

Chapter 5:
Summary, Educational Implications,
Suggestions for further study and
Conclusions



The students have undergone rigorous treatment and their performances improved strategically. By the means of pre-test, the common errors were identified, and treatment and intervention given using contextual pedagogy and lesson plans to improve the learning of students. Investigator took a post-test to check the effectiveness or significance of post-test for alleviation of the problems. And Investigator found after statistical analysis as mentioned in Table 4.7 that interventions were effective.

5.1 Errors Identified in Learning Integers

I have identified that it's not an easy task for a learner to conceptualise and idealise the negative numbers i.e., **integers** since negative is also '*a sign*' and used to represent '*magnitude*' too. Learners also do not have proper idea of '*Additive Identity*' and '*Multiplicative Identity*' of numbers apart from that the idea of '*Additive Inverse*' and '*Multiplicative Inverse*' is also very shuttle, also they might be not able to idealise the numbers too viz. Natural Numbers, Whole Numbers, Prime Numbers etc.

Based on observation the following may be the possible reasons of errors while learning integers:

1. Learners may not be able to understand the requisite mathematical terms in English, hence they may require the meaning of that term in Regional Language or Mother Tounge like Hindi in Hindi speaking areas.

Natural Numbers(N) = प्राकृतिक संख्यायें



Whole Numbers(W)	= पूर्णसंख्यायें
Prime Numbers(P)	= अभाज्य संख्यायें
Integers(Z)	= पूर्णांक

Although, Due care of language has been taken while implementing tool, but standard mathematical language in vernacular language may also seem hard for learners.

2. Learners may not be able to understand the aspects of negative numbers as somewhere it represents '*Magnitude*' and somewhere its used as '*Sign*'.

3. Learners may have misconception in idealizing integers in mathematical life and real life as there is huge inconsistency.

Ex: **Mathematically;** - 4 is greater than -5 or -6 i.e., in number line number near to zero from left side is greater than the number far from zero from left.

But in **Reality;** Debt of Rs.4 is less than Rs.5, Temperature -10°C is cooler than -4°C etc.

4. Learners may not be able to idealise the order of keeping numbers in number line, like smaller numbers are kept towards the left of larger number but why?

5. Teacher may have imposed the set of rules or may had given some short tricks hence making learning mechanical, i.e., teacher may



not be well versed in the subject. The fact has been verified in analysis of PU-MTA

5.2 Conclusions

It is evident fact that every child is born with natural ability to learn and has very high potential of learning. But Teachers are the backbone of School structure and if a teacher is not well versed in his subject, then the foundational basis of a student's gets weakened and his potential to perform reduces. Hence, a teacher should make every effort and adopt required skills to impart knowledge of mathematics. Also, the knowledge of Integers is core in mathematics, its operation leads to higher order learning and if a student lacks it then it is just like staking the future of nation.

5.3 Educational Implications of the Study

This study contributes to resolving two enduring challenges in mathematics education: one practical and one theoretical. The first concerns improving the way that classroom-based research can inform teachers' practical decisions about teaching integer arithmetic. The second offers new insights into the theoretical and practical debate about whether and how physical experience supports learning mathematics. The study provides evidence about how students' physical motions or model-movements can support or interfere with mathematics learning.

This study that tested several aspects of integer learning, including all four basic operations, suggests that teachers should clear their ideas on integers before imparting knowledge to students and certain real-life situations shall be given so that students can easily idealise and



understand the integers. Lesson plan shall be prepared such that which might add richness to student's thinking.

The results of post-test reflects that if effective efforts are made while teaching in classroom, these low achievements could be controlled, and student's learning could be enhanced.

5.4 Suggestions for further Study

Every study is not complete in each sense as there are certain aspects left out to investigate or reinvestigate in the current problem. Hence, with an aim of further suggestions for the study: -

1. This study could be done to check the effectiveness of different models used for learning of integers.
2. This study could be done by using controlled and experimental groups.
3. This study could be done by taking the samples of urban and tribal students.

