

**IMPACT OF INTEGRATED CURRICULUM APPROACH ON STUDENT ACHIEVEMENT*****Ms. Farah Shaikh & ** Dr. Reni Francis****Ph.D. Research Student, MES's Pillai College of Education and Research, New Panvel**** Ph.D. Guide, Principal, MES's Pillai College of Education and Research, Chembur***Abstract:**

The changing nature of knowledge in recent times is argued to be a key reason why educators need to consider curriculum integration. Curriculum integration is a curriculum design that repositions subject content through collaboration and experience in order to increase its meaning and relevance to students, holding less regard for disciplinary boundaries than traditional didactical approaches. The purpose of this research is to study the effectiveness of Integrated Curriculum Approach (ICA) in the learning of science among the secondary school students. In order to test the effectiveness of the approach across the different boards, namely SSC CBSE and CIE the researcher adopted an experimental study. The study consisted of 260 students as a sample of English medium Secondary Schools associated to SSC, CBSE and CIE board from Mumbai and Navi Mumbai. A multivariate analysis ANOVA employed to evaluate the results of the study. The significance of the approach with the integrated system were tested using t test.

Keywords: *Integrated curriculum approach (ICA), Traditional Approach (TA), Academic achievement, Secondary, School, Students*

Copyright © 2022 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

Introduction:

The functions of education and learning have undergone profound transformation because of the drastic changes in the globe. To prepare students for the difficulties and opportunities of the modern world, education in the twenty-first century must encourage 21st century abilities like critical thinking, communication, teamwork, and creativity in addition to teaching conventional skills. Throughout a student's life, 21st century learning abilities can be applied to all academic and multidisciplinary fields as well as civic situations. The term "21st Century Learning" is used to describe a form of education that does not rely on traditional teaching methods or rote memorization, but rather involves developing students' real-world skills to meet the demands and challenges of a constantly changing global economy.

Twenty-first-century learning embodies an approach to teaching that links content to skill. Its paradigm offers an opportunity to synergize the margins of the content with core concepts and makes learning more meaningful. Embracing a 21st-century learning model requires consideration of those elements that could comprise such a shift: creating learners who take intellectual risks, fostering learning dispositions, and nurturing school communities where everyone is a learner.



Thus integrating core concepts with key skills will prepare students for the workplace and college. We need to go beyond mile-wide and inch-deep coverage of ever expanding information in the classroom in order to achieve this. As a result, the teacher plays a crucial role in helping pupils in the classroom to acquire the necessary abilities. As rightly stated by Albert Einstein., “We cannot solve our problem with the same thinking we used when we created them”. Therefore, it is imperative to have a new outlook towards curriculum planning and thus acclimatize new strategies of teaching methodologies into teaching and learning.

What is Curriculum Integration?

Curriculum integration is like white light – a combination of all the different colors of the learning spectrum. These colors are useful and have their place individually, mix a couple together to make new understanding and all together in equal parts to produce the overall white light. White light is what you use to see clearly, an uneven mix will just eventually hurt your eyes. (Misty, Rua High)

Curriculum integration can mean different things to different people, and teachers and schools integrate curriculum in various ways. Curriculum integration, according to James Beane (1993, 1997, 2005), involves meaningful learning centred on topics that are significant to instructors and students. The numerous research studies conducted on integrated curriculum defined four components of integration that stress issues and adhere to constitutional principles: integration of interactions, integration of background influences, integration of information, and integration as a redevelopment of the curriculum. In order to allow new learning, experiences must be merged from the past and the present. When students from different cultural backgrounds participate in similar educational experiences, social integration happens. According to curriculum integration, middle school curricula should be comprehensive and beneficial for young adolescents who are still developing their sense of self and social meanings.

Integration of the curriculum encourages students to become active learners who take full responsibility for their educational choices. Curriculum integration allows for a paradigm in which students become teachers and teachers become learners, responding to the concerns of students. The ultimate goal of curriculum integration is to improve students' experience in the present and in the future, rather than simply to acquire more data for potential use in the future. Its fundamental goal is to reposition topic content into meaningful and pertinent contexts.

Rationale for Integration

As educators, we are constantly searching for new ways to help students make sense of the multitude of life's experiences and a bits and pieces of knowledge they gain from a traditionally departmentalized curriculum. Students today continue to move from one discipline to the next forcing the information to be disconnected to anything that resembles real life situations. To lighten some of the fragmentation our students and teachers experience, holistic and integrated curriculums are being proposed and adopted by many school districts. A major driving force behind integrated teaching and learning is the belief that when themes, subjects, or projects are combined students begin to see meaningful connections between the subject matter. Material then serves as a vehicle for learning rather than simply pieces of information.

For example, the connections between science and mathematics were made more apparent by scientific developments that took into account the orientations of value and the digitisation theories of mathematics. Mathematics and science integration is justified for several reasons (Ibrahim, 2002; Lee et al., 2011; Merrill & Comerford, 2004; Obaid, 2004).



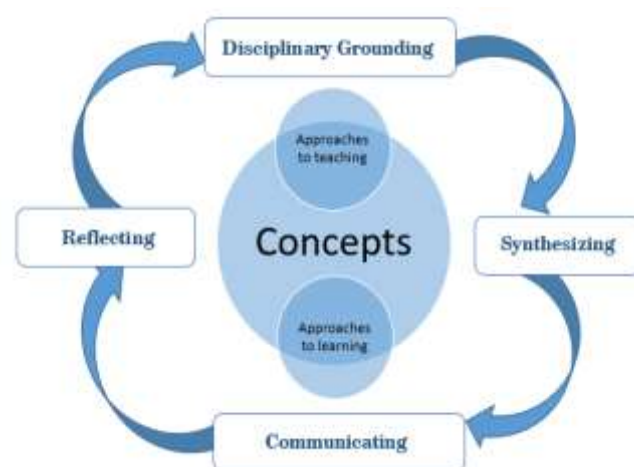
First, mathematics can be characterised by a high degree of abstraction; thus, the integration of science with mathematics represents an opportunity to provide real-life examples of mathematical principles. Second, mathematical concepts can be effectively used during science teaching in order to make scientific concepts more meaningful. Third, both mathematics and science rely on concepts, axioms, functions, theories, and practice; thus, there is a significant degree of structural consistency that allows for integration. Fourth, life situations tend to be characterised by a high degree of flexibility, which means that it is possible to integrate the concepts of science and mathematics in a logical sequence. Finally, there is a strong link between mathematical and scientific reasoning and other types of thinking, particularly creative, critical, and deductive thinking (Ibrahim, 2002; Lee et al., 2011; Merrill & Comerford, 2004; Obaid, 2004).

Research Design

The concept of Integrated curriculum evolved right from the John Dewey period, where the major proponents believed in Progressive education. These clearly depicted the fact that knowledge cannot be bound within the disciplines. This turned the aspect to a shift in approach, which widely concentrated across teaching, learning and assessment. An emphasis laid with an objective to teach to develop mental, physical and moral growth of the whole person. The knowledge base of the scientific approach linked with the problem solving approach with a realm to link the knowledge with the real world problems. However looking at the present scenario, there is still a decline in the level of achievement attained by the learners. The research studies implicated varied reason for the decline. The reasons ranged from their socio economic background to the level of pedagogy attained in school. As a result, the researcher has to investigate how the Integrated Curriculum method to curriculum transaction affects secondary school pupils according to the type of school (SSC, CBSE, and CIE).

Research Design

The concept of Integrated curriculum evolved right from the John Dewey period, where the major proponents believed in Progressive education. These clearly depicted the fact that knowledge cannot be bound within the disciplines. This turned the aspect to a shift in approach, which widely concentrated across teaching, learning and assessment. An emphasis laid with an objective to teach to develop mental, physical and moral growth of the whole person. The knowledge base of the scientific approach linked with the problem solving approach with a realm to link the knowledge with the real world problems. However looking at the present scenario, there is still a decline in the level of achievement attained by the learners. The research studies implicated varied reason for the decline. The reasons ranged from their socio economic background to the level of pedagogy attained in school. Thus, the researcher ought to study the interaction effect of the Integrated curriculum approach to curriculum transaction with reference to the type school (SSC, CBSE, CIE) among secondary school students. The researcher formulated a research design in order to implement the approach and test its effectiveness. The probable research design incorporated four major areas –





Disciplinary grounding, Synthesizing, Communicating and Reflecting. These dimensions catered with reference to both alternative to teaching and learning

Research Question: To what extent is the Integrated Curriculum Approach (ICA) to curriculum transaction is effective at the secondary school students?

Hypothesis: There is no significant main effect as well as the interaction effects of the Integrated Curriculum Approach of curriculum transaction and the type of schools (SSC,CBSE, and CIE) on the achievement among secondary school students.

Variables of the study:

Independent Variable: Integrated Curriculum Approach

Dependent Variable: Achievement

Statistical analysis

I. Descriptive Data Analysis

a) Descriptive statistical analysis of Traditional and Integrated Curriculum for the complete Sample

The following table 1.1 shows the descriptive statistics of Traditional and Integrated Curriculum for the complete Sample.

TOTAL SAMPLE		
Descriptive statistics	TAS	ICAS
N	130	130
Mean	29.62	39.60
Standard Error	0.46	0.40
Median	30.00	40.00
Mode	30.00	40.00
Standard Deviation	5.27	4.57
Sample Variance	27.82	20.86
Kurtosis	-0.85	1.30
Skewness	-0.42	-1.13

Table 1.1: Descriptive statistics of Traditional and Integrated Curriculum for the complete Sample

Interpretation: The mean, median and mode of TAS and ICAS from the above data differed by some factor. The standard deviation, skewness and and kurtosis values indicated that the data is normally distributed.

Fiduciary limits of mean and standard deviation of Traditional and Integrated Curriculum for the complete Sample

The following table 1.2 shows the fiduciary limits of mean and standard deviation of Traditional and Integrated Curriculum for the complete Sample.

TOTAL SAMPLE		
Descriptive statistics	TAS	ICAS
Mean	29.62	39.60
Standard Error	0.46	0.40



Fiduciary limits at 0.95 level	28.71 : 30.54	38.81 : 40.39
Fiduciary limits at 0.99 level	28.41 : 30.83	38.55 : 40.65

Table 1.2: Fiduciary limits of mean and standard deviation of Traditional and Integrated Curriculum for the complete Sample.

From the above table we could infer that,

- Of 100 of the total sample, 95 times the population mean of the TAS will be between 28.71 and 30.54 while 99 times the population mean of the TAS will be between 28.41 and 30.83.
- Of 100 of the total sample, 95 times the population mean of the ICAS will be between 38.81 and 40.39 while 99 times the population mean of the ICAS will be between 38.55 and 40.65.

Percent mean of Traditional and Integrated Curriculum for the complete Sample

The following table 1.3 shows the percent mean of Traditional and Integrated Curriculum for the complete Sample.

	TA	ICA
N	130	130
Percent Mean	22.79	30.46

Table 1.3: The percent mean of Traditional and Integrated Curriculum for the complete Sample

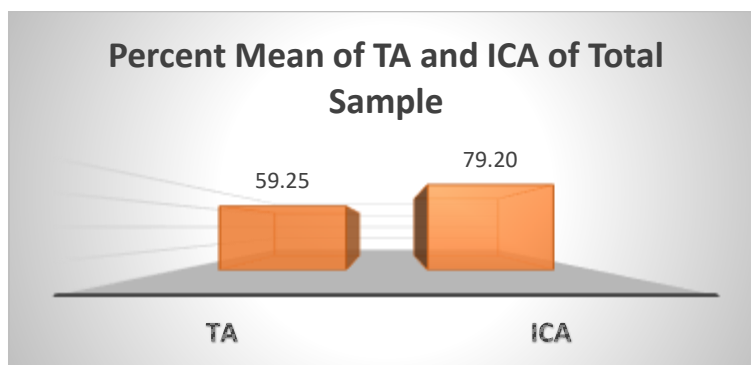


Figure 1.1: Graph of the percent mean of Traditional and Integrated Curriculum for the complete Sample

II. Descriptive data analysis of TAS and ICAS based on Type of School

The following table 1.4 shows the descriptive data analysis of TAS and ICAS based on Type of School.

Descriptive statistics	TAS			ICAS		
	SSC	CBSE	CIE	SSC	CBSE	CIE
Mean	29.56	29.47	29.88	39.31	39.60	39.93
Standard Error	0.77	0.84	0.81	0.63	0.71	0.76
Median	31.00	31.00	30.00	41.00	40.00	41.00
Mode	30.00	35.00	30.00	41.00	40.00	40.00
Standard Deviation	5.17	5.64	5.09	4.19	4.78	4.81
Sample Variance	26.71	31.75	25.96	17.58	22.88	23.15



Kurtosis	-1.01	-1.27	0.12	0.08	0.47	0.21
Skewness	-0.38	-0.31	-0.65	-0.84	-1.60	-0.93

Table 1.4: Descriptive statistics of TAS and ICAS based on Type of School

Interpretation: The mean, median and mode of TAS and ICAS from the above data differed by some factor. The standard deviation, skewness and and kurtosis values indicated that the data is normally distributed.

Fiduciary limits of mean and standard deviation of TAS and ICAS based on Type of School

The following table 1.5 shows the fiduciary limits of mean and standard deviation of TAS and ICAS based on Type of School.

Descriptive statistics	TAS			ICAS		
	SSC	CBSE	CIE	SSC	CBSE	CIE
Mean	29.56	29.47	29.88	39.31	39.60	39.93
Standard Error	0.77	0.84	0.81	0.63	0.71	0.76
Fiduciary limits at 0.95 level	28.00 : 31.11	27.77 : 31.16	28.25: 31.50	38.05 : 40.57	38.16 : 41.04	38.39 : 41.46
Fiduciary limits at 0.99 level	27.48 : 31.63	27.21 : 31.73	27.69 : 32.06	37.63 : 40.99	37.68 : 41.52	37.87 : 41.98

Table 1.5: Fiduciary limits of mean and standard deviation of TAS and ICAS based on Type of School.

From the above table we could infer that,

Of 100 of the total sample of SSC school students,

- 95 times the population mean of the TAS will be between 28.00 and 31.11 while 99 times the population mean of the TAS will be between 27.48 and 31.63.
- 95 times the population mean of the ICAS will be between 38.05 and 40.57 while 99 times the population mean of the ICAS will be between 37.63 and 40.99.

Of 100 of the total sample of CBSE school students,

- 95 times the population mean of the TAS will be between 27.77 and 31.16 while 99 times the population mean of the TAS will be between 27.21 and 31.73.
- 95 times the population mean of the ICAS will be between 38.16 and 41.04 while 99 times the population mean of the ICAS will be between 37.68 and 41.52.

Of 100 of the total sample of CIE school students,

- 95 times the population mean of the TAS will be between 28.25 and 31.50 while 99 times the population mean of the TAS will be between 27.69 and 32.06.
- 95 times the population mean of the ICAS will be between 38.39 and 41.46 while 99 times the population mean of the ICAS will be between 37.87 and 41.52.



Percent mean of TAS and ICAS based on Type of School

The following table 1.6 shows the percent mean of TAS and ICAS based on Type of School.

	TAS			ICAS		
	SSC	CBSE	CIE	SSC	CBSE	CIE
N	45	45	40	45	45	40
Percent Mean	59.11	58.93	59.75	78.62	79.20	79.85

Table 1.6: The percent mean of TAS and ICAS based on Type of School

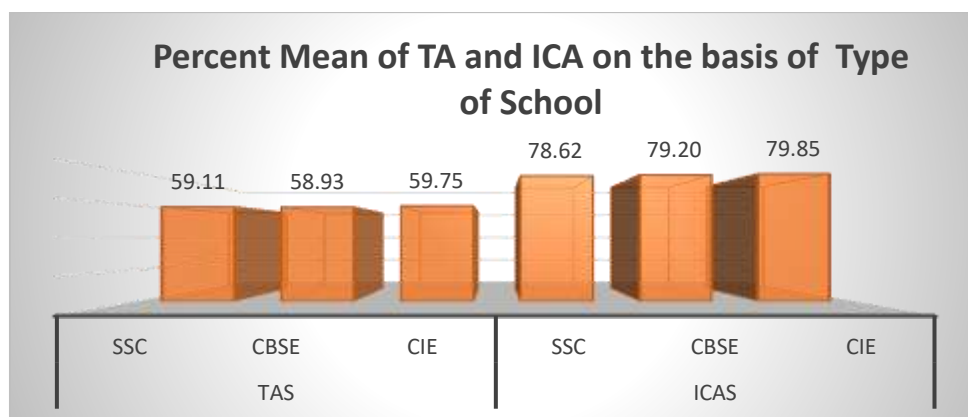


Figure 1.2: Graphical representation of the percent mean of TAS and ICAS based on Type of School.

III. Verification of the H₀:

There is no significant main effect as well as the interaction effects of the Integrated Curriculum Approach of curriculum transaction and the type of schools (SSC, CBSE, and CIE) on the achievement among secondary school students.

Two-way ANOVA was the statistical method employed to examine this proposition.

The following table 5.3 shows the inferential statistics of TA and ICA in reference to the Type of School.

Source of Variation	SS	df	MS	F	P-value	Fcrit	LOS
SS between approaches	6750	1	6750	277.10	4.94E-43	3.84	S at 0.01
SS between the type of school	28.47	2	14.23	0.58	0.56	3.00	NS
Interaction	2.02	2	1.01	0.04	0.96	3.00	NS
Error	6430.98	264	24.36				
Total	13211.47	269					

Table 5.3: Main effect and Interaction effects of the TA and ICA in reference to the type of school.

Interpretation of data:

1. The null hypothesis regarding the primary effect of approaches and the type of school is rejected at the 0.01 level because the computed $F = 277.10$ (SS between the approaches) is significant. As a result, it is reasonable to infer that the techniques of curricular transaction (ICA, TA) have a significant primary impact on secondary school students' achievement of type of school.



- The computed $F=0.58$ (SS between type of school) is not significant at the 0.01 level, hence the major influence of methods on achievement level is accepted as a null hypothesis at the 0.01 level. The implication is that among secondary school pupils in the types of schools studied (SSC, CBSE, and CIE), the techniques of curricular transaction (ICA, TA) do not have a significant primary influence.
- The null hypothesis about the interaction effect of methods and the kind of school on accomplishment is accepted at the 0.01 level because the computed $F=0.04$ (Interaction) is not significant at that level. As a result, it is feasible to infer that neither the kind of school nor the curricular transaction methods (ICA, TA) have a significant interactive impact on secondary school students' academic performance.

Conclusion:

- The Integrated Curriculum Approach form of curriculum delivery and the type of school have a strong major effect on secondary school students' achievement.
- Within the type of school, the Integrated Curriculum Approach mode to curriculum transaction has no appreciable major influence (SSC, CBSE and CIE).
- The Integrated Curriculum Approach form of curriculum transaction and the type of school (SSC, CBSE, and CIE) does not significantly influence the success of the pupils.

Discussion:

The activity method encourages inquiry, offers chances for modelling and identification, involves students in engaging experiences and practical tasks, and sparks activities involving problem-solving. When utilising a strategy that depends on a question-centered integrating agent, the limits experienced by teachers were less severe and simpler to work with. There are several advantages to an integrated curriculum. Students benefit from integrated education because it fosters a love of learning, boosts self-confidence, develops a commitment to the democratic group process, and sharpens students' critical thinking and empathy abilities (Vars, 2001). Students' impressions of their language arts and social studies integrated curriculum experiences were solicited by Erlandson and McVittie (2001). The ability to relate academic subject to practical experiences was noted by students. They started connecting the information they learned in class with their real lives as their style of thinking changed. The pupils also understood how the curriculum's integration brought each discipline together into a single entity.³

Further a *t*-test was conducted to ascertain the significance among the type of school namely SSC, CBSE and CIE.

The following table 5.4 shows the inferential statistics for signifying the difference between TA and ICA in reference to the type of school.

	Mean	Variance	df	tstat	P(T<=t) 2-tail	tcrit 2-tail	LOS
SSC & CBSE	39.31	17.58	87.00	-0.30	0.76	1.99	NS
	39.60	22.88					
CBSE & CIE	39.60	22.88	88.00	-0.62	0.54	1.99	NS
	40.22	22.36					
SSC & CIE	39.31	17.58	87.00	-0.97	0.34	1.99	NS
	40.22	22.36					

Table 5.4: Inferential statistics for signifying the difference between TA and ICA in reference to the type of school.



Interpretation of data:

1. The calculated $t = -0.30$ is less than t critical = 1.99 among SSC and CBSE type of school. Thus 't' is not significant at 0.01 level.
2. The calculated $t = -0.62$ is less than t critical = 1.99 among CBSE and CIE type of school. Thus 't' is not significant at 0.01 level.
3. The calculated $t = -0.97$ is less than t critical = 1.99 among SSC and CIE type of school. Thus 't' is not significant at 0.01 level.

Conclusion:

This concludes that impact of integrated curriculum approach to curriculum transaction has uniformly benefited all the type of schools.

Discussion:

The type of schools (SSC, CBSE and CIE) have different approaches to curriculum planning. Irrespective of the fact, each one of them promotes usage of effective teaching methods in order to achieve the objectives effectively. The method of creating a mind map and building linkages among the different area of study have made the learning more concrete. The integrated activities booted the interest of the students in the different areas of knowledge and thus provided varied opportunities for the real life connections.

Conclusion

The purpose of the present study was to study the effectiveness of integrated curriculum approach on achievement and critical thinking of students. The statistical study proved the basis for the significance of the approach. Thus, it is evident that the integration of the curriculum is a crucial topic in the realm of education. Curriculum integration has been endorsed as a significant educational intervention by a number of themes that have been found in the research. Despite the fact that majority of the research were broadly looking at the aspects of implementation and thus it was only limited to the viewpoints and the attitudes of the educators. The key arguments in favour of curricular integration in the literature include relevance, readiness for the 21st century, its transformational potential, social skills, connections, and cooperation, problem solving and critical thinking, engagement, accomplishment, and time allocation.

Overall, there is substantial evidence that teaching using an integrated curriculum improves student learning, increases student engagement, and fosters a more positive attitude toward subject.

References

- Kothari. C.R. (2003). *Research Methodology- Methods and Techniques*. New Delhi. Wishwa Prakashan.
- Koul, Lokesh. (1984). *Methodology of educational research*. New Delhi : Vikas
- Creswell J. W. (2005). *Educational research : planning conducting and evaluating quantitative and qualitative research* (2nd ed.). Merrill.
- Trochim, W. (2006, October 20). *Social Research Methods Knowledge Base*. Retrieved October 23, 2022, from <https://conjointly.com/kb/table-of-contents/>
- Gresnigt, H. L. L. (2018). *Integrated curricula: an approach to strengthen science & technology in primary education*



- . [Phd Thesis 1 (Research TU/e / Graduation TU/e), Eindhoven School of Education]. Technische Universiteit Eindhoven.
- Kevin C. Costley (2015) Research Supporting Integrated Curriculum: Evidence for using this Method of Instruction in Public School Classrooms, Ph.D. Arkansas Tech University
- Drake, S. M., & Reid, J. L. (2018). Integrated curriculum as an effective way to teach 21st century capabilities. *Asia Pacific Journal of Educational Research*, 1(1), 31-50.
- Hammond, David, John (2017) an investigation into the impact of an integrated curriculum on learning in the primary school, Durham theses, Durham University. Available at Durham E-Theses Online: <http://etheses.dur.ac.uk/12025/>
- Pendergast, Donna, Nichols, Kim, and Honan, Eileen (2012). *Integrated curriculum: Building an evidence-base of effectiveness in middle years classrooms. Australian Journal of Middle Schooling* 12 (1) 12-20.
- Becker, Kurt Henry; Park, Kyungsuk (2011). Integrative Approaches among Science, Technology, Engineering, and Mathematics (STEM) Subjects on Students' Learning: A Meta-Analysis. *Journal of STEM Education: Innovations and Research*, v12 n5-6 p23-37

Cite This Article:

***Ms. Farah Shaikh & **Dr. Reni Francis , (2022) Impact of Integrated Curriculum Approach on Student Achievement, Aarhat Multidisciplinary International Education Research Journal, XI (I), 282-291.**