Research & Reviews: Journal of Educational Studies

Improving Test Scores for the Course Genetic Engineering among third year Biotechnology Students at Hawassa University, Ethiopia

Tegegne Bayiha* and Eshet Lakewb

Department of Biotechnology, Instructor and Researcher, Hawassa University; P.O. box 05, Hawassa, Ethiopia

Research Article

*For Correspondence

Tegegne Bayih, Department of Biotechnology, Instructor and Researcher, Hawassa University; P.O. box 05, Hawassa, Ethiopia

E-mail: tegegnebayih@gmail.com

ABSTRACT

The study was conducted to identify particular problems among students that cause low test score for the course Genetic Engineering. The investigations were implemented by direct contact of the respondents as well as by communicate. The respondents were selected as randomized method that has low test score for the course and both female and male students have been respondents in the investigation. 15 students had been selected as a sample. The primary data were collected from students through interview, observation and discussion. Teacher-Students Relationship, Laboratory organization, Nature of the course and Boring class were the key terms for making questionnaire's, interviews and discussions among students (respondents). This is therefore, nature of the course and boring class were the major problems for poor test score to the course as well as poor laboratory organization. Those major problems were identified as causes for lowing of test result. Actions had been taken to solve these problems. For instance, providing easy notes, allowing students to select favourite course contents and allowing students to do laboratory activities. These actions brought a remarkable result among students. Test score result has been increased in a good manner.

INTRODUCTION

Learning is not just the transferring of knowledge from the teacher to the learner. It is an understanding process where relatively permanent changes are caused by information and experience. These changes do not solely refer to outcomes of the learner's behaviour that are manifestly observable, but also to attitudes, feelings and intellectual processes that may not be so obvious [1]. Learning for understanding can be achieved if educators make the effort to find out what students' conceptions of learning are and what constitutes understanding.

Genetic Engineering is one of the most interesting yet very technical aspects of life sciences where learners face challenges such as problem solving, genetic modification and cloning.

Genetic Engineering is becoming more and more important for societies. It is stepping in our life for example the rapid advancement of genetic science, fuelled by Human Genome project and other related initiatives. This promises a new kind of public health practice based on pre-detection of disease according to the calculation of genetic risk Bunton or curing virulent diseases by gene therapy [2]. Latest advances in genetic engineering field, such as cloning and GMOs, are miseries to all people around the world. Furthermore, from above hint about GMOs, genetics is now seen as great succor to the world's food shortage problem through genetically modified food (GMF) helping to meet the food demand of the rapidly growing world population.

Thus, this study will explore the increasing of test score in genetic engineering among third year biotechnology students and to identify possible ways forward.

The Significance of Study

The purpose of this study is to explore the situation relating to learning of genetic engineering in Hawassa University third year Biotechnology students, to suggest techniques plans and approaches which will increase students' test score in genetic engineering course; this will be done by appropriate approaching of students to understand their perceptions on the course. Course contents, way of teaching and evaluations techniques including students shall be investigated. In addition to this

- The study will improve learning-styles
- More or less equal perceptions of students to the courses will be developed
- Students perception for a particular course will result positive attitude
- Good strategies of teaching will be developed

Statement of the Problem

When teachers inconsistent, students believe and rightly that your classroom management plan isn't applied fairly and equally to everyone. That   Respect is closely linked to likability. If the room is cluttered and have papers strewn a top of desk, if the teacher appears rushed and underprepared, then students won't view the teacher as a leader worth following. Teacher's ability to influence and speak with power and authority will be limited. The sharpness and snap that exemplify a well-run classroom, and that keep students on their toes, moving forward, and purpose-driven, will be non-existent. They may think you're funny or a nice person, but if they don't respect you, then there will be no meaningful likability.   This causes resentment and animosity. It casts doubt on everything teacher says. It's hard to like someone who goes back on their word and can't be trusted to protect them and their right to learn from disruption, chaos, and the like. Respect is closely linked to likability to influence and speak with power and authority will be limited.

Objectives of the Study

General Objective

The general objective of this action research is to improve students' test score for Genetic Engineering course in the case of 3rd year Biotechnology department students of Hawassa University, Main Campus.

Specific objectives

The specific objectives of the action research include;

☛ To identify sources of the difficulties experienced by the 3rd year Biotechnology students for Genetic Engineering

☛ To investigate the ways of improving the effectiveness of the test achievement of students for Genetic Engineering

METHODOLOGY

Research Area

The research will be held in 3rd year Biotechnology students at Hawassa University Main Campus. It will start from April until May 2021. The populations of this study as much as (39) students of 3rd Biotechnology students in the 2021 Academic Year.

Research Design

The researchers will employ both quantitative and qualitative approaches that enable to obtain the required data along with descriptive design and focus on gathering qualitative data using questionnaires and interviews. Group discussion, observation and interview data processing will be done by calculating the percentage of respondents (students).

The Study Population

The target population of the sample is the large group of people, which has one or more characteristics in common on which the research study will be focused [3]. The population targeted in this study will be 3rd year Biotechnology students at Hawassa University.

Sample Size Determination and Sampling Techniques

There is one section from 3rd year Biotechnology student containing 15 students and all students will participate in the action research process.

Data Sources and Collection Methods

In order to collect necessary data for this action research mainly primary data will be employed. The primary data will be collected from students through interview, observation and discussion.

Methods of Data Analysis

The data will be analysed by quantitative means, using chart, percentage, and table that information will gained from students or respondents.

Result for the Problem

As showed below the tables that questions were indicated with identified problems. As indicated below on Table 1 there was a point or question for selectee students in order to improve test scores for the course Genetic Engineering. The questions which focused on relationship between a teacher and students, therefore according to the raised discussion point 20% of male

and 26.6% of female students have very good respond for the relationship of a teacher with them. As indicated in the table almost there is no poor relationship between a teacher and students, for instance, there was no respond for the question poor relationship. Both female and male students nothing said about poor relationship so far.

Table 2 indicated that laboratory organization taken as factor or selected point to solve the problem. As shown below large number of students responds that there was low laboratory facility in the department. Almost all selected students respond that there were no laboratory activities to develop practical skills. More or less 93% of respondents answered that low laboratory facility is main factor for improvement of their test result on the course. Even the were no respondents said the availability of medium laboratory facility.

Table 3 Showed that nature of the course might be one of the factors for lesser test score. May nature of the course cause for lesser test score for the students? This is therefore; students have respond for this question below. Almost 87% of respondents said that the given course by itself was supper complex and some respondents said there was a problem on course content. As the given alternative factors course complexity was the major cause for the problem.

Table 4 revealed that the frequency of respondents on: ''may bore class cause for lesser test score for the students''. So this raised question to solve the problem among the students. There were factors indicated below that extended hours (20%) of male and absence of short break (13.3%) of female answered on boring class. On the other hand, total of 27 % of respondents answered that lecture note was one of the boring class which results poor test score on a course. Both male and female respondents answered in equal manner on this factor. Moreover, tone of the teacher (zero %) is not a problem for the respondents.

Table 1: Relationship between Teacher and Students.

Participants	Response	Frequency	Percentage
Male	Very good	3	20
	Good	1	6.6
	Average	2	13.3
	Poor	1	6.6
	Very poor	0	0
Female	Very good	4	26.6
	Good	2	13.3
	Average	2	13.3
	Poor	0	0
	Very poor	0	0
Total		15	100%

Table 2: Laboratory organization.

Participants	Factors	Frequency	Percentage
Male	Low facility	7	46.6
	Medium facility	0	0
	High facility	0	0
Female	Low facility	8	53.3
	Medium facility	0	0
	High facility	0	0
Total		15	100%

Table 3: Nature of the course.

Participants	Factors	Frequency	Percentage
Male	Complex terms	4	26.6
	Easy terms	1	6.6
	Course content	2	13.3
Female	Complex terms	6	40
	Easy terms	1	6.6
	Course content	1	6.6
Total		15	100%

Action Taken

Actions were taken according to identified problems. These problems had major negative impact on students test result. Therefore, the following major actions were taken to decrease the identified problems.

i. Providing easy notes

Easy genetic engineering course note was prepared for the students. I.e. simple expressions of the course was provided and the teacher gave instruction for this course how to improve test score, all selectee students were learnt by simple expression of the course as well. Soft and hard copy of this simple expression was provided to the student as they want.

ii. Allowing students to select favourite course contents

This was one of the action which taken by the investigators to address student satisfaction as well as decrease problems. Students had selected favourite course content that might be easy for understanding. Investigators allowed students free selection of contents in the course. This action was important for identification diversified interest of the learner on a particular course. Therefore, in this action teaching students with their selection course contents was given evaluation to know how much they improve their test score.

iii. Allowing students to do some laboratory activities

This was another action which has been taken to solve the problems that faced among the respondents. Low laboratory facility was one of the major identified problems which results negative consequence for test scores. To minimize this problem the investigators allowed respondents to do some laboratory activities. There was clear discussion/demonstration in the laboratory how they are going to develop their practical skill based on genetic engineering course.

Action Evaluation

The above actions were taken to improve students test score/result on the course ''genetic engineering''. Therefore, three tests were given to the students to know they improve test score, i.e. Test 1, Test 2 and test 3. Action evaluation taken by the investigators was indicated below. Total of 15 students have been taken all given tests Table 5.

CONCLUSION

In this study there were identified problems that were low laboratory facility, boring class, lecture notes and nature of the course, which were the main problems for low test score for selectee students. Specially, nature of the course and low laboratory facility were critical problems for their lesser test result score for the respondents. These problems were assessed by the investigators to provide appropriate solution. Problems really existed as the respondents respond. Therefore, these problems were identified so far then what will be next is that actions were taken to solve these problems.

Table 4: Boring class.

Participants	Factors	Frequency	Percentage
Male	Extended hours	3	20
	Absence of short break	2	13.3
	Tone of the teacher	0	0
	Lecture notes	2	13.3
Female	Extended hours	3	20
	Absence of short break	2	13.3
	Tone of the teacher	0	0
	Lecture notes	3	13.3
Total		15	100%

Table 5: Action taken evaluation for the improvement of test score/result.

Range of Score Course test							Laboratory test					
	T1 15%		T2 (15%)		T 3(15%)		T1 (15%)		T2 (15%)		T3 (15%)	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
0-5	2	13.3	1	6.6	0	0	1	6.6	0	0	1	6.6
05-Oct	2	13.3	1	6.6	1	6.6	1	6.6	0	0	0	0
Oct-15	12	80	12	80	14	93.3	13	13.3	15	100	14	93.3
Total	15	100	15	100	15	100	15	100	15	100	15	100

REFERENCES

1. Hamachek D. Self-concept and school achievement: Interaction dynamics and a tool for assessing the self-concept component. Journal of Counselling and Development. 1995:73, 419–425.

2. Bunton R. New Genetics and new publication Health London. UK. Routledge 2001.

3. Kothari CK. Research Methodology; Methods and Techniques (2nd Edition). New Age International Publishers, India 2004.