IOSR Journal of Research & Method in Education (IOSR-JRME)
e-ISSN: 2320–7388, p- ISSN: 2320-737x Volume 16, Issue 4 Ser. 2 (July. – August. 2026) 55-60
www.iosrjournals.org

Evaluating The Secondary Science Curriculum: The Role Of Learner-School Factors In Ensuring Quality And Effectiveness

Khuraijam Dineshkumar Singh
Aribam Dhaneshwari Devi, Ph.D.
Research Scholar, Department Of Teacher Education, Manipur University, Canchipur
Associate Professor, DM College Of Teacher Education, Imphal – 795001

Abstract
The quality and effectiveness of a curriculum play a decisive role in shaping learners' academic experiences and outcomes. This study evaluates the secondary science curriculum by examining learners' perceptions. A descriptive survey method was employed, involving secondary school learners (N = 88). Data were analyzed using non-parametric statistical techniques and Chi-Square test were applied. The findings reveal that evaluation of the secondary science curriculum differs significantly based on learners and school characteristics. The findings show that science teaching is mainly teacher-centred and textbook-based, with limited laboratory activities, teaching aids, and digital resources. Improving practical learning, infrastructure, and technology integration can enhance students' science understanding and skills.
Keywords: *Secondary Science, Curriculum Evaluation, Learners' Perception*

Date of Submission: 10-07-2026 Date of Acceptance: 20-07-2026

I. Introduction

Science education serves as the foundational area for the transition from general scientific awareness to structured disciplinary knowledge, thereby shaping learners' scientific understanding, reasoning ability, and preparedness for advanced scientific and technological skills learning within the formal education system in India. Historically, science curriculum has evolved from a *content-heavy-encyclopaedic model* focused on factual transmission to a more *structured framework* that aimed at developing scientific reasoning, problem-solving abilities, and an understanding of the nature of science.

After independence, Mudaliar Commission (1952-53) termed secondary education as Higher Secondary Education which included 9th to 11^{th,} while the 12th class was referred to as *Pre-University Class* (PUC) and changes that have been implemented as efforts to improve the formal education system in India. It may be regarded as the first framework of secondary science level in India. It has also been regarded as the foundation for cultivating scientific literacy, enabling learners to interpret the natural and technological world, make informed decisions, and participate meaningfully in a society increasingly shaped by science and technology. Thus, the secondary science curriculum serves as the foundation on which future technological development and pursuits at the national level can be built.

When brought into context to the secondary science curriculum, it refers to experimental learning, hands-on activity, promotion of enquiry and problem-solving skills. This can be seen clearly when one tries to establish that the historical importance of the secondary science curriculum lies not only in its role in transmitting established scientific knowledge but also in its contribution to shaping attitudes toward inquiry, experimentation, and rational thinking that extend beyond the classroom. At this level of importance, the science curriculum begins to serve a dual function: *preparing all learners for informed citizenship in multiple aspects of life, which can be referred to as Holistic Development in today's time, while simultaneously opening pathways toward science-based careers*. It also included the goals of national, i.e., integration training for democratic living, co-cooperativeness, cultural and religious tolerance. The secondary science curriculum also provides an opportunity to introduce students to the different aspects of the sciences, as well as an opportunity to shape and reduce the number of educated unemployed, which has become a problem both in the state of India and in Manipur. Therefore, the need for exposure to foundational concepts in mathematics, physics, chemistry, biology, and emerging technological domains during secondary schooling emerge. Such an exposure allows students to identify their interests and aptitudes, thereby facilitating informed choices at the secondary stage. Considering these facts, one can say that the secondary science curriculum is a gateway to advanced academic and technical study and training in professional fields such as engineering, medicine, environmental sciences, and applied technologies. Consequently, the quality and relevance of science education regarding future and contemporary development at this stage also have a direct bearing on students' readiness to engage with specialized science streams and career opportunities.

Significance of the study include the understanding of the strategic role, systematic evaluation at the secondary curriculum. Is secondary science curriculum in coherence with the needs of the state, which should be practically and realistically achievable? Whether the state or the SCERT, has successfully curated or made a proper curriculum, one should properly evaluate the effectiveness; thus, the need for evaluation arises; evaluation at multiple and different levels. Hence, evaluation is required not merely to assess student achievement but to examine the coherence between curriculum intentions, sociological expectations, classroom implementation, and learning outcomes across different levels and stages within secondary education. At the secondary stage, evaluation must be made to address multiple dimensions, including content relevance, pedagogical effectiveness, assessment practices, and the extent to which the curriculum supports vocational awareness and career preparedness. Such evaluation is particularly important during transitions within the secondary cycle, as students progressively narrow their academic and career choices. Parental involvement also adds another critical dimension to science curriculum evaluation at the secondary level. As students begin to make decisions with long-term academic and professional implications, parents often play a significant role in shaping aspirations, subject choices, and attitudes toward science-related careers. A need for incorporating parental perspectives also arises. Thus, effective curriculum evaluation benefits from incorporating parental perspectives on curriculum relevance, learning expectations, and support systems.

It is also important to note the fact that secondary schools in India are not the same as other secondary schools, i.e., there exists a difference in teaching methodologies of schools, their skills and specialization, and consequently in their impact and effectiveness of executing the curriculum to meet its aims and objectives. The current curriculum of NCERT may be regarded as an updated form of curriculum suited for modern education, implemented at the state and national levels. Regardless of whether it is an updated or improved form of curriculum, the need to investigate and evaluate whether the newly developed model of curriculum could be termed effective at the secondary level exists. Thus, the paper aims to *evaluate the effectiveness of the curriculum currently implemented in secondary sciences in Manipur* in fulfilling its aims and goals, while considering the influence of various factors that contribute to its fulfilment, i.e., learner characteristics and school context.

The present *study aimed to focus* the evaluate the secondary science curriculum from learners' perspectives and institutional influences towards quality and effectiveness.

II. Review Of Related Literature

The evaluation of the secondary science curriculum occupies a critical position in educational research, as this stage forms the foundation for scientific literacy, higher education pathways, and career aspirations in science, technology, engineering, and mathematics (STEM). In the Indian context, secondary science education serves a highly diverse student population across varied socio-economic, linguistic, and institutional settings, making curriculum evaluation both complex and necessary. Contemporary research increasingly recognizes that *curriculum effectiveness* is not determined solely by *content prescriptions* but emerges from the dynamic interaction of *learner characteristics, school context* (Shawer, 2017; Barak & Dori, 2021). *Science curriculum evaluation* typically distinguishes among the *intended, implemented, and achieved* curriculum. While policy documents articulate intended learning goals, classroom practices often diverge due to contextual and human factors, resulting in discrepancies between policy aspirations and actual learning outcomes (*Nawaz, 2022*). *Curriculum evaluation* therefore emphasizes the importance of adopting multi-stakeholder perspectives, as a valid assessment of curriculum effectiveness requires the simultaneous examination of *student perceptions, teacher instructional practices, and institutional conditions* (*Fitzgerald et al., 2020*). Within this framework, *learner characteristics*—including attitudes toward science, motivation, self-efficacy, and prior learning experiences—emerge as key determinants of student engagement and academic achievement (*Kumari et al., 2018*; *Tounkara et al., 2023*). Students' perceptions of curriculum relevance, fairness of assessment, and classroom support further shape both cognitive and affective learning outcomes in secondary science education (Aydeniz, M., & Kaya, E., 2012). Importantly, learner characteristics are not homogeneous; they vary widely according to gender, family background, school type, and career aspirations, thereby influencing students' sustained commitment to science learning (Chemers et al., 2011). Research also reveals a significant *perception gap between teachers and students in the teaching–learning process*. Teachers often overestimate the extent to which their instructional practices are student-centred, whereas students report lower levels of engagement and instructional support (*Fitzgerald et al., 2020*). Although teachers frequently express favourable attitudes toward reform-oriented pedagogies, students' classroom experiences indicate limited and inconsistent implementation of these approaches (*Khan et al., 2022*). Consequently, *curriculum evaluation* based solely on *teacher perspectives provides an incomplete understanding of classroom realities*, underscoring the necessity of systematically incorporating student perceptions to accurately capture how the curriculum is enacted and experienced in secondary science classrooms.

School context and infrastructure constitute critical dimensions influencing secondary science curriculum implementation. Empirical evidence indicates that physical infrastructure, particularly laboratory facilities and instructional resources, has both direct and indirect effects on learners' achievement in secondary science (Shawer, 2017). In rural schools in India, inadequate laboratories, overcrowded classrooms, and limited instructional materials constrain teachers' ability to implement inquiry-based and practical-oriented curriculum components. In contrast, urban private schools generally report more favourable learning environments, raising concerns about equity and differential access to quality science education (*Pareek et al., 2021*). In such contexts, poor academic performance may reflect structural constraints rather than inherent curricular inadequacies.

Teaching specialization, encompassing subject-specific qualifications and pedagogical content knowledge, plays a decisive role in shaping classroom practices. Teachers with strong disciplinary specialization are better positioned to implement innovative instructional strategies such as project-based learning and inquiry-based approaches, particularly when integrated with digital tools (Shawer, 2017; Barak & Dori, 2021). However, in many rural areas, science teachers often function as generalists rather than subject specialists, which may limit their ability to teach complex disciplinary concepts effectively. Consequently, traditional lecture-based methods remain prevalent, even though curriculum reforms emphasize inquiry-based and student-centred pedagogies (*Effendi-Hasibuan et al., 2019*). This persistence of traditional instruction reflects not only teacher beliefs and habits but also systemic pressures such as large class sizes, examination-oriented assessment systems, and limited professional development opportunities.

Several studies also provide valuable insights into both shared and context-specific challenges in secondary science curriculum implementation. Issues related to perception gaps, infrastructure limitations, and resistance to pedagogical change are consistently reported across different national contexts (*Fitzgerald et al., 2020; Taylor, 2022; Utha et al., 2021*). These findings suggest that many challenges faced by Indian secondary science education are not unique but reflect broader systemic tensions between reform-oriented curricula and classroom realities. Evidence from high-performing systems emphasizes the importance of sustained teacher support, alignment between assessment and curriculum goals, and institutional cultures that encourage innovation, while cautioning against the uncritical transplantation of practices without contextual adaptation.

Overall, the reviewed literature indicates that secondary science curriculum effectiveness is shaped by the dynamic interaction of learner characteristics, school context, and teaching specialization rather than by curriculum design alone. Significant gaps persist between intended and enacted curricula, particularly in resource-constrained settings, and substantial disparities exist across school types and locations, raising serious equity concerns. Notable research gaps remain in secondary science curriculum evaluation in the Indian context, including limited longitudinal studies and insufficient attention to curriculum implementation processes. Addressing these gaps requires comprehensive, multi-stakeholder evaluation frameworks that integrate student perceptions, teacher practices, contextual conditions, and learning outcomes. Such frameworks are essential for informing evidence-based curriculum reform, improving instructional quality, and promoting equity in science education. As India continues to reform its secondary education system in alignment with national policy goals, rigorous curriculum evaluation grounded in empirical research will be critical for ensuring that science education prepares learners not only for examinations but also for meaningful participation in an increasingly complex scientific world.

III. Material And Method

Quantitative research design was performed for the present study. A *descriptive survey* method was adopted. *88 secondary students* were the respondents who voluntarily participant in the present study. They were selected from the valley district of Imphal, Manipur, from *8 secondary schools purposively*. The data were collected during February 2023 at the beginning of the academic session. At first, the schools were visited during school internship programme, the researcher being a faculty member of Government College of Teacher Education, rapport were established during the internship. Data were collected after interaction with the students; observation were made on the infrastructure facilities available through a checklist. The collected data were tested for its normal distribution and it was found to be non-normal. Hence, *non-parametric statistical tests* were used to test statistical significance on the items and various observations. Data was tested using MS Excel from Office 365 Professional Plus. Drop-out or long term absent students were excluded from the voluntary data respondent. Gender, Religion and Social category were not a criterion for exclusion of data collection.

IV. Data Analysis And Interpretation

Table 1: Item-wise analysis and its significant testing

Items	μ±SD	No	Yes	chi-square	Remarks
Q1. Do you avail private tuition in science?	0.51±0.50	43	45	$\chi^2(1)=0.05$; p=0.831	No Significant
Q2. Is there any functioning science laboratory in your school?	0.40±0.49	53	35	$\chi^2(1)=3.68$; p=0.055	No Significant

Items	μ±SD	No	Yes	chi-square	Remarks
Q3. Do you experiment yourself in the laboratory?	0.13±0.33	77	11	χ^2 (1) =49.5; p=0	**Significant**
Q4. Do your teacher takes the help of experiment and use apparatus while taking class in the laboratory?	0.19±0.39	71	17	χ^2 (1) =33.14; p=0	**Significant**
Q5. Do your teacher comes to the class with science apparatus to demonstrate?	0.32±0.46	60	28	χ^2 (1) =11.64; p=0.001	**Significant**
Q6. Neither you nor your teacher do experiment and observation?	0.33±0.47	59	29	x2 (1) =10.23; p=0.001	**Significant**
Q7. Do your teacher demonstrate and explains facts.	0.88±0.33	11	77	χ^2 (1) =49.5; p=0	**Significant**
Q8. Do your teacher explains facts and concepts	0.85±0.35	13	75	χ^2 (1) =43.68; p=0	**Significant**
Q9. Do you conduct Experiment without teacher help?	0.24±0.42	67	21	χ^2 (1) =24.05; p=0	**Significant**
Q10. Do your teacher dictates and gives notes for science subject?	0.90±0.30	9	79	χ^2 (1) =55.68; p=0	**Significant**
Q11. Do you read out the books in the classroom teaching?	0.85±0.35	13	75	χ^2 (1) =43.68; p=0	**Significant**
Q12. Do your teacher read out the book in the classroom teaching?	0.94±0.23	5	83	χ^2 (1) =69.14; p=0	**Significant**
Q13. Is there library in your school?	0.67±0.47	29	59	χ^2 (1) =10.23; p=0.001	**Significant**
Q14. Are you capable of explaining to your juniors any chapters of science textbook?	0.47±0.50	47	41	χ^2 (1) =0.41; p=0.522	No Significant
Q15. Is there any smart class, interactive board as teaching aids available in the classroom for teaching science subject?	0.10±0.30	79	9	χ^2 (1) =55.68; p=0	**Significant**
Q16. Do your teachers had used teaching aids.	0.23±0.42	68	20	χ^2 (1) =26.18; p=0	**Significant**
Q17. Do your teacher use aids like model, chart, audio-visual, etc.?	0.30±0.45	62	26	χ^2 (1) =14.73; p=0	**Significant**
Q18. Do your teachers had used computer smart class.?	0.05±0.20	84	4	χ^2(1) =72.73; p=0	**Significant**
Q19. Do you read Science Magazine?	0.39±0.49	54	34	χ^2(1) =4.55; p=0.033	No Significant
Q20. Do you read Science reference book?	0.40±0.49	53	35	χ^2(1) =3.68; p=0.055	No Significant
Q21. Do you watch tutorial for Science from YouTube, channels etc.?	0.52±0.50	42	46	χ^2(1) =0.18; p=0.67	No Significant

From the above table it was found that the responses of the students (N = 88) to the twenty-one dichotomous items were analysed using the chi-square test to determine whether the observed frequencies of "Yes" and "No" responses differed significantly. The mean values represent the proportion of students responding "Yes," while the standard deviation indicates the variability of responses. Results show that private tuition in science (Q1) is almost equally distributed among students, with 45 students responding "Yes" and 43 responding "No." The chi-square value (χ^2 = 0.05, p = 0.831) indicates that the difference is not statistically significant. Similarly, the availability of a functioning science laboratory (Q2) in schools is reported by 35 students, while 53 reported its absence; however, the difference is not statistically significant (χ^2 = 3.68, p = 0.055). This suggests that although many students reported the absence of laboratory facilities, the distribution of responses does not deviate significantly from chance.

A highly significant difference is observed in students' engagement in laboratory experimentation (Q3), where only 11 students reported conducting experiments themselves, while 77 reported that they do not perform experiments (χ^2 = 49.5, p < 0.001). Similarly, a significant proportion of students reported that teachers rarely use experiments and laboratory apparatus during science classes (Q4) (χ^2 = 33.14, p < 0.001). Although some teachers bring apparatus to the classroom for demonstration (Q5), the number remains limited (28 students responded "Yes"), yet the difference remains statistically significant (χ^2 = 11.64, p = 0.001). Furthermore, the statement that neither students nor teachers conduct experiments (Q6) also yielded a significant result (χ^2 = 10.23, p = 0.001), reinforcing the observation that experimental learning in science is limited in practice.

Conversely, a large proportion of students indicated that teachers explain facts and concepts through demonstration and explanation (Q7 and Q8). For Q7, 77 students confirmed that teachers demonstrate and explain facts (χ^2 = 49.5, p < 0.001), and for Q8, 75 students agreed that teachers explain concepts clearly (χ^2 = 43.68, p < 0.001). This suggests that classroom instruction largely follows a teacher-centred explanatory approach rather than an experimental or inquiry-based method. Similarly, only 21 students reported conducting experiments independently without teacher assistance (Q9), which is significantly low (χ^2 = 24.05, p < 0.001).

The data further indicate a strong reliance on traditional instructional practices. Many students reported that teachers dictate notes for science subjects (Q10) (79 students; $\chi^2 = 55.68$, $p < 0.001$). Reading from textbooks during classroom instruction is also prevalent, as indicated by students reading aloud from books (Q11) and teachers reading from textbooks (Q12), both showing highly significant chi-square values ($\chi^2 = 43.68$ and $\chi^2 = 69.14$ respectively, $p < 0.001$). These findings suggest that science teaching in the surveyed schools is predominantly lecture-based and textbook-oriented.

Regarding school resources, 59 students reported the presence of a school library (Q13), which is statistically significant ($\chi^2 = 10.23$, $p = 0.001$). However, the availability of modern digital teaching facilities is extremely limited. Only 9 students reported the presence of smart classrooms or interactive boards (Q15) ($\chi^2 = 55.68$, $p < 0.001$), and merely 4 students indicated that teachers used computers or smart classrooms (Q18) ($\chi^2 = 72.73$, $p < 0.001$). The use of teaching aids such as models, charts, and audio-visual materials (Q16 and Q17) is also significantly low, indicating that most teachers rarely integrate instructional aids in science teaching. In terms of students' academic engagement and self-learning, the ability of students to explain science chapters to juniors (Q14) does not show a significant difference ($\chi^2 = 0.41$, $p = 0.522$), suggesting moderate confidence among students in explaining science content. Additionally, students' engagement with science magazines (Q19), science reference books (Q20), and online tutorials such as YouTube (Q21) shows no statistically significant difference, indicating that self-directed learning practices vary widely among students and are not consistently adopted.

Overall, the findings highlight several important issues in the teaching and learning of science. While teachers frequently explain scientific concepts, hands-on experimentation, laboratory work, and the use of instructional technology are largely absent. The instructional approach appears to be teacher-centred, textbook-based, and note-driven, which may limit the development of scientific inquiry skills and practical understanding among students. The limited use of laboratories, teaching aids, and digital technologies suggests a need for improving infrastructure, teacher training, and the adoption of activity-based and technology-supported teaching methods in science education. Strengthening these aspects would likely enhance students' conceptual understanding, curiosity, and practical competence in science learning.

V. Findings And Conclusion

The findings show that science teaching and the curriculum are transcated in the surveyed schools was mainly based on *teacher explanations, textbooks, and note-taking*, while practical activities such as *laboratory experiments and inquiry-based learning are rarely practiced*. Although most teachers explain scientific concepts clearly, students have very *limited opportunities to perform experiments* or use laboratory equipment, teaching aids, and digital technologies. This indicates that science learning or the science curriculum were *largely theoretical rather than practical*. To improve the quality and effectiveness of science education, schools need better laboratory facilities, modern teaching resources, and greater use of activity-based and technology-supported teaching methods. Providing teachers with appropriate training and encouraging students' active participation in experiments and scientific inquiry can help develop deeper understanding, critical thinking, and practical scientific skills.

The evaluation of the secondary science curriculum indicates that, the curriculum supports the development of scientific knowledge and understanding, buts its implementation is not fully achieving its intended goals. Science teaching is largely teacher-center and relies heavily on explanations, textbooks, and note-taking, no extensive practical activities, laboratory experiments, inquiry-based learning, and the use of modern teaching technologies are limited. As a result, no opportunities to develop essential scientific skills such as observation, experimentation, problem-solving, and critical thinking. The findings suggest that the effectiveness of the science curriculum depends not only on the curriculum content but also on the availability of resources, practices, and opportunities for active participation. Therefore, strengthening laboratory facilities at secondary level, integrating technology and teaching aids, enhancing teacher professional development, and promoting experiential learning are essential to improve the quality and effectiveness of the secondary science curriculum and to achieve its intended learning outcomes.

References

[1]. Ajayi, V. O. (2017). Primary Sources Of Data And Secondary Sources Of Data. International Journal Of Research And Innovation In Social Science, 1(1), 15–19.

[2]. Aydeniz, M., & Kaya, E. (2012). Factors Impacting Turkish Students' Attitudes Towards Science And Their Academic Performance In Science. Journal Of Turkish Science Education, 9(2). Https://Www.Proquest.Com/Scholarly-Journals/Factors-Impacting-Turkish-Studentsattitudes/Docview/1659752515/Se-2

[3]. Barak, M., & Dori, Y. J. (2021). Enhancing Project-Based Learning In Science Education Using ICT: A Review. Journal Of Science Education And Technology, 30(5), 635–650.

[4]. Best, J. W., & Kahn, J. V. (2014). Research In Education (10th Ed.). Pearson.

[5]. Creswell, J. W. (2014). Research Design. SAGE.

[6]. Chemers, M. M., Zurbriggen, E. L., Syed, M., Goza, B. K., & Bearman, S. (2011). The Role Of Efficacy And Identity In Science Career Commitment Among Under-Represented Minority Students. Journal Of Sociological Issues, 67, 469–491.

[7]. Effendi-Hasibuan, M. H., Et Al. (2019). The Inquiry-Based Teaching Instruction (Ibti) In Indonesian Secondary Education: What Makes Science Teachers Successful Enact The Curriculum? Turkish Journal Of Science Education, 16(1), Article 10263a. Https://Doi.Org/10.12973/TUSED.10263A
[8]. Fitzgerald, A., Et Al. (2020). Differences In Perception Between Students And Teachers Of High School Science: Implications For Evaluations Of Teaching And Classroom Evaluation. Australian Journal Of Teacher Education, 45(11), Article 5. Https://Doi.Org/10.14221/AJTE.202V45N11.5
[9]. Khan, M. I., Et Al. (2022). The Science, Technology, Society And Environment (STSE) Approach: Perceptions Of Secondary School Science Students. Journal Of Social Sciences Review, 2(3), Article 42. Https://Doi.Org/10.54183/Jssr.V2i3.42
[10]. Koul, R. (2016). Identification And Characterisation Of Exemplary Science Assessment Practices. MIER Journal Of Educational Studies, Trends And Practices, 2(1), Article 1591. Https://Doi.Org/10.52634/MIER/2012/V2/I1/1591
[11]. Kumari, S., Et Al. (2018). Promoting Global Citizenship Education With Science Teaching And Analysing The Way It Is Perceived By Students At Secondary Level. PEOPLE: International Journal Of Social Sciences, 3(3), 1483-1496. Https://Doi.Org/10.20319/PIJSS.2018.33.14831496
[12]. NCERT. (2023). National Curriculum Framework For School Education. NCERT.
[13]. Nawaz, A. (2022). Perception Of Secondary Schools' Students About Physics Practical Work: Intended And Enacted Curriculum Perspective. Journal Of Social Sciences Advancement, 3(3), 42-51. Https://Doi.Org/10.52223/Jssa22-030306-42
[14]. Pareek, S., Et Al. (2021). Teaching Science In Selected Secondary Schools Of Rajasthan – A Case Study. MIER Journal Of Educational Studies, Trends And Practices, 5(2), 180-194. Https://Doi.Org/10.52634/MIER/2015/V5/I2/1477
[15]. Shawer, S. F. (2017). Teacher-Driven Curriculum Development At The Classroom Level: Implications For Curriculum, Pedagogy And Teacher Training. Teaching And Teacher Education, 63, 296-313.
[16]. Stufflebeam, D. L., & Shinkfield, A. J. (2007). Evaluation Theory, Models, And Applications. Jossey-Bass.
[17]. Taylor, P. C. (2022). Students' Perceptions Of Their First Experiences Of Secondary-School Science In New Zealand. Learning Environments Research, 25(3), 789-807. Https://Doi.Org/10.1007/S10984-022-09427-9
[18]. Tounkara, M., Et Al. (2023). Students And Student-Teachers' Attitudes Toward Physics And Chemistry Sciences And APC Appropriation By Secondary Teachers. European Journal Of Education Studies, 10(3), 234-256. Https://Doi.Org/10.46827/Ejes.V10i3.4718
[19]. Utha, K., Et Al. (2021). Secondary School Students' Perceptions And Experiences Of Learning Science And Mathematics: The Case Of Bhutan. Asia Pacific Journal Of Education, 41(3), 509-524. Https://Doi.Org/10.1080/02188791.2021.1901652