

Research capacity building requirements for researchers: An experience from a public institute



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ABSTRACT

This study investigates the research capacity building (RCB) needs among faculty members at a university, focusing on the challenges and opportunities they encounter. It aims to develop strategies that are specifically tailored to the local context. An online survey revealed faculty members' neutral or positive views on various RCB aspects. A training program was designed based on these findings for future implementation. The uniqueness of this research lies in three main areas: Firstly, it is the pioneer study of RCB in the Northern area of Saudi Arabia, particularly at the Northern Border University, highlighting unique regional challenges and opportunities. Secondly, it introduces a new framework designed specifically for public institutions in developing areas, where infrastructure and resources might not be as advanced as in more established research centers. Lastly, it establishes a baseline for future studies to track the progress and effectiveness of RCB interventions over time, offering insights into research development in similar environments. The results are expected to encourage higher education leaders, especially in the studied region, to invest in capacity building to improve organizational performance and productivity.

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1. Introduction

Scientific research is critical in advancing human knowledge, fostering innovation, and addressing complex global challenges (Mormina, 2019; Rahman and Qattan, 2021). It is defined idiomatically as a set of systematic procedures that the researcher/student pursues in order to identify all aspects related to a subject/scientific problem after collecting the facts with careful effort, monitoring and analyzing them with accurate and rational intelligence to solve that problem as an ultimate goal (Nowell et al., 2017).

The building of research capabilities is analogous to the enhancement of diverse organizational strengths. Research can be delineated as a robust investigative procedure to augment knowledge and optimize practices. From a management perspective, constructing these research abilities represents a commitment to elevating quality, serving as a distinctive characteristic of a progressive, learning-centric organization.

As a result of the accelerating global changes and transformations, scientific research has become of great importance in the progress of societies and meeting their requirements according to scientific bases that diagnose reality and predict the future in various fields of life, seeking to get out of the stage of theory and experimentation in the fields of productivity, industry, and economy (Çaparlar and Dönmez, 2016). In sum, research is the cornerstone of a nation's development.

Universities and research institutions within the Arab world are pivotal in undertaking scientific

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studies that contribute to a nation's development and societal welfare (Hanafi et al., 2013; Castellanos and Ríos-González, 2017). The outcomes of such research are published in both local and global scientific periodicals, which are further indexed and incorporated into international databases. These databases subsequently assess the standing of these academic establishments based on their research contributions and innovations across diverse scientific and humanistic fields.

Through what is published in Scopus and the Web of Science, an apparent weakness appears for the universities of Arab countries in catching up with the global pace of scientific publishing and creativity, and the main reason for this may be the lack of financial allocations and support for scientific research. However, there are bright aspects of Arab universities that emerged recently through their inclusion in the Times classification (timeshighereducation.com), as they achieved advanced positions within the 1201+ international universities.

The Arab countries produced research and documents on all topics covered, according to the Scimago website (scimagojr.com). However, returning to the availability of Gulf financial resources and comparing them to the volume of scientific production is not satisfactory to some experts. According to the opinion of one of the scientific university leaders in the Arab Gulf, "If the Gulf countries, in particular, have achieved, through great financial wealth, essential achievements in vital areas of the state's infrastructure, then their active contributions in employing all that financial abundance towards an auxiliary direction for the construction of infrastructure, in the field of knowledge production, the contributions are still modest if not simple and superficial" (Rahman and Qattan, 2021). Most research capacity enhancement-related publications focus mainly on a specific discipline (Trytten et al., 2019; Twelvetree et al., 2019; Withington et al., 2020). Those focusing on an institution-wide level have been relatively scant. In this sense, the authors were interested in identifying the training needs of faculty members in the Northern Border University (NBU) concerning essential aspects and requirements of research capacity building, such as developing technical expertise, methodological rigor, access to cutting-edge tools and technology, and interdisciplinary collaboration, among others. Based on the findings of this survey, an integrated program/plan to promote scientific research and support researchers in diverse scientific disciplines, with a focus on the foundational elements necessary to promote a thriving research ecosystem, was designed.

2. Subjects and methods

This cross-sectional study was undertaken within a public University. All staff members employed by the University were invited to participate in an online research capacity building (RCB)

questionnaire. Question types were a combination of closed, 5-point Likert scales (strongly agree, agree, neutral, disagree, and strongly disagree) and one open question by the end of the questionnaire to allow detailed comments.

The questionnaire items started with basic preliminary data related to the staff members, including the academic rank, sex, years of experience, faculty name, and scientific department, as well as the major themes of the questionnaire that are clustered into five major domains of (1) Training programs and needs to build research capacity (14 items), (2) Motivational methods in the field of research capacity building (7 items), (3) Challenges facing researchers in the field of research (11 items), (4) Research partnerships to support researchers' capabilities (5 items), and (5) The provided supportive services and facilities for researchers from the "Deanship of Scientific Research" in the University (6 items). The survey items were contextualized to the local country's university settings. The proposal of this survey is classified as a service evaluation with waived ethical approval for the project (ID: EAAA-2222-11-1750). Good research governance and confidentiality of the collected data were followed throughout the work.

2.1. Questionnaire development

A draft questionnaire was developed by the researchers based on the following:

- Published related literature (Huenneke et al., 2017; Matus et al., 2018; Cooke et al., 2018; Juckett et al., 2022)
- The interesting article that was written by Hodges (2014)
- Some related theoretical frameworks include:
 - 1) Social constructivism emphasizes the importance of collaboration and social interaction in the development of knowledge and skills. In the context of research capacity building, it underscores the value of collaborative research efforts, mentorship, and interdisciplinary teams.
 - 2) Human capital theory: This perspective understands capacity building in developing individual skills and knowledge. Training programs, professional development seminars, and education are key strategies according to this theory (Nafukho et al., 2004).
 - 3) Systems theory considers any organization a system composed of interrelated and interdependent parts. It suggests that for any capacity-building intervention to be effective, it must consider the organization's structure, culture, politics, and other systemic factors (Luhmann et al., 2013).
 - 4) Organizational learning theory emphasizes that organizations can learn and adapt over time and that new knowledge acquisition can improve performance and results (Cook and Yanow, 2011). This could be applied to research capacity building

by encouraging a learning-oriented culture within the University.

- 5) Transformational leadership theory argues that effective leadership can inspire employees to exceed their initial expectations and improve performance. This theory can be applied in the case of promoting a research culture and building capacity (Khan et al., 2020).
- 6) Diffusion of innovations theory explains how ideas and technology spread within a community. In a university setting, strategies could include diffusing effective research practices and establishing a network of research champions to drive adoption (Dearing and Cox, 2018)
- 7) Competency-based framework, which emphasizes the definition and measurement of specific skills or competencies needed in research and the creation of training programs to target these areas directly (Benayoune, 2017).

2.2. Questionnaire validity and reliability

An initial review was conducted by a panel of experts in the faculty development program, and necessary adjustments were made based on their feedback to ensure the validity of the questionnaire content. Afterward, a pilot testing phase was carried out, and the internal consistency of the questionnaire was assessed using Cronbach α , showing a required level of reliability. Furthermore, a factor analysis was executed to ascertain the consistency of the questionnaire scale.

2.3. Questionnaire distribution

The survey was administered using a secure online platform (Google Forms) and was made available between 15-30 Oct 2022. A multifaceted approach to participant recruitment was adopted; all staff were invited by email and official WhatsApp app work groups to complete the survey and were sent reminders periodically. Posters were applied in staff rest areas and departmental meetings, and notifications in the Faculty staff bulletin were used to promote the questionnaire widely.

2.4. Data analysis

Information about the name and time of joining the University was not sought to avoid participant identification during data analysis. The questionnaire results were analyzed using descriptive statistics. Likert-scale items within the RCB tool were summarized by the mean and trend as a conventional method for ordinal data analysis, with all other items presented as numbers and percentages. Data was analyzed using the Social Package of Statistical Science (IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp). The word cloud developer built-in tool in "Word" was applied to visualize the participants' responses based on text repetition frequency. The larger and

bolder the word appears, the more often it is provided by the responders.

3. Results and discussion

RCB has been defined as "a process of individual and institutional development which leads to higher levels of skills and greater ability to perform useful research" (Trostle, 1992) or "a process of developing sustainable abilities and skills enabling individuals and organizations to perform high-quality research" (Holden et al., 2012). Due to the importance of this issue and the fact that promoting scientific research is considered the second strategic goal of our institute: "stimulating research and innovation following the university's research priorities," the authors were interested in identifying the needs and challenges related to RCB for planning and designing a supportive program as one initiative of the Northern Border University's strategic plan (2020-2025) for research and innovation. It has been realized that initiatives focused on enhancing the research skills of the team, known as capacity-building measures, have proven to not only boost individual capabilities but also positively influence the overall work culture (Lisbona et al., 2021).

3.1. Characteristics of the study population

This study involved 241 participants, comprising 139 males (58%) and 102 females (42%). The majority of participants were assistant professors, numbering 121 and accounting for 50% of the sample, followed by 58 lecturers (24%) and 41 associate professors (17%). Teaching assistants and language teachers formed the smallest group of participants (Table 1). Participants were also categorized by their years of experience. The largest group, consisting of 86 participants, had between 8 to 13 years of experience, including 49 males and 37 females. This was followed by participants with over 18 years of experience, totaling 58, including 36 males and 22 females. The groups with 5 to 8 years and 13 to less than 18 years of experience had similar participant numbers, ranging from 35 to 37. The smallest group had participants with less than five years of experience, totaling 26, with 9 males and 17 females, as shown in Fig. 1.

Table 2 shows the distribution of participants by faculty and gender. The largest group was from the science faculties, consisting of 121 participants (50% of the total), with males making up 64% and females 36%. This was followed by the humanities faculties with 72 participants (30%), where males comprised 61% and females 39%. The health-related faculties had the fewest responses, with 48 participants (20%), including 38% males and 63% females.

3.2. Motivational methods in the field of RCB

On analysis of the participants' responses regarding the motivational methods in the field of

RCB in the current institute, most of them responded by neutral selection regarding item 1 (there is an approved and announced motivation mechanism for all researchers at the University), item 2 (the University supports researchers on authorship and translation works), item 4 (the University works to provide research services to faculty members free of charge or at reduced fees such as printing scientific theses and specialized translation), item 5 (the University encourages researchers to participate in seminars and conferences locally and internationally), item 6 (the University provides sabbatical opportunities for faculty members), and

item 7 (the University disburses excellence rewards to all faculty members for scientific publishing without discrimination) with percentages 66%, 64%, 58%, 59%, 55%, and 60%, respectively. In contrast, about 52% opposed what was stated in item 3, that the University holds a ceremony to honor distinguished staff research annually (Table 3).

The overall average for this domain was 2.95, which means that according to the Likert five-point scale, the respondents were 59% neutral regarding the methods used by the University to motivate researchers.

Table 1: Distribution of the study participants by academic degree and sex

Degree	Male	Female	Total (%)
Professor	13	2	15 (6.2)
Associate professor	37	4	41 (17)
Assistant professor	67	54	121 (50.2)
Lecturer	19	39	58 (24.1)
Teaching assistant	2	2	4 (1.7)
Language teacher	1	1	2 (0.8)
Total	139	102	241

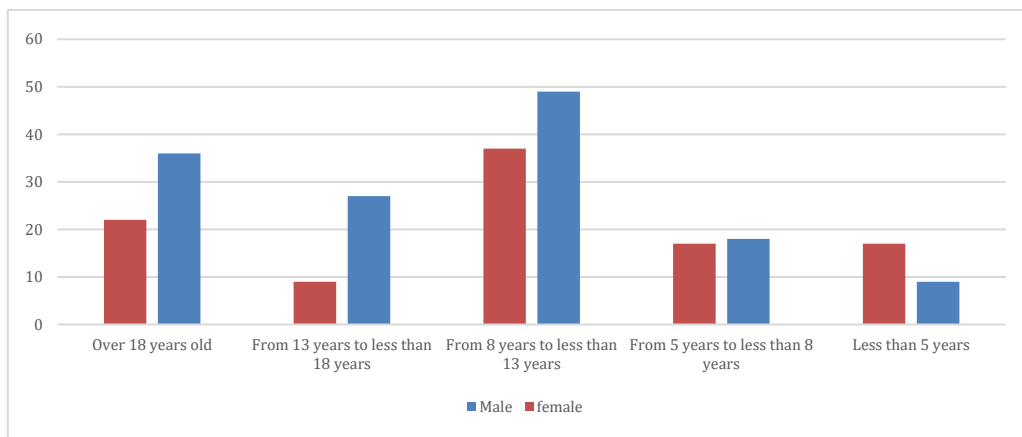


Fig. 1: Distribution of the study participants by years of experience and sex

Table 2: Distribution of study participants by college categories and sex

College category	Colleges	Male	Female	Total (%)
Humanities faculties	Business administration	16	8	24 (10)
	Home economics	0	11	11 (4.6)
	Education and arts	28	9	37 (15.4)
	Science	20	14	34 (14.1)
	Science and arts Tarif	4	5	9 (3.7)
Scientific faculties	Science and arts Rafha	14	14	28 (11.6)
	Engineering	13	0	13 (5.4)
	Computers and information technology	16	3	19 (7.9)
	Applied college	8	8	16 (6.6)
	Preparatory year	2	0	2 (0.8)
Health colleges	Medicine	8	4	12 (5.0)
	Nursing	0	20	20 (8.3)
	Applied medical sciences	4	4	8 (3.3)
	Pharmacy	6	2	8 (3.3)
Total		139	102	241

Table 3: Response of study participants regarding motivation methods in the field of RCB

Items	Strongly agree	I agree	Neutral	Disagree	Strongly disagree	Average	Percentage	Sample direction
1	28	99	54	38	22	3.30	66%	Neutral
2	23	82	75	39	22	3.19	63.7%	Neutral
3	16	31	81	63	50	2.59	51.7%	Disagree
4	20	41	98	53	29	2.88	57.5%	Neutral
5	26	66	62	39	48	2.93	58.6%	Neutral
6	17	42	92	48	42	2.77	55.4%	Neutral
7	30	64	64	42	41	3.00	60%	Neutral

The general average of the second domain: 2.95; Percentage: 59%; The general sample direction of the second domain: Neutral

Recognizing the high-impact researchers propels a culture of research excellence, fosters motivation,

and drives competitive scholarly productivity within such institutions. Moreover, acknowledging their

significant contributions highlights cutting-edge findings, generates a broader societal impact, and encourages knowledge dissemination (Hicks et al., 2015). Additionally, such recognition paves the way for further collaboration, nurturing promising researchers by providing them with unparalleled mentorship opportunities (Penfield et al., 2014). Therefore, this recognition system ultimately cultivates a fertile environment for the continued growth, development, and expansion of research capacity within an institution.

3.3. Challenges facing researchers in the field of research

Delving into the main challenges that scholars from our institute face based on participant feedback, the majority (85%) strongly agreed that increasing the instructional and administrative demands on faculty (item 1) represents a significant obstacle. They agreed with item 2 (lack of financial support for faculty members in scientific research), item 3 (unclear procedures for obtaining funding for unsupported research), item 7 (The procedures for the participation of faculty members in scientific conferences and seminars are held locally and internationally), and item 8 (the absence of research centers concerned with scientific research at the University) with percentages (78%, 73%, 70%, and 78%, respectively). Meanwhile, neutral responses were received regarding item 4 (lack of sources and references on the subject of scientific research, especially when the topic is new), 5 (weakness of Arab databases related to scientific research topics), and 6 (insufficiency of databases in which the University subscribed in the field of specialization) with percentages (63%, 65%, and 63%, respectively) as illustrated in Table 4. The overall average of the third domain was 3.59, and according to the Likert five-point scale, the respondents agree by 72% regarding the challenges facing researchers in the research field.

These findings highlight researchers' multifaceted difficulties in the institutional milieu, affirming the importance of a holistic approach to addressing these concerns (Burdusel and Oprean, 2011; Kenny and Fluck, 2022). The challenges identified within this study cohort were similar to those identified by others in Arab Universities (Hammad and Al-Ani, 2021; Saaida, 2021) and international ones (Egwunyenga, 2008). In his earlier work, Sawyerr (2004) underscored many challenges global educational institutions face, which is consistent with our findings. These encompass the heavy teaching loads, the insufficiency of infrastructural facilities, and the competitive nature of securing financial support.

These complexities, indeed, could be deemed pertinent across all parts of the world (Sawyerr, 2004; Franzen et al., 2017; Bowsher et al., 2019; Deprez et al., 2023). The scarcity of research opportunities, in addition, notably diminishes the enthusiasm amongst academics to pursue research.

For instance, a previous study identified several factors that hindered academics' active participation in research despite their strong belief in their research competency. These factors included a high load of teaching responsibilities, insufficient funds, and low remuneration (Mugimu et al., 2013). Similarly, Karimian et al.'s (2012) study pointed out that financial constraints, especially the paucity of research funding, were broadly considered by academics to be the chief barrier to their research engagement.

3.4. Research partnerships to support the capabilities of researchers

On analysis of the participants' responses regarding the research partnerships to support the capabilities of researchers in the current institute, most of them responded by neutral selection regarding item 1 (the University's interest in establishing partnerships with similar national and international research centers), item 3 (partnerships with institutions provide financial returns that support the research financial needs of the University), item 4 (The University is keen to form research groups in all fields of scientific research), and item 5 (it is observed that qualified researchers from outside the Kingdom are used according to research needs) with percentages 58%, 66%, 65%, and 65%, respectively. Meanwhile, about 71% agreed with the second item (partnerships with similar centers achieve the acquisition of good experience and knowledge) (Table 5). The overall average for this domain was 3.18, and according to the Likert five-point scale, the respondents, in general, are 64% neutral regarding the research partnerships and the support the University provides to researchers.

The importance of creating a supportive and inclusive research environment that values local knowledge/expertise, encourages the participation of diverse stakeholders, and supports researchers' careers, including providing mentorship, funding, and opportunities for collaboration, was emphasized by several studies to foster the research capacity (Langhaug et al., 2020; Provan et al., 2007; Boschma, 2005). While individual research centers may have their unique strengths, collaboration instead of competition ultimately unites these strengths and fills in the gaps of weaknesses, thereby leading to the accumulation of valuable insights and expertise for research capacity building (Bisaso and Hölttä, 2017).

3.5. Support, services, and facilities for researchers from the deanship of scientific research

On analysis of the participants' responses regarding the support/services and facilities for researchers from the "Deanship of Scientific Research" in the current institute, most of them responded neutral response regarding item 2 (all types of administrative and technical support and

services are available on the website of the Deanship of Scientific Research), item 3 (the selection and differentiation process between research proposals is carried out in an objective and fair manner), item 4 (the Deanship of Scientific Research is keen to know the opinions of researchers about the level of support, services, and facilities provided by it), item 5 (The Deanship of Scientific Research is keen to help researchers provide information and knowledge related to their research), and item 6 (The Deanship of Scientific Research is keen to

inform researchers about the projects and activities it undertakes), with percentages 66%, 66%, 64%, 64%, and 67%, respectively. Moreover, 73% of the study participants agreed with item 1 (the availability of the opportunity for applications for research projects is announced at a specific time) (Table 6). The general average for the fifth domain was 3.34, and according to the Likert five-point scale, the participants were neutral by 67% concerning this domain.

Table 4: Response of study participants regarding challenges facing researchers in the field of research

Items	Strongly agree	I agree	Neutral	Disagree	Strongly disagree	Average	Percentage	Sample direction
1	121	81	27	8	0	4.26	85%	Strongly agree
2	83	82	51	20	0	3.88	77.7%	Agree
3	72	68	54	43	0	3.65	73%	Agree
4	34	73	54	65	0	3.13	62.6%	neutral
5	43	56	85	46	0	3.26	65.2%	neutral
6	37	58	68	66	0	3.12	62.5%	neutral
7	60	65	73	32	0	3.50	69.95%	Agree
8	90	77	46	24	0	3.92	78.3%	Agree

The general average of the third domain: 3.59; Percentage: 72%; The general sample direction of the third domain: I agree

Table 5: Response of study participants regarding research partnerships to support the capabilities of researchers

Items	Strongly agree	I agree	Neutral	Disagree	Strongly disagree	Average	Percentage	Sample direction
1	17	50	98	48	28	2.92	58%	Neutral
2	51	81	76	18	15	3.56	71%	Agree
3	34	61	103	25	18	3.28	65.6%	Neutral
4	33	73	73	39	23	3.22	64.5%	Neutral
5	17	41	116	35	32	2.90	58%	Neutral

The general average of the fourth domain: 3.18; Percentage: 64%; The general sample direction of the fourth domain: Neutral

3.6. Training programs and needs for research capacity building

On analysis of the participants' responses regarding the training programs and needs for RCB in the current institute, 66% and 59% of participants responded by neutral response regarding item 1 (training programs and workshops to raise research capabilities are suitable for all degrees at the University) and item 2 (the number of training programs and workshops provided by the University to raise the capabilities of researchers is sufficient), respectively. Meanwhile, the participants strongly

agreed with items 6 (researchers need training programs to learn about the mechanism of detecting classified WoS and Scopus journals and to know the fake journals), 7 (researchers need training programs to learn how to use EndNote to index scientific references within research), 8 (researchers need training programs to learn about the various statistical software used in scientific research), and 9 (researchers need training programs on the preparation and analysis of research questionnaires), with response rate close to 85% as outlined in Table 7.

Table 6: Response of study participants regarding the support, services, and facilities for researchers from the deanship of scientific research

Items	Strongly agree	I agree	Neutral	Disagree	Strongly disagree	Average	Percentage	Sample direction
1	47	116	42	21	15	3.66	73%	Agree
2	32	77	79	36	17	3.29	65.9%	Neutral
3	25	77	105	17	17	3.32	66%	Neutral
4	24	85	75	34	23	3.22	64%	Neutral
5	25	81	74	39	22	3.20	63.9%	Neutral
6	28	96	66	30	21	3.33	66.6%	Neutral

The general average of the fifth domain: 3.34; Percentage: 67%; The general sample direction of the fifth domain: Neutral

The agreed response was recorded in items 3 (researchers need training programs on how to write research proposals), 4 (researchers need training programs to provide them with the skills of using databases and creating the identity of the researcher on Scopus- Google Scholar- Research gate, etc.), 5 (researchers need training programs on how to verify citation rates in research (plagiarism)), 10 (researchers need training programs to introduce the basics of scientific publishing), 11 (researchers need training programs to introduce the existing

Arab and foreign databases in the local Digital Library), and 12 (researchers need training programs to introduce international arbitration standards for scientific research) with percentages 78%, 79%, 84%, 82%, 83%, and 84%, respectively. The general average for the sixth domain was 3.98, and according to the Likert five-point scale, 80% of the participants agreed regarding the proposed training programs and the need to build the research capacity of the researchers of the current University.

Table 7: Response of study participants regarding training programs and needs for research capacity building

Items	Strongly agree	I agree	Neutral	Disagree	Strongly disagree	Average	Percentage	Sample direction
1	30	89	64	40	18	3.30	66%	Neutral
2	24	61	60	76	20	2.97	59%	Neutral
3	68	110	42	14	7	3.90	78%	Agree
4	78	108	32	16	7	3.97	79%	Agree
5	104	100	23	9	5	4.20	83.9%	Agree
6	101	106	24	8	2	4.23	84.6%	Strongly agree
7	104	101	29	6	1	4.25	84.9%	Strongly agree
8	107	103	24	6	1	4.28	85.6%	Strongly agree
9	101	105	25	9	1	4.23	84.6%	Strongly agree
10	97	94	32	13	5	4.10	82%	Agree
11	91	106	33	5	6	4.12	82.5%	Agree
12	97	108	26	4	6	4.19	83.7%	Agree

The general average of the sixth domain: 3.98; Percentage: 80%; The general sample direction of the sixth domain: Agree

3.7. Analysis of the open question in the RCB questionnaire

On analysis of the responses of participants concerning the open query about "other proposals from your point of view contribute to building the research capacity of researchers at the university," the majority of participants acknowledged the following: securing suitable funding, recognizing exceptional research excellence, providing

infrastructure support for experimental research, enabling access to scientific databases, fostering scientific collaboration, enhancing writing skills for prestigious journals, offering training on various statistical analysis programs and tools, enabling conference participation, and minimizing administrative tasks for faculty members, among others (Fig. 2).



Fig. 2: Word cloud analysis of word frequency for the participant's responses to the open question in the RCB questionnaire

Based on the collective analysis of the training needs and responses to the RCB questionnaire, including the open one, a proposed program/plan was designed and scheduled for future implementation.

Our proposed smaller-scale RCB-related efforts could have positive results in terms of the development of research abilities, experience, and productivity, as proved by similar studies (Pain et al., 2018; Hilder et al., 2020). The proposed RCB program/plan, owing to its context-centric strategy, might potentially (1) enhance the accessibility of funds dedicated to research development and (2) ensure a higher alignment between the research priorities of local needs and the RCB approaches devised to tackle them. It is worth noting that RCB is a long-term process that requires substantial and continuing effort to tackle various challenges. Also, it is expected that as scholars steadily develop their research skills, their requirements will change. As a result, the accompanying RCB plan will need to be

consistently reevaluated and improved over time (Li et al., 2020).

There were some limitations to this study. Firstly, the response collection from one public University suggests that it may be difficult to generalize these results. However, the cohort of respondents to this survey appears to be broadly similar in age of experience, female gender, and college distribution to that reported for the general population.

Secondly, even though we recognize the limitations of self-reported data, the reality that the participants were unidentified, contributed willingly, and without any influence of power dynamics suggests they would have honestly recounted their personal experiences. Also, we designed our survey instruments to minimize common biases associated with self-reporting, such as social desirability and recall bias, by asking clear, specific, and non-leading questions. Furthermore, to enhance the validity of the responses, we provided comprehensive instructions and offered definitions for any terms

that might be subject to individual interpretation. We acknowledge that incorporating more objective measures could have further strengthened our study. However, given the exploratory nature of our work and the current resource constraints of our institution, it was not feasible to include such measures in our current study design. Thirdly, the "analysis depth" as the present study provided descriptive statistics; more in-depth analytical methods could be applied to these data or similar future studies to extract more profound insights. Fourthly, while our findings provide a necessary foundation, they represent a particular moment (i.e., cross-sectional design) rather than an ongoing process (i.e., longitudinal approach).

4. Conclusions and future perspectives

The current findings revealed a largely neutral response from our participants towards multiple aspects of motivational methods implemented at the present institute, suggesting the faculty seemed to hold a balanced view. The situation diverged regarding the annual ceremony to honor distinguished staff research as half of the participants lacked such a motivational method. Regarding the main challenges scholars face based on participant feedback, the majority strongly agreed that increasing the instructional and administrative demands on faculty represents a significant obstacle. Participants also agreed upon other challenges, such as the insufficiency of financial support for the pursuit of scientific research, the ambiguity in the procedures for securing funding for unsupported research, and complications in procedures concerning faculty participation in scientific conferences and seminars, both locally and globally. Moreover, respondents indicated that the absence of dedicated research centers focused on scientific exploration at the university is an additional challenge. These findings highlight researchers' multifaceted difficulties in the institutional milieu, affirming the importance of a holistic approach to addressing these concerns.

While the present study focuses on the "Northern Border University," which provides in-depth localized insights that may be unique to the Northern region of Saudi Arabia, it also lays the groundwork for comparative analyses with similar contexts across the nation or region. It is highly recommended that this study be replicated in multiple institutions or varied geographical locations to enhance the generalizability of our findings. Also, we encourage the use of our study as a case model that could inform preliminary assessments and tailor research capacity-building strategies to other public universities, both within and beyond Saudi Arabia. Furthermore, despite focusing on a single institution, our findings provide critical insights into the challenges and successes of the capacity-building process. They serve as an evidence-based starting point for similar initiatives and discussions around

research capacity development, which can have implications beyond our specific context. We highly recommend future longitudinal studies to build on our findings by integrating objective data sources, such as publication records, research funding obtained, and other performance metrics, and tracking the progress and impact of RCB strategies over time.

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Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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