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The Influence of Individual Characteristics on Faculty Research Attitudes, Intentions, Behaviors, and Perceived Barriers: The Case of Kuwait University⁽¹⁾

Keywords

Research, attitudes, intentions, behaviors, barriers, individual characteristics, Kuwait University.

Abstract

Knowing what individual characteristics influence research performance and perceived research barriers are essential to guiding research productivity improvement efforts in academia. While most, if not all, of the studies on faculty research productivity have explored the influence of individual characteristics on research behavior, almost none has examined the influence of these characteristics on research attitudes, intentions, and perceived research barriers. This study explored the influence of gender, age, nationality, academic rank, experience, academic field, and time spent on research and teaching on research attitudes, intentions, behaviors, and barriers at Kuwait University (KU). Although the faculty hold positive attitudes toward research and intend to engage in future research, their research productivity is relatively low. They also believe that engaging in research-impeding activities, lack of extrinsic motivators, and lack of research resources challenge research performance. Although the individual characteristics variably influence research attitudes, intentions, behaviors, and perceived barriers, academic field, time spent on research, time spent on teaching, and academic rank are the most influential characteristics. These results should serve as a foundation for articulating scholarly productivity improving policies at KU and other similar HE institutions.

Introduction

Faculty at Higher Education (HE) institutions are expected to be productive in research, teaching, and service (Fairweather 2002). Greater emphasis, however,

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has lately been placed on research productivity (Bland *et al.*, 2005; Teodorescu, 2000). Research productivity has become an important criterion for recruitment, tenure, and promotion decisions (Tien, 2000). However, the average research productivity of faculty tends to be low and varies from one discipline to another, from one faculty to another in the same discipline, and from one institution to another (Fairweather, 2002; Fox, 1983; Allison, 1980). Knowing why some faculty members are more scholarly productive than are others and what factors influence such productivity is therefore essential to scholarly productivity improvement efforts (Creswell, 1985).

Researchers have long sought explanations of faculty research productivity. Some (e.g., Okiki, 2013; Jung, 2012; White *et al.*, 2012; Alghanim and Alhamali 2011; Hardré *et al.*, 2007, 2011; Smolentseva, 2011; Chen *et al.*, 2006, 2010; Bland *et al.*, 2002, 2005; Ackson, 2004; Lee and Rhoads, 2004; Brocato, 2001; Serow and Demry, 1999; Creswell, 1985; Fox, 1983) have identified and explored contextual factors' influence on research productivity. Others (e.g., Angaiz, 2015; Hardré *et al.*, 2007, 2011; Hedjazi and Behravan, 2011; Stafford, 2011; Bland *et al.* 2005; Jackson, 2004; Lee and Rhoads, 2004; Sax *et al.*, 2002; Fox, 1983; Creswell, 1985) have sought explanation for faculty research productivity using various individual characteristics. In most of these studies, research behavior (i.e., productivity) has been the main dependent variable. Yet, the behavioral theories (e.g., Fishbein and Ajzen, 1975; Ajzen, 1985, 1991) postulate that behavior is largely determined by attitude and intention. As such, a faculty member's research attitude, intention, behavior, and perception of research barriers may depend on his/her distinct individual characteristics, such as gender, age, academic rank, tenure, cognitive ability, motivation, personality type, work habits, preference for research, and career stages.

While most, if not all, of the research productivity studies have explored the influence of individual characteristics on research behavior (productivity), almost none has examined the influence of individual characteristics on research attitudes, intentions, and perceived research barriers. In addition, most of the available empirical research results on faculty research productivity were produced using data sets from developed countries (Teodorescu, 2000). However, the cultural and policy differences challenge the generalizability of these research results across institutions and national boundaries (Teodorescu, 2000; Hardré *et al.*, 2011; Fairweather, 1999). Moreover, although the mission of Kuwait University (KU) places great emphasis on faculty research and scholarship, empirical evidence on faculty research attitudes, intentions, and behaviors and their influencing factors

are lacking. Learning about these beliefs provides substantive information about the unique factors that induce a faculty member to engage in research (Ajzen 1991). Empirical findings undoubtedly provide a more solid base for policy making than do theoretical concepts and intuition.

The main research question addressed in this study is whether there are differences in the research attitudes, intentions, behaviors, and perceived research barriers of faculty due to differences in individual characteristics? More specifically, this study explored the possible influence of gender, age, nationality, experience at HE, academic rank, academic field, and time spent on research and teaching on the research attitudes, intentions, behaviors, and perceived researcher barriers of the KU faculty. The impetus for this research is to put forward empirically-based implications for strategies and policies aimed to enhance research productivity of the KU faculty and to contribute empirically-derived findings to the growing international body of knowledge on scholarly productivity in academia and its determining factors.

BACKGROUND

Although defined differently (Angaiz, 2015), faculty research productivity has gained considerable importance in HE nationally and internationally across the globe. The quality and quantity of an institution's research is a key factor in national and international rankings of academic institutions and their accessibility to financial and quality faculty resources (Angaiz, 2015; Hardré *et al.*, 2011; Bland *et al.*, 2005). As educational expenditures, including the costs of research, rise and HE institutions compete for high-quality faculty and external funding, issues surrounding faculty scholarly productivity have been undergoing extensive debate (Hardré *et al.*, 2011). Knowing why faculty experience different levels of research attitudes, intentions and behaviors is essential to manage and sustain high faculty scholarly productivity.

Research attitudes, intentions, and behaviors:

Since performing research is a social behavior, studies may draw on behavioral theories from social psychology to identify and investigate factors that can possibly influence search attitude, intention, and behavior. Most notably are the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB). The TRA (Fishbein and Ajzen, 1975) postulates that behavior is a function of intention, which is a function of attitude and subjective norms. The TPB (Ajzen, 1985, 1991) is an extension to the TRA as it includes perceived behavioral control as an additional determinant of intention and behavior. The TPB postulates that behavior is a function of three salient beliefs: behavioral beliefs, which are assumed

to influence intension toward the behavior, normative beliefs, which constitute the underlying determinants of subjective norms, and control beliefs, which provide the basis for perceived behavioral control (Ajzen 1985, 1991).

Understanding the complexities of research behavior requires an understanding of the individual motivations for that behavior, including attitudes and intentions. Attitudes toward a behavior (i.e., research) comprise positive or negative appraisals of performing that behavior and the consequences of so doing (Ajzen, 1985, 1991). Attitude also describes an individual's feeling of favorableness or unfavorableness for a behavior based on the consequences of the behavior and the importance of the effects (Fishbein and Ajzen, 1975; Ajzen, 1991). As such, the more favorable the attitude of a faculty member toward research is, the stronger is his/her intension to perform research.

Attitude is linked to behavior through its effect on intention (Ouellette and Wood, 1998). Intention is a state of desire-plus-belief to be converted into a disposition to act (Veludo-de-Oliveira, 2009; Feldman, 1999, p. 319-320; Bagozzi and Yi, 1988). It is a motivational construct, which is presumably the antecedent of the behavior itself (Ajzen, 1985, 1991). However, establishing and implementing an intention may involve minimal or substantial effort and ability, depending on the difficulty of the behavior (i.e., research) and how easy it is to anticipate changes in the environment (Ouellette and Wood, 1998; Eagly and Chaiken, 1993). Therefore, intention may not necessarily be followed by any action, nor it is necessarily plausible that such action, if undertaken, will be successful (Hogg and Vaughan, 2002, p. 164).

Faculty members could have the intentions to do research, but they might not actually produce significant research because factors (i.e., research barriers) that stifle their research efficacy may exist. Scant research, however, investigated the research attitudes, intentions, and behaviors relationships. Stanton *et al.* (2009) and Milburn (1999) found favorable attitudes toward the usefulness of research to positively correlate with research performance measures (e.g., effort, productivity). Clarke (2010), however, found no significant relationship between faculty's attitudes toward research engagement and their actual engagement in research.

Research barriers:

Abundant studies (e.g., Angaiz, 2015; Okiki, 2013; Jung, 2012; White *et al.*, 2012; Alghanim and Alhamali, 2011; Hardré *et al.*, 2007, 2011; Smolentseva, 2011; Hedjazi and Behravan, 2011; Chen *et al.*, 2006, 2010; Bland *et al.*, 2002, 2005; Ackson, 2004; Lee and Rhoads, 2004; Brocato, 2001; Bucheit *et al.*, 2001; Serow and Demry, 1999; Creswell, 1985; Fox, 1983) have identified and investigated

individual and contextual (institutional) factors that are believed to enable or impede research productivity in HE. The existence, or lack, of one or more of these factors could influence a faculty member's research productivity positively or negatively. The contextual factors, which could also influence some individual characteristics, are malleable and, once identified, can be manipulated through decisions and policies aimed at improving research productivity in a particular HE institution (Bucheit *et al.*, 2001; Hardré *et al.*, 2011). This study identified and investigated twenty contextual factors (barriers) that were believed to impede the research productivity of faculty (Appendix A). Nevertheless, a faculty member's research attitude, intention, and behavior and his/her perception of research barriers may depend on his/her distinct individual characteristics.

Influence of individual characteristics:

The extant literature suggests a number of individual characteristics (e.g., gender, age, rank, tenure, innate scientific ability, motivation, communication, personality type, tolerance of ambiguity and abstraction, work habits, preference for research, and career stages) that could individually or collectively influence a faculty member's research productivity (Hardré *et al.*, 2007, 2011; Jackson, 2004; Lee and Rhoads, 2004; Sax *et al.*, 2002; Fox 1983; Creswell 1985). This study explored the influence that gender, age, nationality, academic field, academic rank, experience at HE, time spent on research, and time spent on teaching could have on research attitudes, intentions, behaviors, and barriers.

1 - **Gender.** Gender could influence research behavior (productivity) (Angaiz, 2015; Sax *et al.*, 2002; Hardré *et al.*, 2011). High research-producing faculty members tend to be men more than women, and men appear to sustain higher productivity levels throughout their careers than do their female counterparts (Creswell, 1985). These differences could be related to the tendency of female faculty members to spend more time on teaching, academic advising and service responsibilities as well as on household responsibilities (Angaiz, 2015). While evidence from several earlier studies supports a higher research productivity for male faculty over female faculty, evidence on gender influence on research attitudes, intentions, and perceived research barriers is deficient. The possible influence of gender was evaluated by testing the following hypothesis:

H1: There will be significant differences in research attitudes, intentions, behaviors, and perceived research barriers between male and female faculty.

2 - **Age.** Chronological age could influence research performance positively or negatively (Hedjazi and Behravan, 2011; Bland *et al.*, 2005), and the literature supports conflicting assumptions regarding that influence (Angaiz, 2015; Creswell, 1985). While the average productivity of faculty tends to decline with age (North *et al.*, 2011; Bland and Bergquist, 1997), many older faculty members remain active in research, and their productivity is comparable to or higher than those of younger faculty members (Stafford, 2011; Bland and Bergquist, 1997). In addition, the relationship between age and research productivity could be influenced by other factors such as academic rank, work experience, academic qualification, and extrinsic and intrinsic motivators. Therefore, age could operate differently at different stages of a professional career. Given the lack of conclusive evidence, the influence of age on research attitudes, intentions, behaviors, and perceived research barriers was evaluated by testing the following hypothesis:

H2: There will be significant differences in research attitudes, intentions, behaviors, and perceived research barriers among faculty in different age groups.

3 - **Nationality.** At KU, nationality could influence research behavior and perceived research barriers. Kuwaiti and expatriate faculty members experience different employment terms and conditions. Kuwaiti faculty members are usually granted tenure when employed by the University, and therefore, job security is not contingent on research productivity. Expatriate faculty members, however, are contracted employees, and contracts renewals are very much dependent on research productivity. Subsequently, the intrinsic and extrinsic motivators could variably influence research behaviors of the two groups through their professional careers (Hu and Gill, 2000; Hardré *et al.*, 2011). Kuwaiti nationals could do research because they are extrinsically motivated by getting promoted and/or appointed to administrative positions. However, beliefs and expectations of success (i.e., intrinsic motivators) could exert an important influence on their sustainable research productivity after promotion (Chen *et al.*, 2006; Hardré *et al.*, 2011). Expats, however, could be extrinsically motivated (by frequent contract renewal and job security) and/or intrinsically motivated (by their passion for research) to stay productive throughout their careers at KU. The influence of nationality on research attitudes, intentions, behaviors, and perceived research barriers was evaluated by testing the following hypothesis:

H3: There will be significant differences in research attitudes, intentions, behaviors, and perceived research barriers between Kuwaiti and non-Kuwaiti faculty.

4 - Experience at HE. Experience at HE is also a correlate of research productivity (Angaiz 2015) and is believed to account for a good percentage of the variance in research productivity (Jung, 2012; Bland *et al.*, 2002). The influence of years of experience on productivity is not only because of the chronological age, but also because of the experiences gained from having higher academic ranks, higher academic qualifications, and work experience (Angaiz, 2015). Although evidence supporting the influence of experience at HE on research behavior (productivity) exists, no evidence exists on the influence of that experience on research attitudes, intentions, and perceived research barriers. The possible influence of experience at HE was evaluated by testing the following hypothesis:

H4: There will be significant differences in research attitudes, intentions, behaviors, and perceived research barriers among faculty with different HE experience.

5 - Academic Rank. Academic rank is a significant predictor of a faculty member's research productivity (White *et al.*, 2012; Hedjazi and Behravan, 2011; Hardre *et al.*, 2011; Brocato and Mavis, 2005; Bland *et al.*, 2005). Chen *et al.* (2010) postulate that research productivity of a faculty member rises sharply in the initial stages of a career, continues up to the peaks at the time of tenure review, and then begins a decline after tenure. In addition, research results suggest a positive correlation between academic rank and research productivity (Hedjazi and Behravan, 2011; Stafford, 2011; North *et al.*, 2011; Brocato and Mavis, 2005; Bland *et al.*, 2005), as research productivity is a requirement for promotion to higher academic ranks (Tien 2000).

Although evidence supporting the influence of academic rank on research behavior (productivity) exists, no evidence exists on the influence of that individual characteristic on research attitudes, intentions, and perceived research barriers. The possible influence of academic rank was evaluated by testing the following hypothesis:

H5: There will be significant differences in research attitudes, intentions, behaviors, and perceived research barriers among faculty at different academic ranks.

6 - Academic field. The academic field of a faculty member is believed to influence his/her research behavior (productivity) (Fox, 1983). Research

norms vary from one field to another. As such, the discipline-specific norms influence a faculty member's expectation regarding the importance of publishing in selected outlets and engaging in specific research activities (Creswell, 1985; Gaston, 1978). They also influence his/her performance through the degree of codification of knowledge (or stage of paradigm development) and the social activities of the discipline (e.g., medicine versus business). While the literature provides some evidence supporting research productivity differences across academic fields, insufficient evidence exists on the influence of academic field on research attitudes, intentions, and perceived research barriers. The possible influence of academic field was evaluated by testing the following hypothesis:

H6: There will be significant differences in research attitudes, intentions, behaviors, and perceived research barriers among faculty from different academic fields.

7 - Time spent on research. Research effort, which demands time, influences research productivity (White *et al.*, 2012; Hardré *et al.*, 2011, 2007). Devotion of time for research activities early in the career could also determine or predict research productivity (Bland *et al.*, 2002, 2005). Productive researchers spend at least one-third of their time on research (Creswell, 1985). Spending insufficient time on research could impede research productivity (Stafford, 2011; Alghanim and Alhamali, 2011; Brocato, 2001). The influence of the time spent on research on research attitudes, intentions, behaviors, and perceived research barriers was evaluated by testing the following hypothesis:

H7: There will be significant differences in research attitudes, intentions, behaviors, and perceived research barriers among faculty who spend varied times on research.

8 - Time spent on teaching. Time spent on teaching is considered an obstacle to research productivity (Jung, 2012; Iqbal and Mahmood, 2011). The greater the time spent on teaching, the less is the research productivity (Lodhi, 2011; Stafford, 2011; Hardré *et al.*, 2007, 2011; Alghanim and Alhamali, 2011; Chen *et al.*, 2006; Bucheit *et al.*, 2001). Nevertheless, the studies on the relationship between research and teaching have produced mixed results depending on the variables investigated and the way they were measured (Ovington *et al.*, 2003). The influence of the time spent on teaching on research attitudes, intentions, behaviors, and perceived research barriers was evaluated by testing the following hypothesis:

H8: There will be significant differences in research attitudes, intentions, behaviors, and perceived research barriers among faculty who spend varied times on teaching.

METHODOLOGY

This study adapted the survey approach in a single organization (i.e., KU). This approach provides the opportunity to understand the problem being investigated. A brief description of the variable measurement, instrument development, sampling, data collection, and sample profile follows.

Measurement

1 - The independent variables: The independent variables include the individual characteristics of gender, age, nationality, experience at HE, academic rank, academic field, time spent on research, and time spent on teaching. Information pertinent to each of these variables was collected using a single item in the survey.

2 - The dependent variables were measured as follows:

(a) Behavior: behavior was operationally defined as research productivity in the last three years. Four self-reported indicators were used: (1) the number of peer-reviewed publications (e.g., journal articles, edited books, monographs, chapters in edited books) authored or co-authored, (2) the number of conference presentations authored or co-authored, (3) the number of funded research projects, and (4) a self-rating of research productivity compared to colleagues in the academic field. The first two indicators were adapted from Hardré *et al.* (2011). The third indicator, adapted from Angaiz (2015), was included because bringing grants is a measure of success and productivity (Massy and Widgren, 1995), and funded research projects eventually materialize in publications. The fourth indicator was added to account for the possible variability in research standards and norms across academic fields.

(b) Intention: Intention is a measure of an individual's readiness to perform research in the future (Ajzen, 2006b). Four items (e.g., I plan to do research in the next 6 months; I intend to continue to do research in the next 6 months) that are commonly used to assess intention in TPB-based studies (Ajzen, 2006a) were adapted and rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

- (c) **Attitude:** A direct, global measure of attitude to assess the overall evaluation of performing research was used (Ajzen, 2006a). Five affective and instrumental items (e.g., to me, doing research is pleasant; to me, doing research is the right thing) were adapted and rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).
- (d) **Research barriers:** Twenty research barriers were identified and investigated in this study (Appendix A). Eighteen items were identified based on a review of the extant literature, and two items were added based on the researcher's experience with the investigated institution (KU). The barriers were rated on a 5-point Likert scale (strongly agree = 1, strongly disagree = 5).

Instrument development

The original English data collection instrument consists of three sections. Section (1) is designed to collect data on the individual characteristics of the respondents and their research behavior (frequency of research performance in the last three years). Section (2) is designed to solicit the respondents' agreements/disagreements with each of the statements representing the items measuring intention and attitude. Section (3) is designed to solicit the respondents' agreements/disagreements with each of the statements describing the twenty research barriers. Section (4) is designed to allow respondents to add any other factors believed to impede research performance and to recommend actions that KU administrators could take to enhance faculty research productivity. The English version of the instrument was then translated into Arabic by the researcher, and the translation was verified and back translated into English by a bilingual translator. A final (English/Arabic) version of the instrument was drafted and reviewed by three faculty members to confirm readability. Fifty-one faculty members from different academic disciplines then piloted the instrument, and a few minor issues were cited and fixed.

Sampling and data collection

The research setting is Kuwait University (KU), which is the state's only public institution of HE. KU aspires to become a national pioneering university with outstanding qualifications in higher education and scientific research. It has approximately 1,600 full-time faculty members, who serve approximately 36,000 students enrolled in 76 undergraduate and 71 graduate programs. It encompasses 17 colleges, including Sharia and Islamic Studies, Medicine, Allied Health Sciences, Pharmacy, Life Sciences, Engineering and Petroleum, Architecture,

Sciences, Computing Sciences and Engineering, Business Administration, Law, Social Sciences, Arts, Education, Dentistry, Graduate Studies, and Public Health.

Since the KU faculty members were the informants, a clustered sample of 400 responses representing 25% of the full-time faculty population was initially sought. The data collection process took place in the fall of the 2015-2016 AY. Paper copies of the data collection instrument were distributed to faculty members in 15 of the 17 KU colleges. Two colleges (the College of Graduate Studies and the College of Public Health) were excluded because they had few faculty members (5 or fewer) at the time of data collection. The faculties in some colleges were more responsive than in others, and a total of 261 usable responses (16.5% of the faculty population) were received and analyzed.

This sample is considered sufficient based on a population size of 1,600 faculty members, a significance interval of 95%, and a marginal error of 0.0445. It is also considered adequate in light of Stevens' (1996) recommendation of having 5 to 15 responses for each measured variable (construct) and Boomsma's (1987) recommendation of using a sample size of 200 as a rule of thumb. Since the responses from some colleges were relatively small, the fifteen colleges in the sample were regrouped into six academic disciplines: Business, Sciences, Liberal Arts (Social Sciences, Life Sciences, and Literature), Health Sciences (Medicine, Dentistry, Pharmacy, and Allied Health), Engineering & Technology (Engineering and Petroleum, Computing Science & Engineering, and Architecture), and Humanities (Sharia and Islamic Laws, Law, and Education). Table (1) presents the sample distribution by academic discipline.

Table 1
Sample Distribution by Research Field

Academic Field	Number of Faculty Population	Number of Responses	% (Responses/ Population)	% (Responses/ Sample)
Business	129	61	47.3	23.5
Sciences	206	61	29.6	23.5
Liberal Arts	313	42	13.4	16.2
Health Sciences	339	33	9.7	12.7
Engineering & Technology	282	25	8.9	9.6
Humanities	306	36	11.8	13.8
Unknown	-	2		0.7
Total	1575	261		100%

Sample profile

The majority (88%) of the respondents are male; 55% are 50 years old or younger; 61% are Kuwaiti nationals; 36% of the respondents have more than 20 years of experience at HE. Approximately 42% of the respondents are assistant professors, 31% are associate professor, and 25% are full professors. The respondents spend, on average, 28% of their time on research, 48% on teaching, 13% on committees, and 11% on consulting and training. In addition, significantly less Kuwaiti nationals (42%) spend above average time (mean = 28%) on research than do their non-Kuwaiti colleagues (51%). But, significantly more Kuwaiti faculty (66%) spend above average time (mean = 48%) on teaching than do their non-Kuwaiti counterparts (48%). Furthermore, the time spent on teaching and research insignificantly varies across the academic fields. For example, while 63% of the Sciences faculty spend above average time on research, only 40% of the Humanities faculty spend the same time on research. Also, while 75% of the Humanities faculty allocate above average time on teaching, only 44% of the Engineering & Technology faculty spend the same time on teaching.

Data analysis procedure

To answer the research question and evaluate the research hypotheses, factor analysis, descriptive statistics, ANOVA, and general linear model (GLM) procedures were performed on the data set.

ANALYSIS AND RESULTS

A factor analysis was first conducted to reduce the research data set, to reveal any pattern that may exist between the observed items that could build up a new concept, to remove redundancy between variables, and to screen the data for further analysis. Although all the questions in the data collection instrument were used in data collection, only those that satisfied the following criteria were used for further analysis: reliability coefficients (Cronbach α) of at least 0.70, factor loadings of at least 0.50, extracted variance of at least 0.50, and communalities of at least 0.50 (Hair *et al.*, 1998, pp. 111-118, 612). Table (2) summarizes the factor analysis results.

Table 2
Factor Analysis for Data Reduction

Dimensions	Reliability Coefficient	Explained Variance	Factor Loadings	Mean	St. Dev
Research Attitude (ATT)	76.7%	70%			
AT1 doing research is pleasant			.826	3.67	.804
AT3 doing research is the right thing			.779	3.69	.812
BC1 It is easy for me to do research			.762	2.93	1.017
Research Intention (INT)	91.9%	86.41%			
BI1 I plan to do research in the next 6 months			.876	3.67	.789
BI2 I intend to continue to do research in the next 6 months			.892	3.65	.835
BI3 I will make an effort to do research in the next 6 months			.806	3.62	.869
Research Behavior (BEH)	63.2%	60.08%			
RP1 Number of funded research projects			.773	1.55	.730
RP2 Number of peer-reviewed publications			.765	2.51	1.373
RP3 Number of conference presentations			.863	1.98	1.121
Research-Impeding Activities (RIA)	80.1%	71.83%			
RB1 Heavy teaching and advisement responsibilities			.722	3.10	1.005
RB2 Substantial involvement in committees			.859	2.76	.981
RB3 Demanding administrative responsibilities			.859	2.60	1.008
Lack of Extrinsic Motivators (LEM)	74.8%	66.75%			
RB7 Lack of sufficient funding for attending conferences			.716	2.73	1.063
RB8 Lack of research productivity influence on job security			.742	2.60	1.107
RB9 Lack of extrinsic rewards for research			.802	3.22	1.066
Lack of Research Resources (LRR)	73.5%	65.91%			
RB13 Deficient online and offline library sources			.724	2.53	1.093
RB18 Inadequate research laboratories and/or equipment			.793	2.80	.956
RB19 Inadequate opportunities for professional development			.747	2.83	.963
Overall	81%	72.668%			

The overall variance explained by the produced factors is 0.73 ($\alpha = 0.81$). Research behavior (BEH) comprises three of the four original items, which explain 0.60 of the variance ($\alpha = 0.63$). Research attitude (ATT) comprises three items, two from the original five items, and one from four items used to measure perceived behavioral control, which explain 0.70 of the variance ($\alpha = 0.77$). Also, research intention (INT) comprises three of the four items, which explain 0.86 of the variance ($\alpha = 0.92$). In addition, three groups (factors) of research barriers (RB) have emerged, including nine of the original twenty items (Appendix A). The first factor, engaging in research-impeding activities (RTA), consists of three items, which collectively explain 0.72 of the variance in RIA ($\alpha = 0.80$). The second factor, lack of extrinsic motivators (LEM), comprises three items, which collectively explain 0.67 of the variance in ($\alpha = 0.75$). The third factor, lack of research resources (LRR), includes three items, which explain 0.66 of the variance in LRR ($\alpha = 0.74$). The other items were excluded from further analysis because they either did not load on any of the factors, had low loading coefficients ($< .60$), loaded on multiple factors, or were eliminated to improve scale reliability.

Table (3) depicts descriptive statistics for the research variables, including behavior, attitude, intention, research-impeding activities, lack of extrinsic motivators, and lack of research resources. Given the large sample size and assumed normality of the variables distributions, the t-test procedure was applied to test the significance of the distance (difference) between the average score of each variable and the midpoint of the adopted 5-point measuring. Based on the means and the associated P-values, research behavior (productivity) of the faculty is low (or infrequent) (mean = 2.01, $P = 0.000$), although they have positive attitudes toward research (mean = 3.44, $P = 0.000$), and intend to do research (mean = 3.65, $P = 0.000$). In addition, the faculty believe (agree) that engagement in research-impeding activities (mean = 2.87, $P = 0.020$), lack of extrinsic motivators for research (mean = 2.86, $P = 0.009$), and lack of research resources (mean = 2.73, $P = 0.000$) challenge their research performance.

Table 3
Descriptive Statistics for the Research Variables

The Dependent variables	N	Min	Max	Mean	St. Dev.	P-value
Research Attitude	252	1.33	5.00	3.4410	.72814	.000*
Research Intention	256	1.00	5.00	3.6467	.77178	.000*
Research Behavior	252	1.00	5.00	2.0050	.84464	.000*
Research-Impeding Activities	258	1.03	5.00	2.8735	.87078	.020*

Cont. Table 3
Descriptive Statistics for the Research Variables

The Dependent variables	N	Min	Max	Mean	St. Dev.	P-value
Lack of Extrinsic Motivators	258	1.00	5.00	2.8563	.88153	.009*
Lack of Research Resources	257	1.00	5.00	2.7299	.81119	.000*

* The difference from 3 (the midpoint of the scale) is significant at α less than 5% (Note: The variations in sample size are due to missing data)

The influence of the individual characteristics:

The one-way analysis of variance (ANOVA) procedure was conducted to evaluate the research hypotheses and test the significance of the differences between the means of the sub-groups within each individual characteristic. When significant differences were found, the post hoc multiple comparisons Duncan test was applied to identify possible homogeneous subsets of means that are not different from each other within the individual characteristic.

Table (4) summarizes the significance of the differences between the means of the sub-groups for each individual characteristic. Gender influences only attitude (ATT) ($\alpha = .004$), while age influences intention (INT) ($\alpha = .002$), behavior (BEH) ($\alpha = .009$), and lack of research resources (LRR) ($\alpha = .025$). Nationality influences attitude ($\alpha = .005$), behavior ($\alpha = .004$), and lack of research resources ($\alpha = .008$). Moreover, experience at HE influences intention ($\alpha = .020$),

Table 4
The Individual Characteristics Influence on Research Attitudes, Intentions, Behaviors, and Barriers

			ATT	INT	BEH	RIA	LEM	LRR
Gender (H1)	Male	Mean	3.5202	3.6933	2.0127	2.8625	2.9016	2.6865
		N	182	183	184	185	186	184
		Std. Dev	.74565	.77265	.82196	.87381	.93049	.82429
	Female	Mean	3.2239	3.5782	1.9986	2.9780	2.7365	2.8257
		N	61	64	60	64	63	64
		Std. Dev	.64434	.92858		.86973	.76067	.78976
	P-value		.004*	.378	.658	.381	.287	.331
Age (H2)	< = 30 years	Mean	3.1211	4.0000	1.9983	2.5705	2.7976	2.2335
		N	3	3	2	3	3	3
		Std. Dev	.38392	.00000	.45295	.38190	.84503	.20223

Cont. Table 4
The Individual Characteristics Influence on Research Attitudes, Intentions,
Behaviors, and Barriers

		ATT	INT	BEH	RIA	LEM	LRR	
Nationality (H3)	31-40	Mean	3.4073	3.9468	1.7409	2.7839	2.8065	2.9875
		N	63	67	67	67	67	67
		Std. Dev	.72723	.53946	.71611	1.02361	.86275	.86002
	41-50	Mean	3.3347	3.6270	2.2441	3.0503	2.8067	2.7996
		N	73	74	72	74	73	74
		Std. Dev	.59442	.67586	.92897	.80126	.77555	.85032
	51-60	Mean	3.5729	3.5644	2.0252	2.8691	2.9915	2.5098
		N	50	49	50	50	50	50
		Std. Dev	.85801	.91871	.75882	.85583	.88791	.68684
	> 60	Mean	3.5083	3.3977	1.9963	2.7803	2.8619	2.5726
		N	63	63	61	64	65	63
		Std. Dev	.76327	.88124	.88237	.78665	1.01514	.74203
	P-value		.201	.002*	.009*	.166	.950	.025*
	Kuwaiti	Mean	3.3578	3.6621	1.9217	2.9850	2.9182	2.8820
		N	132	137	134	138	137	138
Std. Dev		.71792	.76905	.87879	.87895	.83515	.84987	
Mean		3.6365	3.7251	2.1763	2.8210	2.9252	2.5440	
N		89	88	86	88	89	87	
Std. Dev		.75499	.74797	.78611	.85400	.97077	.73807	
P-value		.005*	.605	.004*	.247	.885	.008*	
Experience at HE (H4)	< one year	Mean	3.5439	3.5253	1.0000	3.1125	3.0129	2.9279
		N	5	5	4	5	5	5
		Std. Dev	.64124	.66337	.00000	.87709	.66198	.67937
	1-5 years	Mean	3.3153	3.8881	1.7028	2.6974	2.6563	2.9626
		N	44	47	47	47	47	47
		Std. Dev	.64566	.56964	.56340	.91113	.74639	.88784
	6-10 years	Mean	3.2690	3.7360	2.0148	3.0173	3.0733	2.9491
		N	44	45	45	45	44	45
		Std. Dev	.76921	.70157	.79499	.85790	.86630	.72763
	11-15 years	Mean	3.4730	3.7749	2.2378	3.0345	2.8906	2.9268
		N	33	34	33	34	34	34
		Std. Dev	.72020	.66542	1.13235	.81778	.64576	.85631
	16-20 years	Mean	3.4009	3.7112	2.3016	2.9674	2.6495	2.4254
		N	32	31	31	32	32	32
		Std. Dev	.73606	.66611	.69702	1.09309	.90826	.86204

Cont. Table 4
The Individual Characteristics Influence on Research Attitudes, Intentions,
Behaviors, and Barriers

		ATT	INT	BEH	RIA	LEM	LRR	
> 20 years	Mean	3.5755	3.3972	2.0042	2.7939	2.9304	2.5306	
	N	89	89	87	90	91	89	
	Std. Dev	.75737	.92838	.87168	.77638	1.01413	.71817	
	P-value	.090	.020*	.001*	.348	.151	.005*	
Academic Rank (H5)	Mean	3.2273	3.6957	1.7452	2.8995	2.8246	2.9395	
	N	104	109	107	109	109	109	
	Std. Dev	.70301	.73884	.71404	.95697	.77121	.84580	
	Mean	3.5481	3.7362	2.1279	2.8789	2.8601	2.5420	
	N	76	76	75	78	77	78	
	Std. Dev	.79782	.74736	.90906	.87388	.98155	.80985	
	Mean	3.6469	3.4962	2.3443	2.8442	2.8880	2.6435	
	N	65	64	63	64	65	63	
	Std. Dev	.62995	.82018	.85917	.73788	.96584	.71170	
	P-value	.001*	.154	.000*	.790	.974	.011*	
	Academic Field (H6)	Mean	3.8190	3.9372	1.4214	3.2626	3.5833	3.1490
		N	59	60	61	59	60	60
Std. Dev		.96667	1.04561	.49550	.96621	.96257	.96579	
Mean		3.2842	3.5129	2.3019	2.8551	2.6467	2.5820	
N		56	59	56	61	61	61	
Std. Dev		.59440	.66764	.87020	.72837	.69817	.68462	
Mean		3.3331	3.4707	2.1330	2.6074	2.5879	2.6408	
N		41	42	41	42	42	42	
Std. Dev		.49885	.63570	.96399	.72771	.69618	.74105	
Mean		3.2845	3.6561	2.4947	2.8390	2.3109	2.3433	
N		33	32	32	33	33	32	
Std. Dev		.54698	.48457	.72702	.78412	.69100	.60435	
Mean		3.4356	3.8563	2.0533	3.2399	3.1112	2.9153	
N		25	25	25	25	25	25	
Std. Dev		.80391	.62020	.76357	1.00797	.78006	.67631	
Mean		3.3309	3.4689	1.9262	2.3447	2.6590	2.5529	
N		36	36	36	36	35	35	
Std. Dev		.59525	.67520	.76880	.70414	.66565	.76400	
P-value		.001*	.003*	.000*	.000*	.000*	.000*	

Cont. Table 4
The Individual Characteristics Influence on Research Attitudes, Intentions,
Behaviors, and Barriers

		ATT	INT	BEH	RIA	LEM	LRR	
Time Spent on Research (H7)	Time < =20	Mean	3.2796	3.5675	1.7583	2.9798	2.8997	2.8261
		N	113	114	114	116	116	116
		Std. Dev	.75341	.82917	.83781	.91699	.93886	.83990
	20 < Time < = 40	Mean	3.6569	3.8156	2.2348	2.7092	2.8705	2.6245
		N	93	95	93	95	95	94
		Std. Dev	.71912	.66564	.73674	.82160	.87208	.78478
	40 < Time < = 60	Mean	3.5556	3.6689	2.3799	2.9414	2.6571	2.6474
		N	33	34	33	34	34	34
		Std. Dev	.46917	.61295	.93727	.78141	.78723	.80517
	Time > 60	Mean	3.0079	3.0482	1.5356	2.9472	2.8857	2.8501
		N	13	13	12	13	13	13
		Std. Dev	.62775	1.00221	.48353	.93386	.63304	.71449
	P-value		.000*	.008*	.000*	.171	.503	.303
Time Spent on Teaching(H8)	Time < = 30	Mean	3.3162	3.4884	2.3175	2.9064	2.7565	2.7869
		N	51	51	51	52	52	51
		Std. Dev	.67242	.76943	1.02734	.79101	.75930	.73678
	30 < Time < = 60	Mean	3.5723	3.7529	2.0481	2.8846	2.8123	2.7121
		N	142	145	143	146	146	146
		Std. Dev	.68255	.71405	.78031	.89022	.88332	.85280
	60 < Time < = 90	Mean	3.1635	3.5132	1.5714	2.8193	3.1525	2.7591
		N	51	52	51	52	52	52
		Std. Dev	.80988	.87701	.61670	.86640	.86967	.79019
	Time > 90	Mean	3.8390	4.0000	1.0000	4.0734	3.1832	3.3503
		N	2	2	2	2	2	2
		Std. Dev	1.64185	1.41421	.00000	1.50173	1.67328	.49535
	P-value		.026*	.097	.000*	.455	.108	.519

* The difference is significant at $\alpha < = 5\%$.

behavior ($\alpha = .001$), and lack of research resources ($\alpha = .005$). Academic rank influences attitude ($\alpha = .001$), behavior ($\alpha = .000$), and lack of research resources ($\alpha = .011$). In addition, academic field influences attitude ($\alpha = .000$), intention ($\alpha = .008$), behavior ($\alpha = .000$), research-impeding activities (RIA) ($\alpha = .000$), lack of extrinsic motivators (LEM) ($\alpha = .000$), and lack of research resources ($\alpha = .000$). Time spent on research also influences attitude ($\alpha = .000$), intention ($\alpha = .000$), and behavior ($\alpha = .000$). Lastly, time spent on teaching influences attitude ($\alpha = .026$)

and behavior ($\alpha = .000$). These results provide only partial support to the acceptance of research hypotheses ($H1 - H8$), as each of the eight individual characteristics influences only one or more of the dependent variables (research attitudes, intentions, behaviors, research-impeding activities, lack of extrinsic motivators, and lack of research resources)

Although the ANOVA results tested the research hypotheses and the significance of between subjects' differences, they provide no information on which individual characteristics are considered significant determinants of each of the dependent variables. Therefore, the general linear model (GLM) procedure was applied to identify the determinants (predictors) of each of the dependent variables. Table (5) displays the results.

Table 5
Determinants of Research Attitude, Intention, Behavior, and Barriers

The Dependent variables	The Individual Characteristics	df	F	Sig.	Adjusted R ²
Research attitude (ATT)	Age	4	2.572	.040	.278
	Academic Rank	3	3.960	.009	
	Time spent on Research	3	4.933	.003	
	Time Spent on Teaching	3	3.559	.016	
	Research Field	5	5.442	.000	
Research Intention (INT)	Experience at HE	5	2.988	.013	.193
	Time Spent on Research	3	3.241	.023	
	Research Field	5	7.053	.000	
Research Productivity (BEH)	Academic Rank	3	3.209	.024	.377
	Time Spent on Research	3	3.600	.015	
	Time Spent on Teaching	3	4.234	.006	
	Research Field	5	8.559	.000	
Research-Impeding Activities (RIA)	Nationality	2	3.336	.038	.174
	Research Field	5	8.460	.000	
Lack of Extrinsic Motivators (LEM)	Time Spent on Teaching	3	3.930	.010	.233
	Research Field	5	11.339	.000	
Lack of Research Resources (LRR)	Research Field	5	7.739	.000	.205

The determinants of attitude include age, academic rank, academic field, time spent on research, and time spent on teaching, which collectively explain 0.278 of the variance. In addition, experience at HE, academic field, and time spent on research are determinants of intention and the explained variance is 0.193.

Likewise, academic rank, academic field, time spent on research, and time spent on teaching are determinants of behavior and collectively explain 0.377 of the variance. Among the research barriers, nationality and academic field are two determinants of research-impeding activities with an explained variance of 0.174. Academic field and time spent on teaching are two determinants of a lack of extrinsic motivators, and the explained variance is 0.233. Lastly, academic field is the only determinant of lack of research resources with a 0.205 explained variance. These results are discussed next.

DISCUSSION

Overall, the research productivity (behavior) of the faculty, measured by the number of funded research projects, peer-reviewed publications, and conference presentations in the last three years, is low and varies from one academic field to another. For instance, the faculty in Health Sciences (e.g., Medicine, Dentistry, Pharmacy, and Allied Health) are the most productive KU faculty while the faculty in Business are the least productive. This overall low research productivity has been manifested in a notably long promotion time, especially among the Business faculty. This result supports the notion that research productivity is generally low among HE institutions (Fox, 1983; Allison, 1980). It is rather difficult, however, to characterize and compare research productivity across research fields and between HE institutions in the absence of clearly stated norms for each academic field, unknown research expectations in the diverse HE institutions, and the absence of an agreed-upon method for measuring research productivity.

Nevertheless, KU faculty hold positive attitudes toward research. They believe that doing research is pleasant, is the right thing to do, and is easy to do. That positive attitude appears to underline their strong intentions to engage in future research. Ironically though, the reported relatively low research productivity does not corroborate the faculty's positive research attitudes and intentions. Clearly, it takes a faculty member more than personal motivation (e.g., positive attitude and intention) to be scholarly productive. The lack of requisite research resources (e.g., time, domain knowledge, research skills) and motivators make doing research a difficult task.

The investigated perceived research barriers partially explain the relatively low research productivity at KU. Most notably, the faculty believe that engaging in research-impeding activities (e.g., heavy teaching and advisement responsibilities,

substantial involvement in committees, and arduous administrative responsibilities) consumes valuable time that could be otherwise invested in doing research. Also, the lack of extrinsic motivators (e.g., raises, reduced teaching loads for productive faculty, rewards, sufficient travel funds, and job security) discourage the faculty from performing research.

In addition, the lack of essential research resources (e.g., online and offline library sources, adequate research laboratories and/or equipment, and sufficient opportunities for professional and research skills development) challenges research productivity. Collectively, these barriers negatively influence the faculty's research efficacy and beliefs in their ability to succeed in a specific situation or to accomplish a particular activity such as doing research (Hardre *et al.*, 2011; Bland *et al.*, 2005; Gutman, 2000; Bandura, 1994; Creswell, 1985). These results support the findings of several earlier studies (e.g., Okiki, 2013; Jung, 2012; Lodhi, 2011; Bucheit *et al.*, 2001; Chen *et al.*, 2006; Hardré *et al.*, 2011, 2007; Smolentseva, 2011; Brocato, 2001; Alghanim and Alhamali, 2011; Iqbal and Mahmood, 2011; Serow and Demry, 1999).

Nevertheless, the reported faculty's research attitudes, intentions, behaviors, and perceived research barriers fluctuate depending on their individual characteristics (Table 6). Although there is no difference between the male and female faculty's intentions and behaviors, the male faculty members hold more favorable attitudes toward doing research than do their female colleagues. The female faculty appear to hold stronger beliefs on the positive consequences of performing research than do the male faculty. The result of insignificant research productivity differences between males and females is inconsistent with the reported findings of higher productivity of male faculty (e.g., Angaiz, 2015; Hardré *et al.*, 2011; Sax *et al.*, 2002; Creswell, 1985).

Table 6
Summary of the Individual Characteristics Effects

Individual Characteristics	Ha	ATT	INT	BEH	RIA	LEM	LRR
Gender	H1	✓					
Age	H2		✓	✓			✓
Nationality	H3	✓		✓			✓
Experience at HE	H4		✓	✓			✓
Academic rank	H5	✓		✓			✓
Research field	H6	✓	✓	✓	✓	✓	✓
Time spent on Research	H7	✓	✓	✓			
Time spent on teaching	H8	✓		✓			

✓ Indicates an influence

In addition, the younger faculty have stronger intentions to do research but produced less research (i.e., productivity) compared to their older counterparts. The younger faculty's research productivity is low, gets higher with age, peaks at the age of 41-50 years, and then declines. The strong research intentions of the younger faculty could be attributed to their strong desire and enthusiasm to build research portfolios that enable them to get promoted. In addition, the younger faculty members believe less than do the older faculty members that the lack of research resources does challenge their research behaviors. One explanation for this finding is that since the younger faculty members produce lower research compared to the older faculty members, they appear to have lower demand for research resources (e.g., library sources, research laboratories and/or equipment, and opportunities for professional development), and therefore, they are less sensitive to the lack of such resources. Nevertheless, the research productivity finding supports the proposition that age is a predictor of research productivity (e.g., Angaiz, 2015; Hedjazi and Behravan, 2011; Bland *et al.*, 2005) as well as the view that age has a controversial influence on research productivity (Creswell, 1985).

Moreover, compared to their expatriate colleagues, Kuwaiti nationals hold less positive attitudes toward research, produced less research productivity, and agree less that the lack of research resources (LRR) impedes their research productivity. Since Kuwaiti faculty produce less research compared to their expat counterparts, they probably have less demand for research resources and therefore are less concerned about the lack of such resources. One possible reason for these nationality-related differences is that the two faculty groups (nationals and expats) experience different employment terms and conditions, which could influence their research motivation and productivity. Kuwaiti nationals are normally granted tenure when they start employment with KU; research productivity, despite impacting promotion decisions, has no bearing on job security. Expat faculty, however, are contracted employees whose scholarly productivity undergoes periodical evaluations for contract renewal. As such, while the Kuwaitis' productivity could be largely intrinsically motivated, especially after promotion (Chen *et al.*, 2006; Hardré *et al.*, 2011), the expats' productivity seems to be both intrinsically and extrinsically motivated.

Senior faculty (e.g., associate and full professors), who are also more experienced, hold more positive attitudes toward research and are more productive than are their junior (e.g., assistant professors) counterparts. Additionally, the faculty of higher academic ranks have stronger beliefs than do their counterparts that the lack

of research resources (LRR) challenges their research productivity. Since senior faculty are more scholarly productive, they are more sensitive to the lack of research resources that may impede their research productivity. These findings confirm academic rank as a significant predictor of a faculty member's research productivity (e.g., Hedjazi and Behravan, 2011; Hardre *et al.*, 2011; North *et al.*, 2011; Stafford, 2011; Chen *et al.*, 2010; Brocato and Mavis, 2005; Bland *et al.*, 2005).

The less experienced faculty members also have stronger intentions to do research than do their more experienced counterparts. In addition, research productivity tends to increase with experience and peaks at 11-20 years of experience. However, the inexperienced faculty members, who are also less productive, believe less than their experienced colleagues do that the lack of research resources (LRR) impedes their research productivity. It should be noticed that experience is a correlate of age, and the net influence of experience on research productivity depends on the positive or negative influence of age at different experience levels. This result confirms that experience in academia accounts for a good percentage of the variance in research productivity (e.g., Angaiz, 2015; Hardré *et al.*, 2007, 2011; Jung, 2012; Chen *et al.*, 2006; Bland *et al.*, 2002).

Academic field has a strong influence on research attitudes, intentions, behaviors, and barriers. The faculty of Business have higher positive attitudes toward research than do the faculty in the other academic fields. In addition, the faculty in Engineering & Technology and Business have higher intentions to do research than do the faculty in the other academic fields. However, the Health Sciences faculty are the most productive. Ironically though, the Business faculty, who have the highest positive attitudes, are the least productive among the faculty. In the shortage of information on the academic characteristics of each academic field, one can only speculate about the reasons behind these findings.

Academic fields vary in their characteristics (e.g., research norms, maturation, research methods, and research requirements) (Creswell, 1985; Gaston, 1978), which variably influence the research attitudes, intentions, and behaviors of the faculty. The variation in research attitudes, intentions and behaviors across the academic fields coincides with variation in the faculty's perception of the identified research barriers. The Liberal Arts and Humanities faculty have the strongest beliefs that engaging in research-impeding activities challenge their research. The Health Sciences, Liberal Arts, Humanities, and Sciences faculty have the strongest beliefs that lack of extrinsic motivators impedes their research performance. Also, the Health Sciences, Humanities, Sciences, and Liberal Arts faculty have the

strongest beliefs that lack of research resources challenges their research productivity. Future studies may attempt to identify unique characteristics for each of the academic fields, explore their influence on research attitudes, intentions, behaviors and perceived research barriers, and compare results.

Although they have no influence on the perceived research barriers, time spent on research and teaching have effects on research attitudes, intentions, and behaviors. The faculty who spend moderate (20-60%) time on research hold higher positive attitudes toward research and produced more research than the faculty who spend too little ($< 20\%$) or too much ($> 60\%$) time on research. Also, the faculty who spend less than 60% of time on research have higher intentions to do research than do those who spend more than 60% of their time. Spending little time on research may imply that some faculty members do not take research seriously; spending too much time on research (more than 60%) without sustaining or improving research productivity may imply that faculty are inefficient and/or lack the requisite research skills and resources. Although performing research is laborious and entails a continuous commitment of significant time (e.g., White *et al.*, 2012; Stafford, 2011; Bland *et al.*, 2002; Brocato, 2001), this finding supports Creswell's (1985) notion that spending too much or too little time on research is counterproductive.

The negative effect that time spent on teaching has on attitudes and behaviors further corroborates the positive effect that the time spent on research has on attitudes and behaviors. The faculty members who spend moderate time (31% - 60%) on teaching hold more positive attitudes toward research and produce more research than do their counterparts who spend longer time ($> 60\%$) on teaching. This result is consistent with those reported by several earlier studies (e.g., Jung, 2012; Iqbal and Mahmood, 2011; Lodhi, 2011; Stafford, 2011; Bucheit *et al.*, 2001). Apparently, research and teaching activities compete for time, and appropriately allocating time to effectively perform the two salient activities is a daunting task.

Lastly, the above-discussed results represent the effect that each of the individual characteristics of KU faculty has on research attitudes, intentions, behaviors (productivity) and perceived barriers, but they do not tell much about the importance of each of the individual characteristics in explaining and/or predicting each of the dependent variables. The multivariate analysis results (Table 5) suggest that different combinations of the individual characteristics are significant determinants of research attitudes, intentions, behaviors, and the perceived research barriers. Obviously, academic field is the most important

determinant, followed by time spent on research, time spent on teaching, and academic rank. Although these individual characteristics explain relatively low percentages of the variance in research attitudes, intentions, behaviors, and perceived research barriers, they can either be manipulated or controlled to enhance research attitudes, intentions, and behaviors (productivity), and lower the negative impact of the perceived research barriers on that productivity.

IMPLICATIONS

The findings of this study have theoretical and practical implications. Theoretically, this study is the first to provide empirical evidence on the influence of individual characteristics on research attitudes, intentions, and perceived research barriers at a HE institution. Since the context of this study is a large public Middle-Eastern HE institution, the findings should contribute to the growing international, empirically based body of knowledge on research attitudes, intentions, and behaviors and their impediments at HE. They support the general proposition that research productivity and barriers are very much contextual and should be identified, analyzed, and dealt with accordingly. Furthermore, investigating research behavior and barriers in diverse contexts and across different cultures is needed to explore and identify principles that could be universally applied to research performance enhancement efforts in academia.

In addition, acknowledging the findings of this study is a requisite for actions aimed at enhancing research productivity at KU and similar HE institutions. While research productivity is low in some academic fields (e.g., Business) compared with others (e.g., Health Sciences), it is generally low at large. In addition, the research attitudes and intentions of the faculty are at best moderate. Like other HE institutions, KU has much to gain from eliminating research barriers and boosting research attitudes, intentions, and behaviors of its faculty. Individuals act on their beliefs about what they can do and on their beliefs about the likely outcomes of performance (Bandura, 1994). As such, faculty with high assurance in their capabilities can approach the perceived demanding research activities as challenges to be learned rather than as threats to be avoided. Actions aimed at strengthening the faculty's sense of research efficacy should therefore enhance their research performance (Gutman, 2000).

KU administrators should consider reviewing and revising the currently adopted research strategy and policies considering the empirical evidence reported in this study. Effective research promotion strategy and policies should curtail the

negative effects of the identified research barriers, which debilitate the faculty members' sense of efficacy to carry out their research responsibilities. They should, through social persuasion and provision of the requisite research resources and incentives, strengthen the faculty's beliefs that they possess the capabilities to successfully carry out their research responsibilities. They should also promote and support the development of the faculty's research skills, as technology and research methods change rapidly rather than remain stable.

Strengthening the research efficacy of the faculty entails offering them time management workshops and assisting them in properly allocating their time across the many competing activities and responsibilities, providing them with sufficient research assistants' support, establishing and applying appropriate incentives for after-promotion research productivity, providing opportunities for professional development, providing networking opportunities with on and off campus potential co-researchers, reducing the teaching loads for productive faculty, and providing access to needed research software and online databases.

Yet, "one policy fits all" is not an effective approach to enhancing research productivity at KU, since individual characteristics such as research field, academic rank, nationality, experience, faculty teaching and researching practices influence research attitudes, intentions, behaviors, and perceived barriers. Making effective research-enhancing policies requires further information to answer questions such as why some KU faculty (e.g., the Health Sciences faculty) are more productive than are others (e.g., Business faculty), and why some faculty perceive the lack of research resources to be more challenging to research productivity than are others. In addition, since the number of the Kuwaiti nationals in the KU faculty composition is rapidly growing, time is ripe to consider assessing and perhaps amending their existing appointment and tenure terms and conditions. These amendments would require maintaining a certain level of research productivity stream as a requisite for tenure and job security.

It is also imperative to overhaul the existing research reward system at KU to make producing and publishing quality research a commendable achievement. Such a system should consider tying research productivity to personnel actions (e.g., job security and appointment to administrative positions) for Kuwaiti faculty, renewal of contracts for expat faculty, sabbatical decisions, decreased teaching loads, and assignment of summer courses. It is also important that the adapted research reward system provides financial rewards to the productive faculty members and allows them to undertake funded summer research projects as an alternative to summer teaching.

Finally, having an effective research reward system is a step forward toward creating a research-supporting culture at KU. A proper research culture starts at the top by appointing exemplary researchers as effective university leaders who influence the individual and institutional research behaviors (Bland *et al.*, 2005). A proper research culture is not bound to financial considerations as institutional support through policies, rewards, and values systems influences the research efficacy of the faculty and the effort they invest in research (Creswell, 1985). In such a research culture, a formal and effective faculty mentoring system should be established, joint research projects should be rewarded, and productive faculty should be celebrated. Nevertheless, the effectiveness of any newly developed and implemented research productivity enhancing strategy and policies must be continuously assessed and amended based on the extent of their contributions to research productivity improvements.

CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH

HE institutions have long been concerned about achieving maximum research productivity of the faculty and the effects of contextual factors on scholarly productivity. Knowing what factors impact faculty scholarly productivity is essential to scholarly productivity improvement efforts. While most, if not all, of the relevant studies on faculty research productivity have explored the influence of individual characteristics on research behavior, almost none has examined the influence of these characteristics on research attitudes, intentions, and perceived research barriers. This study explored the influence of gender, age, nationality, academic rank, experience, academic field, and time spent on research and teaching on research attitudes, intentions, behaviors, and barriers at Kuwait University (KU). Although KU faculty generally hold positive attitudes toward research and have the intentions to do research, their research productivity is largely low. In addition, research attitudes, intentions, behaviors, and perceived barriers seemingly vary from one research field to another and from one faculty member to another in the same field. The investigated individual characteristics explain, to some extent, these variations.

Male, expat faculty members who hold senior academic positions and spend moderate time on research and teaching hold more positive attitudes toward research than do their counterparts. Also, younger, less experienced faculty members who spend moderate time on teaching have higher intentions to do research than do their counterparts. Moreover, experienced, expat faculty members who hold senior academic positions and spend moderate time on

research and teaching are more productive than are their counterparts. However, engaging in research-impeding activities, lack of extrinsic motivators, and lack of research resources challenge research productivity, and the perceptions of the research barriers' impact on research productivity vary depending on the individual characteristics of the faculty. This primary empirically derived evidence could serve as a foundation for developing effective strategies and policies aimed at improving research productivity at KU and similar HE institutions. Appointment and tenure terms and conditions for the Kuwaiti faculty should be particularly considered for evaluation and possible amendment to stimulate scholarly productivity.

Nevertheless, the results of this study should be cautiously interpreted considering its limitations. First, the results were drawn from a single HE institution (Kuwait University) operating in the Middle East, and therefore, they are specific to that institution. Caution is required when using these findings to interpret similar phenomena beyond the underlying institution as the cultural and policy differences challenge the generalizability of findings across HE institutions and national boundaries (Teodorescu, 2000; Hardré *et al.*, 2011). Future replications should be undertaken in other HE institutions, whereas the results can be compared, verified, and possibly generalized. These future replications should exploit the results of this study in drawing and testing hypothesized nonlinear relationships between the said independent and dependent variables.

Another limitation of the present study is that the results were reached based on a cross-sectional, one-time data set. These results therefore may have place and time-specific components that could vary across institutions and over time. Future research designs should collect longitudinal data sets that can be used to diagnose and track the faculty's research attitudes, intentions, behaviors, and perceived research barriers at different ages, ranks, and experiences at KU as well as at other HE institutions.

A third limitation is that this study used the survey method to collect perceptual data. Although the data collection instrument was carefully designed and refined, the criticism of the survey method can never be completely ignored (Sajady *et al.*, 2008). The responses could have been biased because of the common method used for data collection and the heterogeneity of the investigated research fields. Future research designs should be used to replicate this study in other public and private universities in Kuwait and in the region before definite and generalizable conclusions on research attitudes, intentions, behaviors, and barriers can be made.

A fourth limitation of this study is that the items used in measuring the research barriers, which are mainly contextual, were identified based on a review of the relevant literature and the researcher's knowledge of this study context. Given that the factor analysis excluded eleven of the twenty investigated barriers, it is unclear whether the remaining barriers (e.g., research-impeding activities, lack of extrinsic motivators, and lack of research resources) reflect the entire gamut of the research impediments in the investigated institution. Replicating this study using larger cross-sectional faculty samples should provide better evidence of the specific contextual barriers that challenge research performance.

A final limitation is that the research behaviors (productivity) data analyzed in this study were produced from four self-reported surrogate measures. Clearly, surrogate measures are less reliable and valid than are direct, objective measures of productivity. Also, research productivity has long been recognized as a difficult and mystifying problem in the sociology of science (Fairweather 1999; Gaston 1978, p. 133). Since similar studies have adapted varying research productivity measures, depending on research objectives and designs, it is difficult to meaningfully compare research productivity across different studies and contexts. There is a need to agree on and consistently adapt a set of research productivity measures in future studies so that comparisons of findings can be meaningfully made, and a body of knowledge on research productivity in HE and its determinants can be accumulated.

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Appendix A

Research Barriers

No	Research Barrier	Source
BR1	Heavy teaching and advising load	Jung, 2012; Lodhi (2011; Bucheit <i>et al.</i> , 2001; Chen <i>et al.</i> , 2006; Hardré <i>et al.</i> , 2007; Hardré <i>et al.</i> , 2011; Smolentseva, 2011;. Brocato, 2001; Alghanim and Alhamali, 2011; Iqbal and Mahmood, 2011
BR2	Substantial involvement in committees	<i>Added by the researcher</i>
BR3	Demanding administrative responsibilities	Alghanim and Alhamali, 2011
BR4	Lack of research-supporting culture	Hu and Gill. 2000; Hardré <i>et al.</i> , 2011; Bland <i>et al.</i> , 2005
BR5	Faculty's disinterest in joint research	White <i>et al.</i> , 2012; Hardré <i>et al.</i> , 2011
BR6	Difficulty of attaining research grants	Hardré <i>et al.</i> , 2011; Jackson, 2004; Lee and Rhoads, 2004; Stafford, 2011; Okiki, 2013
BR7	Inadequate funding for conferences	Hardré <i>et al.</i> , 2007; Bland <i>et al.</i> , 2005; Serow and Demry; 1999
BR8	No influence of research on job security	Hardré <i>et al.</i> , 2011; Chen <i>et al.</i> , 2006
BR9	Lack of extrinsic rewards	Hardré <i>et al.</i> (2011); Smolentseva, 2011; Chen <i>et al.</i> , 2006
BR10	Excessive research requirements for promotion	Hardré <i>et al.</i> , 2011; Hardré <i>et al.</i> , 2007; Serow and Demry; 1999
BR11	Lack of research assistants	White <i>et al.</i> , 2012; Alghanim and Alhamali, 2011; Hardré <i>et al.</i> , 2007; Bland <i>et al.</i> , 2002; Bland <i>et al.</i> , 2005; Serow and Demry; 1999
BR12	Lack of research skills development	Bland <i>et al.</i> , 2005; Bland <i>et al.</i> , 2002; Brocato, 2001; Iqbal and Mahmood, 2011
BR13	Insufficient library sources	Smolentseva, 2011; Lodhi, 2011; Angaiz, 2015
BR14	Lack of graduate students	White <i>et al.</i> , 2012; Hardré <i>et al.</i> , 2007; Bland <i>et al.</i> , 2002; Bland <i>et al.</i> , 2005; Serow and Demry; 1999
BR15	Lack of after promotion motives	Hardré <i>et al.</i> , 2011; Jackson, 2004; Lee and Rhoads, 2004); Chen <i>et al.</i> , 2006; Hu and Gill, 2000
BR16	Lack of networking opportunities	Hardré <i>et al.</i> , 2011; Smolentseva, 2011; Bland <i>et al.</i> , 2002, 2005; Stafford, 2011; Hedjazi and Behravan, 2011; Brocato and Mavis, 2005; Angaiz, 2015; Lu, 2010
BR17	Rigid rules for dispensing research grants	<i>Added by the researcher</i>
BR18	Lack of research laboratories & equipment	Hedjazi and Behravan, 2011; Smolentseva, 2011; Okiki, 2013; Bland <i>et al.</i> , 2002; Bland <i>et al.</i> , 2005; Hardré <i>et al.</i> , 2007; Serow and Demry; 1999
BR19	Lack of professional development	Hardré <i>et al.</i> , 2007; Serow and Demry; 1999; Bland <i>et al.</i> , 2005; Lodhi, 2011
BR20	Heavy family commitments	Sax <i>et al.</i> , 2002; Hardré <i>et al.</i> 2011

تأثير العوامل الشخصية على توجهات ونوايا وإنتاجية أعضاء الهيئة التدريسية بجامعة الكويت ومعوقات البحث العلمي لديهم

عمر خليل
جامعة الكويت

تعد معرفة تأثير العوامل الشخصية على إنتاجية البحث العلمي لدى أعضاء الهيئة التدريسية ومعوقات ذلك ضرورة لترشيد الجهود المبذولة لتحسين الإنتاجية البحثية في مؤسسات التعليم العالي. غير أن الدراسات السابقة تناولت في معظمها أثر العوامل الشخصية على الإنتاجية البحثية لأعضاء الهيئة التدريسية، ولم تهتم كثيراً بدراسة تأثير العوامل نفسها على التوجهات والنوايا البحثية لهم ومعوقات البحث العلمي من وجهة نظرهم. لذا، قامت هذه الدراسة بتحليل أثر الجنس، والعمر، والجنسية، والرتبة الأكاديمية، والخبرة الأكاديمية، ومجال التخصص الأكاديمي، والوقت المنفق في البحث العلمي، والوقت المنفق في التدريس في توجهات ونوايا وإنتاجية ومعوقات البحث العلمي لدى أعضاء الهيئة التدريسية بجامعة الكويت. وأوضحت نتائج الدراسة أنه برغم أن أعضاء الهيئة التدريسية لديهم توجهات إيجابية نحو البحث العلمي وعندهم عزم قوي للانغماس في أنشطة بحثية مستقبلية فإن إنتاجيتهم البحثية خلال السنوات الثلاث الماضية كانت نسبياً منخفضة. كما أفاد أعضاء الهيئة التدريسية بأن الانشغال الدائم بأنشطة غير بحثية، وعدم توافر الحوافز الملائمة، وندرة الموارد اللازمة للبحث من أهم معوقات البحث العلمي. وأوضحت نتائج الدراسة أيضاً أن مجال التخصص الأكاديمي، والوقت المنفق في البحث، والوقت المنفق في التدريس، والرتبة الأكاديمية من أهم العوامل الشخصية تأثيراً على توجهات ونوايا وإنتاجية ومعوقات البحث العلمي لدى أعضاء الهيئة التدريسية. وقد تمثلت هذه النتائج أساساً ملائماً لاقتراح سياسات تهدف إلى تحسين الإنتاج العلمي في جامعة الكويت وغيرها من الجامعات المماثلة.

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