may affect research environment including personal attitudes and motives. Such attitudes and motives may overweigh a number of the examined factors and could explain the excellent research performance of some students and constitute a venue for future research.

Acknowledgements

This research has benefited in questionnaire development from the feedback of Jurgita Raudeliūnienė, Vida Davidavičienė, Serene Dalati, Mohamad Alkhedr, M. Sadiq Alnosairat, and Bassem Kaisse.

Funding

This work was financially supported by Tempus project No. 544001-TEMPUS-1-DE-TEMPUS-JPHES.

Disclosure statement

The authors declare that they do not have any competing financial, professional, or personal interests from other parties.

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Bayan KHALIFA. Teaching assistant in Management at the faculty of Business Administration, Arab International University. Damascus, Syria. Research Interest: higher education reform, and leadership at higher education

Riad ABDULRAOUF. Lecturer in Auditing and Accounting at the faculty of Business Administration, Arab International University. Damascus, Syria. Research Interest: audit risk, corporate governance, and audit quality.

Sulaiman MOUSELLI. Senior Lecturer in Finance and dean of the faculty of Business Administration, Arab International University. Damascus, Syria. Research Interest: stock market anomalies, asset pricing models, corporate governance, and macroeconomic risk.