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Scoring Higher Grades at 'O' Level Exam Through N-Theory Strategy

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Abstract

The pursuit of Education is important to the overall development of an individual. It is attained in different stages. The stages differ according to the learners' age and goal. Usually, students undergo different learning stages. It begins at the kindergarten (pre-school), and continues into the primary school (elementary), secondary school (high), college and finally the university. Teaching and learning is the main aspect in education. Usually, a classroom consists of five levels of students according to their competence. They are excellent, potential excellent, medium, potential medium and critical level students. All these students have to face the 'O' level examination which is essential in Malaysia. It determines the students' bright future. It is conducted by the Malaysian Examination Syndicate. Students find it difficult to score higher grades in this examination. This study proposes the 'N' theory strategy. This strategy explains that the role of teacher, which is dominant at the kindergarten and primary level of education diminishes correspondingly and is taken over by the role of the student, which increasingly gets dominated at the secondary and university levels. Since the 'O' level examination comes at the secondary level, the 'N' theory strategy is applicable to these students to score higher grades. It also helps the students to internalize their study materials easily. This research article aims to discuss the importance of 'N' theory in 'O' level examination and it also focuses on the pre-test activities using 'N' theory strategy and post-test based upon a research conducted among a selected secondary school students.

Keywords: 'O' level exam, 'N' theory, pre-test, post-test.

Introduction

Education is a process of teaching and learning. The learning includes acquisition of knowledge, language skills, cultural values and beliefs. Different methods like, training, discussion, narration, research, etc. are being used. Education starts from kindergarten and goes on to higher education institutions. The methodology used for teaching purpose is called 'Pedagogy'.

Education shapes students in different ways. Through education, a student not only gains knowledge but also learns discipline. Education can be attained in different stages. The stages differ according to the students' age and goal. Usually, students undergo different learning stages such as, kindergarten (pre-school), primary school (elementary), secondary school (high), college and finally university for their education. Students continue their education till they achieve their goals. It's not an easy task to achieve one's goal. During the learning process examination is the main testing area. Studying and memorizing is included in the testing area. Oxford Dictionary (1948) defines examination as, 'a detailed inspection or study'. It can be also said as a test of one's personal knowledge in a subject. Students have to come across examination during their education. There are different types of examinations and one such examination is 'Ordinary level (O level) exam'. It is a subject based academic qualification and is conducted universally. In Malaysia, 4 examinations are important namely: Standard 6 public exam, Form 3 public exam, 'O' level exam and 'A' level exam. Of these, the 'O' level exam is conducted by the Malaysian Examinations Syndicate. This exam is very important for the students as its results will decide the future of the students (Samikkanu Jabamoney, 2018).

This research article explains the importance of 'N' theory in scoring higher grades in 'O' level examination. Moreover, it focuses on the pre-test, activities using 'N' theory and post-test based upon a research conducted among the students in Malaysian context.

Research Background

Malaysia is a Southeast Asian country. Malaysia consists of 13 states and 3 federal territories. Each and every state has its own government to be governed and the ultimate governance is with the federal government. All the departments like, education, electricity, finance, transport, etc. have its own ministry. Education in Malaysia is governed by the Ministry of Education. It oversees the education departments established in all the states and federal territories in Malaysia. Moreover, it is governed by the Education Act 1996 (Samikkanu Jabamoney, 2018).

Like other countries in the world, the education system is divided into preschool education, primary education, secondary education, pre-university education and

higher education. According to the Malaysia law, primary education is compulsory. As in many other ASEAN countries, Malaysia has standardized examinations (Bakri Musa, M. 2003).

Examinations are conducted according to the division of education system in Malaysia. The General Certificate of Education conducts academic qualification examinations. This examination is subject specific examination. The General Certificate of Education is composed of three levels which are based on the levels of difficulty. They are Ordinary Level ('O' Level), Advanced Subsidiary Level ('A1' Level or 'AS' Level) and Advanced Level ('A' Level). Of these levels, 'O' Level is for the school leaving 17 to 18 years old students. It is taken by all Form 5 secondary school students in Malaysia (Samikkanu Jabamoney, 2018).

Scoring in 'O' Level examinations is not an easy task. Students work hard to achieve grade 'A' in this examination.

Statement of Problem

Teaching and learning is a process in the education. Usually teaching and learning takes place in a classroom situation. In a classroom learning context students from different knowledge backgrounds can be seen. Knowledge varies according to the students' competence. Considering the learning competence of the students, five levels of students can be distinguished in a classroom. They are excellent, potential excellent, medium, potential medium and critical level students. All the students need to work hard to score good grades (Samikkanu Jabamoney, 2018).

O level examination is essential in the Malaysian context in particular. It is not easy for the students to score distinction grades in 'O' level examination. Both the teachers and students dedicate and work hard to prepare for this examination. Most of the time, the students fail to score higher grades. Teachers themselves come out with various techniques and ideas to guide the students. But still they find it difficult to score good grades.

Research Objective

The major objective of the study is:

To make the students to score higher grades in the 'O' Level examination using 'N' theory strategy.

Limitation

The study is limited to Form 5 students from one of the secondary schools in Malaysia. Only 28 students, who fell within the medium and potential medium levels in the classrooms, were selected from the chosen secondary school for this study. Furthermore, only the past 15 years of actual 'O' level Biology question papers were used for this study.

Literature Review

Literature review provides idea as how to go further with the present research work. It also allows the researcher to view the concept of the theory.

Robert R. Newton (1980) has done a research on M and F theories and he proposes what he believes is a more practical alternative.

There is a theory called as SYM theory. 'It is Supersymmetric Yang–Mills (SYM) theory and is a mathematical and physical model created to study particles through a simple system, similar to string theory.' But this doesn't relate with the 'N' theory mentioned by Shulman (2018). It is a notion theory which provides completeness to a frame work.

Moreover, 'N' theory is used in the field of Mathematics, Physics and Philosophy by other scholars. But it is never used as an education theory. Hence, the researcher has implemented the concept of 'N' theory in all the subjects to identify the progress of the students in their 'O' Level examination.

Research Methods

The research is based upon the Experimental method.

'The experimental method is a systematic and scientific approach to research in which the researcher manipulates one or more variables, and controls and measures any change in other variables.' (explorable.com)

Gay, L. R (1992) defines experimental method as, 'The experimental method is the only method of research that can truly test hypotheses concerning cause-and-effect relationships. It represents the most valid approach to the solution of educational problems, both practical and theoretical, and to the advancement of education as a science'.

This research is based on an experiment carried out with the students. 'N' theory strategy is implemented on two groups of students such as experimental group and control group. Through this experimental method past (old) real questions of 'O' level examinations are revised.

Concept of 'N' theory

N theory is a part of string theory in the field of physics. Even 'N' is used as integer or any number in mathematics. The concept of 'N' theory is to form n category and to form structure of space and time. For this study the concept of 'N' theory is based upon the string 'N' and is given in Figure 1.

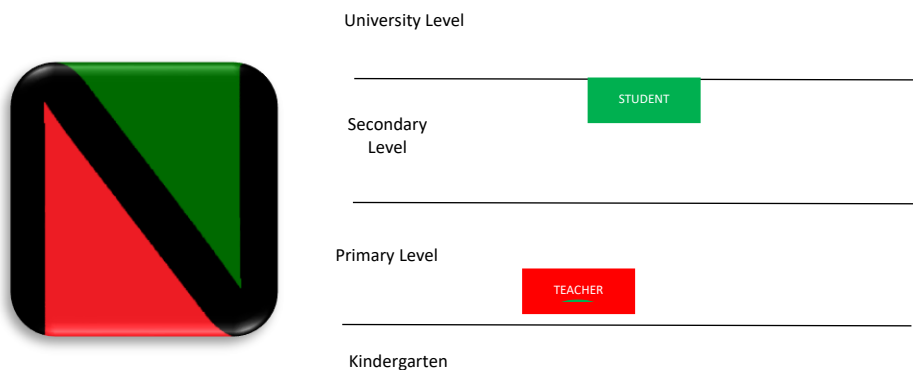


Figure 1: 'N' Theory

In the above given 'N' diagram, there are two colors namely red and green. The red indicates the teacher's role and green indicates the student's role. Moreover, there are 3 lines drawn which shows 4 levels of education system such as kindergarten, primary level, and secondary level and university level. As seen in the diagram, the role of the teacher will be more and students have fewer roles in the kindergarten and primary level. Whereas, at the secondary and university levels the role of the students will be more and teacher has fewer roles in the learning processes.

Research Tools

Examinations were conducted before and after implementing the concept of 'N' theory, namely Pre-test and Post-test and these were used as research tools.

Teaching Materials

The study area was confined only to the subject of Biology. Past 15 years of actual 'O' level Biology examination question papers were used as teaching materials. Teachers had to revise these past 15 years of 'O' level biology examination questions chapter wise, and prepare model question papers with answers. Such a preparation required the teacher to divide the question papers according to the nine chapters found in the Form 4 and six chapters in the Form 5 textbooks. In total there are 15 papers to be prepared by the teacher. All these papers are designed with sample questions with answers. The 'N' theory strategy was used as teaching method in this study, whereby the teacher's dominance was minimal.

The details of the chapter from Form 4 and 5 are given in the Table 1 (Gan Wan Yeat, 2005):

Table 1: Form 4 and 5 Topics of Biology Subject

CHAPTER	FORM 4	FORM 5
1	Introduction to Biology	Transport
2	Cell Structure and Cell organization	Locomotion and Support
3	Movement of substances Across The plasma Membrane	Coordination and Response
4	Chemical Composition of the Cell	Reproduction and Growth
5	Cell Division	Inheritance
6	Nutrition	Variation
7	Respiration	
8	Dynamic Ecosystem	
9	Endangered Ecosystem	

O level exam is based on 2 years of study i.e. Form 4 and 5. There are 3 parts of questions namely Part A, Part B and Part C. Table 2 shows the type of questions in the 'O' level examination (Gan Wan Yeat, 2005).

Table 2: Structure of Biology 'O' Level Exam Paper

Sl.No.	Part	Type of question	Total number of questions
1.	Part A	Objective	50
2.	Part B	Structure	5
3.	Part B	Essay	2

Research Sample

In total, 28 students from a secondary school were selected as sample for this study. Out of 28 students, 14 students each were selected as samples for the experimental and control groups. All the sample students belong to medium and potential medium from the secondary school classroom. Of these students only experimental group students were subjected to the 'N' theory strategy.

Implementation

The study was implemented on two groups of students such as experimental and control groups. Both the groups underwent mid-year examination in the secondary school and the results were taken as Pre-test results. After this, only the experimental group students were involved in the 15 week activities. These activities were based on the chapters in the biology textbook from Form 4 and 5. The students had to attempt all the questions based on the 15 chapters at the rate of one chapter per week

for 15 weeks continuously. After attempting the questions, the students have to check their answers with the given sample answers. Based on the 'N' theory strategy, teacher's intrusion is avoided. The students on their own will look up for possible correct answers and explanations. Only when they are unable to understand, they seek the guidance of the teacher. Finally both the groups of students sat for the real 'O' level examinations. The results were published in the month of March 2018. The grades scored during the real 'O' level examinations were recorded as Post-test results. The details of the pre-test and post-test results are presented in detail.

Results and Discussion

The results of the study, pre-test and post-test results, are tabulated below for further discussion.

Pre-test

Pre-test results that are gotten from the grades of the mid year examination for both the experimental group and the control group are given in Table 3 and Table 4.

Experimental Group

Table 3: Experimental Group's Pre-test Result

Grade	A+	A	A-	B+	B	C+	C	D	E	F	Total		
Total No of students	0	0	1	0	0	0	1	2	3	7	14		
A+, A, A- Distinction			B+, B, B- Strong credit			C+, C, C- Credit			D, E No credit			F Fail	

A total of 14 students were involved in the experimental group. Out of 14 students only one student scored A- grade and no one scored B. Further, 1 student scored C, 2 students D, 3 students E and 7 students scored F grade respectively.

Control Group

Table 4: Control Group's Pre-test Result

Grade	A+	A	A-	B+	B	C+	C	D	E	F	Total
Total No of students	0	0	0	0	0	0	3	2	2	7	14

A total of 14 students were involved in the control group. Out of 14 students 2 students scored C, 2 students D, 2 students E and 7 students scored F grade respectively.

The study identifies that 7 students have scored F grade in both the groups and remaining 7 students have scored lower grades except one in experimental group. This can be seen clearly in the following chart and graph. It is evident from the pre-test results that both the experimental and control groups received similar results.

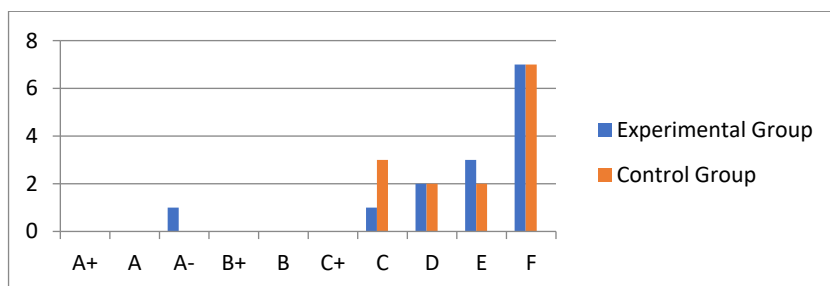
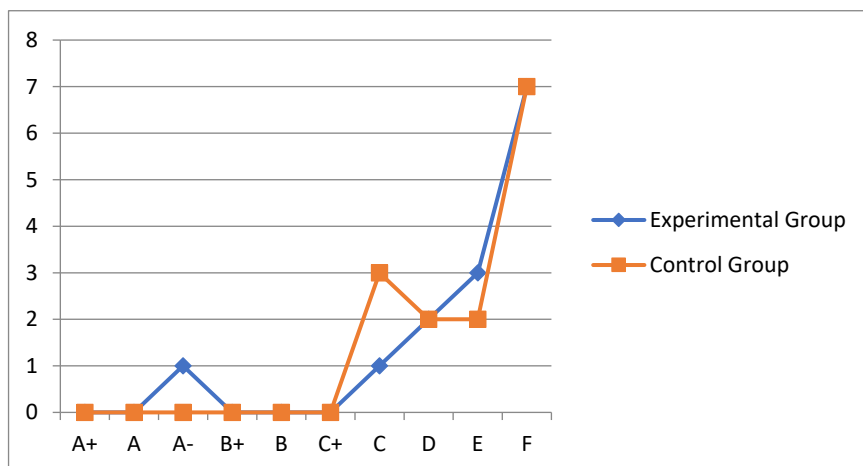


Chart 1: Pre-test Result of Experimental and Control Group



Graf 1: Pre-test Result of Experimental and Control Group

Activity for Experimental Group

In the pre-test only one student scored 'A' grade and no one scored 'B' grade. In this context 'N' theory strategy was implemented. All the 14 students involved were to discuss and revise the previous 15 years 'O' level real question papers. All the 15 years questions were divided according to the chapters found in the Form 4 and 5 textbooks.

In total, there are 15 chapters in the Form 4 and 5 textbooks. Questions related to these 15 chapters are divided and revised in 15 weeks, i.e. the students revised one chapter questions in a week. This activity went on for 15 weeks to complete all the chapter questions.

Post-test

After the completion of the 15 weeks activities, both the group of students sat for the year-end 'O' level Biology paper. Their results were collected as post-test results when the results were announced in March of the following year. The results are tabulated in Table 5 and Table 6.

Experimental Group

Table 5: Experimental Group's Post-test Result

Grade	A+	A	A-	B+	B	C+	C	D	E	F	Total
Total No of students	1	0	0	3	3	3	4	0	0	0	14

In post-test, 14 students were involved in the experimental group. Out of 14 students one student scored A+ grade, 3 scored B+ and 3 scored B grade. Further, 4 students scored D and no students scored F grade.

Control Group

Table 6: Control Group's Post-test Result

Grade	A+	A	A-	B+	B	C+	C	D	E	F	Total
Total No of students	0	0	0	0	0	0	4	6	1	3	14

14 students were involved in the control group of post-test. Out of 14 students, 4 students scored C+ grade, 6 scored D, 1 scored E grade and 3 students scored F grade.

The study identifies that all the students of experimental group have scored distinction, strong credit and credit respectively whereas the students from control group have scored only C, D, E and F grades. This shows that the experimental group

who underwent the revision of past 'O' level questions through 'N' theory strategy has improved their grades compared to the control group. This can be seen clearly in the following chart and graph.

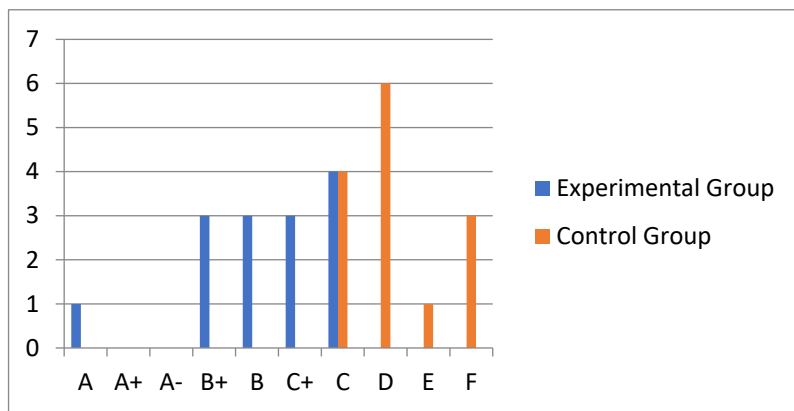
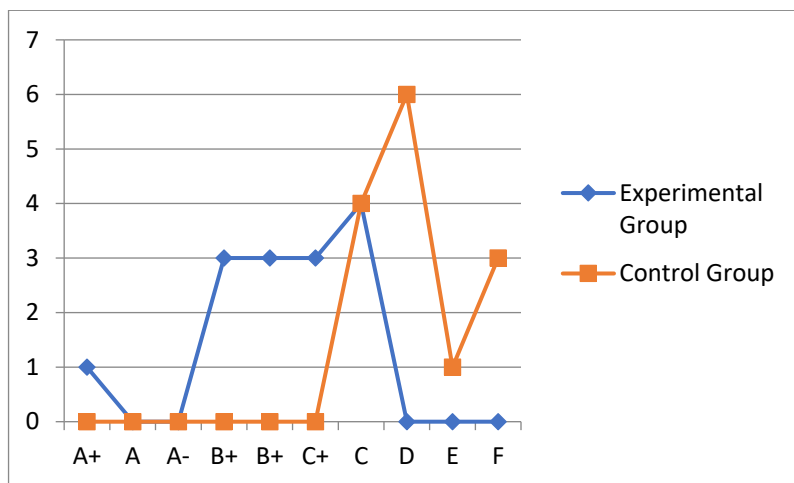


Chart 2: Post-test Result of Experimental and Control Group



Graf 2: Post-test Result of Experimental and Control Group

Discussion

The researcher used the 'N' theory strategy in between the Pre-test and Post-test for 15 weeks to provide activities for the students of the experimental group. The results of pre-test and post-test of the experimental group have differed according to the grades scored by the individual student. It can also be noticed that post-test results are better when compared with the pre-test results. This is because of the implementation of the strategy of revising the 'O' level questions of past 15 years using 'N' theory among the students for 15 weeks. It could also be argued that if such a result could be produced, using the 'N' theory strategy on students belonging to

medium and potential medium category, excellent results can be gotten for the top-notch students by applying the same.

Conclusion

This study was aimed at the students scoring higher grades in the in the 'O' Level examination using the concept of 'N' theory. The results of the pre-test and post-test clearly pictures the improvement of scoring grades from fail (F) to distinction (A+). The researcher has identified that the 'N' theory strategy really worked well within the students of experimental group in this research. No doubt, the students who use 'N' theory can score higher grades in the 'O' Level examinations. Hence, the researcher recommends to implement the 'N' theory strategy among the Form 5 students to score higher grades in their 'O' level examination.

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