

Correlation between Teachers Teaching Approaches and Students learning Outcomes: Debre Markos University; Ethiopia

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Abstract

Background: By examining the correlation between teachers' approaches to teaching and students approach to learning and learning outcomes, strategies are designed to mediate those variables that affect students learning outcomes. The study was conducted to scrutinize the correlation between teachers' approaches to teaching and students approach to learning and learning outcomes.

Methods: Three type of instruments; Approaches to Teaching Inventory (ATI), the Revised two-factor Study Process Questionnaire (R-SPQ) and students Cumulative Grade Point Average (CGPA) were used as tools of data collection. The data was collected from sixteen randomly selected teachers and 134 under graduate students attended in 2016/2017 academic year of Education and Behavioral Sciences institute of Debre Markos University, Ethiopia. . The collected data was analyzed via one sample t-test and Pearson product moment correlation coefficient. One-sample t-test was computed to determine the extent of learning approaches used by students. Pearson product moment correlation coefficient was computed to examine the correlation between teachers' approaches to teaching and students' approaches to learning, and teachers teaching approaches with students learning outcomes. $p < 0.05$ was used for a cut-off for statistical significance.

Results: The study revealed that students were used deep approaches. It can be disclosed that students-focused approach to teaching has significant positive association with students' deep approaches to learning. The study also affirmed that students' learning outcomes have significant positive correlation with teachers conceptual change approach to teaching. Significant positive correlation was also identified between students' deeper approaches to learning and their learning outcomes.

Conclusions: The study provided unveils that students-focused approach to teaching has significant positive association with students' deep approaches to learning. It is also disclosed that students' deeper approaches to learning and conceptual change approach to teaching have positive correlation with students learning outcomes.

Key words: Approach to learning, Approach to teaching, learning outcomes

Introduction

Approach to learning is a concept about students' motivation on learning and the use of appropriate strategy to be successful in their learning. Learning approaches are the strategies which pupils adopt in order to succeed at learning. Cilliers and Stenberg (2001) defined learning approaches as the process of acquiring knowledge and skills by means of studying, instruction, and experience, prior to learning outcomes.

Approach to learning has got attention because it is strongly related to students' level of understanding and learning outcomes. Understanding of students' approaches to learning and shaping it to effective outcomes contribute to quality learning. Studies (for instance, Tarabashkina and Lietz 2011) have shown that students' academic performance at the university level is linked with their learning approaches. The approach students adopt towards their learning is related to their learning outcomes (Suliaman, etal., 2013).

In literature three different approaches to learning have been described: deep, surface, and strategic (Emilia, Bloomfield, and Rotem, 2012). The deep approaches encompasses the correlation between investigated meanings, in the material being studied, relating the subject with prior experiences and ideas with a critical investigation. Students who adopt deep approach are predominantly motivated by an interest in learning for its own sake and an interest in the subject material. They attempt to understand the underlying structure and meaning, examine evidence critically, use it cautiously and actively relate new information to previous knowledge (Emilia, Bloomfield, and Rotem, 2012). Deep approach enables learners to integrate new information with previous knowledge, synthesize new materials and make connections to form a wider perspective (Suliaman, etal., 2013).

In contrast, in surface approach students' intention is not becoming interested in and of understanding the subject, but rather their motivation tends to acquire marks, or grade, or the qualification by jumping through the necessary hoops (Lublin, 2003). Students who adopt a surface approach are predominantly motivated either by a desire simply to complete the course or by a fear of failure (Emilia, Bloomfield, and Rotem, 2012). Their intention is to fulfill the course requirements by memorizing and reproducing specific facts or pieces of disconnected

information for examination. Therefore, students who adopt surface approach distinguished by try to learn by memorize information needed for assessments, make use of rote learning and fail to differentiate principles from examples (Lublin, 2003).

Strategic approach, on the other hand, is characterized by students' intention to obtain high grades, use previous exam papers to predict questions and is alert to cues about marking schemes. This approach when allied to a deep approach to learning in the subject would seem likely to deliver both an intelligent engagement with the subject as well as success in the subject (Lublin, 2003). In spite of learning approaches could be categorized in to three, the focus of interest in literature has been on deep and surface approach (Biggs, 1987).

Results of various studies suggest that students' approaches to study are highly influenced by their teachers' approaches to teaching. Teachers' orientations to teaching were associated with their students' approaches to study; knowledge transmission/teacher-focused teaching was associated with surface approach to study; while, bringing conceptual change in the students /student-focused strategy was associated with deep approach to learning (Trigwell and Prosper, 1991).

Similarly, analytical review of earlier work from 1976 to date of Qureshi & Ullah (2014) provided that approaches to learning were associated with the quality of learning. It pointed out that student-centered learning environment encourages deep approaches to learning; whereas, teacher-centered learning environment encourages surface approaches to learning.

The same student could adopt different approaches in different situations depending up on the content, the context and the demands of particular tasks. All these results suggest that one could bring about desirable approaches to learning by appropriate course design, appropriate teaching methods, appropriate assessment techniques and changing students conceptions of learning. This provides the significance of educational intervention in shaping students' approaches to learning.

Previous researches were conducted on students' approaches to learning and high quality learning outcomes. However, little research reporting was found on the outcomes for teachers from their approaches to teaching (Trigwell, Prosper, & Waterhouse, 1999).

Therefore, learning approach became the focus of this study in a belief that it is widely reported that students' approaches to learning can affect their academic performance and to investigate the teaching learning issues that affect the way students approach their learning and its effect on learning outcomes. Specifically, the study addresses the following research objectives:

1. To investigate the learning approach exhibited by under graduate Education & Behavioral Sciences students
2. To identify the correlation between teachers' approaches to teaching and students' approaches to learning
3. To examine the correlation between teachers' approaches to teaching & students learning outcomes
4. To indicate the association between students' approaches to learning and their learning outcomes

Literature Review

The conception of approach to learning was first identified by Marton and Saljo in 1976. Since its inception to date, abundant researchers have conducted on students' learning approaches (AK, S., 2008). An approach to learning is a concept about students' motivation on learning and the use of appropriate strategies. Learning approaches are the strategies which learners adopt in order to succeed at learning. In general, three different approaches have been described: deep, surface and strategic in literature (Emilia, Bloomfield, and Rotem, 2012). However, two different processing levels of learning; deep and surface were identified as main learning approaches (Biggs, Kember , Leung , 2001)

It is generally expected that the use of a deep learning approach is linked with higher quality learning outcomes and a surface approach with lower quality learning outcomes. Studies revealed that association between students learning approaches and high learning outcomes. Such as Trigwell and Prosper (1991) pointed out that the quality of learning outcomes is determined by students' approaches to learning. Studies also relating high quality teaching to students learning approaches, based on students' perceptions of the quality of teaching. Now, it would appear that there is a relation between approach to teaching and the quality of students learning outcomes (Trigwell, Prosper, & Waterhouse, 1999).

Adopted approach to learning by students is determined by lots of variables such as characteristics of students, learning environment and learning outcomes (Serife, 2008). Similarly, M'Hamed & Jin (2011) forwarded that learning approach is influenced by environmental factors such as assessment methods, teacher methods of instruction and the atmosphere of institutions. Moreover, the teaching learning issues can affect the way students approach their learning.

Lublin (2003) forwarded correlations between learning objectives, assessment techniques and teaching methods and students' approaches to learning. Higher order objectives and assessments techniques are more likely to encourage students to take a deep approach to learning in the subject. Lublin further stated that teachers' choice of teaching methods will have a strong influence on how students approach learning. Teaching which involves students in active and independent learning is more likely to encourage a deep approach to learning in the subject.

On the contrary, the conventional form of university instruction rewards passivity in students rather than active involvement, and has less chance of developing those higher level cognitive abilities which are usually stated in learning objectives (Bligh, 1972).

Similarly, Biggs (1999) suggested that good teaching can influence students to take a deep approach, while poor teaching can pressure students to take a surface approach. In addition, Lublin (2003) stated that the workload on students, assessment and learning objectives and teacher teaching methodology can affect the way students approach their learning. Lublin supplementary explained that workload on students, assessment tasks rewarded rote learning; lower-order learning objectives and conventional lecture method reward passivity in students and encourage students to adopt surface approach to learning.

Teaching and student learning is one of core missions of higher education institutions. The quality of student learning experience, the breadth and depth of learning attained by students, largely depends on the quality of teaching processes. This might be measured through learning attainment of students, which has been determined by their learning outcomes.

Learning outcomes of pupils have been shown to be relied on several factors some of which are categorized as personal (e.g., student gender, age, prior experiences) and contextual (e.g., teaching/learning activities/methods, perceived workload, assessment procedures, institutional values) (Zeegers, 2001).

The approach students' use during learning process is important in determining the outcomes they obtained from learning activities. In a learning situation, what students aim to achieve from a learning task influences the approach they employ and the resulting outcomes. Moreover, the approaches students use in their study influence both the quality of learning and their academic success (Suliaman, et al., 2013). Furthermore, approaches to learning are seen by many educators as powerful means of modeling student learning and the quality of learning outcomes (Duff, Boyle & Dunleavy cited in Serife, 2008). Generally it is assumed that the deep approach to learning results in higher quality learning outcomes and the surface approach to lower quality learning outcomes (Gijbels et al. 2005). In short, students that are surface learners are expected to perform less in school as compared to deep learners. However, not all research results confirm a significant correlation between a deep approach to learning and the quantitative scores of the learning outcomes.

Previous studies, for instance, suggested that a deep learning approach is associated with higher quality learning outcomes and surface approach with lower quality learning outcomes. A study conducted by Zeegers (1999) found a relatively strong correlation of between deep approach to learning and academic achievement.

Contrary to the studies mentioned above, there are also studies that found no correlation at all between student approaches to learning and academic achievement. For instance, Groves (2005) conducted a study with second year students from a medical school and found no significant correlation between students learning approaches and academic achievement. Similarly, Gijbels et al. (2005) conducted a study with second-year law students revealed no significant correlations between students' approaches to learning and students' academic achievement.

Method

The study was employed correlation design to examine the correlation between teachers' approaches to teaching and students approach to learning and learning outcomes.

Participants

The study data was collected from 16 randomly selected teachers of institute of Education and Behavioral sciences of Debre Markos University and 134 second and third year under graduate students attended in 2016/2017 academic year.

The instrument

The study employed three type of instruments; Approaches to Teaching Inventory (ATI), students approaches to study and students learning outcomes.

Approaches to Teaching Inventory (ATI)

In the measure teachers' approaches to teaching a self-reported of a revised approach to teaching inventory of Trigwell, Prosser, & Ginns, (2005) was employed. The inventory had 22 items of two scales consists of information transmission/teacher-focused (ITTF) and conceptual change/students-focused (CCSF). The items are on a five-point Likert scale, ranges 1 score for 'only rarely', and 5 for 'almost always'.

Approaches to Study

Students approaches to study was measured using the Revised two-factor Study Process Questionnaire (R-SPQ) of Biggs J, Kember D, Leung (2001). The Revised two-factor Study Process Questionnaire is a 20-item self-report instrument of two variables: a deep approach to learning (10 items) and a surface approach to learning (10 items). The items are on a five-point Likert scale, ranges 1 score for 'strongly disagree', and 5 for 'strongly agree'

Learning outcomes

Students Cumulative Grade Point Average (CGPA) of the last semester was utilized as learning outcomes of students. The data was utilized after the permission of participants (students) of the study was obtained.

Data Analysis

The extent of learning approaches used by students was identified using one-sample t-test. Pearson product moment correlation coefficient was computed to examine the correlation

between teachers' approaches to teaching and students' approaches to learning, and teachers teaching approaches with students learning outcomes.

Ethical considerations

The study was ethically approved and has been approved by an appropriate ethics committee of the institute. All students participated voluntarily and a declaration of informed consent was obtained before participating in the study.

Results and Discussion

Learning Approaches used by Students

The study was intended to identify the extent of learning approaches used by students.

Table 1 Learning approaches used by students

No	Variables	Mean	Mean difference	t	Sig. (2-tailed)	Std. error Mean
1	Deep approaches to learning (53.7%)	3.32	0.328	5.126	.000	.064
2	Surface approaches to learning (46.3%)	2.82	0.172	-2.789	.006	.061

N=134

df=133

P<0.05

The mean score of respondents of deep approach subscale is 3.32 and 2.28 for surface approach subscale. Since the expected mean value was 3 (by adding expected minimum mean 1 and maximum mean 5 and divided by two). Hence, the results indicated that education & behavioral sciences undergraduate students significantly implemented deep approaches to learning (df=133, t=5.126,). The result is statistically significant P<0.05. However, students were employed surface approaches to learning below expected (df=133, t=-2.789,). Therefore, it can be deduce that undergraduate students of the institute were used deep more than surface approaches to learning.

Consistent with present study Gürlen,E., Turan, S., and Senemoğlu, N (2013) found that student commonly used deep and strategic approaches more than surface approaches.

Teachers' approaches to teaching and students approaches to learning

Table 2 the correlation between teachers teaching approach and students learning approaches

No	Variables	ITTF	CCSF	Deep	Surface
1	ITTF	1			
2	CCSF	-0.084	1		
3	Deep Approaches	-0.113	0.700**	1	
4	Surface Approaches	0.779**	-0.102	0.145	1

**Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

ITTF (Information transmission/teacher-focused) CCSF(Conceptual Change/Students-Focused)

It has been argued that quality of instruction is fundamental to student learning. As depicted in table 2, Information Transmission/Teacher-Focused (ITTF) approach to teaching ($r=0.779$) has significant positive correlation with students' surface approaches to learning. On the other hand, Conceptual Change/Students-Focused (CCSF) approach to teaching ($r=0.700$) has significant positive correlation with students' deep approaches to learning. This implies that teachers' have continuously employed information transmission/teacher-focused method of instruction is accompanied by students' surface approaches to learning. Conversely, teachers' frequent implementation of Conceptual Change/Students-Focused teaching approach has association with students' deep approaches to learning. Moreover, if teachers usually employ information transmission approach students are more likely to adopt surface approach to learning. On the contrary, teachers who commonly apply conceptual change approach their student tend to use deep approach.

Teachers teaching approaches and students learning outcomes

Table 3 the correlation between teachers teaching approaches and students learning outcomes

No	Variables	1	2	3
1	ITTF	1		
2	CCSF	-0.084	1	
3	Learning outcomes	-0.237	0.531*	1

Regarding learning outcomes the study identified that students' learning outcomes have significant positive correlation with teachers conceptual change/students-focused approach to

teaching($r=0.531$). On the contrary, information transmission/teacher-focused approaches to teaching have no significant association with students learning outcomes.

Students approaches to learning and learning outcomes

Table 4 the correlation between students learning approaches and their learning outcomes

No	Variables	1	2	3
1	Deep Approaches	1		
2	Surface Approaches	0.145	1	
3	Learning outcomes	0.288**	-0.030	1

**Correlation is significant at the 0.01 level (2-tailed)

Studies have shown correlations between students' approaches to learning and higher quality learning outcomes. Accordingly, the present study revealed that significant positive association between students' deeper approaches to learning and their learning outcomes($r=0.288^{**}$, $p<0.05$). Conversely, there was no significant correlation observed between students learning outcomes and their surface approach to learning.

In line with the findings of the present study, Gürlen,E., Turan, S., and Senemoğlu, N. (2013) identified that no correlation between academic achievement and surface app

Conclusion

The study concluded that undergraduate students of the institute were used deep more than surface approaches to learning. Besides, it can be deduced that teacher-focused approach to teaching has significant positive correlation with students' surface approaches to learning. On the other hand, students-focused approach to teaching has significant positive association with students' deep approaches to learning.

The study also affirmed that students' learning outcomes have significant positive correlation with teachers conceptual change approach to teaching. In addition, it has been asserted that significant positive correlation between students' deeper approaches to learning and their learning outcomes.

Implication of the study

From the findings of the study it is possible to improve the students' quality of learning focusing on teachers' adoption of high quality teaching approaches, changing the way teachers conceive of teaching and learning; from teacher-focused strategy to in a learner-focused approach and the adoption of deep learning approaches among students.

Abbreviations

ATI: Approaches to Teaching Inventory; ITTF: Information Transmission/Teacher-Focused; CCSF: Change/Students-Focused; CGPA: Cumulative Grade Point Average; df: degree of freedom; N: number of study participants.

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Availability of the data and materials

The data sets used during analysis for the current study are available from the corresponding author and could be obtained from him with reasonable request.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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