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## The Effect of Peer Learning and Tutoring in Authenticating Students' Learning through Modular Approach

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### **Abstract:**

*This study was aimed at investigating the role of peer learning and tutoring in authenticating students' learning through modular approach. The study was carried out up on samara university regular student in 2014. A total of 209 (109 male and 100 female) respondents were included in the study. Six among seven colleges in the university were selected using purposive sampling, whereas, departments, sections and courses were selected using multi-stage cluster sampling i, e departments from colleges were selected by using lottery method. Then after, among courses for which students were tutoring, one course was selected again using lottery method. Among others, those students who were eligible to take tutorial sessions were selected using comprehensive sampling. Moreover, the one female and one male student, among one-to-five group team leaders of each selected class, were purposively selected for qualitative data. Data about implementation of tutoring and peer learning is gathered using both questionnaire (likert scale type) and focus group discussion. Similarly, data about harmonious implementation of modular approach was gathered using focus group discussion. Data regarding students' achievement in the particular course for which they had been tutored was gathered through document analysis. The Cronbach-alpha reliability estimates were found 0.917 and 0.944 for tutoring and peer learning respectively.*

*The qualitative as well as quantitative results from multiple linear regressions about the effect of tutoring on students' achievement had indicated that tutoring has no significant effect on students' academic achievement. Similarly, peer learning was appeared insignificant predictor of students' achievement as had been inferred from both quantitative and qualitative results. Furthermore, peer learning and tutoring cumulatively have very little or no explanatory power over students' academic achievement. This also has been supported by qualitative results, where the participants have pointed out that peer learning was not soundly implemented in their respective groups, hence, had not brought significant effect on students' achievement. Qualitative data results have revealed that both peer learning and tutoring were better applied in parallel than block modality of delivery because there is relatively longer time for the mentor, leader and students in parallel modality. The result of independent samples t-test has been depicted that the mean score of students' result in parallel mode of delivery is less than that of block mode.*

## **1. Introduction**

### *1.1. Background of the study*

Education plays a key role in improving overall living standards and eliminating the social evils of the citizens of certain nation. It is an essential tool to fight against food insecurity in developing countries through enhancing economic production, activating social change and improving the capacity of individuals to live a decent life as well as to escape from the hunger trap (Burchi, 2006).

Besides its functioning as a tool for fighting poverty and illiteracy and its building of people's capacity to efficiently discharge their responsibilities, education so meaningfully contributes to sustainability of developments observed in certain society by making people ready to accept and implement those innovations and inventions which positively contribute for changes.

Many regimes that ruled Ethiopia across years had their own agenda as for which they used education as a tool through which those agendas could be realized. For instance, the educational system of imperial period was targeted on realizing citizens' loyalty to the king while that of Dergue focused on socializing the country (Tekeste, 2006).

Decades later after the overthrow of Dergue, being pressurized by the Millennium Developmental Goals set by UN; that was universalization of primary education (UP), Ethiopian Ministry of Education (MoE) was working towards accessing education to all citizens. Nevertheless, through the Educational and Training Policy, the country has had started to give emphasis not only to accessibility but also avoiding of quality compromising which results from over-ambitiousness of accessibility for all citizens.

There are various packages launched by the MoE at various times geared towards assuring harmoniousness of teaching-learning process thereby making the setting pleasant. These packages, among others, include ESDPI, II, III & IV and GEQIP (General education quality improvement package). Each of these packages has its own strategies and policies giving direction to the achievement of goals. The newest among these policies is the Harmonized Academic Policy of Ethiopian public higher education institutions which was launched on 2013 (MOE, 2013). The policy states the modular approach as a key for achieving its goals.

A modularization is a teaching strategy for arranging learning experiences in education which involves self-learning package dealing with one specific subject matter unit (Ali, 2005). A module aims at developing a clearly identifiable and certifiable portion of the curriculum, expressed in terms of competence objectives. These objectives should be achieved within a clear and realistic time limit. This time limit is an important feature of the modular organization, since the whole curriculum is built around the idea that time as well as human and material resources should be spent to achieve foreseeable results.

Peer learning involves an acquisition of knowledge and skill through active helping and supporting among status-equals or matched companions. It is composed of similar social groupings who are not professional teachers helping each other to learn and learning themselves by so doing (Topping, 2005).

Bandura (1977) states that individuals learn through reciprocal determinism, where the person affects an environment and vice versa. The classroom social climate has a meaningful contribution for whatever that happens to students' results and it is obvious that the perceived positive change within classrooms is credited based on the degree of its impact on students' academic achievement. Peer learning, if applied properly, can enhance students' achievement thereby minimizing understanding gaps and promoting middle and low achieving students in each group.

Tutoring is a way of instruction where a tutor instructs individuals, or in some cases small groups, aimed at supporting students help themselves, or to assist or guide them to the point at which they become an independent learner, and thus no longer need a tutor (Marilyn, nd). If properly applied, tutoring can have meaningful contribution to the students' school success in capacitating low achievers to cope-up with their high achiever counterparts.

The ultimate as well as immediate goals of educational system of certain nation play a great role in determining the direction to which all the efforts from various stakeholders should be pointed. As a mechanism of handling all inquiries of the society, any element of educational reform that is implemented in a particular setting must play the role for which it is desired in reducing the observed problems in that setting. This study, thus, was aimed at investigating the effect of peer learning and tutoring in authenticating students' learning through modular approach.

### *1.2. Statement of the Problem*

Ethiopia's education sector has faced problems of quality deterioration at least part lyas a result of rapid expansion for the last decades. The 2007 National Learning Assessment (NLA) cited in MoE (2008), has pointed out that students' achievement was below the required levels in grades 4 and 8 (which was used as a parameter of measuring quality). Achievements in grade 4 and 8 had been decreased from 47.9% to 40.9% and from 42.6% to 39.8% respectively in baseline learning assessment of 1999/2000. Consequently, currently, ministry of education tended to shift attention to quality concerns in general and to those inputs and processes which translate more directly into improved student learning as well as those help to change the schools and institutions into a genuine learning environment (MoE, 2008).

MoE (2010) states that the current ultimate goal of higher education in Ethiopia is to develop highly qualified, motivated and innovative human resources as well as to produce and transfer advanced and relevant knowledge for socio-economic development and poverty reduction with a view to turning Ethiopia into a middle-income country by the year 2025. Moreover, the major new emphasis is the concern with improving the quality and the employability of university graduates as well as sustainable development of research capacity for knowledge creation and technology transfer in priority across sectors.

Nevertheless, currently, it is not uncommon to see and hear numerous graduates of various universities staying for years without being employed. The problem may emanate from various personal and environmental sources in addition to the degree of the role played by the hosting institutions in assuring learning of each and every graduate. It is obvious that if an institution gave little emphasis and credit to classroom instructional process, which takes lions' share in determining learners' learning, the learner would less likely be shaped in a desired manner and consequently, would be less competent to vacant positions as well as less efficient in the world of work. The reverse is true for those graduates from institutions which give greater emphasis to learners' learning than any other material and capital promotion which have little impact on desired behavioral change. We are stating this not in the expense of the notion that all activities in the institutional setting have their own direct and indirect influence on students' learning.

Most Ethiopian universities have limited capacities to fund and support students with economic problems as well as to sponsor huge national projects which are pillars for technology transfer, such as Great Ethiopian Renaissance Dam, various sugar and textile factories...etc. But what they have in their hand is building capacities of their respective students to achieve at least the fractions of the ultimate learning outcomes. This is the most worthwhile help that universities can contribute for nation building because investment in human resource sector is a tool for achieving national goals since citizens are agents who can activate the change by carrying out all reforms set by various sectors. What universities must also know is that it is their responsibility to capacitate their students putting all their limited resources in to ground thereby making their graduates competent enough in the labor market. It must also be their task to implement change-oriented innovative policies and strategies to see and report the effect of those ideas when implemented in their different respective cultural, climatic, social and economic settings.

It is an ambition of Samara University to be the preferable institution in research and development programs directed towards pastoral and semi-pastoral community developments in East Africa by 2030. As staffs in the institution, we don't see this time interval as sufficient enough when compared to the ups we have to uphill with all our limited capacities. It is obvious that through investment in human capital that we can shorten the rounds to the running track because the fate of nation resides up on the shoulders of today graduates.

During the development of this proposal, Samara University was trying its best to discharge the responsibility of shaping students through equipping them with those skills and knowledge through implementing various activities directed towards capacitating low achieving students so that they can cope-up with others. Among these, peer learning and tutoring have been treated in this study. To this end, in course of the entire research, answers have been sought to:

- Does tutoring bring a significant effect in authenticating students' learning through modular approach in Samara University?
- Does peer learning have a significant effect in authenticating students' learning through modular approach in Samara University?
- Do peer learning and tutoring bring significant effect in authenticating students' learning through modular approach?
- Are peer learning and tutoring being harmoniously implemented in block and parallel course in Samara University?
- Is there statistically significant difference in academic achievement of groups taught with parallel and block approach?

### 1.3. The Purpose of the Study

Generally, this study was aimed at investigating the role of peer learning and tutoring in authenticating students' learning through modular approach.

Specifically, the study was tended:

- ❖ To point out whether peer learning significantly affects students' learning through modular approach.
- ❖ To find out the impact of tutoring on students learning through modular approach.
- ❖ To state whether peer learning and tutoring cumulatively play a significant role in authenticating students' learning through modular approach.
- ❖ To discuss the harmonious implementation of peer learning and tutoring in block and parallel courses.
- ❖ To describe whether there is statistically significant difference in academic achievement of groups taught with parallel and block approach?

### 1.4. Significance of the Study

Investigating the effect of peer learning and tutoring in authenticating students' learning through modular approach is significant in that:

- The result is a good indicator of the harmoniousness or effectiveness of the two current modalities of delivery that were being applied in higher institutions of the country.
- It could have given important input for primary and secondary schools which apply peer learning in their respective setting.
- Among others, it was our conviction that this study could have helped those low achieving students, who were expected to be the primary beneficiaries of affirmative actions, such as tutoring, by providing their respective departments with the brief information about the effectiveness of the actions.
- Policy makers and planners in Samara University, such as directors, college deans, offices of planning, department heads and student dean offices could also use the result as a good input in their future endeavor.
- It could also generate valuable data up on which the non-profit-oriented public institutions such as Samara University and Aysaita Teachers Education Training College would have focused on to improve implementation of tutoring and peer learning to improve quality of education.
- It also could reveal important starting point where interested researchers on the area conduct further study.

### 1.5. Delimitation of the Study

In terms of variables, the study was delimited to the effect of peer learning and tutoring, both in isolation and combined, on authenticating students' learning through modular approach.

Territorially, this study was limited to first and second year students of Samara University, one of the second-generation universities in Ethiopia, located in Afar regional state, in 2006 E.C.

### 1.6. Operational Definitions

Peer learning: -involves a 1:5 (one-to-five) formally organized learning group groups.

Students' learning: -students' behavioral change as deduced from their academic achievement and knowledge acquired from a particular course.

Grade: - indicates students' achievement in the course for which they have been tutored and which, among others, included in this investigation for the particular section.

Tutoring: -micro-teaching where an instructor teaches low achieving students repeating the course given in regular class in easily understandable manner for the group in order to cope-up them with medium and high achieving students.

Modular approach: - a self-contained, independent teaching-learning strategy characterized by well-defined and systematically organized learning opportunities with clearly defined objectives along with means of evaluating the work (Iqbal, nd); with block and parallel course delivery modalities.

## 2. Review of Related Literature

This chapter states the literatures related to the variables under the study. The chapter has dealt in detail the following topics and subtopics.

### 2.1. Peer Learning and Tutoring in Modular Approach

#### 2.1.1. The Nature of Peer Learning

The phrase peer learning encompasses several teaching-learning practices, which are used interchangeably in various literatures by various scholars. The phrases such as peer tutoring, peer instruction, cooperative or collaborative learning and group work are referenced in many pedagogical discussions. Some practices, such as peer tutoring, fall into the category of peer learning but mostly occur in contexts other than the classroom. Peer learning does not merely involve arranging students into groups and is rather inclined towards structuring positive interdependence among students whereby they can work in groups to complete tasks geared towards achieving academic goals. Unlike competitive learning which is individualistic, students here learn cooperatively relying on one another's resources and skills. In peer learning, priority is given to groups' success, where the marginalized students possess the medium and top scorers' spirit in terms of achievement; thereby decreasing unsuccessfulness (Ross and Smyth, 1995).

Stewart & Wilkerson (1999) stated that cooperative learning is based on the belief that learning is an active and constructive process, and that students benefit from organizing their ideas and giving explanations, as well as listening to alternate or conflicting ideas. It incorporates respect for students of all backgrounds, and stresses on ways which make all students successful academically.

Peer learning paves the way for students to construct their own meaning and understand what they need to learn from their own perspectives. The most essential thing here is that students are involved in searching for, collecting, analyzing, and evaluating, integrating and applying information to complete an assignment or solve a problem. This lets them engage *intellectually*, emotionally and socially in constructive conversation and learn from each other's views and inclinations (Boud, 2001; cited in Gwee, 2003).

Schools and classroom teachers can assure and optimize the fruits of peer learning by incorporating it as an integral component of a curriculum and through paying attention to two important things. Firstly, through creating a conducive learning environment; students must build mutual respect for as well as developing trust and confidence in one another, so that they feel free to express opinions, test ideas, and ask for, or offer help when it is needed. Secondly, through creating the environment of mutual help beyond the classroom. Many of the key elements for effective peer learning are often incorporated in the design of small collaborative learning groups. Moreover, the peer support is powerful psychological ballast to critical thinking efforts (Boud, 2001; Brookfield, 1987; Smith, 1983; all cited in Gwee, 2003).

#### 2.1.2. Effects of Peer Learning on Students' Achievement

Gablenick and her colleagues, cited in Tinto (nd), have stated that co-learning among students change the manner in which they taught and experience the curriculum. This is because, in the entire process, divergent thinking and creative ideas were transferred to one-another for the fact that various students coming up with diverse ideas, interests, learning needs and potentials, cultural and ethnic backgrounds...etc. would be clustered together.

Borich (2007) stated the outcomes of cooperative learning as follows:

1. Shaping of attitudes and values: - peer learning is important in helping learners acquire the basic cooperative values and attitudes from the curriculum which help them to think independently inside and outside the classroom.
2. Development of pro-social behavior: - classrooms become important vehicle for bolstering home and community values by bringing learners together in adult like setting which, when carefully planned and executed, can provide appropriate models of social behavior.
3. Alternative perspectives and viewpoints: - through peer discussion, students will be exposed to alternatives; some of which we adopt, some of which we modify, some we reject; thus, we are placed in to an objectivity necessary for thinking critically, reasoning, and problem solving.
4. Integrated identity: - social interactions of long periods forces us to see ourselves, our attitudes, values and abilities, which results in inconsistencies and contradictions in who we are and how we think and act.
5. Higher thought processes: - cooperative learning actively engages students in the learning process and seeks to improve the critical thinking reasoning and problem solving skills.

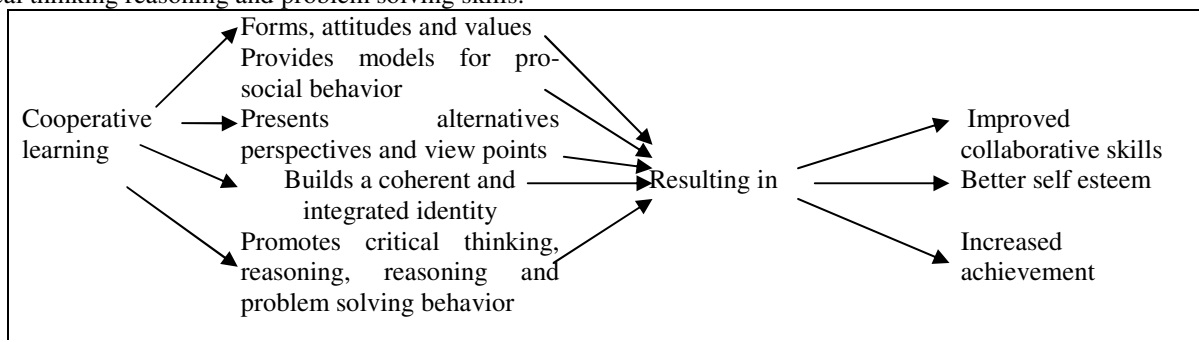


Figure 1

Source: - Borich, G. (2007: 372)

Johnson and Johnson cited in Falchikov (2001) have also pointed out that results of a meta-analysis had indicated that co-operative learning tends to promote higher achievement than competitive and individualistic learning experiences. They further stressed that those processes in cooperative learning that promote higher achievement of students include:

- high-quality reasoning strategies;
- constructive management of conflict;
- increased time on task;
- more elaborative information processing;
- greater peer regulation and encouragement of efforts to achieve;
- more active mutual involvement in learning;
- beneficial interaction between students of different achievement levels;
- feelings of support and psychological acceptance;
- more positive attitudes towards subject areas;
- greater perceptions of fairness of grading.

Besides students' achievement, co-operative learning has positive effects in a number of other areas such as:

- increased deep and strategic approaches to studying;
- increased internal academic locus of control;
- inter-group relations/inter-group acceptance;
- pro-social behavior;
- self-esteem/self-concept;
- liking for topic or institution;
- increase in motivation;
- time-on-task;
- attendance

Equally important to enhancement of academic achievement, peer learning, especially in small collaborative groups, nurtures and fosters the development of self-directed learning skills laying the foundation for life-long continuing self-education, critical thinking and problem-solving skills, communication, interpersonal and teamwork skills, and learning through self, peer assessment and critical reflection. Besides this, it strongly motivates learning often attributed to the fun and joy of learning in small groups. It also optimizes provides a more holistic, value-added and quality-enhancing education to students that will better prepare them for the needs of the workforce in the world of job (Gwee, 2003).

- Group Formation

A group involves 'two or more individuals who are connected to one another by social relationships' whereas, peer learning involves an acquisition of knowledge and skill through active helping and supporting among status equals or matched companions. Currently, Ministry of Education is striving to facilitate implementation of peer learning in classrooms at all levels. The question is what must stakeholders consider in forming groups?

Johnson, Johnson and Holubec & Jonson and Johnson cited in Borich (2007) state the following suggestions in forming groups

- Identify high, medium and low achieving students, isolated students who are not chosen by any other classmates as well.
- Make a group compiled from each of the above categories. To build constructive relationships between majority and minority students, between children with and without disabilities and between boys and girls, use heterogeneous groups with students from each category.
- Make it open for re-grouping and re-allocation as needed.
- Don't just grade on the final product but also the process.
- Make sure of assigning the following personnel to carry out *cooperative learning role functions* as named by Jonson and Johnson.
  - a) Runner: - acquires anything needed to complete the task which include materials, equipment, creativity shrewdness...etc.
  - b) Checker: - checks controversial or database statements and conclusions for authenticity against text, workbook or references.
  - c) Recorder: -writes the major product of the group
  - d) Supporter: - praises members when their individual assignments are completed and consoles them in times of discouragement.
  - e) Observer/trouble shooter: - takes notes and records information about the group process that may be useful during the whole class debriefing.

- Group Size (why one-to-five?)

The primary purpose any activity taking place in the classroom is to promote students' learning and minimize their failure thereby supporting them to attain educational goals. Accordingly, groups formed in the classroom must also function to help them attain this ultimate goal. Thus, the application of one-to-five group formation in the classrooms in almost all Ethiopian schools as recommended by the Ministry of Education raises the question that is there any theoretical base for this practice. We have gone through the following points as suggested by literature.

- ☞ An increase in group size brings an increase in complexity on several levels
- ☞ Larger groups typically have more non-participants than smaller groups

☞ Larger groups show less cooperative, task effectiveness, and increased conflicts and unmet goals than small groups.

➤ If the goal is speed, groups of three or four are most effective.

Researchers suggest a five-member-groups leads to high cooperation and better effectiveness.

## 2.2. Tutoring

Many schools tend to arrange various programs to promote student's achievement and minimize their dropouts. Despite the government's and society's spending of much money to educate and help students succeed, it is disappointing to see that many students withdraw from higher institutions in the first year while few others struggle to survive. Cordova finds that the gap is in the support system. College teachers need to constantly re-examine their work to ensure that they are using meaningful learning approaches and strategies that consistently cultivate deeper understanding besides regular lesson. Tutoring, if launched in early periods of student's college stay, plays a meaningful role in both of these areas. Tinto have recommended that the key to retaining students is to begin at the beginning because most students drop out in their first year of college or in subsequent semesters as a result of what happened during the first year, the actions taken early on to promote student learning remain critical (all cited in Joseph, 2009).

### 2.2.1. What is tutoring?

Tutoring is a way of instruction where a tutor instructs individuals, or in some cases small groups, aimed at supporting students help themselves, or to assist or guide them to the point at which they become an independent learner, and thus no longer need a tutor (Marilu, nd).

### 2.2.2. Tutoring and Students Achievement

Students' school success is taken most of the time as a parameter to measure schools' efficiency because it is believed that each and every input all sectors invest in the sector must be manifested explicitly through the productivity of institutions under it. Students' success in schools can be seen from different corners, the majors among which are decrease in attrition rate (decrement of the number of low achievers), increment of the number of high and medium achievers, improvement of achievement by marginalized groups (those with special needs, from minority groups) ...etc.

As one groups of those with special needs, the undeclared students often are unwilling or unable to declare a major, are disconnected academically and socially to the rest of students; and consequently, are less likely to be retained. These students may not become fully integrated to the fabric of the college or university because they do not identify themselves with an academic department as to Young & Redlinger, because they do not have opportunities, comparable to those students who have declared a major, to interact on a weekly basis with groups of students who have similar academic interests. Moreover, the undeclared often do not have the opportunities to participate in extracurricular academic programs offered by specific major departments and do not have the same opportunities as their declared counterparts to become connected to a network of professors within particular majors (Reinheimer & McKenzie, 2011).

The tutoring benefits students of all levels; from nursery to colleges and universities. Loots et.al have reported that the mere presence of the program is reassuring to students, both to those who run the risk of failing as well as to those in the category of gifted students. The benefits of tutoring accrue to both tutor and tutee and the program has plentiful importance beyond its key role in promoting students' achievement. Researches on these areas have revealed the explicit contribution of the program in overall well-being of the tutee include enhancement of academic skills encouraging more positive attitudes toward learning, gaining a deeper understanding of subject area, developing a more positive self-image, and improving attitudes toward school and teachers (Joseph, 2009).

Bernard, cited in Rosner (1997) in his investigation about the effect of cross age tutoring in his vicinity, has underlined the fact that hundreds of previous evaluations of such kind of programs have indicated that the programs actually contribute to positive academic gains and affective growth of students. Among the role tutoring plays harmonizing overall classroom atmospheres, that of capacitating sub-average students is paramount. He underlined that tutoring can be especially beneficial for students who are operating well below their grade level because it provides a respectful context in which students can review, study and understand material that they have not yet mastered, as well as a real motivation to do so.

The effects of tutoring programs for children who are struggling in school are best seen in test scores and academic achievement. Improving the educational outcomes for students who are at risk for academic failure is an important issue for educators and parents. Before and after-school-tutoring programs have been identified as having the potential to turn academic failure into academic success. Studies have shown that effective tutoring programs help at-risk students and students with learning disabilities who were falling behind in classes earn average or better grades on quizzes and tests if they had they are supported through tutoring programs. Additionally, the skills taught to students allow them to be successful after the tutoring has ended (Learning, 2014).

Furthermore, inclusive learning can be facilitated through an emphasis on differentiated learning, where students of varying academic levels receive instruction appropriate for their individual learning styles and speeds. It is difficult to address the educational need of the diverse classroom without differentiated learning that emphasizes on providing students with varied opportunities to acquire knowledge and master skills. It appears difficult to implement differentiated learning in a traditional classroom setting. An important mechanism of alleviating these pitfalls is peer tutoring; an effective strategy for educators to facilitate differentiated learning without stigmatizing and alienating students and accommodating all. Through explaining concepts in detail, through high-level questioning, and through the use of supportive communication skills, tutors can help low-performing students master material previously introduced in a regular classroom setting and build on their knowledge using higher-ordering thinking skills. Overall, tutoring in mathematics is most effective in improving mathematics performance for students at risk for or experiencing mathematics disabilities, elementary-aged participants, and mathematics computation content (Nguyen, 2013).

Besides its contribution to improvement of students' achievement, tutoring facilitates a context for the tutor's own learning and provides the opportunity for the tutor to use him/her knowledge in a meaningful way. It lets tutors see themselves in a new context and think of themselves as successful because the experience of helping others contributes to their ability to feel that they are an important component of the whole school community thereby a bringing positive impact on that community. Further, being responsible for teaching special material for those with special interests promotes a more complex and more meaningful level of understanding on the tutor's part.

It has been found that tutoring contributes for decrease in disruptive behavior and improvement in social interactions among culturally and developmentally diverse peers. Besides this, it increases students' sense of internal responsibility for their achievement. Particularly, peer tutoring programs have been shown to improve student's ability to accept constructive feedback from adults and make students take responsibility for their learning (Nguyen, 2013).

It is pointed out that the social and academic experience a student has within an institution may be more important than individual-level predictors such as prior academic experiences, background characteristics, or personality and tutoring has been taken as one form of interactive and academic experience that may help the undeclared student be retained longer, to attain a social connection with in the campus community and outside the campus (Reinheimer & McKenzie, 2011).

### 2.2.3. Guidelines in Tutoring Students

The primary purpose of conducting tutoring is to support students to attain instructional objectives. As Samara university teachers' guidebook (2014) stated, it is recommendable to follow the following procedures.

- Identify the type of skill, attitude and knowledge pertinent to the target group.
- Make the pace of the lesson gradual and calm so that each student can cope up with the content of the lesson
- Use questioning for the prominent percentage of instructional time so that students can attain basic concepts through answering questions and thereby shaped for examination.
- Bottom-to-top, simple-to-complex, near-to-far, part-to-whole and concrete-to-abstract approaches.... Inductive approaches are preferable.
- If necessary, arrange some pre-requisite contents for courses which are new and not overlaid on previous lesson.
- Avoid skimming over the content since the purpose is students' learning not content coverage
- Give chance for each student to reflect what she/he has learnt.
- It is vital to use teaching aids to concretize the abstract concept

### *2.3. The Concept of Modules and Modularization*

A module is a form of self-instructional package which enables the learner to have a control over his learning and puts greater responsibility on the shoulder of the learner (Iqbal, nd). In describing module, Sejpal (2013) stated that:

The concept of module is strictly linked to the idea of a flexible language curriculum, which should provide all those concerned with education (primarily learners and teachers, but also parents and administrators, as well as society at large) with a framework to establish clear and realistic language learning objectives.

Module is the unit element of teaching and learning process which lies basis for the planning and development of the curriculum. Therefore, it is possible to put that: a module is a curriculum package, which encompasses independent unit of a planned series of learning activities that are coherent building blocks from which a program is constructed to the attainment of a specified qualification (MoE, 2013). It is characterized by flexible system, proper academic recognition of prior learning, clarification of the methods of learning and the context in which the learning activities will take place, built on competencies/leads to well described final level, defined scope in content and time, bears certification, progressive assessment and continuous feedback.

The term module involves a unit of work in a course of instruction that is virtually self-contained and is geared towards building up skills and knowledge in discrete units. Modular teaching method is a strategy in which teaching objectives are divided into partial objectives (modules) for each of which a working desk is used. In this method, the teacher is not the only source of knowledge and the learner is not dependent to the teacher because the learning environment is student-centered and the teacher plays an effective role in giving information to the learner and guides them according to their need (Aqazadeh, 2005). In this approach, objectives of lessons are divided into clear and definite components, i.e. functional goals are defined. These goals are exact expression of a definite learning ability observed clearly. All functional goals together form the main learning objectives of a curriculum. Hereby, the main goal is divided into equivalent and similar goals (modules) having the same role in forming main goals.

Nowadays, modular approach is increasingly being used in many countries as a learning strategy and is becoming an area of plentiful researches and investigations. As a consequence, many course books are now structured on the basis of "modules" rather than "units", and most teachers, when faced with this innovation, wonder whether this is really a new development, opening up new paths for learning and teaching, or whether it might not just be "old wine in new bottles"(Sejpal, 2013).

A modularization is a teaching strategy for arranging learning experiences in education which involves self-learning package dealing with one specific subject matter unit(Ali, 2005).

Samara university teachers' guidebook (2014) states modularization as a process of bringing topics/subjects together based on their themes or competences in the realization of the graduate profile already specified. It is a system characterized by:

- Widening access possibilities and coping with increased student numbers,
- Facilitating life-long learning and continuing professional development
- Creating sufficient viable entry and exit points within the system

- Facilitating mobility of students amongst institutions both nationally and internationally
- Facilitating recognition of prior learning as well as optimize the use of existing facilities and resources
- Enhancing ability to respond to rapid changes in industry and employment.

Modular teaching is one of the most widespread and recognizes teaching learning techniques in western world such as United States and Australia and some Asian region. The strategy is adaptable to almost all subjects of natural science, especially in biology and medical education and even in social sciences as well as in computers education. It is a recent development based on programmed learning; a well-established and universally recognized phenomenon. It considering the individual differences among the learners which necessitate the planning for adoption of the most appropriate teaching techniques in order to help the individual grow and develop at her/his own pace (Sejpal, 2013).

### 2.3.1. Why modular?

Adibniya, Edar & Ebrahimi (2012) have stressed the advantages of modular approach in that the group activities are short, purposeful and along with the aims. Moreover, an approach saves time for doing activity by letting teachers and students concentrate on specific task at specific time, which makes teaching efficient. It accommodates the diversity of tests and activities which attracts the attention of students and increases educational attractiveness. Further, due to great emphasis on one subject at specific time, it directs learners to the activities beyond text books for they are relatively less overloaded.

Nevertheless, for it makes the teacher's task difficult, for it is used when functional goals are parallel and they are not considered as consecutive pre-requirements, or because of each of the activity stations are independent from the other activities understood by the students, the approach is less preferable as opponents underline (Adibniya, 2010 b) (cited in Adibniya, Edar & Ebrahimi, 2012).

Iqbal (nd) have stated some of the merits of using modular approach as:

- ✓ Users study the modules in their own working environment
- ✓ Users can study without disturbing the normal duties and responsibilities
- ✓ Modules can be administered to single use, small group or large group
- ✓ It is flexible so that the implementation can be made by a variety of patterns
- ✓ Modules are economical in their use
- ✓ Learning became more effective
- ✓ It establishes a system of assessment other than marks or grade
- ✓ Users study the modules in their own working environment
- ✓ Users can study without disturbing the normal duties and responsibilities
- ✓ Modules can be administered to single use, small group or large group
- ✓ Modules are flexible so that implementation can be made by a variety of patterns
- ✓ It is more appropriate to mature students
- ✓ It enables the learner to have a control over his learning
- ✓ Accept greater responsibility for learning
- ✓ It already got wider accessibility in the present educational scenario.

- Principles in modular approach

i) *Principle one:* -involves using the existing classification of courses by streams, trying if all the courses can be fit as one module and provided as a single course. Here, some of the courses designated as part of given stream (example in Biology we can have botany, zoology, etc.) are random and are not properly related to the stream to decide the proper stream they belong to or create a stream of their own.

ii) *Principle two:* - involves considering how to fit together the courses currently provided as part I, part II etc. as in the case of Organic Chemistry I and II, Financial Accounting I and Financial Accounting II, Eng. I and II, Spoken English I and II and so on.

iii) *Principle three:* - involves considering realigning together requisite and prerequisite courses into one module. Here, we shouldn't forget that if a given course is a prerequisite to another, then logically the contents of the two courses belong to the same area and in a given hierarchical order.

iv) *Principle four:* -this principle lets reviewing the content of each of the courses delivered for a program and if there are any unnecessary redundancies in the courses, the redundancies have to be eliminated. Redundancies refer to topics, could be ideas, concepts, or theories that are treated with the same level of depth in various courses and have no relevance to strengthen the students' learning.

v) *Principle five:* - this lets to attempt to make sure that content, if it is very important, is treated with greater degree of complexity, ensuring relevance and novelty to the students as the level increases. Moreover, this is a principle where module organization activity tends to delete topics that add little value to the students and appear to take uniform level of complexity. This is a very useful technique in curriculum organization-termed as reiteration. In fact, we should not repeat a topic with the same breadth and depth in three courses.

vi) *Principle six:* as per this principle, modules include the courses relevant to reinforce learning, commonly called as supportive course to which they fit. Bring courses/ fundamental contents from supporting areas into these clustered or merged courses. A mathematics course for accounting students shall be integrated in the module where its fits best. So, it is more than bringing together Financial accounting I, II, and III together and give the course. If there is a content /course from other subject areas that shall be brought in the middle of these courses, it has to be brought there and reinforce the learning process.

vii) *Principle Seven:* -Courses currently given as common courses from other departments, for example civic and ethical education, psychology for managers, mathematics for management, etc. given by other department staffs, students have to be either realigned into



the recipient program's core courses and delivered by the members of the department or come together as a package to form general foundation courses.

### 2.3.2. Modes of Delivery in Modular Approach

MoE (2013) states that modular approach has two re-known modes of delivery. These are block and parallel approaches.

**Block-teaching:** A block-course is a module presented over a compact period of time. A typical example of a block-course is an intensive offering (e.g. 1 week full-time) after which the module is evaluated and considered as being completed.

**Parallel teaching:** unlike block teaching, here the course is given side by side with other courses at a full semester

## 3. Methodology of the Study

### 3.1. Design of the Study

This study involves investigating the effect of peer learning and tutoring in authenticating students' learning through modular approach. It has employed parallel mixed methods design as it has allowed explanation of alternative perspectives that would have been missed if either qualitative or quantitative designs were used alone. In this design, the two types of data have been collected independently with some time lag and analyzed concurrently (Mertens, 2005; Creswell, 2009). Thus, both quantitative and qualitative data were collected to see the effect of tutoring and peer learning on students' academic achievement.

### 3.2. Population, Sample and Sampling Techniques

The target populations of this study were regular students of Samara University due to the university was a working organization for the researchers. Among these, the investigation revolved around the first and second year students (the 2005 E.C and 2006 E.C entry). This group was purposively selected because the group fully captures the variable of interest. Secondly, modular approach was not under implementation over students of the third year and above when this study was started to be conducted.

According to data from the office of registrar, the university was hosting 2425 males and 1480 females the total of 3905 students of the aforementioned batches in 2006 E.C academic year. These students were enrolled in seven different colleges. Each college has a number of departments. The number of students and their sex ratio differ from one department to another as follows.

No.	College & Department	1 <sup>st</sup> year			2 <sup>nd</sup> year		
		M	F	T	M	F	T
1	Accounting and finance	104	34	138	78	21	99
2	Economics	82	17	99	39	10	49
3	Management	110	82	192	72	42	114
	<b>CBE Total</b>	<b>296</b>	<b>133</b>	<b>429</b>	<b>189</b>	<b>73</b>	<b>262</b>
1	Animal science	37	6	43	62	13	75
2	Horticultural science	19	25	44	47	23	70
3	Natural resource mgt	51	20	71	75	6	81
4	ABVM	24	15	39	-	-	-
5	Plant science	41	37	78	27	32	59
	<b>Total CDA</b>	<b>172</b>	<b>103</b>	<b>275</b>	<b>211</b>	<b>74</b>	<b>285</b>
1	Biology	26	57	83	51	27	78
2	Chemistry	1	38	39	20	15	35
3	Mathematics	3	28	31	11	32	43
4	Physics	2	25	27	13	11	24
5	Earth science	26	17	43	33	11	44
6	Statistics	10	33	43	56	26	82
	<b>Total CNCS</b>	<b>68</b>	<b>198</b>	<b>266</b>	<b>184</b>	<b>122</b>	<b>306</b>
1	Amharic	9	45	54	2	40	42
2	Anthropology	37	23	60	32	9	41
3	English	26	27	53	7	21	28
4	Geography	28	27	55	36	30	66
5	History	10	42	52	12	21	33
6	Sociology	64	63	107	53	12	65
7	Qafaraf	40	3	43	-	-	-
8	Civics	26	31	57	-	-	-
9	Law	30	9	39	21	8	29
	<b>Total CSSH</b>	<b>270</b>	<b>250</b>	<b>520</b>	<b>163</b>	<b>141</b>	<b>304</b>
1	Pre-engineering	413	146	559	-	-	-
2	Chemical engineering	-	-	-	18	4	22
3	Computer science	70	38	108	54	31	85

4	Civil engineering	-	-	-	41	17	58
5	Information technology	24	13	37	19	13	32
	<b>Total CET</b>	<b>507</b>	<b>197</b>	<b>704</b>	<b>132</b>	<b>65</b>	<b>197</b>
1	Clinical nursing	32	8	40	40	10	50
2	Midwifery	19	13	32	15	13	28
3	Public health officer	31	32	43	33	15	48
	<b>Total CMHS</b>	<b>82</b>	<b>33</b>	<b>115</b>	<b>88</b>	<b>38</b>	<b>126</b>
1	Veterinary medicine	32	7	39	31	6	37
	<b>Total number of students</b>	<b>1427</b>	<b>961</b>	<b>2348</b>	<b>998</b>	<b>519</b>	<b>1517</b>

Table 1: total population of the study

Source: - registrar office of samara university; September,2014

CBE=college of business and economics CDA=college of dry land agriculture

CET= college of Engineering and technology CMHS= college of medical and health sciences

CSSH=college of social sciences and humanities

CNCS=college of natural and computational sciences

It is researcher's task to determine the number of samples taking the available resources of time money and energy in to consideration (Yalew,2001E.C). Accordingly, we found it is logical to take 7 departments from six colleges. Since the college of veterinary medicine has only one department, we found it is better to include two departments from college of business and economics instead. Multi-stage cluster sampling was applied to select participants from colleges and departments. After selecting the desired number of departments from colleges using lottery method, one batch and one course among which students of the selected batch were taught in tutorial classes were selected again through lottery method. For those batches with two or more sections, one section was also selected using simple random sampling; again, lottery method. Then, those students who were eligible and conducted tutorial sections were identified to be included in the study using comprehensive sampling. The representatives of the same groups (one male and one female) were also included in FGD. The representatives were selected purposively because we found it is rationale they have better information about the overall process of the application of modular approach. This stratification across years and departments is estimated as follows.

No.	Department	Selected		Number/section	Tutored (sample)
		Year (batch)	Course		
1	Management	1 C	MGMT 1071	39	28
2	Plant science	2 B	PISc 2051	36	26
3	Statistics	2 A	Stat 2142	41	33
4	Amharic	1	Enla 1011	52	43
5	Civil engineering	1 A	CEng1101	36	25
6	Public health officer	2	PubH2062	42	30
7	Accounting & finance	1 D	AcFn 1031	42	31
	<b>Total</b>				<b>216</b>

Table 2: Sample size table

Source: - registrar office of samara university; September,2014

**Note**

1. AcFn 1031=principles for accounting
2. PubH2062=Reproductive health
3. CEng1101= Strength of material
4. MGMT 1071= statistics for management I
5. Stat 2142= time series analysis
6. PISc 2051= Plant pathology
7. Enla 1011= communicative English Skills

**3.3. Data Gathering Instruments and Procedures****3.3.1. Instruments**

Data for this study was gathered using questionnaire and Focus Group Discussions (FGDs). Data about both of independent variables, that is, the status of peer learning and tutoring was gathered through closed-ended questionnaire, particularly, the likert scale off our levels ranging from (1=stronglydisagree to 5=stronglyagree) was used as well as FGDs. Student's learning of the course, that is, data about a

dependent variable was gathered through document analysis of the results in that particular course in that particular semester from the subject teacher and office of the registrar.

Questionnaire measuring status of peer learning as well as tutoring was developed by the researchers, while that of their semester result was taken from the course teacher and registrar.

For the items constructed by instructors, the pilot test had been conducted on groups other than the target one and their ability of items was found 0.917 for tutoring and 0.944 for peer learning. Moreover, qualitative data about the harmony of peer learning and tutoring in block and parallel modality and the impacts of all variables mentioned above was gathered to enrich and negotiate the quantitative ones using FGDs.

### 3.3.2. Procedures of Data Collection

As described earlier, data from the participants was gathered through questionnaire, document analysis and Focus group discussions questionnaire. The questionnaire administering process was started with the submission of letter of permission that was written from the researchers' department to the respective departments under study. Then the questionnaire was distributed to participants in face-to-face manner after giving the necessary clarification.

In the questionnaire, the respondents were made to write their identification number (ID) so that we can match the data with their respective academic records. Data regarding the students' semester academic record was taken from the subject teacher.

Qualitative data on the harmonization of peer learning and tutoring viz-a-viz modular and block delivery was obtained from the target students via FGDs.

Asto Yalaw (2001E.C) the prior task to any analysis process of the data gathered through questionnaire is screening out the collected papers for unwanted, non-congruent respondents, non-respondents as well as hastily rated respondents, which can make the findings biased, exaggerated and far from reality, after being screened during entire scoring time. To this end, the collected papers from 216 respondents have been screened out to discard all such types. Consequently, 7 papers of respondents have been excluded, which were of such types.

### 3.4. Data Analysis Methods

Both descriptive and inferential statistics were used to analyze data. To test the quality of the instruments, the questionnaire was piloted on 35 students and sufficient index of reliability measured by Cronbach alpha were secured.

To find out the interrelationship among all variables, Pearson's product moment correlation coefficient was used. Multiple linear regression was used to see the influence of peer learning on students' learning and tutoring on students' learning. An independent samples t-test was employed to see if students' performance varies in parallel and block teaching modalities.

On the other strand of analysis, the raw data from FGDs about the impact of peer learning and tutoring on students' learning as well as harmoniousness of implementation of modular approach were organized using coding, categorizing and building themes. The occurrence of repeated themes and categories were transformed to counts and compared with results of the quantitative analysis for convergence. Thus, the two strands of data were genuinely mixed for more understanding and corroboration.

Through out the process of qualitative analysis, statistical package for social sciences (SPSS) version 19.00 was used. All significance tests were made at  $\alpha = 0.05$ .

## 4. Analysis of Results, Presentation and Discussion

### 4.1. Presentation and Analysis of Results

This chapter presents the results found after analysis of the data collected through tools and procedures stated above. The purpose of this study is investigating the effect of peer learning and tutoring in authenticating students' learning through modular approach.

Firstly, variables treated in this study; such as peer learning, tutoring students' learning or result have been correlated using Pearson's product moment correlation. Secondly, the chapter analyzed the effect of peer learning and tutoring on students' result using multiple linear regressions. Then after independent sample t-test was applied to compute the achievement difference of students as learned through block and parallel modalities.

#### 4.1.1 The Effect of Tutoring on Students' Achievement

	SS	Df	MS	F	Sig.
<b>Regression</b>	20.185	1	20.185	.085	.771 <sup>b</sup>
Residual	49249.853	207	237.922		
Total	49270.038	208			
a. Dependent Variable: students' grade					
b. Predictors: (Constant), tutoring					

Table 3: ANOVA Summary of the effect of Tutoring on students' achievement

	Unstandardized Coefficients		Standardized Coefficients	T	R <sup>2</sup>	Sig.
	B	Std. Error	Beta			
(Constant)	66.047	7.921		8.339	.000	.000
Tutoring	-.024	.081	-.020	-.291		.771

a. Dependent Variable: student grade

Table 4: Standardized Coefficient of tutoring on students' achievement

F=.085, N= 209, R<sup>2</sup> Adj. = -.004, P> 0.05 or p =.771

The multiple linear regressions in tables 4.1 and 4.2 above have indicated that tutoring program given by teachers does not significantly affect students' academic achievement ( $F_{(1, 209)}=0.085$ ,  $p > 0.05$ ). Hence the model yield insignificant result, none of the variance in students' academic achievement was able to be accounted for by tutoring ( $R^2 = 0.000$ ,  $p=.779$ ),

Similar findings emerge from the qualitative data analysis strand. For the few good tutorial sessions provided by teachers or students, it seems that there is positive effect on students' academic achievement in both parallel and block modalities. However, for tutorial sessions are only planned and mostly not provided, managed, and followed-up, there seems no significant effect on students' academic achievement.

Advantages of tutoring: revision, consolidation, rehearsal, opportunity for improvement, additional opportunity to meet students learning preferences, learning pace, and substitute for missed classes, greater detail than the normal session. Participants said...

- "... tutorials will improve learning and academic achievement through repetitions. We have a greater tendency to listen more when something is repeated. Besides, good tutorial goes beyond detail than that covered in the normal class. This is an advantage. However, there were no tutorial sessions arranged timely; there are only schedules and the schedules are posted around the end of the semester... currently there are no tutorials offered, they are only in our dreams."

It is the contention of the participants that, had tutorials been fully active, they would have improved academic achievement through different methods mentioned above.

#### 4.2. Effect of Peer Group Learning on Students' Learning through Modular Approach

Model	SS	Df	MS	F	Sig.
Regression	772.297	1	772.297	3.296	.071
Residual	48497.741	207	234.289		
Total	49270.038	208			

Table 5: ANOVA Summary of the effect of Peer Group Learning on Students' Achievement

The multiple regression model in tables 4.3 above have indicated that student's peer learning in their 1:5 teams in the classroom as well as activities out of classroom do not significantly affect their academic achievement ( $F_{1,209}=3.296$ ,  $p = .071$ ).

Model	Unstandardized Coefficients		Standardized Coefficients	T	R <sup>2</sup>	Sig.
	B	Std. Error	Beta			
(Constant)	71.409	4.343		16.441	.016	.000
Peer learning	-.147	.081	-.125	-1.816		.071

a. Dependent Variable: student grade

Table 6: Standardized coefficients of the effect of Peer Group Learning on Students Achievement

F=3.296, N= 209, R<sup>2</sup> Adj. = .011, P> 0.05

As the model indicates, only 16% of the variance in student's achievement is explained by peer learning group, and, still peer learning group in their 1:5 teams in the classroom as well as activities out of classroom has no significant effect on academic achievement ( $R^2 = .016$ ).

The above findings seem to be supported by qualitative views of peer group leaders. According to them peer groups are formed but not managed, monitored and evaluated for effectiveness. Participants agreed that peer learning is not functional:

- "Peer learning group organization has not been fully implemented; the group is formed, posted, but not functional yet... we use the peer learning group only for assignment and classroom discussion purposes... not for peer or collaborative learning... I don't know in person who my leader is but it is posted that I am part of peer learning group, nothing beyond that."

Peer learning provides students with the chance to forge discussions according to participants learning pace and interest. There are agents within the learning group that contribute to the ineffectiveness of peer learning group. Leaders not interested; not motivated; underestimate team members; poor awareness of the importance of leader in peer learning group; have no time especially when taking block courses. Participants elaborated that "... they have no time not only to support their peers but also to cover for their own." Other agents are mentors. They do not advise, supervise, support leaders and are not motivated.

4.3. Combined Effect of Peer Learning and Tutoring on Students' Learning in Modular Approach

	SS	Df	MS	F	Sig.
Regression	817.456	2	408.728	1.738	.178
Residual	48452.582	206	235.207		
Total	49270.038	208			

Table 7: ANOVA of Combined Effect of Peer Learning and Tutoring on Students' Learning in Modular Approach

The combined or interaction effect of peer learning and tutoring on students learning through the modular approach revealed an insignificant result ( $F_{(2,208)} = 1.738, p = .178$ ). It is discussed in the analysis above that both tutoring and peer learning group, treated individually, were found to be insignificant predictors of academic achievement. Even their interaction was not significant predictor of academic achievement. This shows that tutoring and peer learning group have little or no effect on students' academic achievement.

	Unstandardized Coefficients		Standardized Coefficients	T	R <sup>2</sup>	Sig.
	B	Std. Error	Beta			
(Constant)	68.475	7.985		8.575	.017	.000
Peer learning	-.162	.088	-.138	-1.841		.067
Tutoring	.038	.088	.033	.438		.662

Table 8: Standardized Coefficients Predicting Combined Effect of Peer Learning and Tutoring on Students' Academic Achievement through Modular Approach

Moreover, the coefficient of determination ( $R^2 = 0.017$ ), has indicated that only 1.7 % of the variance in students' academic achievement in modular approach is explained by the combined effect of peer learning group and tutoring. This means that peer learning and tutoring have very little or no explanatory power over students' academic achievement.

Now the real question is "Why do peer learning group and tutoring failed to explain some variance in students' academic achievement?" Qualitative analysis from FGDs have shown that neither tutorial programs are active nor peer learning groups are functional, hence, it seems that both had little or no effect on students' learning or bringing effect in the learning process in both block and parallel deliveries. Delivering tutorial sessions and supporting students learning by organizing them in peer learning groups (1 to 5) seems to be only principle that is not grounded in practice. There is mounting evidence that these tools highly correlate with academic achievement. However, this is not the case in Samara University because the techniques are not properly implemented.

4.4. Harmony of Peer Learning with Modular Modalities: Block and Parallel

Peer learning organization seems more practical in parallel than block delivery because leaders have more time to support their peers. Participants said that "one-to-five organization fits into parallel not block delivery... simply, if the courses' modality is block, it means there is no one-to-five organization."

Peer learning seems to fit into parallel modality of delivery because there is relatively longer time for the mentor, leader and students. They said "in parallel courses leaders have much time to understand what they have learned and to help other group members to learn. Time is a determinant factor and resource..."

Peer learning operates on the pedagogical principle that emphasizes interdependence and the social construction of knowledge. For such interdependence to be built, it needs time. As opposed to parallel delivery, block delivery seems to promote individualism in learning.

4.5. Harmony of Tutoring with Modular Modalities: Block and Parallel

Students responded that because block delivery lacks detail and time to cover all portions of the course, there must be tutorial class. "Especially for courses with greater credit hours in block delivery, tutorial sessions are the only alternatives for learning to happen as the normal classes are not enough to cover such a wide course." Good tutorial sessions, when active, go detail and improve students' academic achievement mostly in parallel delivery..."During tutoring, they explain detail. But block delivery is the opposite of good tutoring – shallow presentations, shallow learning, then better grades but no knowledge..." Even though tutorials are more helpful to improve students' academic achievement in block delivery, they are more applicable and practical in parallel delivery because it relatively gives more time.

4.6. Differences in Academic Achievement between Block and Parallel Delivery Modalities

Variable	School Level	N	Mean	SD	T-Value	Sig.
Student grade	Block	83	77.5000	10.48014	4.960	.027
	Parallel	126	63.0704	15.29161		

Table 9: Independent Sample t-test Result of Mean Scores of Students' Results on Block and Parallel Modes of Delivery

The independent samples t-test in Table 9 above revealed that there is statistically significant mean difference between block and parallel modes of delivery ( $t=4.960, p<.05$ ).

It has been depicted that the mean score of students' result in parallel mode of delivery is less than that of block mode. Thus, from the model, it can be deduced that students achieve better in block modes than that of parallel mode of delivery.

This finding is in line with the views of participants. There seems to be differences in viewing learning through block and parallel modalities. "Learning" in this case is viewed in two ways: academic score or grade and the development of knowledge, skill and attitudes or competencies. Participants mentioned that in terms of grade, block delivery results in better grades; promotes surface or strategic learning, memorization, with no mastery and internalization.

On the other hand, that views learning as the development of competencies, parallel delivery is preferable. They have pointed that;

- "...In terms of academic achievement, block courses are good to finish the course and you will concentrate on one course and be tested soon that you do not forget the information. This motivates surface learning. But if you ask me now something about the course I almost forget everything. But from the point of development of competencies and thinking, I prefer parallel course because for me I have time and greater chance to internalize the lessons and continuously evaluate myself for improvement. So, parallel delivery promotes deep learning. If we measure learning in terms of development of competencies, deep learning, then no we do not understand the course.... "

However, parallel delivery seems to be related to the development of knowledge, skills and attitude or in modular term, competence. Therefore, this modality promotes deep learning, understanding, and higher order thinking skills like students' ability to analyze, synthesize and evaluate, as the respondents stated.

#### 4.7. Discussion and Implications

The purpose of this study was investigating the effect of peer learning and tutoring in authenticating students' learning through modular approach.

The next sections state discussions on findings of the study by referring to the basic questions raised earlier.

- *Does tutoring bring a significant effect in authenticating students' learning?*

Both quantitative and qualitative results have indicated that tutoring program by teachers does not significantly affect students' academic achievement. In multiple linear regressions conducted, tutoring contributed nothing to predict students' achievement, whereas responses from student interviewees have pointed out that due to lack of on time arrangement of schedules, there is no observable change in the result of students.

- *Does peer learning have a significant effect in authenticating students' learning?*

The multiple linear regressions results have indicated that peer learning in their 1:5 teams in the classroom as well as activities out of classroom does not significantly affect their academic achievement. Further, only 1.7 % about students' grade could be predicted by student's peer learning in their 1:5 teams.

Similarly, the selected students of group leaders have underlined that peer learning group organization has not been yet properly implemented. From the perspectives of leaders, it has been elaborated that leaders were not interested; not motivated; underestimated team members; poor awareness of the role of leader. Moreover, they lack time, especially in block courses, not only to support their peers but also to cover for their own. Besides this, interviewees have declassified that leaders could not have obtained as much advice, supervision as well as support from mentors and mentors themselves lacked motivation to carry out an activity. Consequently, there was no observed change in students' result.

- *Do peer learning and tutoring collaboratively bring significant effect in authenticating students' learning through modular approach?*

The multiple linear regressions computed to find out whether the two variables, that are, peer learning and tutoring by teachers do not significantly affect their academic achievement ( $F_{3, 209}=1.738, p> 0.05$ ). As indicated above, either of them and / or both of them failed to significantly predict student's achievement. Qualitative analysis of the discussion results with students' representatives also have revealed that both had little or no effect on students' learning or bringing effect in the learning process in both block and parallel deliveries.

- *Are peer learning and tutoring being harmoniously implemented in block and parallel course in Samara University?*

In block modes of delivery, leaders, mentors and students lack sufficient time to support lower achievers. This results in failure to harmoniously implement peer learning in this modality; whereas, participants themselves said that one-to-five organization fits into parallel delivery.

Participants said...

- "... peer learning requires interpersonal skill to work together. So, in parallel course this can be possible. But in case of block courses, there is no time not to get to know each other but to cover our portions individually. So, every individual has his own way of studying. So, block modality has forced individual study because every learner has his preferences or learning styles. Even leaders do not have time. It's always class, always assignment or there is a test. No time to come together...."

Course rendered through block approach need much additional support to learners for learning to take place. None of the respondents have tended to state the implementation of tutoring program as harmonious due to, among others, shortage of time in this modality. Nevertheless, in parallel approach, it is relatively better implemented and applied.

- *Is there statistically significant difference in academic achievement of groups as taught with parallel and block approach?*

The result of independent sample t-test has been depicted that the mean score of students' result in parallel mode of delivery is less than that of block mode, hence, students achieve better in block modes than that of parallel mode of delivery.

Respondents also have mentioned that in terms of grade, they have obtained better grades in block course; though it promotes surface or strategic learning, memorization, with no mastery and internalization. Notwithstanding, when learning is viewed as the development of competencies, parallel delivery has led better learning than block delivery.

Therefore, block delivery seems to be related to surface learning, rote memory, and strategic approach to learning. Scholars put that

- "Strategic approach to learning is ...a learning behavior that is conceptually opposite to deep learning. It involves only as much as is needed to pass an examination or acquire a qualification. Learners using this approach do not achieve the cognitive levels of deep learning. They tend to be passive and uninvolved in the learning process itself. This is described as extrinsic learning or learning that takes place external to the individual, requiring little personal involvement (Matthews, 2001:225).

In qualitative data, it is indicated that the development of knowledge, skills and attitude or in modular term, competence, could be developed more in parallel delivery than block ones. Here students acquire low scores but better knowledge. Felder & Brent (2005) described the approach as;

- "that does not simply rely on memorization of course material but focus instead on understanding it. It involves an intrinsic motivation to learn, with intellectual curiosity rather than the possibility of external reward driving their efforts. Students employing this approach cast a critical eye on each statement or formula or analytical procedure they encounter in class or in the text and do whatever they think might help them understand it, such as restating text passages in their own words and trying to relate the new material to things they have previously learned or to everyday experience. Once the information makes sense, they try to fit it into a coherent body of knowledge (p.63).

## 5. Conclusion and Recommendations

### 5.1. Summary

The purpose of this study was investigating the effect of peer learning and tutoring in authenticating students' learning through modular approach.

The study has raised the following questions.

- Does tutoring bring a significant effect in authenticating students' learning through modular approach?
- Does peer learning have a significant effect in authenticating students' learning through modular approach?
- Do peer learning and tutoring bring significant effect in authenticating students' learning through modular approach?
- Are peer learning and tutoring being harmoniously implemented in block and parallel course in Samara University?
- Is there statistically significant difference in academic achievement of groups taught with parallel and block approach?

The result of Pearson product moment correlation coefficient has indicated that:

- there is a statistically significant negative interrelationship among students' grade and mode of course delivery ( $r = -0.201$ ,  $p < 0.01$ ). This indicates that rendering course in parallel delivery results in decrease in achievement.
- However, the result has shown that peer learning and tutoring are not significantly related to students' result.

Analysis of both quantitative and qualitative data has indicated that:

- Tutoring does not independently significantly affect students' academic achievement.
- Peer learning does not independently significantly affect students' academic achievement.
- Peer learning and tutoring collectively do not significantly predict students' academic achievement.

An independent sample t-test and interview data results that have been computed to see the achievement difference of students as taught through block and parallel modes of delivery has revealed that

- the mean score of students' result in parallel mode of delivery is less than that of block mode of delivery, whereas,
- When we see learning as improvement in competencies, not merely letter or number grade, parallel delivery has led better learning than block delivery. Block delivery is claimed to result in surface learning, rote memory, and strategic approach to learning.

Qualitative data analysis regarding the harmonious implementation of peer learning and tutoring in Samara University has depicted that

- Both peer learning and tutoring are better implemented in parallel courses than block courses.

### 5.2. Recommendations

Based on the findings stated above, we suggest the following

- For the result has indicated that students' result is unrelated with the provision of tutoring program, university and other bodies implementing this program must be curious in selection, recruitment and assignment process of tutors. Respondents have indicated that courses selected for tutoring are better to be rendered by student tutors or another teacher than the course teacher him/herself.
- It is better to launch some incentive packages for mentors and group leaders facilitating peer learning. Since it is additional load for all these stakeholders, there must be certain attractive benefits which can push them to work beyond mere assignment to tasks.

- From the perspectives of student leaders of each group, it is recommendable to clearly assign tasks for each member of one-to-five teams in all classes so as the team can work cooperatively towards achieving the primary purpose for which it is organized, rather than leaving the load for a single leader.
- In the course syllabus, the directions in which teachers can implement peer learning in block courses should be clearly stated. It has been found that due to various constraints, among which time constraint is the main one, peer is not implemented as was intended.
- Induction training, particularly for first year students immediately after their registration, is vital to equip them with the know-how about peer learning and its implementation.
- Personnel assigned to tutor students, such as teachers or high achieving students, better to base their delivery of courses on interest of the target group students. It has been claimed that in tutorial classes, few instructors used to continue from where they have stopped in regular lessons. This has nothing to do with supporting students because it is a mere continuation lessons and contents.
- We found that it is recommendable that zonal and district education offices should work in collaboration with their nearby universities to share experiences, hence, secondary schools have to soundly implement peer learning, which can reduce an ambiguity when students join universities.
- Finally, we strongly suggest interested researchers to investigate further around the areas of how to handle and implement peer learning and tutoring on block courses with all time constraints, tutor's approach in tutorial sessions, mentor-leader relationships; taking student leaders' load in to consideration...etc.

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## APPENDIX I

## Reliability estimation results

## i) Tutoring

Reliability Statistics	
Cronbach's Alpha	N of Items
.917	24

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
t1	92.4163	160.677	.524	.914
t2	92.6029	156.808	.596	.912
t3	92.5407	157.576	.620	.912
t4	92.5646	159.189	.600	.912
t5	92.3589	161.029	.548	.913
t6	92.3732	161.235	.521	.914
t7	92.3780	159.082	.631	.912
t8	92.5215	161.135	.552	.913
t9	92.4593	161.634	.458	.915
t10	92.6651	157.358	.600	.912
t11	92.7895	158.955	.512	.914
t12	92.6029	159.212	.564	.913
t13	92.5120	160.136	.584	.913
t14	92.4737	161.645	.498	.914
t15	92.5167	159.626	.581	.913
t16	92.4545	160.153	.555	.913
t17	92.3493	161.055	.545	.913
t18	92.4976	158.809	.612	.912
t19	92.3923	162.749	.479	.914
t20	92.8469	161.861	.379	.917
t21	92.8708	159.757	.432	.916
t22	92.7608	157.846	.537	.913
t23	92.7081	157.362	.518	.914
t24	92.7703	157.120	.545	.913

## ii) Peer learning

Reliability Statistics	
Cronbach's Alpha	N of Items
.944	14

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
peer1	48.2823	147.184	.727	.940
peer2	48.2871	148.783	.666	.941
peer3	48.2297	149.447	.676	.941
peer4	48.1005	150.341	.711	.940
peer5	48.3445	144.698	.772	.938
peer6	48.3780	146.602	.756	.939
peer7	48.2392	148.164	.696	.940
peer8	48.3110	143.350	.808	.937
peer9	48.2727	144.122	.801	.937
peer10	48.0861	149.444	.743	.939
peer11	47.7512	154.832	.605	.943
peer12	47.8086	156.598	.530	.944
peer13	48.4785	142.703	.811	.937
peer14	48.3110	147.821	.710	.940

**Appendix II****1. FGD tool***1.1. Samara University*

Focus group discussion (FGD) for students for the paper entitled “*The effect of Peer learning and Tutoring in authenticating students learning*”

*1.2. General Direction*

Dear participants, the general purpose of Focus Group Discussion is to determine the effect of peer learning in group and tutorial supports in improving students learning. It also is aimed at gaining insight into how the peer learning groups formed are in harmony with the modalities in modular approach to teaching; i.e. Block and Parallel. So, you are invited to speak of your mind so that the effects of tutoring, peer learning and modalities of delivery will be explored to see their effect in improving students' academic score. Thank you in advance!

1. How do you explain the effect of tutorial sessions you take in terms of improving your academic score in this university? Is it more helpful in block or parallel courses or in both? Any difference?
2. How do you explain the effect of peer learning group to improving your academic score in the university in the context of modular approach to teaching?  
Does it vary in different delivery... is it more helpful to improve academic performance in block modality than parallel, or vice versa, or both?
3. Is tutoring harmoniously actually integrated in modularization, both block and parallel? (the implementation of tutoring: grounded practice)
4. Peer learning group - is it integrated smoothly /harmonized/ into the modular approach? Does it goes hand-in-hand or on the contrary? Is it more harmonious with block delivery than parallel?
5. Which modality of modularization, block or parallel, is more preferable to you as a student? Why?
6. How do you evaluate the effectiveness of tutoring (the practice of tutoring) in the university?  
How do you evaluate peer learning group organization and its effectiveness in the university.

**2. Questionnaire****Samara university R/C/S vice president office****Questionnaire for students**

Dear students, the purpose of this questionnaire is to measure the extent in which peer learning and tutoring is implemented in your class. The questionnaire has three parts. Part one is about general data the respondent. Part two contains items measuring the effect of tutoring while part three includes items to measure the organization of peer learning. Any student who is filling this questionnaire should be the one who attended tutorial class and who is a member of one-to-five team in class. This data will be used only for the research purpose and will be kept confidential.

Thanks for your cooperation!

**Part: I: General information**

Answer the following questions by Putting “√” sign in front of your answer.

1. Department  

Civil engineering	<input type="checkbox"/>	Computer Science	<input type="checkbox"/>
Management	<input type="checkbox"/>	Accounting	<input type="checkbox"/>
Plant science	<input type="checkbox"/>	Amharic	<input type="checkbox"/>
Statistics	<input type="checkbox"/>		
2. Sex  
Male  female
3. Class year  
First  second
4. Semester  
First  second
5. Name of course for which you have been tutored (2006 E.C.)  
\_\_\_\_\_
6. ID no. \_\_\_\_\_ (this simply to differentiate those who have attended tutorial class from those who didn't attend)
7. Mode of delivery  
Parallel  block

**Part II: Scale of Tutoring**

The following items measure the effect of tutoring on students' learning. The items measure your degree of agreement or disagreement on the idea, hence are neither true nor false by themselves. Thus, you are kindly requested to respond as strongly agree, agree, undecided, disagree and strongly disagree.

**Instruction 1:** respond to the following items by putting "√" sign as per your degree of agreement on the space provided left to each item.

Thank you!

No.	Items	Responses				
		Strongly disagree (1)	disagree (2)	Undecided (3)	Agree (4)	Strongly agree (5)
1	The tutor/teacher helps us when we face difficulties					
2	The tutor/teacher makes the content of the lesson clear for us					
3	The tutor/teacher identifies whether students have special educational needs					
4	The tutor/teacher makes necessary adjustments to address students' needs					
5	The tutor/teacher evaluates our strengths and weaknesses in education					
6	The tutor/teacher supports us to improve our weaknesses					
7	There was an intimate relationship among tutor/teacher and us.					
8	The tutor/teacher renders the content in understandable manner.					
9	The tutor/teacher meets his way of delivery and to our learning style.					
10	The tutor/teacher expects students to be successful.					
11	The tutor/teacher gives good support through assignment and exam.					
12	The tutor/teacher gives immediate feedback to students.					
13	The tutor/teacher has an admirable knowledge.					
14	The tutor/teacher guides students achieve educational objectives.					
15	The tutor/teacher inspires students to participate actively.					
16	The tutor/teacher inspires an interest to learn.					
17	The tutor/teacher appreciates students' effort and contribution in the lesson.					
18	The tutor/teacher motivates me to attend tutorial session.					
19	The tutor/teacher supports us to focus on the main points of the lesson.					
20	The tutor/teacher supports me understand difficult contents.					
21	The tutor/teacher supports me to prepare for exam.					
22	In tutorial class the pace of lesson is slow.					
23	The tutor/teacher spends much time in asking and answering questions.					
24	The tutor/teacher renders contents from simple-to-complex.					
25	The tutor/teacher renders contents from specific to general.					
26	The tutor/teacher renders contents from near-to-far.					

**Part III: scale of peer learning**

The following items measure the effect of peer group organization on students' learning. The items measure your degree of agreement or disagreement on the idea, hence are neither true nor false by themselves. Thus, you are kindly requested to respond as strongly agree, agree, undecided, disagree and strongly disagree.

**Instruction 2:** respond to the following items by putting “√” sign as per your degree of agreement on the space provided left to each item.

Thank you!

No.	Items	Responses				
		Strongly disagree (1)	disagree (2)	Undecided (3)	Agree (4)	Strongly agree (5)
1	We could attain our goals by working in groups.					
2	The leader in our 1:5 team is an effective person.					
3	It is enjoying working in 1:5 teams.					
4	I think I have contributed my own to the teams' work.					
5	Each member of our team contributes his/her own to 1:5 team.					
6	Our 1:5 team has solved problems as a team.					
7	Our 1:5 team members collaborate each other.					
8	I have learnt more in team than as an individual.					
9	If I have worked lonely, I couldn't learn what I have learnt with my 1:5 team.					
10	Working in 1:5 team makes students better understand the content they learn.					
11	Working in 1:5 helps to capacitate low achieving students.					
12	I think working in 1:5 helps to improve to students' result.					
13	Our 1 to 5 team is well organized.					
14	Our 1 to 5 team is capable to work independently.					