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From Supervision to Research Competence: Examining The Role of Research Supervisors in The Cognitive Activation of Postgraduate Research Students

Qummer Iqbal
PhD Scholar, Department of Education, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi
Email: qamariqbalawan88@gmail.com
Dr. Qaisara Parveen
Associate Professor, Department of Education, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi
Dr. Muhammad Imran Yousuf
Professor, Department of Education, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi
Dr. Badar Naseem Siddiqui
Associate Professor, Department of Agriculture Extension, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi

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Corresponding Author:
Qummer Iqbal
Email:
qamariqbalawan88@gmail.com

ABSTRACT

Although the supervision of research is crucial to postgraduate studies, its process of making a supervisee a competent researcher is little studied. The literature tends to consider supervision a managerial or relationship or mentoring process with less focus on the cognitive processes that invigilate research thinking, methodological reasoning, reflective judgment and scholarly independence. The paper aims to discuss cognitive activation as a linkage between supervisory practices and Post-graduate research competence in public universities of Azad Kashmir. This study used an explanatory sequential mixed method approach. The quantitative data were collected from 514 respondents (133 supervisors and 381 supervisees) who were randomly selected from public universities of Azad Kashmir. Descriptive statistics, multiple linear regression and Pearson correlation were used to analyze the data. Themes identified through the thematic analysis of supervisory experiences were used to explain the statistical patterns and findings. Results indicated that the supervisor's roles and supervision practices significantly and strongly predicted supervisor's cognitive activation (β = .851, R^2 = .725, $p < .001$). The research ability was highly associated with cognitive activation (β = .482, R^2 = .232, $p < .001$), and cognitive activation was also found to be a strong predictor of professional success (r = .614, $p < .001$). Descriptive results indicated that there was a significant difference in the levels of perceived institutional support, with supervisees reporting low level of support (M = 2.02) and supervisors reporting moderate levels of support (M = 2.81). The qualitative results revealed that supervisors facilitate cognition by engaging in dialogic questioning, scaffolding, iterative feedback, literature analysis and autonomy-supporting research guidance. In parallel, institutional limitations, resource scarcity, and communication challenges and supervisee dependence led to shallower cognitive activation. The study ends by defining effective supervision as a pedagogical relationship that is cognitively challenging, pedagogically supportive, and progressively empowering, and that requires the supervisor to engage in a pedagogical relationship to develop the competence of the supervisee. The paper makes a contribution to higher education research by introducing cognitive activation as a mechanism of explanation for the development of postgraduate research.

Introduction and Problem Background

The Post Graduate Researcher-Supervisor relationship is one of the most impactful academic relationships in the higher education context. It not only helps to complete thesis or dissertation, but also looks upon the intellectual structure, research identity and scholarly independence of the supervisee. In universities, supervisors are expected to lead students in the challenging tasks of problem formulation, literature review, methodological decision making, analysis of data, interpretation and academic writing. These duties demonstrate that the role of a research supervisor is not just a management issue. It is a learning process whereby the beginning researcher is gradually supported to become an independent learner.

While it is recognized that supervision is crucial to the development of research competence, how supervision is contributing to competence in research is not a well-evolved theory. Various studies have been directed to meeting frequency, quality of feedback, supervising style, quality of the supervisor – employee relationship, institutional supports, or completion outcomes. These are important but not all the elements of how supervisors really build the thinking skills of their supervisees. A frequent supervisor can be a weak, descriptive, or dependent supervisee. On the other hand, a supervisee can make significant strides when a supervisor questions their assumptions, supports their justifications, invites their reflections, and demands their thinking. This suggests that cognitive activation may be the key to effective supervision.Cognitive activation is the deliberate activation of higher order thinking. It is linked to difficult tasks, reflective dialogue, conceptual linkage, justification, analytical reasoning and problem solving in teaching and learning research. Cognitive activation in the context of postgraduate supervision involves supervisory activities that involve supervisees in deep reflection on their research problem, the justification of methodological decisions, the comparison of theoretical position, interpretation of evidence and the strengthening of arguments. Supervision, in this way, is no longer a process of procedure correction, but of intellectual activation.

The present study is based on the belief that research competence emerges when it is created within cognitively challenging, yet supportive learning environments. They may range from asking why a theory is suitable; how a method fits with the research question; what assumptions are included in a design; how results can be reported not only as a description, but also as an interpretation; and what contribution the research study makes to knowledge. These types of questions shift supervisees from a passive compliance to reflective and independent research. It is a matter of utmost significance keeping in mind the universities of Azad Kashmir. The research programs of post graduate students in the region are expected to help in academic development, educational improvement and research productivity. Supervisees, however, might find that there is restricted access to research resources, inequitable supervisory practices, unstructured research training, and constraints of institution. In these situations, the supervisor becomes a major important factor in intellectual guidance and in the socialization of research. Consequently, it is vital to know the position of supervisors in the cognitive activation of supervisees in order to enhance the quality of post graduate research.

The following paper adopts the title ‘From Supervision to Research Competence' since it is about a developmental movement. Research competence is the desired aim, supervision is the first step. It is suggested that this movement takes place through cognitive activation. It thus asks what kind of supervisory approaches foster the thinking of the supervisees and what effects such thinking has on their research capabilities, how institutional and interactional conditions amplify or hinder this process, and how these conditions can be strengthened or weakened to further enhance the supervisees' research capabilities. This paper is based on mixed methods study, carried out in public universities of Azad Kashmir. There were 133 supervisors and 381 supervisees for the quantitative component. The qualitative part helped to give explanations as to the experience of the supervision and to cognitive activation during the research process. These results taken together offer a total picture of the pedagogical, relational and institutional aspects of post-graduate research development.

Problem Statement

The universities of Azad Kashmir are expected to churn out post-graduate researchers who can carry out independent, methodologically sound and socially useful research. But, uneven supervision practices, inadequate institutional support, supervisee dependence and low attention to higher order research thinking are some of the factors that compromise research development. Supervisors might make an effort to cognitively activate supervisees, but whether they do, or not, is not clear. Also, there is scant empirical research data that provides an explanation of how cognitive activation relates to research ability and professional success in this context. This study tackles this gap by exploring the relationship between supervisory practices and post-graduate research competence through a mechanism of cognitive activation.

Purpose of the Study

This paper aims to explore the role of research supervisors in the cognitive activation of supervisees and its effect on enhancing the research skills of the post-graduates in universities of Azad Kashmir. Paper 2 examines the current supervision process,

institutional support and the quality of the interaction between the supervisor and the supervisee as contextual conditions of cognitively engaging supervision.

Review of Literature and Theoretical Framing

Research Supervision as Pedagogy

The nature of research supervision has come to be viewed as a pedagogical, not only administrative, relationship. The supervisor is not just someone who reviews chapters, approves forms and watches time. The supervisor initiates the supervisee to the practices of a research community. This includes developing question-asking skills, arguments, supporting evidence, theory application, method selection, and communication of results. With this perspective, supervision is a form of advanced teaching within the real research context.

Lee's doctoral supervision framework is relevant as it specifies the various dimensions of supervision: functional guidance, enculturation, critical thinking, emancipation, and relationship development. The functional dimension is related to the practical dimensions—planning and progress monitoring. Enculturation is about the introduction of supervisees into disciplinary norms and into scholarly communities. Critical thinking is the process of questioning, analyzing, supporting ideas. Emancipation focuses on independence and autonomy, and relationship building on trust and communication and mutual commitment. Critical thinking and emancipation are more closely associated with cognitive activation, since supervisees need to come out of dependence and learn to make decisions based on scholarly judgment.

Effective supervision also involves adaptation to developmental level of supervisee. Early stage researchers might need more structure, explicit feedback and guidance. There is a need for advanced researchers to be more autonomous, to be able to engage in critical discussion and to be able to make their own decisions. A cognitively activating supervisor is able to blend in support and challenge. Support that is too much or too little, or challenge that is too much or too little, can lead to dependence or anxiety and disengagement. The quality of supervision depends on the supervisor's ability to maintain this balance.

Cognitive activation and higher order thinking.

Cognitive activation is a key research principle of teaching quality. It involves techniques used to arouse learners to do more than memorize material. Cognitively activating teaching in the ordinary classroom setting includes activities and questions that call for explanation, comparison, justification, problem solving, and conceptual connection. The idea can be extended to the postgraduate level of supervision as with research development, there is a learning process.

In postgraduate studies, cognitive activation can take on a number of different forms. First, supervisors might ask questions which ask the supervisees to support their research choices. Secondly, supervisors can question the ambiguity of the assumptions in the study. Third, students could be asked to relate literature to research questions and methodology by supervisors. Fourth, supervisors can employ feedback for more than just language correction; they can also provide feedback on argument, structure and conceptual clarity. Fifth, supervisors can offer suggestions to supervisees to consider other solutions before finalizing decisions.

The benefits of the cognitive activation are that research competence can't be taught. Being told what to write is not enough to produce a competent researcher. The competence to do research develops through supervisees learning to know the importance of the research problem, the meaning of evidence, and the implications of research choices. In this way, cognitive activation makes supervision a process of intellectual development, instead of correction.

The concepts of scaffolding, ZPD and Guided Independence.

There is a theory that can explain cognitively activating supervision: Vygotsky's sociocultural theory. The Zone of Proximal Development is the idea that a more knowledgeable person is able to support the learner in performing at a higher level. In the supervision situation, the supervisor's role is that of a more advanced researcher who facilitates the supervisee's ability to undertake complex research projects that the supervisee is not yet able to complete in his or her own capacity.

Scaffolding plays a key role in this process. The supervisor can give direct instructions in the problem formulation, in mapping the literature, in development of instruments, in analysis, and in writing. This guidance should slowly phase out over time as the supervisee gains in skill. Scaffolding is not meant to make the student dependent, it is about guiding the student to independence. Scaffolding in which supervisees are encouraged to think for themselves instead of just following instructions is most cognitively activating.

This view emphasizes the need for structure and autonomy in the supervision process. Structure helps guide the supervisees in their research and expectations. They build ownership and confidence as they are given autonomy. Supervisors who solicit

suggestions, provide justification for choices, and encourage changes to plans and procedures in the light of evidence are fostering the shift from dependent learner to independent researcher.

Supervisor-Supervisee Interaction Quality

Supervisor/supervisee relationship quality is a key contextual factor for activating cognition. Cognitive processing, which is also known as higher-order thinking, can be challenging, uncertain and emotionally difficult. If there is fear of judgment, supervisees will be reluctant to express weak ideas, ask questions, or admit confusion. Effective supervision requires a trustful relationship with a person's supervisor, approachability, respect, and openness in communication, therefore.

One of the most significant types of interactions is constructive feedback. Feedback to correct formatting or language may help to improve a document, but may not contribute to the growth of research thinking. Cognitive activation can be elicited by feedback that provides reasons for the weakness of an argument, how evidence should be interpreted, or how methodology should be congruent with objectives. The timely feedback is also for the benefit of the supervisees to maintain momentum and prevent confusion.

There's also a connection between quality of interaction and autonomy. Supervisors who have a dominant role over decisions can create a finished but lack of independence of the researcher. This can reinforce ownership and critical engagement for the supervisees through a supportive supervisor who encourages them to be involved in making decisions. High-quality interaction is relational and intellectual, therefore.

The institutional environment for support and supervision

Research supervision is not a standalone process. It is influenced by institutional policies, resources and workload structures, research culture, training opportunities, administration systems. Institutional supports are available, such as libraries, electronic databases, research software, ethics guidelines, methodology workshops, writing assistance, funding opportunities, and formal guidelines for supervision. These structures can enhance supervisors' ability to cognitively engage supervisees.

In an environment with low institutional support, supervision is highly dependent on the individual supervisors. This creates inequities as some supervisors may be well-equipped, well-trained, and have time to provide effective supervision, while others may not. Lack of institutional support may also restrict the opportunities of supervisees to learn independently, making them more dependent on their supervisors. Supervisees may not have much experience in formal research culture, which is why the institutional support is critical in higher education settings. If not supported systematically, cognitive activation can be inconsistent. Thus, supervision cannot be solely the responsibility of the supervisor and the supervisee but should be an institutional matter.

Theoretical Framework

The research is underpinned by an integrated theoretical approach of cognitive activation theory, sociocultural theory, scaffolding theory and academic mentorship theory. The cognitive activation theory suggests that cognitively challenging supervision promotes more reflective thinking and reasoning. For the understanding of the centrality of interaction with a more knowledgeable other in learning, one needs to look at the Socio-cultural theory. Scaffolding theory outlines the role of scaffolding to help supervisees with complex research tasks. Academic mentorship theory describes how supervisors have a broader developmental role in influencing the formation of research identity, research confidence and professional development.

These theories together reinforce the main argument, which is that supervision is effective in enhancing research competence because it stimulates supervisees' cognition by providing them with structure in terms of challenge, feedback, reflection, and guided autonomy. The framework also acknowledges the influence of institutional support and relationship quality on cognitive activation.

Objectives, Questions, and Conceptual Model

Research Objectives

1. To identify the contribution of research supervisors to the cognitive activation of supervisees in the context of research development.
2. To explore the current process of research supervision in universities of Azad Kashmir.

Research Questions

1. In what ways do research supervisors contribute to the cognitive activation of supervisees during the research development process?
2. What are the prevailing practices and procedures of research supervision in universities of Azad Kashmir?

Research Methodology

Research Design

This study used an explanatory sequential mixed methods design. This design involves collecting and analyzing quantitative data first, then qualitative data to explain, elaborate and put the quantitative data into context. The design was suitable because the study was not just testing statistical relationships, but was also to understand how the cognitive activation occurs during real supervision practices.

Population and Sample

The participants of the study were research supervisors and research students enrolled in MPhil/MS and PhD programs of public universities in Azad Kashmir. The quantitative sample consisted of 514 respondents, with 133 of them being supervisors and 381 being supervisees. Supervisors came from various academic positions, such as professors, associate professors and assistant professors. Supervises were both MPhil and PhD. The presence of the supervisees and supervisors offered a balanced perspective of supervisory practice and development experiences in research.

Sampling Technique

The sample was stratified with proportional allocation in order to obtain a representative sample from various universities, departments, academic ranks and level of study. This method eliminated bias and increased the sample representativeness.

Instruments

Two questionnaires, one for supervisors and one for supervisees were self-developed. The items in the supervisor questionnaire were related to supervision practices, cognitive activation strategies, institutional support, and researcher ability perceived by supervisors. The supervisee questionnaire assessed perceived supervision quality, cognitive activation, institutional support, supervisee challenges, research ability and supervisee success. Semi-structured interviews were also used to obtain qualitative insights.

Data Collection Procedure

Appropriate permissions were taken with the public universities of Azad Kashmir for data collection. The purpose of the study, confidentiality, and voluntary participation were explained to the respondents. Both questionnaires and interviews were used to gather quantitative and qualitative data, respectively, to explore supervision practices, cognitive activation, institutional support and interaction quality.

Data Analysis

SPSS was used to analyse the quantitative data. Normality was assessed using Q-Q plots, and found to be approximately normally distributed. The demographic data and institutional support were summarized using descriptive statistics. Multiple linear regression was used to examine the predictive role of supervisory practices and cognitive activation. Using Pearson correlation, the relationship between cognitive activation and professional success was analyzed. Qualitative data were analyzed through thematic analysis to identify theme(s) from the responses of the interviewees and explanatory narration.

Ethical Considerations

The study focused on supervisory relationships, where there are academic power dynamics. Thus, confidentiality, voluntary participation and anonymity became ethical principles of importance. Any supervisors, supervisees, or institutions were not identified in a manner that could cause harm.

Results and Discussion

Demographic Profile

The sample comprised of 514 respondents, of which 133 were supervisors and 381 were supervisees. Supervisors made up 25.9% of the sample and the supervisees made up 74.1% of the sample. This distribution was suitable, since the study primarily focused on the cognitive activation and research development of supervisees, but also drew on supervisors' viewpoints.

Table 1: Distribution of Respondents

Role	Frequency	Percentage
Supervisor	133	25.9%
Supervisee	381	74.1%
Total	514	100%

Normality of Data

Normal Q-Q plots were performed for supervisor and supervisee data to check for normality. This visual inspection showed that most of the values were near the diagonal reference line while there were only slight variations at the ends. These deviations were not large enough to be considered a violation of normality assumption. Thus parametric analysis like regression and Pearson correlation were found to be appropriate.

Supervisory Practices that predict Cognitive Activation – Regression Analysis

The first large quantitative discovery was on the impact of supervisor roles and supervision practices on cognitive activation. Multiple linear regression revealed that cognitive activation was positively associated with supervisory practices. The regression model was statistically significant with an F value of 344.719, $p < .001$. The results for R showed .851 and R^2 showed .725 reflecting that 72.5% of the variance in cognitive activation was explained by supervisory roles and supervision practices. The standardized beta value was .851, showing a very strong predictive effect.

Table 2: Regression Analysis Predicting Cognitive Activation

Predictor	B	Std. Error	β	t	R	R^2	Adj. R^2	F	Sig.
Supervisor Role and Supervision Practices	0.809	0.044	0.851	18.567	0.851	0.725	0.723	344.719	.000

The finding confirms the important role of effective supervisory practice in activating supervisees' cognition. Supervisors who offer guidance, questions, reflection and promote research engagement make an intellectual contribution to the supervisees. Thus, the null hypothesis that there is no relationship was rejected.

The goal of this step is to arrive at some descriptive findings.This step is intended to come up with descriptive findings.

The institutional support was investigated using descriptive statistics. The mean score reported by the supervisors was 2.81 which is considered as moderate perceived institutional support. The mean score was 2.02 reported by supervisees, which was low in perceived institutional support. This is a difference in perception between supervisors and supervisees. Supervisors may be more well-informed about institutional structures, and supervisees may have fewer resources, training, and guidance available.

Table 3: Perceived Institutional Support

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Supervisor-Institutional Support	133	1	5	2.81	0.821
Student-Institutional Support	381	1	5	2.02	0.710

The results indicate that there is institutional support but it is not yet well experienced by supervisees. This is important because it can diminish the effectiveness of even dedicated supervisors if they do not have strong institutional support. Libraries and databases should be strengthened, as should be research workshops, guidance on ethics and access to software, and the implementation of structured supervision policies.

Current Supervision Practices

The examination of the existing supervisory practices revealed that supervisors reported engaging in a range of practices: mentoring, supervisory tailoring, giving guidance, holding progress meetings, and stimulating their supervisees to think through research questions and methods. But the overall results also showed that there was not even implementation across departments and institutions.

Table 4: Supervisors' Current Supervision Practices

Supervision Practice Item	N	Mean	Std. Deviation
Use of teaching and mentoring techniques	133	1.58	0.809
Tailoring supervision to individual needs	133	1.71	0.694
Clear guidance regarding research process	133	1.74	0.785
Regular progress meetings	133	1.72	0.838
Encouraging development of research questions and methodologies	133	1.62	0.776

Also, according to qualitative data, at times, supervision sessions had an administrative character and were not intellectually stimulating. This implies that the mere frequency of meetings is not sufficient; what is crucial is the quality of intellectual interaction.

Regression Analysis: Cognitive Activation Predicting Research Ability

The second regression analysis tested whether supervisor cognitive activation predicts research ability. The statistical significance was confirmed; $F = 39.623$, $p < .001$. The coefficient of correlation was $R = .482$, and $R^2 = .232$, which indicates that cognitive activation explains 23.2% of the variation in research ability. The standardized beta value was .482.

Table 5: Regression Analysis Predicting Research Ability

Predictor	B	Std. Error	β	t	R	R^2	Adj. R^2	F	Sig.
Supervisor Cognitive Activation	0.602	0.096	0.482	6.295	0.482	0.232	0.226	39.623	.000

This outcome provided evidence for the study's main claim that cognitive activation serves as a significant mechanism through which research skills can be enhanced. Specifically, supervisees with higher cognitive activation were predicted to possess better problem formulation skills, as well as, be more adept in methodological reasoning, interpretation of data and academic writing. The following themes emerge from the data that suggest how the processes of supervision can enhance the cognition of students' research efforts.

Qualitative Findings

Theme 1: Supervisors as cognitive activatorsQualitative data reveals that supervisors were primary in their ability to cognitively activate students by raising questions on current discussions, bridging existing knowledge to future research issues and challenging students to express their opinions further. They prompted them to evaluate different arguments/hypotheses, explore alternative procedures and reflect upon previous research endeavors by employing questions. The intent was to foster thinking.

Theme 2: Scaffolding of research development through the provision of an environment for conceptualization. Supervision practices include using methods for progressive clarification of concepts, step-by-step advice, successive detailing and constant iterative and directivefeedback, which supported supervisees to conceptualise research questions, to systematically organize a literature review, to form relevant questionnaires or develop experimental tools and to make the appropriate methodological decisions. Especially important was the guidance of supervisees with insufficient prior experience in research.

Theme 3: Heterogeneous nature of supervisory work and interactions of supervisees and supervisors Qualitative data demonstrate differences across departments and colleges in supervisory work; with some supervisor providing sophisticated guidance and other focusing only on a required list of procedures. Meetings are usually conducted; however not all these meetings were conducive to raising students' cognition as some supervisees claimed that they attended formal meetings for procedural rather than content based issues. Integrated quantitative and qualitative findings The quantitative analyses provide support for the core relationships identified and supported within the context of the qualitatively generated themes. In the former, supervisory practices were found to strongly predict cognitive activation, which in turn significantly predicted research ability and professional development.

In the qualitative phase of this investigation, the processes underlying these relationships were identified in the practices of the questioned information, the scaffolding provided, the nature of feedback, reflection, autonomy support, interaction quality. Hence statistical analyses demonstrate that cognitive activation does matter, whereas qualitative findings elaborate on how, and in what sense it matters. The findings from the mixed methods research confirm institutional factors matter to supervision. Thus findings demonstrate a discrepancy between what supervisors perceive and what supervisees experienced concerning the availability of institutional resources and practices that strengthen the environment of research. This weakens institutional practice and puts more dependency on the nature of supervisee -supervisor interaction in fostering of research skills development.

Integrated Discussion

The results of this study confirm the role of cognitive activation as a central process in the development of research. The most statistically significant result was that 72.5% of the variance in cognitive activation was accounted for by supervisory practice. This result shows that supervisees are greatly affected by what supervisors do in guiding their research. When the supervisor poses difficult questions, gives appropriate feedback, prompts contemplation, and encourages reasoning with regards to methodology, then optimal conditions are provided for intellectually engaging the student. The fact that a research trainee's level of cognitive engagement is correlated with the supervisor's use of certain methods means that the supervisor has a direct influence over a supervisee's intellectual development in research.

This result supports the claim that supervision is primarily pedagogical; there is more to it than just keeping deadlines, checking formats, or editing reports. Supervision is about improving the ability of a research trainee to think critically and effectively like a professional researcher. The research trainee has a long way to go in order to effectively define a research question, read literature, provide justification for methods, analyze the results of data, and write compelling arguments about the nature of the problem being investigated. Thus, cognitive activation provides a crucial link between effective supervision and competent research. Furthermore, the fact that cognitive activation predicted research ability is theoretically important in that research ability is more than the acquisition of a particular skill set; it represents a range of knowledge, including the capacity for analytical thought and an awareness of the nuances associated with methods, writing capacity, confidence, and understanding in research methodology. Since cognitive activation involves explanation, defense, comparison, and amendment of thinking by the trainee, it helps in these areas because it forces trainees to examine their choices and be open to modification.

A trainee who is encouraged to justify methodology decisions is far more likely to develop strong insights with regard to these choices than someone who is being told what to do. Another indicator of the long-term effects of supervision was the significant correlation of the positive outcomes on research ability with outcomes relating to future career success, a field related in many respects to future employment prospects of a researcher. If we assume that there are transferable skills related to the ability to do effective research, this study implies that, as a long-term outcome of being a supervised student, they become quite expert in problem definition, conceptual development, and critically examining methods which can benefit them at work. In a more fundamental sense, when a supervised trainee is taught to think and to operate independently, they also absorb qualities that are transferable such as a confidence, problem solving ability, and an ability to communicate with respect to academic and technical topics, making them more employable. These results have been given even greater meaning by the qualitative results, which offer some explanations about how cognitive activation works as a mechanism. One method which appeared highly influential was the provision of a number of specific 'dialogical' forms of questioning by the supervisor to the supervisee.

This seemed to involve provoking deeper thought and asking supervisees 'why' certain choices were made, with regards to specific topics, the selection of theory, or their choice of methods. One could argue that these questions were not aimed at causing distress to the students and had a supportive intent of challenging and developing deeper understanding in research. It was recognised, however, that if the supervisor does not communicate respect in asking their questions, the supervisee could become defensive, and rather than provoking thought might induce anxiety. So, not only is the provocation of critical thought needed, so is respect in its provision. Another mechanism that was seen to be important was 'scaffolding.' Because a good proportion of supervisors entering this job, had limited experience as independent researchers, they were not necessarily used to developing ideas from a starting point to produce a final project. Thus, many participants mentioned that their supervisors 'broke down' tasks into smaller and manageable stages, allowing them to deal with them more gradually. Then, as confidence in these areas grew, the supervisors would withdraw their support enabling them to further increase their confidence in managing larger tasks and become independent learners. The 'Zone of Proximal Development,' an idea first proposed by Vygotsky, which concerns the distance between a child's capability under guidance and his/her independent capability, is an important guiding principle for how supervision should proceed.

Conclusion, Implications, Limitations, and Recommendations

Conclusion

Research supervision plays a deciding role in the cognitive activation of supervisees and the improvement of their postgraduate research competence in the universities of Azad Kashmir. The quantitative evidence suggests that the supervisory practices strongly predict the cognitive activation and cognitive activation, in turn, predicts the research competence and career success of the postgraduate students, respectively. The qualitative evidence elaborates that the cognitive activation is realized through dialogical questions, scaffolding, feedback, reflection, autonomy support, and effective supervisor supervisee interaction.

The findings of the study, therefore, suggest that research supervision is a multidimensional process governed by individual supervision practices, supervisees preparedness, interaction quality and organizational supports.

It encompasses two critical dimensions: intellectual challenges along withemotional support required to develop high levels of competence and skills in supervisees by challenging them with the questions that need justification of their decision in a broader context and encouraging independent learning and reflecting upon their ideas. Theoretical implications extend to and refine: The applicability of the cognitive activation theory is extended from school teaching to postgraduate supervision practices, and to postgraduate supervision, thereby showing that cognitive activation are equally important in higher education than classroom instructions as it is in the latter .

This study contributes towards an enriched understanding of socio-cultural, scaffolding views by suggesting that the construction of research competencies in supervisees is shaped by their interaction with supervisor as a source of support. Practical implication include For supervisors: that supervisor should make an effort to design opportunities for cognitive activation, by asking open ended questions and requiring justification, by challenging to generate alternatives and compare consequences of various options, by providing principle based feedback and also gradually granting autonomy.

For supervisee: it suggests that it is important for the student to engage actively in the supervises work, reflect on his research practice and to own and control of his own research work.

Policy implication for universities: that institution should also invest in the quality of the supervisory practices and allocate resources to support supervisor. The formal university provision such as training for supervisors, workshop on research methodologies, research writing centres, ethics guidance, access to electronic databases and a system for monitoring the quality of supervision can reinforce research and scholarship. The workload should also be managed to give a reasonable time for adequate supervision time to the supervisors.

Recommendation

1. Universities should prepare supervisor training programs on Cognitive activation, Dialogical Questions, Scaffolding, Feedback, andAutonomy support .
2. Departments should also design supervisory process that outline expectation regarding frequency, time limits on giving feedback, and responsibilities of the supervisors and supervisee.
3. The universities should improve, support facilities for research i.e, library facilities, internet, research software, workshops on research methods and writing centers, guidance in ethics research, etc.
4. Supervisors should adopt Student centered process approach to make supervisees independent in conducting research by critically questioning the work.

Limitations of the Study

The current study was conducted in public universities of Azad Kashmir, so it may not have been adequately representative of some private Universities in Azad Kashmir and other countries.

It has partially depended upon the questionnaire as most of the data was collected through the students' response of questionnaire. So it is possible that the reported data were skewed by perception. The mixed method design of the present study has added strength and credibility in the findings, however, longitudinal research studies on cognitive activation for measuring change over time would be beneficial.

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