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Unveiling the skills of a good researcher: A study of Ph.D. Scholars at GBPUAT

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Abstract

The quality and impact of academic research are profoundly influenced by the skills and attributes of the researcher. Research is a cornerstone of academic and scientific advancement, but the success of any research endeavour hinges largely on the qualities and competencies of the individual conducting it. This study investigated the essential qualities of a good researcher as perceived by Ph.D. scholars at Govind Ballabh Pant University of Agriculture and Technology (GBPUAT), Uttarakhand. Using Cochran's formula, a sample of 198 doctoral students was selected, and data were collected through a structured questionnaire. The data was processed using descriptive statistics and Garrett's ranking. The findings of the study revealed that majority of scholars belonged to 24.34-31.01 age group (62.12%), women scholars of 66.67 per cent, unmarried students (81.82%), English-medium schooling (77.28%), GPA ranging from 7.1 to 8.8, students getting scholarships (82.32%). Findings revealed that the ability to set goals, problem-solving, communication skills, the ability to develop aims and objectives and the ability to stay motivated and interested were ranked as the first four most critical skills. In contrast, conceptual understanding of research paradigms, adaptability, and certain technical skills such as IT proficiency and data analysis were ranked lower. These insights can inform institutional policies aimed at fostering holistic research capacity among emerging scholars.

Keywords: Research skills, good researcher, Ph.D. Scholars

Introduction

Research is a cornerstone of academic and scientific advancement, but the success of any research endeavor hinges largely on the qualities and competencies of the individual conducting it. A good researcher does more than collect and analyze data; they demonstrate a comprehensive set of intellectual, personal, and professional attributes that guide the research process from inception to dissemination. These qualities ensure the production of rigorous, relevant, and ethical research that contributes meaningfully to its field. One of the most essential qualities of a good researcher is effective time management. Research projects often span months or even years and involve multiple overlapping tasks. The ability to meet deadlines, set realistic goals, and manage workload is crucial to maintaining progress and avoiding burnout (Creswell & Creswell, 2018) [5]. Equally important is adaptability and flexibility, which allow researchers to respond constructively to unseen challenges, whether in the form of data limitations, methodological adjustments, or external pressures. Another key attribute is intrinsic motivation. Sustained interest in the topic, even through periods of slow progress or difficulty, is what keeps research moving forward. As Toledo-Pereyra (2012) [19] notes, a good researcher must be "motivated, inquisitive, and committed"—qualities that foster persistence and a continuous drive for discovery. Motivation also fuels the capacity for critical reflection, which is necessary for evaluating one's own assumptions, methodologies, and findings. A skilled researcher also possesses strong problem-solving abilities, as well as the skills of analysis, evaluation, and synthesis. These cognitive skills are fundamental to constructing sound arguments, identifying patterns in data, and drawing valid conclusions. As John W. Creswell defines, "Research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue." At the center of this rigorous process stands the researcher—the individual whose mindset, skills, and ethical outlook significantly influence the quality and impact of the research produced.In an age defined by information, innovation, and global challenges, the role of a researcher has grown increasingly vital. Researchers not only uncover new knowledge but also shape public policy, advance technological development, and address pressing societal issues. But what makes a good researcher? Is it an innate brilliance, or can the essential qualities be nurtured and developed over time? While earlier views, such as the Great Man Theory, suggest that exceptional ability is inborn, contemporary understanding leans toward the idea that good researchers are made—not born—through practice, reflection, and continual learning. A number of studies have sought to identify the characteristics that define effective researchers. Among the most cited is the work by Toledo-Pereyra (2012) [19], who identified nine essential traits: interest, motivation, inquisitiveness, commitment, sacrifice, scholarly approach, excellence, knowledge, and integration. These qualities form a solid foundation for intellectual inquiry and sustained research engagement. Additionally, modern

research has emphasized the importance of cognitive abilities, time management, organization, adaptability, and ethical conduct. Closely related is the ability to review and critique—not only existing literature but also one's own work—which improves the quality and depth of the research output (Booth, Colomb, & Williams, 2016) [3]. Equipped with effective communication skills, researchers can articulate their findings clearly through writing and presentations. Competency in editing, proofreading, and questioning techniques ensures precision and clarity in academic work. In addition, the ability to establish rapport—whether with research participants, collaborators, or supervisors—is essential for smooth project execution and professional growth.

Technical competencies also play a vital role. Proficiency in IT, data analysis, and the use of databases and data sets enhances the efficiency and accuracy of research activities. Experience with primary and secondary sources, as well as familiarity with research methods and methodology, equips researchers to design robust studies. An understanding of theoretical frameworks and the relationships among epistemology, theoretical perspectives, and methodology allows for more coherent and philosophically grounded research (Hart, 2005) [11]. Finally, a good researcher must be able to choose a viable research topic, demonstrate knowledge of prior research, and collaborate effectively with supervisors. These competencies ensure that the research is relevant, feasible, and well-supported. The qualities of a good researcher are multidimensional, combining personal attributes with technical and cognitive skills. Together, these traits enable the researcher to produce high-quality, ethical, and impactful work that advances their field of study.

Hence, a study was conducted with the primary objective of identifying the skills deemed essential in a good researcher.

Methodology

The present study was conducted in Govind Ballabh Pant University of Agriculture and Technology (GBPUAT), Uttarakhand. The university consists of seven colleges and total number of 413 Ph.D. students. A sample size of 198 students was decided using Cochran's formula given below-

$n_0 = Z^2 . p . (1-p) / e^2$

Where:

- n_0 = required sample size
- Z = Z-score (standard score corresponding to the desired confidence level)
- p = estimated proportion of the population (use 0.5 if unknown)
- e = desired margin of error (expressed as a decimal, e.g., 0.05 for 5%)

PPS method was used to select the respondents. The students were selected for the study using simple random sampling. A structured questionnaire was used for collecting data. Keeping in view, the specific objectives of the study, a well-structured questionnaire was developed. The students were asked to rank the skills from most important (rank 1) to least important (rank 27). Garrett's ranking technique was used to rank the skills.

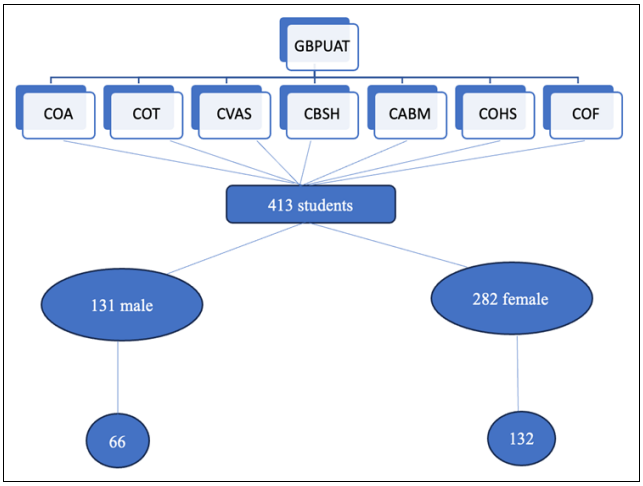


Fig 1: Depiction of selection of Respondents

Results and Discussion

Descriptive statistics

S. No.	Category	Sub-Category	Frequency	Percentage
1	Age Group	Below 24.34	40	20.20%
		24.34-31.01	123	62.12%
		Above 31.01	35	17.68%
2	Gender	Male	66	33.33%
		Female	132	66.67%
3	Marital Status	Married	36	18.18%
		Unmarried	162	81.82%
4	Medium of Schooling	English	153	77.28%
		Hindi	30	15.15%
		Others	15	7.57%
5	Fellowship Status	With Fellowship	163	82.32%
		Without Fellowship	35	17.68%

Age

The age distribution of Ph.D. respondents from GBPUAT indicates that a majority, 62.12%, fall within the age group of 24.34 to 31.01 years, followed by 20.20% below 24.34 years, and 17.68% above 31.01 years with a mean of 27.67 and standard deviation of 3.33. This data suggests that most doctoral candidates are enrolled at a relatively young age, typically shortly after completing their postgraduate studies. This demographic composition aligns with national and international trends, where early-career researchers are encouraged to begin doctoral programs during their mid-20s to early 30s in order to optimize their research careers and professional development (Sowell *et al.*, 2008) [18].Younger doctoral scholars are often associated with greater adaptability, openness to innovative research practices, and a higher capacity to engage with new technologies and interdisciplinary approaches (Golde & Dore, 2001) [10]. The diverse age range observed in this study reflects a healthy and inclusive academic culture where both younger and more experienced scholars contribute to research excellence.

Gender

The study revealed that 66.67% were female and 33.33% were male. This significant representation of women in doctoral programs reflects the growing participation of women in higher education and academic research. Research has shown that the increased presence of women

in academia is positively associated with diverse research perspectives, inclusive methodologies, and enhanced academic environments (Etzkowitz *et al.*, 2000) [7].

Marital Status

The marital status distribution among Ph.D. respondents at GBPUAT revealed that a vast majority, 81.82% were unmarried, while only 18.18% were married. This data highlights an interesting dynamic in the profile of research scholars. Unmarried scholars, particularly at the doctoral level, often benefit from fewer familial responsibilities and greater flexibility in managing time and academic commitments—factors that can contribute positively to research productivity and focus (Sowell *et al*., 2008) [18]. Previous research suggests that marital status can influence the research experience, with unmarried or single students typically reporting fewer external obligations and more time for academic work (Gardner, 2009) [9]. On the other hand, married doctoral students may face additional responsibilities such as family care, financial obligations, or time management constraints, which can sometimes create obstacles in their academic journey (Offerman, 2011) [17].

Medium of Schooling

The analysis of the medium of schooling among Ph.D. respondents at GBPUAT revealed that 77.28% had received their schooling in English, followed by 15.15% in Hindi, and 7.57% in other regional languages. This distribution reflects a strong dominance of English-medium education among doctoral scholars, which is a noteworthy factor in the context of research readiness and academic performance at the higher education level. English-medium schooling is often associated with enhanced academic exposure, better access to global literature, and greater proficiency in research communication, especially in Indian academic settings where English remains the primary language for scientific publications and scholarly discourse (Annamalai, 2004) [1]. Furthermore, scholars with a strong command of English are more likely to effectively engage with global research, write publishable papers, and participate in international collaborations (Kirkpatrick, 2011) [12]. On the other hand, students from non-English-medium backgrounds may face linguistic barriers that hinder their research progress, especially during literature review, academic writing, and publication processes. However, it's important to acknowledge that language medium alone does not determine research quality—factors such as critical thinking ability, conceptual clarity, and methodological understanding are equally vital (Flowerdew, 2008) [8].

Academic Performance:

The academic performance of Ph.D. respondents from GBPUAT, as measured by their postgraduate grade point averages (GPAs), ranged from a minimum of 7.1 to a maximum of 8.8 on a 10-point scale. This consistently high academic achievement indicates that the respondents have a strong academic foundation, which is a critical characteristic of good researchers. A solid academic background not only reflects intellectual capability but also correlates with research readiness, analytical thinking, and the ability to engage with complex ideas—all of which are essential for conducting quality research (Tight, 2010) [20].High academic performance is often associated with better research outcomes, as it suggests strong conceptual understanding, discipline, and perseverance—attributes necessary for effective research processes (Mamiseishvili & Rosser, 2010) [15]. Moreover, studies have found that students with consistently high academic scores tend to show greater confidence in handling research methodology, writing, and critical thinking, which are integral components of successful doctoral work (Bair & Haworth, 2004) [2].

Fellowships

Among the Ph.D. respondents from GBPUAT, 82.32% were receiving fellowship support, while 17.68% were pursuing their doctoral research without any fellowship. This notable imbalance brings attention to a critical aspect of the academic research environment—financial support. Fellowships often serve as a backbone for quality research, as they enable scholars to dedicate themselves fully to their academic pursuits without the burden of financial constraints. Studies such as Kumar (2016) [13] have emphasized that fellowship recipients are more likely to exhibit higher research engagement, better productivity, and greater access to learning resources. Furthermore, Maheshwari and Singh (2020) [14] observed that scholars without fellowships often experience challenges such as psychological stress, limited access to materials, and the necessity to take on part-time work, all of which can dilute the focus and quality of research work.

Skills of a good researcher

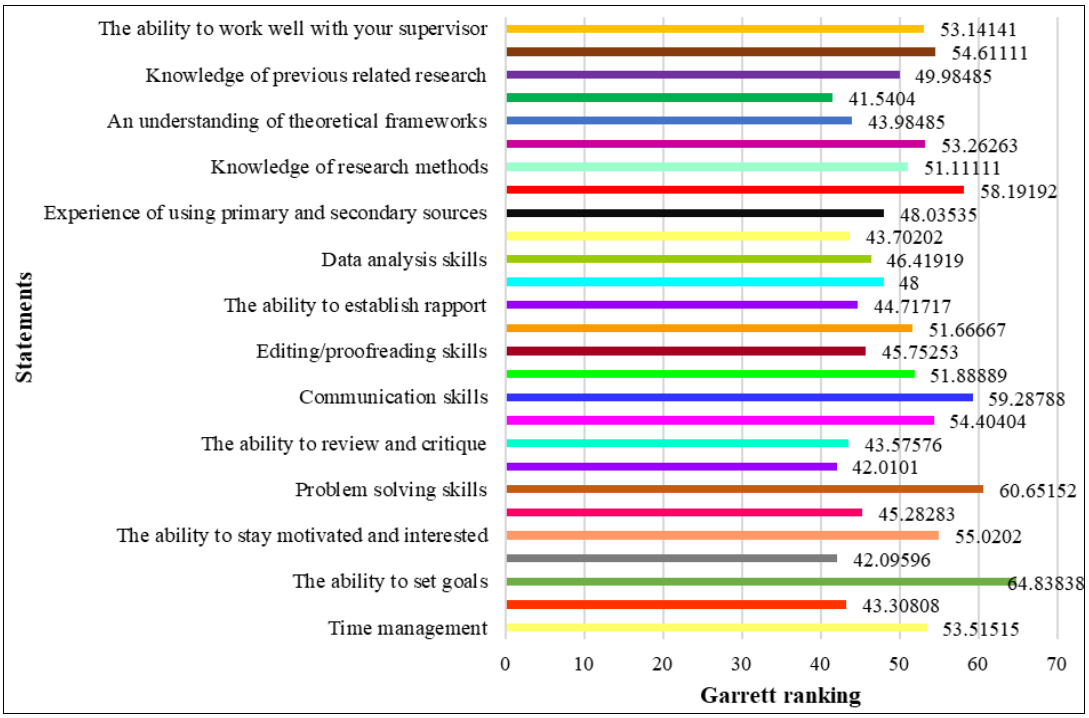
To identify these 27 important skills a brainstorming session was conducted in first phase.

Sl. No.	Statements	Garette Ranking	Rank
1	The ability to set goals	64.83	I
2	Problem solving skills	60.65	II
3	Communication skills	59.28	III
4	The ability to develop aims and objectives	58.19	IV
5	The ability to stay motivated and interested	55.02	V
6	The ability to choose a good, workable topic	54.61	VI
7	Reading skills	54.40	VII
8	Time management	53.51	VIII
9	Knowledge of research methodology	53.26	X
10	The ability to work well with your supervisor	53.14	X
11	Presentation skills	51.88	XI
12	Questioning skills	51.66	XII
13	Knowledge of research methods	51.11	XIII
14	Knowledge of previous related research	49.98	XIV

15	Experience of using primary and secondary sources	48.03	XV
16	IT skills	48.00	XVI
17	Data analysis skills	46.41	XVII
18	Editing/proofreading skills	45.75	XVIII
19	The ability to reflect	45.28	XIX
20	The ability to establish rapport	44.71	XX
21	An understanding of theoretical frameworks	43.98	XXI
22	Knowing how to use data sets and data bases	43.70	XXII
23	The ability to review and critique	43.57	XXIII
24	The ability to meet deadlines	43.30	XXIV
25	Adaptability and flexibility	42.09	XXV
26	Skills of analysis, evaluation and synthesis	42.01	XXVI
27	Understanding of the relationship between epistemology, theoretical perspective and methodology	41.54	XXVII

The analysis of essential research skills among Ph.D. scholars at GBPUAT, conducted using the Garrett ranking method, highlights the competencies most valued for conducting effective research. Among the 27 evaluated skills, goal setting emerged as the most critical with the highest mean Garrett score (64.84), followed by problem-solving skills (60.65), communication skills (59.29), and the ability to develop aims and objectives (58.19). These findings suggest that strategic planning, analytical reasoning, and effective communication are foundational traits for producing quality research outputs. Notably, staying motivated and interested also ranked highly (55.02), reflecting the importance of sustained engagement in long-term research processes. Reading skills (54.40) and the ability to choose a good, workable topic (54.61) were also among the top ten, emphasizing that comprehension and topic selection are essential for shaping the direction and quality of a research project. These results align with earlier studies, such as those by Delamont *et al.* (2004) [6], who stress that intrinsic motivation, clarity of aims, and strategic topic selection are hallmarks of high-quality research training. Conversely, competencies such as understanding the relationship between epistemology, theoretical perspective, and methodology (41.54), skills of analysis, evaluation and synthesis (42.01), and adaptability and flexibility (42.09) received the lowest rankings. This suggests potential gaps in higher-order theoretical or conceptual understanding and responsiveness to change—areas that might benefit from targeted intervention in doctoral training programs.

The relatively lower rankings of IT skills (48.00), data analysis skills (46.42), and experience with primary and secondary sources (48.03) highlight a concern echoed in previous literature (Boud & Lee, 2005) [4], where technical research capabilities are often underemphasized despite their growing relevance in data-driven academic environments. Moreover, the middling ranking of the ability to work well with a supervisor (53.14) signals the need for enhancing mentor-mentee relationships, which are widely acknowledged as pivotal for academic success (McAlpine & Amundsen, 2011) [16]. While soft skills such as presentation, editing, and rapport building received moderate scores, their cumulative contribution to the research communication process should not be underestimated. In sum, while cognitive and strategic abilities are well-developed among respondents, the findings indicate room for improvement in areas related to conceptual knowledge, adaptability, and technical competencies. Strengthening these areas through structured training and mentorship could significantly elevate research quality among Ph.D. scholars.



Conclusion

The success of any research endeavor is not solely dependent on access to resources or institutional support but significantly shaped by the qualities of the researcher themselves. This study highlights the multifaceted nature of a good researcher, encompassing a combination of personal attributes, intellectual skills, and technical competencies. Key qualities such as goal-setting, problem-solving, motivation, and effective communication emerged as top priorities among Ph.D. scholars, reflecting the importance of strategic thinking and consistent engagement in the research process. However, the relatively lower rankings of conceptual and technical skills—such as understanding research paradigms and data analysis—indicate areas where further training and support are needed. These findings emphasize the importance of a balanced development approach in doctoral programs, one that not only nurtures academic excellence but also fosters soft skills and research-specific abilities. Institutions must play a proactive role in equipping researchers with the necessary tools, mentorship, and opportunities to develop these qualities. Ultimately, cultivating well-rounded researchers who are reflective, adaptable, ethical, and skilled will enhance the quality, credibility, and impact of academic research in both national and global contexts.

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