

Teaching English Language through 'Language Immersed Science' for Secondary Classes

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Abstract

This study endeavours to investigate the effectiveness of 'Language Immersion Programme' in our classrooms with respect to physics. It is taken for granted that learners from science background are less eloquent and not much confident in verbal expressions. In order to help physics learners master English language effortlessly, an immersion module has been prepared, validated and tried out in class IX in the schools of Kerala. 'Immerse' means to dip in water. Here the study is done as to how the elements of English language can be dipped into the subjects to be learned by preparing a package and making a tryout of the same. As taking all the disciplines for the package is beyond the purview of research, the representative items were selected. The study reveals that the package is highly useful and effective. After going through ten sessions of the package, they are reported to be highly confident in using affluent language with creative touch and texture.

INTRODUCTION

Teaching English has got different kinds of updations across the ages as well as across the countries. For a longer time, English teaching has been an exclusive task with registered

features, but eventually there was some glaring modifications. In teaching English, deliberate attempts were made to create an English learning ambience which culminated sometimes into tedious routines for

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learners. When teaching English through the medium of English, both means and end become one. Variety is lost and learners are largely prone to be mind-numbing. So, attempts were made to teach English by way of learning other subjects.

As a result, English language teaching has switched over to an integrated approach where teaching English won't be taken as a separate practice. There are myriads of attempts to integrate the contents of learning with language so that mastery in the target language can be guaranteed easily and smoothly. Instead of taking the language learning as a tedious process, learners unintentionally acquire the mastery of language through an integrated approach.

LANGUAGE INTEGRATION

Integration is possible according to the use and link of each language with various subjects and disciplines. Disciplines can be divided on the basis of language viability. Some disciplines need the use of more verbal language whereas some other disciplines rely on nominal degree of language plus visual and graphic presentations. The first category include subjects like anthropology, history, philosophy, sociology, political science, etc., and disciplines like physical science, biology, geography, etc., fall in the second category. We can divide the medium of instruction used in the classroom as general language and specific or technical language.

In order to teach human sciences, general language is used, whereas specific or technical language is used to teach sciences and disciplines which are scientific in nature. The first type imprisco words and phrases from the common realm of communication whereas the latter has specially structured terminologies and technical words. Language immersion can be simply defined as a method used in bilingual classes where two languages are used for instruction in a variety of topics including maths, science, or social studies. Immersion can be done with any content item like geography, history, mathematics, anthropology and even statistics. In the present study, physics has been selected.

LANGUAGE IMMERSION

Language immersion is an educational approach to second language learning, in which the second language is not only the medium of instruction but also the object of instruction. Immersion programmes offer an 'early start' to second language learning at an optimal developmental period, when young brains are keenly receptive to language acquisition. Learning the second language as a young child provides students more time to achieve high levels of language proficiency; acquire the correct pronunciation; gain intercultural competency and other linguistically creative skills.

Here language learning is free from pressures as language is not systematically transacted in the classroom. As the target language is used to transfer the content and for doing different activities and routine communications, learners acquire the language as children do with their first language.

Immersion programme has been practised worldwide these days for teaching second language in a swifter and easier way and has brought about all-encompassing results. The study conducted by Fortune Tedick (2011) reportedly proved that immersion education offers an exciting opportunity for students to reach high levels of academic achievement and to acquire strong proficiency in English and another language. Roberts (1998) conducted a study on the effectiveness of immersion programme with regard to the use of appropriate grammar, sentence structure, and vocabulary, which revealed that the immersion programme was highly beneficial to the students even though there was a discrepancy between the quantitative and qualitative results. Obudo (2007) conducted a comparative study between bilingual education and English immersion. The study rather supports the immersion programme even though the final result appears to be a little bit inconclusive.

Lasekan-Olusiji 2017 conducted a study titled 'Factors Influencing Motivational Intensity and English Proficiency among Early Middle

and Late Immersion Undergraduate Students', which brought out the finding that the early immersion students could perform well followed by the middle group and the late immersion students ranked last. This recommends that being in English immersion programme as early as possible leads to English proficiency. Amaliraj (1995) has conducted a study titled as 'Bilingual Education and the Teaching of English as a Second Language in India: A case study of Kendriya Vidyalayas'. The research indicates that the learning environment influences the learning of a second language which assures that an immersion ambience will contribute much to language learning. Theporal and Singh (2017) conducted a study on the effectiveness of integrated language study focusing on Content and Language Integrated Learning (CLIL) on English language, immersing mathematics and social science with English. The study reveals that the method is highly useful in enabling the students to acquire various skills related to language proficiency.

NEED AND SIGNIFICANCE

In India, language and literacy are generally seen as the concern of only the language teachers. However, no matter what the subject is teaching cannot take place in a language-free environment. Assumptions about the language and literacy background of students influence classroom interactions, pedagogical decisions

and the nature of students' learning. Thus, it is important to understand their language background and know how oral and written language can be used in the classroom to ensure optimal learning of the subject. Several studies have shown that Indian students perform weakly in reading comprehension (Sinha, 2012). This, in itself, should be a crucial concern of all teachers (*Curriculum Framework: Two-year B.Ed. Programme*, National Council for Teacher Education, 2016). In the new curriculum, much importance has been given to language learning and two papers have been introduced namely, 'Language across Curriculum' and 'Reading and Reflecting on Text'.

OBJECTIVES OF THE STUDY

- To explain how immersion programme serve the purpose of language integration
- To find out the benefits of the programme based on the package and tryout
- To try out the immersion package in Class IX students of Kerala
- To find out the benefit of this programme based on the statistical analysis
- To discuss the effectiveness of the package based on feedbacks and focused interviews

PREPARATION AND VALIDATION OF MODULE

The present study was conducted as an experimental study. The investigator made use of pre-test and post-test

control group as the experimental group design for the study. Two types of variables are identified in the present study, dependent and independent variables. Instruction based on immersion package is the independent variable. Achievement and creativity are the dependent variables.

Students at secondary level are the target population of the study. They belong to Classes VIII, IX and X. The investigator, through purposive and convenient sampling, selected Class IX students of Sir Syed High School, Talipparamba which is an English medium School. He selected students from Class IX-E as control group and students from Class IX-F as experimental group, and separate packages were developed and implemented for social science, mathematics and physics. Total number of students in control group was 32 and 28 in experimental group. The researcher chalked out some of the language items which were related to physics, but useful in enhancing the language capacity. The assumption of immersion is that while learning some topics of physical science, the learner can imbibe some of the pivotal aspects of language so that the immersion programme will be highly competent in subjects and fairly proficient in English tongue.

While preparing content on the topic of gravitation, the investigator was very meticulous to incorporate some of the very essential language items. The very first and classical

item found was the word 'centre'. The first difference is related to American-British spelling choice. The teacher explains 'center' is American and 'centre' is British, and we have follow the latter. Along with this, the investigator provides a short list of some very essential words having the same spelling difference. Here the teachers handling the immersion classroom are likely to face the problem of not having deeper knowledge in this regard. Students are expected to ask more questions and pose complicated doubts.

If teachers are unable to give proper replies to the queries, they will hesitate to go forward with the programme. This was a great problem and a challenging issue before the investigator. The investigator tried to solve this problem by incorporating more examples, supported by language rules in the content to be taught by teachers. This appears not only to help teachers get rid of their nervousness but also to enhance their expertise and boost up their confidence.

The investigator has opted the maxim of 'simple to complex', so that the researcher started with the spelling items. Then the researcher focused on one of the most common errors committed not only by non-English speakers but even those who are from English background. Besides, the term is recurrently used by everybody in our day-to-day interactions. The item is 'discuss about'. As 'discuss' means talk

about, discuss about would mean 'talk about about' which is purely impure redundant! It is true that we have a natural tendency to utter 'about' immediately after discuss, and we have an obsession to use direct object without the interlinking 'about'. So the researcher added one special activity of grouping students in the class and asking each of them to say alone each object such as "Let us discuss the poem..../the issue..../ the problem/....the topic, etc.

The lesson on gravity starts with a beautiful and meaningful cartoon. It follows a story-like narrative of two friends, who observed different motions in the nature. While Adeeb focuses on water going up when it is in the form of steam, Alok stresses on the heavy and weighty rain coming down. They analyse the difference between both the motions. The teacher has to introduce this in an interesting manner and consolidate their views by putting different stones of different sizes on the ground. They gradually arrive at the concept of gravity along with learning 'centre' and 'discuss about', which the learners in traditional classroom are deprived of. Immersion, as it warrants creativity provides a chance to imagine a situation where there is no gravity at all. They see in their mind's cats and goats, cars and bikes floating up in the space. Plants and stars are wandering according to their whims. Though dreaming is

beautiful, such a situation in real life will not be possible.

The investigator deliberately added a brief biography of Newton. His childhood, his growth, his turning points, his views and dreams may motivate students. Further, they can prepare the biographies of Kepler, Copernicus, Galileo, etc. They can penetrate into the heart of physics swimming through narrative language. Here the investigator inserts an expression of 'bare bond between' so that he can easily introduce alliteration, a beautiful figure of speech. With the end of this part, a worksheet is provided. By doing this, learners themselves develop creative writing.

Among the different language items the fourth one is noteworthy. That is about preparing an E-letter. It is to be sent to Isaac Newton. The reason is more important. One of the students of during the try out contributes some ideas to the existing theories of gravity. Here students are unknowingly motivated. They are helped to break the socially constructed cocoons and grow up at par or more than the intellectual realm of Newton. While covering the next two items of physics content such as gravity and moon/tide, gravity and gravitation, learners come in touch with some very important terms like 'whereas', 'neck and neck' with numerous examples. With this, the next worksheet is provided of

which the very first item is sufficient for four things:

- (a) Learning of content
- (b) Development of language
- (c) Enhancement of creativity
- (d) Assessment

In the last part, the investigator has incorporated some knowledge of words asking 'Do you know the opposite of questions such as because'. about. It not making same at all. Then many situations are also provided to create sentences. When the discussion regarding kilogram and Kilogram weight is over, learners get a luminous 'award of actually'. More synonyms are provided for 'actually'-'likewise', 'no matter' and 'as well' and they are also vividly illustrated so that learners can make use of them in their interactive language.

Pronunciation is very instrumental as regards english language. Some of the people are poor in pronouncing common words. But some pronunciation mistakes are quite common, like target, entrepreneur, etc. But one is always mispronounced, i.e. tier...(from the railway station.) Attached to this more examples of mispronounced are provided. Then comes the use of 'provided', Only learned men use it properly. But learners of immersion can use this very easily.

SAMPLING

Students at secondary level are the target population of the study. They

belong to Classes VIII, IX and X. The investigator, through a purposive and convenient sampling method, selected two of Class IX from Sir Syed High School, Talipparamba (an English medium school). He selected students from Class IX-E as control group and students from Class IX-F as experimental group and separate packages were developed and implemented for social science, mathematics and physics. Total number of students in control group was 32 and 28 in experimental group.

DESIGN OF THE STUDY

The present study was conducted as an experimental study. The investigator made use of pre-test and post-test control group an experimental group design for the study. Pre-test and post-test scores on total samples, sub-samples and on creativity constituted the data of the study. The layout of the study is given in the figure 1.1.

LAYOUT OF IMMERSION PACKAGE

Experimental Group O_1 x O_2
 Control Group O_3 c O_4
 O_1, O_3 — Pre-test
 O_2, O_4 — Post-test

'x' is the experimental group in which instruction is given using

immersion package and 'c' is the control group in which instruction is given using the existing textbooks.

IMPLEMENTATION

Two section of class IX were selected of which One was experimental group and the other was control group. Pre-test was conducted based on 'content and language' and 'creativity'. Then classes were conducted based on immersion module. After that post-tests were done and the data was subjected to statistical analysis.

VARIABLES OF THE STUDY

Two types of variables are identified in the present study—dependent and independent variables. Instruction based on immersion package is the independent variable. Achievement and creativity are the dependent variables.

Table 1 shows that mean of the scores on achievement of the students in the experimental group is 3.654 and that of the control group is 4.313. This indicates that the students in the experimental group and control group differ slightly in the mean scores on achievement. The median of the scores on achievement of the students in the experimental

Table 1

Experimental group	26	3.654	4.000	4.0	1.953	0.639	0.597
Control group	32	4.313	4.500	6.0	1.817	0.228	-0.687

and control groups are 4 and 4.5, respectively. This shows that 50 per cent of students in the experimental group scored more than 4 in physics, while control group students scored more than 4.5. Table also reveals

that the mode score of experimental and control group are 4 and 6 respectively, with a substantiate difference in favour of the control group students.

Table 2
Results of the Test of Significance of Difference between the Pre-test Scores on Achievement in Physics

Groups	N	Mean	SD	t-value
Experimental	26	3.654	1.953	1.33
Control	32	4.313	1.82	

Table 3
Results of the Test of Significance of Difference between the Pre-test and Post-test Scores in Physics

Test	N	Mean	SD	t-value
Pre-test	32	4.31	1.81	2.502*
Post-test	32	5.04	1.98	

*significant at 0.05 level

Table 4
Results of the Test of Significance of Difference between the Pre-test and Post-test Scores on Physics in Experimental Group

Test	N	Mean	SD	t-value
Pre-test	28	3.65	1.95	5.78*
Post-test	28	6.34	2.90	

*significant at 0.05 level

Table 5
Descriptive Statistics of the Score in Creativity

Group	N	Mean	Std. Deviation	Std. Error Mean	Median	Skewness	Kurtosis	Mode
Experimental	28	12.821	6.071	1.147	12.500	0.944	1.556	4.0
Control	32	12.518	6.936	1.311	11.250	0.843	0.191	3.0

Table 5 shows that the mean of the scores in creativity of the students in the experimental group is 12.821 and that of the control group is 12.518. This indicates that the number of students in the experimental group and control group differ slightly in the mean scores on creativity. The median of the scores on achievement of the students in the experimental and control groups is 12.500 and 11.250, respectively. This shows that 50 per cent of students in the experimental group scored more than 12.500 in creativity, while control group students scored more than 11.250 marks. Table 5 also reveals that the mode of experimental and control group is 4 and 3, respectively, with a substantiate difference in favour of experimental group students.

RESULTS AND DISCUSSION

The statistical analysis indicates that the programme is highly effective. The sample and sub-sample show a higher rate of effectiveness with regards to content, language and creativity. The focused interview done by the investigator with selected students and teachers of the school gave positive results. Handbooks exclusively made for teachers with elaborate language items were reported to be highly useful to the teachers and teacher also appreciated the programme.

The findings are more or less in tune with what is already proven true

is the previous studies. It is believed that immersion package will help learners achieve more in content as well as in language. So this study corroborates what is found true by the study conducted by Fortune and Tedick (2011). Some studies revealed that immersion method does not guarantee achievement in academic subject. The study by Lindholm-Leary (2015) is the best example. His finding was that academic achievement of immersion students is on a par with that of monolingual students, who are studying the same subjects in their native language. This finding is supported by a study conducted by Batey, et al. (2010).

CONCLUSION AND IMPLICATIONS OF THE STUDY

As the immersion programme has been proven to be highly effective, it has to demand wider attention from the educational experts of our country. If content experts and language monarchs work together in the presence of illuminated men of letters, no wonder, we can make wonders in the field of second language education. As our country is rich with knowledgeable people and we lack transnational hegemony only because of language proficiency, this immersion programme can be a better alternative.

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