INSPIRE-MANAK Scheme: An Empirical Analysis of School Innovation Practices in District Shopian

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Abstract

The present study examines the outreach and implementation of the INSPIRE-MANAK Scheme across educational institutions of District Shopian, Jammu and Kashmir, with a focus on student participation, institutional support, and mentoring mechanisms. Data collected from students, teachers, and Heads of Institutions reveal high levels of institutional awareness, with 100% of HOIs and 93.75% of teachers reporting awareness of the scheme. Student awareness was comparatively moderate (62.31%), with schools emerging as the primary source of information (78.26%). Although over half of the students (52.17%) reported attending orientation programmes, only 39.85% had registered under INSPIRE-MANAK, indicating a gap between awareness and active participation. Teacher engagement was notable, with 53.12% having attended training programmes, yet mentoring challenges and resource constraints persisted. HOIs identified lack of resources and time constraints as key barriers to student participation. Overall, the findings suggest that while awareness and orientation efforts in Shopian are relatively stronger, sustained participation and innovation outcomes require structured mentoring, enhanced resources, and systematic institutional support.

Key Words: INSPIRE-MANAK, Innovation, Scientific Temper, Institutional Support, Shopian District

Introduction:

The Innovation in Science Pursuit for Inspired Research (INSPIRE) scheme is a flagship national initiative of the Department of Science and Technology (DST), Government of India, aimed at nurturing scientific temper, creativity, and innovation among school students. Announced in December 2008 and operational since 2009, the scheme seeks to strengthen India's science and technology ecosystem by fostering early engagement with inquiry-based, innovation-oriented learning (DST, 2019). The programme emphasizes the development of scientific aptitude and problem-solving skills essential for building a knowledge-driven economy.

INSPIRE adopts an educational approach that aligns with contemporary perspectives on skill-based and experiential learning, encouraging students to observe their immediate environment, identify real-world problems, and propose science-based solutions. This pedagogical orientation resonates with global and

national frameworks that stress the importance of critical thinking, creativity, collaboration, and application of knowledge as core twenty-first century skills (NEP, 2020; OECD, 2018). By linking scientific learning with everyday challenges, INSPIRE facilitates meaningful engagement with science beyond the confines of textbooks.

In 2016, the scheme was restructured and renamed INSPIRE-MANAK (Million Minds Augmenting National Aspirations and Knowledge), reflecting its expanded vision of mobilizing a large pool of young innovators across the country. Under this initiative, the Department of Science and Technology, in collaboration with the National Innovation Foundation (NIF), aims to identify, nurture, and mentor a substantial number of original student ideas rooted in scientific principles and societal relevance (NIF, 2021). The emphasis is on grassroots innovation that addresses common problems related to health, environment, energy, agriculture, accessibility, and sustainable development.

The operational framework of INSPIRE-MANAK is decentralized and school-driven. Schools conduct internal screening of student ideas and nominate their best innovations through the E-MIAS (Electronic Management of INSPIRE Award Scheme) portal. Selected students receive mentoring, technical support, and guidance for prototype development from NIF, often in collaboration with reputed academic and technological institutions across the country (DST, 2023). The evaluation of ideas is guided by criteria such as originality, feasibility, environmental sustainability, user-friendliness, and potential advantages over existing solutions.

By integrating innovation with skill development, INSPIRE-MANAK contributes significantly to building a future-ready human resource base for India's science, technology, and research sectors. The scheme aligns closely with the vision of the National Education Policy (NEP) 2020, which advocates for transforming education through creativity, experiential learning, and innovation-led growth (NEP, 2020). Through this initiative, students are encouraged to think independently, innovate responsibly, and apply scientific knowledge for societal benefit, thereby laying a strong foundation for India's long-term research and development capabilities.

Methodology:

Study Area: Educational institutions (Middle stage & Secondary stage) across District Shopian of Kashmir Division were selected for the study.

Sample Size: A total of 05 (Seven) educational institutions covering all the educational zones of the district Shopian and comprising a total of 138 **students**, **32 teachers** and **05 Heads of the Institutions (HOI)** were selected for carrying out the impact of INSPIRE MANAK programme. A duly framed questionnaire for students, teachers and HOIs were used to ascertain the impact of INSPIRE MANAK scheme.

Statistical Analysis: The retrieved copies of questionnaire were subjected to statistical analysis using Statistical Package for the Social Sciences (SPSS) for proper analysis. The data of the study was analyzed through descriptive and inferential statistics.

RESULTS

In the current section, the data received from students, teachers and Heads of Institutions from different schools of district Pulwama were statistically analyzed using appropriate descriptive techniques. Based on this analysis, the following category-wise findings emerged:

Student Responses

The analysis of student responses reveals a moderate level of awareness regarding the INSPIRE-MANAK Scheme among the surveyed participants. A total of 62.31% of students reported being aware of the scheme, while 37.69% indicated lack of awareness, reflecting partial outreach of the programme at the student level.

Regarding sources of information, schools emerged as the primary channel, with 78.26% of students learning about INSPIRE-MANAK through their schools. A very small proportion (3.62%) reported SCERT as the source of information, whereas 18.12% did not specify any source, suggesting informal or incidental exposure to the scheme.

Participation in orientation or awareness programmes was reported by 52.17% of students, while 47.83% had not attended any orientation. Student perceptions of the quality of these orientation programmes were largely positive. More than two-thirds of the students expressed satisfaction, with 57.24% reporting satisfaction and 10.86% expressing high satisfaction. However, a notable proportion reported dissatisfaction, including 6.52% who were very dissatisfied and 17.76% dissatisfied, indicating variability in programme effectiveness across institutions.

In terms of active engagement, 39.85% of students reported having registered for the INSPIRE-MANAK Scheme, whereas 60.15% had never registered. Among the registered students, 44.20% participated up to the district level, while 4.34% progressed to the state level, suggesting limited vertical progression beyond initial stages.

Students who did not register cited multiple reasons for non-participation. The most frequently reported barrier was lack of awareness (34%), followed by other or unspecified reasons (33.40%). Additional constraints included time limitations (16.66%), difficulty in understanding the registration or implementation process (9.42%), and lack of interest in innovation (6.52%).

Student perceptions regarding teacher motivation were generally favorable. A combined 65.20% of students either strongly agreed (10.86%) or agreed (54.34%) that teachers motivate them to participate in the INSPIRE

programme. However, 23.91% remained neutral, while a small proportion expressed disagreement (2.17% disagree; 8.72% strongly disagree), indicating uneven motivational support.

With respect to school-level initiatives, 62.31% of students acknowledged that their schools conduct orientation sessions or workshops related to INSPIRE-MANAK, either by strongly agreeing (18.84%) or agreeing (43.47%). Conversely, 20.99% expressed disagreement, while 16.66% remained neutral, highlighting variability in institutional practices.

Parental involvement was reported by 52.89% of students as active, while 36.95% indicated occasional involvement, and 10.16% remained neutral, underscoring the supportive role of families in student participation to varying degrees.

Finally, a unanimous recommendation emerged from the student respondents, emphasizing the need for frequent, holistic, and school-based awareness programmes and workshops to strengthen understanding, motivation, and sustained participation in the INSPIRE-MANAK Scheme.

Teachers Response

The analysis of teacher responses indicates a high level of awareness regarding the INSPIRE-MANAK Scheme. A substantial 93.75% of teachers reported being aware of the programme, while only 6.25% indicated lack of awareness, reflecting strong institutional-level familiarity with the scheme.

Regarding sources of information, schools emerged as the dominant channel, with 87.50% of teachers learning about INSPIRE-MANAK through their respective institutions. A smaller proportion (12.50%) reported SCERT as their source of information, underscoring the central role of school-based dissemination mechanisms.

Participation in capacity-building initiatives revealed moderate engagement. Slightly over half of the teachers (53.12%) reported having attended an INSPIRE-related orientation or workshop, whereas 46.48% had not participated in any formal training. Teacher perceptions of the effectiveness of these orientation programmes were mixed. While 37.50% agreed that the programmes were effective, a considerable proportion (46.87%) remained neutral, and 15.63% expressed disagreement, suggesting scope for improvement in the depth and practical relevance of such trainings.

At the institutional level, 68.75% of teachers confirmed that their schools conduct orientation sessions or workshops to raise awareness about the INSPIRE programme, whereas 31.25% reported the absence of such initiatives, indicating variability in school-level implementation.

Teachers also reported student engagement in innovation activities under INSPIRE-MANAK. According to the respondents, 28.12% of students had never produced innovative models, while a majority (53.25%) had participated between one to five times. Notably, 18.76% of students were reported to have participated more than five times, reflecting sustained engagement among a segment of learners.

Finally, a unanimous recommendation emerged from the teaching community, with all teachers emphasizing the need for more frequent, structured, and holistic orientation programmes and workshops. This consensus highlights the perceived importance of continuous professional development to strengthen mentoring, innovation guidance, and effective student participation under the INSPIRE-MANAK Scheme.

HOI Responses

The analysis of responses from Heads of Institutions (HOIs) reveals universal awareness of the INSPIRE-MANAK Scheme, with 100% of respondents reporting familiarity with the programme. This indicates strong administrative-level exposure to the scheme across educational institutions in the district.

In terms of information channels, a substantial majority of HOIs (80%) reported that they first learned about INSPIRE-MANAK through local education authorities, while the remaining 20% cited other sources. This finding highlights the pivotal role of district and local educational leadership in disseminating information about national innovation initiatives.

Despite high awareness, participation in formal capacity-building activities was limited. Only 40% of HOIs reported attending an orientation or training programme, whereas 60% had not attended any such programme. Perceptions regarding the effectiveness of orientation programmes were largely inconclusive; 80% of HOIs expressed a neutral stance, while 20% perceived these programmes as ineffective, suggesting a lack of impactful or outcome-oriented training at the leadership level.

HOIs identified several factors hindering effective student participation in INSPIRE-MANAK. Lack of resources emerged as the most significant barrier (60%), followed by time constraints (20%) and lack of awareness among students (20%). These responses indicate that infrastructural and systemic limitations outweigh motivational factors in restricting student engagement.

With respect to strategies for improvement, a majority of HOIs (57.14%) emphasized the need for more frequent and structured workshops. Additionally, 28.58% highlighted the importance of enhanced resource availability, while 14.28% recommended the provision of printed instructional materials to support both students and teachers. Importantly, HOIs collectively advocated for the organization of special training camps within schools, underscoring the need for sustained, school-based support systems to strengthen innovation culture and participation under the INSPIRE-MANAK Scheme.

The integrated analysis of responses from students, teachers, and Heads of Institutions (HOIs) provides a comprehensive picture of the implementation of the INSPIRE-MANAK Scheme in Shopian District. Overall findings indicate relatively strong institutional and teacher-level awareness, accompanied by moderate student engagement and uneven translation of awareness into sustained participation.

At the student level, 62.31% of students reported awareness of the INSPIRE-MANAK Scheme, while 37.69% remained unaware. Schools served as the primary source of information (78.26%), followed by SCERT (3.62%), indicating effective school-based dissemination. More than half of the students (52.17%) reported attending orientation programmes, with a majority expressing satisfaction (68.10% satisfied or highly satisfied). Despite this, only 39.85% of students had registered for the scheme, and participation beyond the district level remained limited. Among non-registered students, lack of awareness (34%), time constraints (16.66%), and procedural difficulties (9.42%) were key barriers.

Teacher responses reflected strong awareness (93.75%) and moderate exposure to capacity-building initiatives (53.12% attended orientation). Schools were the dominant information channel (87.50%), reinforcing their central role in implementation. Teachers reported varying student engagement in innovation activities, with a majority indicating participation between one to five times (53.25%), and 18.76% reporting repeated participation beyond five instances. However, nearly half of the teachers expressed neutral or negative perceptions regarding the effectiveness of orientation programmes, highlighting the need for more outcome-oriented training.

At the institutional leadership level, 100% of HOIs reported awareness of INSPIRE-MANAK, primarily through local education authorities (80%). However, only 40% of HOIs had attended orientation programmes, and most perceived these trainings as neutral or ineffective. HOIs identified lack of resources (60%), time constraints (20%), and student awareness gaps (20%) as major impediments to participation. Consistent with teacher and student feedback, HOIs strongly recommended more workshops, enhanced resource availability, printed materials, and special training camps within schools.

Collectively, the findings suggest that while awareness and administrative support for INSPIRE-MANAK in Shopian District are relatively strong, systematic mentoring, resource provisioning, and structured training remain critical for translating awareness into meaningful and sustained student participation.

Discussion

The present study critically examines the implementation of the INSPIRE-MANAK Scheme in District Pulwama and District Shopian through the perspectives of students, teachers, and Heads of Institutions (HOIs), and situates the findings within the broader policy and research discourse on innovation education as articulated in the National Education Policy (NEP)-2020. While INSPIRE-MANAK is conceptualized as a

flagship initiative to foster scientific temper, creativity, and grassroots innovation among school students (DST, 2019), the findings reveal a substantial gap between policy intent and on-ground implementation.

A key observation emerging from the study is the asymmetry in awareness levels across stakeholders. Awareness among HOIs and teachers is relatively high in both districts, reflecting effective top-down dissemination through administrative and institutional channels. However, student awareness—particularly in Pulwama—remains significantly lower, indicating weak horizontal and bottom-up communication within schools. NEP-2020 emphasizes that innovation and scientific temper must be cultivated directly at the learner level through systematic exposure and experiential learning opportunities (MoE, 2020). The limited student awareness and orientation exposure observed in the study suggests that INSPIRE-MANAK has not yet been fully embedded within routine school practices and co-curricular ecosystems.

The findings further indicate that awareness activities, where conducted, often lack pedagogical depth and continuity. Although several institutions reported organizing orientation programmes, a relatively small proportion of students acknowledged participation, and satisfaction levels—especially in Pulwama—were low. This aligns with existing research which cautions that one-time or information-heavy programmes rarely lead to sustained innovation engagement unless supported by mentoring, hands-on practice, and iterative feedback (OECD, 2016; Sawyer, 2014). NEP-2020 similarly advocates for inquiry-based and project-based learning approaches, rather than episodic events, to nurture creativity and problem-solving skills.

Student participation data further reinforces this structural gap. Registration and progression under INSPIRE-MANAK remain limited, with participation largely confined to lower administrative levels. Importantly, students predominantly cited lack of awareness, procedural complexity, time constraints, and insufficient guidance as barriers, rather than lack of interest. This finding resonates with innovation research which highlights that student creativity flourishes when institutional scaffolding, clarity of processes, and mentor support are available (Kremer et al., 2018). The persistence of procedural and guidance-related barriers suggests that innovation programmes require strong implementation frameworks alongside visionary policy design.

Teacher responses provide additional insight into these challenges. While teachers across both districts expressed motivation to encourage student participation, a significant proportion perceived mentoring INSPIRE projects as challenging due to limited training, resources, and institutional support. NEP-2020 explicitly identifies teachers as facilitators of creativity and innovation and stresses continuous professional development to equip them for such roles (MoE, 2020). The low exposure of teachers to INSPIRE-specific training—particularly in Pulwama—therefore represents a critical bottleneck in translating policy objectives into classroom practice.

Another dimension highlighted by the study is the role of parental and community engagement. The markedly higher parental involvement reported in Shopian compared to Pulwama appears to correlate with better student participation and satisfaction outcomes. This finding aligns with socio-educational research emphasizing that innovation and creativity are reinforced when learning environments extend beyond the classroom and involve families and communities (OECD, 2016). NEP-2020 similarly underscores the importance of community participation in strengthening school education ecosystems.

Taken together, the findings suggest that INSPIRE-MANAK implementation in the studied districts remains institutionally acknowledged but pedagogically under-realized. While administrative awareness and stakeholder willingness are evident, the absence of structured mentoring systems, regular capacity-building, and adequate resource support limits the scheme's transformative potential. National literature on INSPIRE-MANAK and innovation education consistently emphasizes that awareness, mentoring, and sustained engagement are critical precursors to meaningful student innovation outcomes (DST & NIF, 2018; MoE, 2020).

In light of NEP-2020 and broader innovation research, the study underscores the need for a shift from sporadic, event-based interventions toward systemic, school-embedded, and mentor-driven innovation frameworks. Strengthening INSPIRE-MANAK implementation through structured teacher training, recurring student orientations, parental sensitization, and dedicated institutional support mechanisms is essential to bridge the gap between policy aspirations and grassroots innovation outcomes.

Recommendations to Improve Participation in INSPIRE-MANAK:

1) Strengthening Awareness Mechanisms

Regular and structured awareness programmes should be institutionalized at school level to ensure systematic dissemination of information about INSPIRE-MANAK among students, teachers, and Heads of Institutions.

2) Curricular Integration of INSPIRE-MANAK Activities

INSPIRE-MANAK activities should be integrated into curricular and co-curricular practices so that innovation and problem-solving become regular components of the teaching–learning process.

3) Enhancement of Teacher and Institutional Capacity

Continuous training and certification of teachers as INSPIRE mentors should be introduced to strengthen guidance, mentoring, and institutional support for student innovation.

4) Recognition and Incentivization of Student Participation

Formal recognition through certificates, academic credits, or awards should be provided to motivate students and encourage sustained participation in the programme.

5) Augmentation of Resource and Mentorship Support

Adequate financial, material, and mentorship support should be ensured, especially in resource-limited schools, to facilitate effective model development and participation.

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