SUMMARY

Secondary education serves as the strongest link between elementary and higher education which largely contributes to the human capital base of the nation as acknowledged in recent policy discourses. Secondary education plays a foundational role in developing skills and abilities in students to prepare them for the future. With numerous reports and studies pointing towards the lack of foundational skills in students at the end of elementary education in India, secondary education bears the dual responsibility of inculcating foundational skills and development in specialized skills. There exists a dearth of quality studies that focus on students' analytical learning at the secondary school level. In the Indian context, most of the research has been majorly conducted in the higher education sector concerning careers choices of students leaving a vacuum of knowledge in school education. A major focus could be observed in existing literature towards technical aspects of science and mathematics education in higher education overlooking initial learning of basic mathematics and science in school. The lack of foundational skills in students has lead India amidst a difficult paradox with a large pool of unemployed graduates. Pedagogy focusing on rote learning and examination systems mostly measures memorization rather than assessing cognitive skills like critical thinking, problem-solving, reasoning, etc. that are expected to be developed by the means of the curriculum.

Teachers play a major role in facilitating learning at every stage of education, their role becomes significant specifically at the secondary school phase as they are expected to perform multidimensional duties which go beyond the curriculum. Teachers' centrality in the education system is undeniable yet the identification of the characteristics that relate

to a good teacher is intricated to comprehend. Some evidence suggests a positive effect of qualified teachers on student learning at the classroom, school, and district levels, but studies exploring effects on achievement that can impact large-scale policies, institutional practices, and overall level of teachers' knowledge and skills in a state or region are infrequent in the text.

The current study explores the existing scenario of student achievement employing a framework that measures skills rather than memorization. It also assesses the characteristics of teachers contributing to the enhancement of their professional practice in the secondary schools of Jhunjhunu district in Rajasthan. The study analyses the differences in the cause-and-effect relationship patterns between the distinct demographic characteristics and also attempts to measure the performance of students and teachers in public and private schools of the district.

A mixed-method approach has been used to address the research problem. The data of the study has been collected in quantitative and qualitative forms, and both the data sets complement each other to aid in-depth exploration of the prevalence of the phenomena under study. Teachers' professionalism has been measured by constructing the Teacher Professionalism Scale based on the extracted dimensions from an in-depth desk analysis. A standardized scale needs the establishment of reliability and validity which is done in the present study using appropriate methods followed by factor analysis. Factor analysis helped in the identification of latent factors also the percentage of variance caused by these factors in the dataset. Similarly, for students, model questions were used to conduct the achievement test at the secondary school level. The test was subjected to proper reliability and validity check through data collected in the pilot survey. The final

fieldwork entailed the collection of both quantitative and qualitative data from the sampled schools. Qualitative data was collected by conducting semi-structured interviews with teachers and thematic analysis was used to deconstruct the responses.

The results indicate that the dimensions extracted and used for measuring teacher professionalism in the current study account for 70.5% of the variance in the data. Age, gender, and annual income of teachers emerged as significant predictors of teacher professionalism. However, academic qualifications, professional qualifications, and job description did not have a significant effect on the professionalism scores of teachers. Ph.D. degree and M.Ed. degree were found to have a significant influence on the professionalism of teachers at the individual level. Analysis of student data revealed that students' cumulative and exclusive achievement in mathematics and science, was significantly affected by the school board and gender of students. Preschool and tuition did not significantly contribute to students' performance in mathematics and science.

Discrete analysis of public and private schools' data revealed that in public schools, none of the teacher demographic characteristics under study had any significant impact on teachers' professionalism. On the other hand, in private schools, all the demographic indicators, namely, age, gender, academic qualifications, professional qualifications, annual income, experience, and job description were found to predict professionalism of teachers in private schools. For students in public and private schools, only students' gender and school board emerged as significant predictors of students' achievement respectively. Preschool and tuition had no significant impact on the performance of public and private school students in mathematics and science.

The findings of the study are discussed in detail with the help of existing literature, theoretical perspectives, and interview excerpts from the qualitative data collected from the field. This study gave insights into the prevalent scenario of professionalism of secondary school teachers and the status of the teaching profession as perceived by the practitioners where it was found that reforms in the teacher recruitment, eligibility, training curriculum are needed to elevate the status of professionalism. With respect to the students, the study reinforces the distinction in the teaching-learning taking place in schools affiliated to the state board and central board of education schools despite the same curriculum and books. The study reinstates the importance of preschool and questions the perceived need of tuition institutes in aiding the skill development of secondary school students. The findings unexpectedly reveal the outperformance of female students over male students in public schools in both science and mathematics skills. There is a strong realization upon completion that there is an immediate need to improve the performance of male students in secondary grades in both mathematics and science.