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USING PROBLEM-BASED LEARNING WITH THE HELP OF THE INTERNET FOR DEVELOPING SOME OF ESSAY SYNTACTIC STRUCTURES SKILLS[i]

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Abstract:
Each language has its own taste. Syntactic structures are important for student teachers at Faculty of Education. A student teacher develops his writing when he is able to make use of syntactic structures. Writing helps in communication, forming ideas, and makes information to be clear to student teachers. In English, syntactic structures are neglected in the communicative approach. The current study deals with syntactic structures as it has an important role in English writing to student teachers. The aim of the study is to investigate the effect of Problem-Based Learning Strategy with the Help of the Internet to Develop Some of Essay Syntactic Structures Skills in English of third year English majors at Faculty of Education. Questions of the study were:

1. What are syntactic structures skills in which student teachers' achievement levels of third year English majors are low at Faculty of Education, Beni-Suef University?
2. To what extent does using problem–based learning strategy with the help of the Internet affect essay syntactic structures skills of third year English majors at Faculty of Education, Beni–Suef University?
3. To what extent does using problem problem–based learning with the help of the Internet affect essay syntactic structures skills of third year English majors at Faculty of Education, Beni–Suef University in general?

In the diagnostic test, participants of the study were 31 student teachers at Faculty of Education, Beni-Suef University. In the post test, student teachers were 39 after they had been 45 in the pre/test.

Procedures included administering the diagnostic test after making sure of validity and reliability. According to the results of the diagnostic, test which was the

[i] العنوان: استخدام التعلم القائم على المشكلة بمساعدة الإنترنت في تنمية بعض مهارات التراكيب النحوية للمقال

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first question of the study: the researcher designed a program to help student teachers develop their skills of essay syntactic structures skills. Before administering the pre/test, the researcher determined validity as the test was submitted to juries, then reliability was achieved. Student teachers' scores were low in the diagnostic and the pre/post/ tests. Afterwards, the researcher started teaching the program after it had been designed. Students were given the instructional materials. The researcher used the problem solving based learning strategy with the help of the Internet.

Results of the study: To answer question 2 it is shown in (table 4) where means were obvious stating the differentiation between the pre/test and post/test in every skill; To answer question 3, it is shown in (table 5) where means were clear stating the differentiation between the pre/test and post/test in all skill. T test was 18.373 student teachers at Faculty of Education made use of the program. It would be better to focus on the importance of problem−based learning with the help of the internet at schools and Faculties of Education to develop the skills of essay syntactic structures skills.

Keywords: problem−based learning, syntactic structures skills

مستخلص

كل لغة لها تذوق خاص بها. والتراكيب النحوية مهمة للطلاب المعلمين بكلية التربية، والطالب المعلم ينمى الكتابة لديه عندما يكون قادرا على أن يستخدم التراكيب النحوية. والجانب الكتابي يساعد فى التواصل وتكوين الأفكار وتجعل المعلومات واضحة لدى الطلاب المعلمين. وفى اللغة الإنجليزية، تعد التراكيب النحويةللمفال مهملة فى المدخل التواصلى. وفى هذه الدراسة تتناول الباحث التراكيب النحويةللمقاللما لها من دور عظيم الأهمية فى الكتابة باللغة الأنجليزية للطلاب المعلمين

وتهدف هذه الدراسة إلى بحث أثر استخدام التعلم القائم على حل المشكلات بمساعدة الحاسوب فى تنمية بعض مهارات التراكيب النحوية للمقال لدى الطلاب المتخصصين فى اللغة الإنجليزية بالفرقة الثالثة بكلية التربية

وكانت أسئلة الدراسة(1)ما مهارات التراكيب النحوية للمقال التى يقل فيها مستوى تحصيل طلاب اللغة الإنجليزية بالفرقة الثالثة بكلية التربية- جامعة بنى سويف؟ (2)إلى أى مدى يؤثر استخدام استراتيجية التعلم القائم على حل المشكلات بمساعدة الحاسوب فى كل مهارة على حده من مهارات التراكيب النحوية للمقال لطلاب اللغة الإنجليزية بالفرقة الثالثة بكلية التربية- جامعة بنى سويف (3)إلى أى مدى يؤثر استخدام استراتيجية التعلم القائم على حل المشكلاتبمساعدة الحاسوب فى مهارات التراكيب النحوية للمقال بوجه عام لطلاب اللغة الإنجليزية بالفرقة الثالثة بكلية التربية- جامعة بنى سويف

وكان المشاركون فىالاختبار التشخيصى31 من الطلاب المعلمين بكلية التربية –جامعة بنى سويف وفى الاختبار البعدي 39 بعد أن كانوا 45 فى الاختبار القبلى.

وتضمنت الاجراءات تطبيق الاختبار التشخيصي بعد تحقيق الصدق والثبات. وطبقا لنتائج الاختبار التشخيصى وهى الإجابة على **السؤال الأول بجدول (3)**،وكانت متوسطات درجات الطلاب منخفضة عدا الجانب الخاص بنوع الجملة حيث كان المتوسط 2.435484

قام الباحث بتصميم برنامج لمساعدة الطلاب على تنمية مهارات التراكيب النحوية.للمقال وقبل تطبيق الاختبار القبلي حقق الباحث الصدق بعرضه على محكمين ثم تحقق من الثبات . كانت درجات الطلاب منخفضة فى الاختبار التشخيصى والاختبار القبلي.. وبدأ الباحث تدريس البرنامج لتدريب الطلاب. وأخذ الطلاب المواد التعليمية. واستخدم الباحث استراتيجيتى التعلم القائم على حل المشكلات. والإنترنت

وكانت نتائج الدراسة كالآتى : للإجابة عن **السؤال الثاني:"** ، يظهر ذلك فى جدول4)(حيث تظهر الفروق بين الاختبار القبلي والاختبار البعدي في كل مهارة على حده . وللإجابة عن **السؤال الثالث** : يتضح في جدول(5) المتوسطات التى تظهر الفروق بين الاختبار القبلي والاختبار البعدي في جمبع المهارات محل البحث. وقد استفاد الطلاب المعلمون بكلية التربية من البرنامج

ومن الأفضل أن يتم إعادة النظر فى أهمية التعلم القائم على حل المشكلات فى المدارس والجامعات لتنمية مهارات التراكيب النحوية فى اللغة الإنجليزية.

1. Introduction

Problem−Based Learning (PBL) can be incorporated into any learning situation. Broader definitions and uses range from including PBL in lab and design classes, to using it simply to start a single discussion. PBL can also be used to create assessment items. The main thread connecting these various uses is the real-world problem. Any subject area can be adapted to PBL with a little creativity. While the core problems will vary among disciplines, there are some characteristics of good PBL problems that transcend fields (Duch, Groh, and Allen, 2001):

- The problem must motivate students to seek out a deeper understanding of concepts.
- The problem should require students to make reasoned decisions and to defend them.
- The problem should incorporate the content objectives in such a way as to connect it to previous courses/knowledge.
- If used for a group project, the problem needs a level of complexity to ensure that the students must work together to solve it.
- If used for a multistage project, the initial steps of the problem should be open-ended and engaging to draw students into the problem.

The problems can come from a variety of sources: newspapers, magazines, journals, books, textbooks, and television/ movies. Some are in such form that they can be used with little editing; however, others need to be rewritten to be of use. The following guidelines from The Power of Problem-Based Learning (Duch et al, 2001) are written for creating PBL problems for a class centered on the method; however, the general ideas can be applied in simpler uses of PBL:

- Choose a central idea, concept, or principle that is always taught in a given course, and then think of a typical end-of-chapter problem, assignment, or homework that is usually assigned to students to help them learn that concept. List the learning objectives that students should meet when they work through the problem.
- Think of a real-world context for the concept under consideration. Develop a storytelling aspect to an end-of-chapter problem, or research an actual case that can be adapted, adding some motivation for students to solve the problem. More complex problems will challenge students to go beyond simple plug-and-chug to solve it. Look at magazines, newspapers, and articles for ideas on the story line. Some PBL practitioners talk to professionals in the field, searching for ideas of realistic applications of the concept being taught.
- The problem needs to be introduced in stages so that students will be able to identify learning issues that will lead them to research the targeted concepts. The following are some questions that may help guide this process:
    - What will the first page (or stage) look like? What open-ended questions can be asked? What learning issues will be identified?

- How will the problem be structured?
- How long will the problem be? How many class periods will it take to complete?
- Will students be given information in subsequent pages (or stages) as they work through the problem?
- What resources will the students need?
- What end-product will the students produce at the completion of the problem?

- Write a teacher's guide detailing the instructional plans on using the problem in the course. If the course is a medium- to large-size class, a combination of mini-lectures, whole-class discussions, and small group work with regular reporting may be necessary. The teacher's guide can indicate plans or options for cycling through the pages of the problem interspersing the various modes of learning.
- The final step is to identify key resources for students. Students need to learn to identify and utilize learning resources on their own, but it can be helpful if the instructor indicates a few good sources to get them started. Many students will want to limit their research to the Internet, so it will be important to guide them toward the library as well. Duch, B. J., Groh, S. E, & Allen, D. E. (Eds.). (2001).

The method for distributing a PBL problem falls under three closely related teaching techniques: case studies, role-plays, and simulations. Case studies are presented to students in written form. Role-plays have students improvise scenes based on character descriptions given. Today, simulations often involve computer-based programs. Regardless of which technique is used, the heart of the method remains the same: the real-world problem. (Illinois Center for Innovation in Teaching and Learning (2017:1−2))

2. Review of literature

2.1 Problem Solving and Syntactic Structures

Studies are chronologically rearranged.

Hargis (1976) outlined the syntactic structures which represent a stage in the cognitive development of children, and focused on an aspect of cognitive development known as conservation. The cognitive components of conservation are presented as the primordial base for the set of syntactic structures which map or mirror them. Piaget proposed four periods or levels of cognitive development; during the third period, that of concrete operations, a child learns to use logical processes to solve concrete problems. Some of these problems have to do with conservation. The ability to conserve requires that the child realize that the amount or quantity of substance or matter stays the same even though its shape or position is changed. These problems included the conservation of number, mass, and volume. The ability to conserve presupposes a mastery of subsets of cognitive structures such as reversibility. Each of these cognitive structures is

represented by some primary syntactic form. Conservation in its cognitive and linguistic sense is the effective interaction of these composite structures.

Sheridan (1976) mentioned a project in 1973 in the Indianapolis Public School system based on the hypothesis that English language skills and the control of syntactic structures can be measurably improved through participation in a specially designed Latin FLES program stressing the importance of Latin root words. Goals of the project were to assess whether or not the study of Latin and classical civilization will: (1) expand the verbal functioning of sixth grade children in English, and (2) broaden their cultural horizons and stimulate an interest in humanities. The project was directed towards approximately 400 sixth graders in six schools, all studying Latin and classical civilization in a program coordinated with their regular classes. They received a thirty-minute lesson each day 5 days per week taught by a Latin specialist. The present program evaluation report shows overall gains in word knowledge, reading, language, spelling, math computation, math concepts, math problem solving, and social studies after the first year, and gains in spelling, reading, and math concepts following the second and third years of the program, as seen from results on subtests of the Metropolitan Achievement Test. Teachers' evaluation of the program were generally favorable.

In ERIC Clearinghouse on Reading and Communication Skills, Urbana, IL (1977) different topics were shown, including the use of word information cues by beginning readers; the relationship between problem solving and oral reading strategies; the ease with which children learn different logographic systems; the effects of adjunct questions, humor, and various learning modes on learning and retention; conceptual tempo and oral reading performance; the relationship of deep structure recovery to reading comprehension; children's ability to make inferences from written and oral material; the contributions of inference and discrimination processes to false recognition of sentences; initial consonant phoneme-grapheme correspondence errors; effects of different error types and of method of presentation of material on comprehension; the relation between syntactic form and familiarity of content to reading comprehension; readers' perceptions of the reading process and of their own reading strategies; relationships between quality of oral reading errors and oral syntactic development; readers' use of contextual clues; and sub vocalization during the silent reading process.

Greeno, et al (1985) investigated properties of skill in learning, in the domain of elementary algebra. Thinking-aloud protocols indicate that early knowledge of the subjects studied was fragmentary, rather than involving systematically flawed procedures. Computational models, developed to simulate observed errors, focused on the role of structural representations in facilitating reliable performance. Connectionist models for recognizing structural features were investigated, leading to the conclusion that the cognitive system probably requires knowledge functionally equivalent to grammatical rules. Data from information processing experiments indicated that: (1) judgments about the application of an algebraic operator are influenced by low-level features recognized before a completely parsed representation is formed; and (2)

recognition of individual characters in expressions is not facilitated by syntactically correct contexts, as it is by lexical contexts in letter recognition, but information about the algebraic categories of characters is obtained early in processing from the syntactic context. The conclusion is made that training in basic symbolic skill might be more effective if more attention were given to teaching the structure of information of the domain, including general features of the information presented in problems as well as general constraints and goals of the procedures to be acquired.

Rowe, Valerie (1992) demonstrated that both oral and written language continue to develop through adulthood. Studies show that such skills as the abilities to interpret metacognitive verbs, to make word associations, and to understand syntax improve with age. Adolescents and adults use language that solidifies them with their peer group. Adolescents use emotive, connotative, and socially coded language. Their socially coded language of swearing shows how conscious they are of how they are perceived linguistically. Furthermore, they are very much aware of linguistic structures appropriate to gender. In writing, semantic and syntactic complexity, complex audience awareness, and skill in narration are indicators of maturity. Writing improves when freed from the level of transmitting information, and is stimulated by interaction and conversation. Student-centered, concept-based transactional learning fosters learning in the classroom. Adolescent language development can be achieved by: (1) student initiative; (2) incorporation of prior knowledge; (3) inclusion of the learner's cultural context; and (4) interaction between school and society. Despite favorable research, contemporary U.S. high schools rarely employ language oriented, collaborative problem solving. Teachers need to learn how to implement such strategies, and they must have the support of administrators, the community, and the government in incorporating language-based instructional methods into the curriculum.

Kirshner (1994) stated the full text of 2 plenary papers and 26 research reports. In addition, brief, usually one-page, reports are provided for 6 discussion groups, 10 technology focus groups, 7 symposiums, 7 oral presentations, and 17 position sessions. The two full plenary reports are: (1) "Problems of Reification: Representations and Mathematical Objects" (A. Sfard and P. W. Thompson); and (2) "Elements of a Semiotic Framework for Understanding Situated and Conceptual Learning" (J.A. Whitson). The twenty-six full research reports are: (3) "Factors in Learning Linear Algebra" (G. Harel); (4) "Articulations Between the Settings, Numeric, Algebraic and Graphic Related to the Differential Equations" (A. Hernandez and F. Hitt); (5) "Image Structures and Reification in Advanced Mathematical Thinking: The Concept of Basis" (L. Krussel); (6) "A Survey of Tertiary Students' Entry Level Understanding Of Mathematics Vocabulary" (L. D. Miller and B. White); (7) "Constructing the Derivative in First Semester Calculus" (B. Speiser and C. Walter); (8) "Visual Salience in Algebraic Transformations" (T. Awtry and D. Kirshner); (9) "Preparing Students for Algebra: The Role of Multiple Representations in Problem Solving" (M. E. Brenner and B. Moseley); (10) "Introducing Algebra With Programmable Calculators" (T. C. Avalos); (11) "Blind Calculators', 'Denotation' of Algebra Symbolic Expressions, and 'Write False'

Interviews" (Jean-Philippe Drouhard et al); (12) "School Algebra: Syntactic Difficulties in the Operativity With Negative Numbers" (A. Gallardo and T. Rojano); (13) "A Constructivist Explanation of the Transition from Arithmetic to Algebra: Problem Solving in the Context of Linear Inequality" (T. Goodson-Espy); (14) "Multi-Tasking Algebra Representation" (L. P. McCoy); (15) "Assessing Student Responses to Performance Assessment Tasks" (S. Hillman); (16) "Multi-faceted Inferences from an Interview Assessment" (T. L. Schroeder); (17) "Visualization in Mathematics: Spatial Reasoning Skill and Gender Differences" (L. Friedman); (18) "Negative Consequences of Rote Instruction for Meaningful Learning" (D. Simoneaux and D. Kirshner); (19) "Long Term Relationship Between Spatial Ability and Mathematical Knowledge" (G. H. Wheatley et al); (20) "The Role of Context in Mathematical Activity" (D. Clarke and S. Helme); (21) "The Relationship Between Preservice Teachers' Metaphors for Mathematics Learning and Habermasian Interests" (M. J. Fleener and A. Reynolds); (22) "An Investigation into the Development of Student Understanding of the Graphs of Polynomial Functions of Degree Greater Than Two: Results and Implications" (J. E. Curran); (23) "A Modeling Approach to Constructing Trigonometric Functions" (H. M. Doerr); (24) "Students' Conceptions of Functions in a Computer-Rich Problem Solving Environment" (B. R. O'Callaghan and D. Kirshner); (25) "Towards an Algebraic Notion of Function: The Role of Spreadsheets" (T. Rojano and R. Sutherland); (26) "Students' Development of Length Measurement Concepts Using a Specially-Designed Turtle Graphics Environment" (D. H. Clements; And Others); (27) "The Role of Language in Geometric Concept Formation: An Exploratory Study with Deaf Students" (M. M. Mason); and (28) "Development of the Concept of Randomness" (K. E. Metz). (WTB) Chick; Vincent (2005) showed the proceedings of the 29th Conference of the International Group for the Psychology of Mathematics Education. Conference papers were centered around the theme of "Learners and Learning Environments".

Hitt, Morasse (2009) stressed the importance of developing in children a structure for advanced numerical-algebraic thinking that could provide an element of control when solving mathematical situations. Pupils' conceptions that induce errors in algebra due to a lack of control in connection with their numerical thinking were analyzed. A detailed critique of a research group who promoted the movement of introducing algebra in primary school ("Early Algebra" was offered). Method: In this collaborative research, how to promote advanced numerical-algebraic thinking through experimentation with certain activities (problem situations) in two groups of secondary students (grade 9), with 24 and 36 students, respectively was shown. We use a specific methodology for collaborative learning, scientific debate and self-reflection were used. Results: The pupils in this study constructed covariational reasoning as a prelude to the function concept. They also developed control elements that helped them in the process of solving problem situations. Discussion: Numerical reasoning is essential to giving meaning to the syntactic processes that, if manipulated or conceived of incorrectly, can lead to an error in a given situation. Advanced numerical-algebraic thinking helped develop sensitivity to contradiction, enabling us to detect error. It was believed that

working with manipulative materials and producing functional representations that could evolve into institutional ones, and using collaborative learning with scientific debate and self-reflective reasoning (ACODESA methodology), could help pupils to more easily retain their mathematical concepts over time.

Switzer (2011) reported how 24 grade 4-6 students in one elementary and middle school interpreted formal and informal representations of variables. While interpretations for variables represented as letters (e.g., x and y) have been well established for students in algebra classes and beyond, little research into elementary school students' initial interpretations of variables exists. This study examined student interpretations of formal (e.g., x + y = 12) and informal representations of variables (e.g., [white triangle up] + [white square] = 12). The students in this study were consistent in their meaning of various representations of variables presented in equations, but did not parallel normative algebraic solutions. For example, students treated the representation of the variables as different variables even if they were the same (e.g., y + y = 12). Student also consistently produced multiple solutions for each variable. For example, they supplied the ordered pair solutions such as (6,6), (5,7), (4,8), regardless of the representation of the variable (e.g., y + y = 12; a + b = 12; and [white triangle] + [white square] = 12). Further, these students did not exhibit many of the misconceptions exhibited by students in algebra classes and beyond. For example, the common misconception that different variables can only take on different values was not a typical response for these students (Fujii, 2003). However, when these same tasks were presented as word problems, students treated variables in an algebraically normative way. In other words, the students were more "successful" solving the word problems (Koedinger & Nathan, 2004). Students attended to the syntactic and semantic structure of the word problems to determine meanings for the variables that were not evident in the equations.

Peake, Jiménez, Rodríguez, Bisschop, Villarroel (2015) analyzed the arithmetic problems posed by a group of mathematically talented students when given two problem-posing tasks, and compared these students' responses to those given by a standard group of public school students to the same tasks. Analysis focused on characterizing and identifying the differences between the productions of both groups, based on an analytic framework designed in this study. Method: The sample was composed of two groups of students. The first consisted of 21 students identified as mathematically talented and the second of 20 secondary students in a public school. Both groups completed two tasks of posing arithmetic problems designed in this study. The results were analyzed based on three categories of analysis and variables related to the problems' syntactic, semantic, and mathematical structure. Results: The problems posed by the group of mathematically talented students were richer than those of the group of public school students. The talented students' problems were composed of a greater number of propositions, used different types of numbers, required more steps and different calculation processes to solve, and have a higher number of different semantic relationships. Furthermore, the results showed some attributes that enable us

to characterize mathematically talented students when solving problem posing tasks. Conclusion: The problem-posing instrument and the analytical diagram enabled description and exploration of the performance of a group of mathematically talented students. Moreover, the three categories of analysis used and the solvability of each problem produced ten components whose values characterize the wealth of problems that the subjects invented. Finally, statistical analysis reinforced the differences between the productions of the two study groups.

2.2 Commentary on the Review of Literature

Hargis, (1976) outlined the syntactic structures which represent a stage in the cognitive development of children; whereas, Sheridan, Rita, (1976) showed that goals of the project were to assess whether or not the study of Latin and classical civilization will: (1) expand the verbal functioning of sixth grade children in English, and (2) broaden their cultural horizons and stimulate an interest in humanities. In ERIC Clearinghouse on Reading and Communication Skills, Urbana, IL (1977) different topics were shown, including the use of word information cues by beginning readers, while Greeno, et al (1985) investigated properties of skill in learning, in the domain of elementary algebra. Rowe, Valerie (1992) demonstrated that both oral and written language continue to develop through adulthood Kirshner (1994) stated the full text of 2 plenary papers and 26 research reports. In addition, brief, usually one-page, reports are provided for 6 discussion groups, 10 technology focus groups, 7 symposiums, 7 oral presentations, and 17 position sessions, but Chick, Vincent (2005) showed the proceedings of the 29th Conference of the International Group for the Psychology of Mathematics Education.

Hitt, Morasse (2009) stressed the importance of developing in children a structure for advanced numerical-algebraic thinking that could provide an element of control when solving mathematical situations. Moreover, Switzer (2011) reported how 24 grade 4-6 students in one elementary and middle school interpreted formal and informal representations of variables. While interpretations for variables represented as letters (e.g., x and y) have been well established for students in algebra classes and beyond, little research into elementary school students' initial interpretations of variables exists, but Peake, Jiménez, Rodríguez, Bisschop, Villarroel (2015) analyzed the arithmetic problems posed by a group of mathematically talented students when given two problem-posing tasks, and compared these students' responses to those given by a standard group of public school students to the same tasks. The present study deals with problem based learning with the help of the Internet to develop syntactic structures of student teachers in English department at Faculty of Education at Beni-Suef University.

2.3 Context of the Problem

Unstructured observations and interviews with student teachers showed points of weaknesses in essay writing. The researcher prepared a diagnostic test to investigate student teachers skills in essay writing in which they are weak. The researcher achieved

reliability and validity of the diagnostic test and the pre/post tests as shown in the following table:

Table 1: Reliability and validity of the diagnostic test

	(A) Subject	(B)Predicate	(C) Sub. &Pred.	(D) Sentence type	(E) Paragraph	Total
Reliability	0.85	0.83	0.82	0.87	0.89	0.91
Validity correlation with total score	0.69	0.66	0.67	0.71	0.66	-

Reliability is ranged from .82 to .89 and the total is .91. Validity is ranged from 0.66 to 0.71 . After determining reliability, the diagnostic test was ready to be administered.

Table 2: Reliability and validity of the pre/post test

	(A) Subject	(B)Predicate	(C) Sub. &Pred.	(D) Sentence type	(E) Paragraph	Total
Reliability	0.87	0.84	0.81	0.88	0.90	0.92
Validity correlation with total score	0.67	0.67	0.63	0.69	0.70	-

Reliability is ranged from 0.81 to 0.90 and the total is 0.92. Validity is ranged from 0.63 to 0.70. A student teacher was to select just one topic of two and answer after making use of the Internet. The atmosphere in which student teachers discussed the questions was well. Student teachers' scores were written down by inter-raters. Then, statistical manipulations were carried out.

Table 3: Average of the mean scores of each skill in syntactic structures of third year English majors

	(A) Subject	(B)Predicate	(C) Sub. &Pred.	(D) Sentence type	(E) Paragraph	Total
	2	2	2	4	12	22
Mean	1.080645	0.854839	0.822581	2.435484	4.387097	10.16129

In this table, it is clear that student teachers' mean scores are low, but in sentence type, their mean scores were 2.435484.

2.4 Statement of the Problem

From the aforementioned information, the diagnostic test and the researcher experience in teaching, it is obvious that student teachers are not well in essay writing. The researcher will make use of problem solving learning with the help of the internet to develop essay syntactic structures of third year English majors at Faculty of Education at Beni-Suef University.

2.5 Objectives of the Study

1. Investigating the effect of problem based learning with the help of computer on developing essay syntactic structures;
2. Developing essay writing skills;
3. Showing the role of computer on solving problems;
4. Encouraging student teachers to share in discussion of issues that need solutions.

2.6 Importance of the Study

1. This study may shed light on the importance of syntactic structures in essay writing;
2. This study may give instructors and lecturers indicators about the effect of problem–based learning on essay syntactic structures;
3. This study may develop student teachers performance in writing;
4. This study may draw an attention to the role of computer in solving societal and educational problems.

2.7 Questions of the Study

1. What are syntactic structures skills in which student teachers' achievement levels of third year English majors are low at Faculty of Education, Beni-Suef University?
2. To what extent does using problem–based learning with the help of computer affect essay syntactic structures skills of third year English majors?
3. To what extent does using problem–based learning with the help of computer affect syntactic structures skills of third year English majors in general?

2.8 Terms of the Study

Problem-based learning (PBL) is a student-centered pedagogy in which students learn about a subject through the experience of solving an open-ended problem found in trigger material. The PBL process does not only focus on problem solving with a defined solution, but it allows for the development of other desirable skills and attributes. This includes knowledge acquisition, enhanced group collaboration and communication. (Wikipedia.org, (2017:1))

Problem-Based Learning (PBL) is an instructional method of hands-on, active learning centered on the investigation and resolution of messy, real-world problems. (Learning-theories.com, (2017:1))

The operational definition in this study will be the definition of (Learning-theories.com, (2017:1))

Syntactic Structures is a major work in linguistics by American linguist Noam Chomsky. It was first published in 1957. It introduced the idea of transformational generative grammar. This approach to syntax (the study of sentence structures) was fully formal (based on symbols and rules). (Wikipedia.org, (2017:1))

2.9 Syntactic Structure

That a constituent in a sentence belongs to a certain syntactic category means that it can be replaced in that sentence by any other string of words that belongs to that category, as long as the two strings have the same morphosyntactic properties.[2] The noun phrase *the white dog* can be replaced by infinitely many noun phrases whose head noun is in the third person singular: *the Queen of the Netherlands*, *the prince who neglected his duties*, *every cat*, (but not by noun phrases like *the white dogs*, *you and your friend*).Cohen, (2017:2)

The operational definition in this study will be the definition of Cohen (2017:2).

2.10 Hypotheses of the Study

1. There is a statistically significant difference between the pre/test and the post/test in each skill of syntactic structures skills , at level of .,01 in favour of the post test
2. There is a statistically significant difference between the pre/test and the post/test in syntactic structures skills in general, at level of .,01 in favour of the post test

3. Method of the Study

The method of the present study will be quasi-experimental.

3.1 Instruments of the Study

1. Interviews with some student teachers in third year, English Department at Faculty of Education.
2. A diagnostic test of syntactic structures skills. The test was prepared by the researcher.
3. A pre/posttest of syntactic structures skills. The test was prepared by the researcher.

3.2 Materials of the Study

1. A student book was given to student teachers.
2. Handouts
3. Guidelines of the program.

3.3 Delimitations of the Study

The study is delimited to the following:

- In the diagnostic test, students were randomly chosen. There were 31 students enrolled in third year, English Department, Faculty of Education at Beni-Suef.
- In the pre/test, there were 45 student teachers enrolled in English Department, Faculty of Education at Beni-Suef.
  Some syntactic structures including:
- the subject in an English sentence, the predicate in an English sentence,
- the subject and predicate in English sentences, a rambling sentence,
- a common fragment sentence, a simple sentence, a compound sentence, a complex sentence, dependent and independent clauses
- topics were: desertification, demerits of technology, how to improve your faculty environment, illiteracy, unemployment, spinistership, and child labour.

3.4 Participants of the study

31 students were randomly chosen to administer the diagnostic test. 45 student teachers were also randomly chosen to administer the pre/test during the academic year: 2018.In the post test, they became 39 student teachers as some of them were absent. The selection of third year English majors was based on the fact that they were student teachers and they were requested to develop their syntactic structures in writing.

3.5 The Theoretical Background

The PBL tutorial process involves working in small groups of learners. Each student takes on a role within the group that may be formal or informal and the role often alternates. It is focused on the student's reflection and reasoning to construct their own learning. It is identifying what student teachers already know, what they need to know, and how and where to access new information that may lead to the resolution of the problem. The tutor aims to build students' confidence when addressing problems, while also expanding their understanding. This process is based on constructivism. PBL represents a paradigm shift from traditional teaching and learning philosophy, which is more often lecture-based. The constructs for teaching PBL are very different from traditional classroom or lecture teaching and often requires more preparation time and resources to support small group learning.

3.6 The Advantages of Problem-Based Learning

3.6.1 Fosters student-centred learning

In problem-based learning, the students are actively involved and they like this method. It fosters active learning, and also retention and development of lifelong learning skills.

3.6.2 Upholds lifelong learning

Problem-based learning gives emphasis to lifelong learning by developing in students the potential to determine their own goals, locate appropriate resources for learning and assume responsibility for what they need to know.

3.6.3 Prominence on comprehension not facts

Problem-based learning focuses on engaging students in finding solutions to real life situations and pertinent contextualized problems.

3.6.4 In-depth learning and constructivist approach

PBL fosters deep learning by involving students with the interaction of learning materials. They relate the concept they study with everyday activities and enhance their knowledge and understanding.

3.6.5 Better understanding and adeptness

By giving more significance to the meaning, applicability and relevance to the learning materials it leads to better understanding of the subjects learnt. When students are given more challenging and significant problems are given, it makes them more proficient.

3.6.6 Reinforces interpersonal skills and teamwork

Project based learning is more of teamwork and collaborative learning. The teams or groups resolve relevant problems in collaboration and hence it fosters student interaction, teamwork and reinforces interpersonal skills

3.6.7 Self-motivated attitude

In fact, it is more fascinating, stimulating and one of the good learning methods because it is more flexible and interesting to students. They enjoy this environment of learning for it is less threatening and they can learn independently.

3.6.8 Enriches the teacher-student relationship

Students feel that problem-based learning is more nurturing, significant curriculum and beneficial to the cognitive growth of the student.

3.6.9 Higher level of learning

In medical education, PBL cases can incorporate dialogue between patients and physicians, demonstrate the narrative character of the medical encounter, and examine the political economic contributors to disease production. PBL can serve as a platform for a discursive practices approach to culture that emphasizes the emergent, participant-constructed qualities of social phenomena while also acknowledging large-scale social forces. Wikipedia, the Free Encyclopedia (2018:4-6)

4. Problem-Based Learning: Six Steps to Design, Implement and Assess

Twenty-first century skills necessitate the implementation of instruction that allows students to apply course content, take ownership of their learning, use technology meaningfully, and collaborate. Problem-Based Learning (PBL) is one pedagogical approach that might fit in your teaching toolbox. By breaking down the PBL cycle into six steps, you can begin to design, implement, and assess PBL in your own courses.

Step One: Identify Outcomes/Assessments

PBL fits best with process-oriented course outcomes such as collaboration, research, and problem solving. It can help students acquire content or conceptual knowledge, or develop disciplinary habits such as writing or communication. After determining whether your course has learning outcomes that fit with PBL, you will develop formative and summative assessments to measure student learning. Group contracts, self/peer-evaluation forms, learning reflections, writing samples, and rubrics are potential PBL assessments.

Step Two: Design the Scenario

Next, you design the PBL scenario with an embedded problem that will emerge through student brainstorming. Think of a real, complex issue related to your course content. It's seldom difficult to identify lots of problems in our fields; the key is writing a scenario for our students that will elicit the types of thinking, discussion, research, and learning that need to take place to meet the learning outcomes. Scenarios should be motivating, interesting, and generate good discussion. Check out the websites below for examples of PBL problems and scenarios.

Step Three: Introduce PBL

If PBL is new to your students, you can practice with an "easy problem," such as a scenario about long lines in the dining hall. After grouping students and allowing time to engage in an abbreviated version of PBL, introduce the assignment expectations, rubrics, and timelines. Then let groups read through the scenario(s). You might develop a single scenario and let each group tackle it in their own way, or you could design multiple scenarios addressing a unique problem for each group to discuss and research.

Step Four: Research

PBL research begins with small-group brainstorming sessions where students define the problem and determine what they know about the problem (background knowledge), what they need to learn more about (topics to research), and where they need to look to find data (databases, interviews, etc.). Groups should write the problem as a statement or research question. They will likely need assistance. Think about your own research: without good research questions, the process can be unguided or far too specific. Students should decide upon group roles and assign responsibility for researching topics necessary for them to fully understand their problems. Students then develop an initial hypothesis to "test" as they research a solution. Remember: research questions and hypotheses can change after students find information disconfirming their initial beliefs.

Step Five: Product Performance

After researching, the students create products and presentations that synthesize their research, solutions, and learning. The format of the summative assessment is completely up to you. We treat this step like a research fair. Students find resources to develop background knowledge that informs their understanding, and then they collaboratively present their findings, including one or more viable solutions, as research posters to the class.

Step Six: Assessment

During the PBL assessment step, evaluate the groups' products and performances. Use rubrics to determine whether students have clearly communicated the problem, background, research methods, solutions (feasible and research-based), and resources, and to decide whether all group members participated meaningfully. You should consider having your students fill out reflections about their learning (including what they have learned about the content and the research process) every day, and at the conclusion of the process.

A lecturer might teach an economics course and develop a scenario about crowded campus sidewalks. After the groups have read the scenario, they develop initial hypotheses about why the sidewalks are crowded and how to solve the problem. If one group believes, they are crowded because they are too narrow and the solution is widening the sidewalks, their subsequent research on the economic and environmental impacts might inform them that sidewalk widening isn't feasible. They should jump back to step four, discuss another hypothesis, and begin a different research path.

This type of process-oriented, self-directed, and collaborative pedagogical strategy can prepare our students for successful post-undergraduate careers. Is it time to put PBL to work in your courses? (Genareo, Lyons, (2015:1-3))

4.2 Description of the Program

The program involves the essay syntactic structures skills after administering the diagnostic test to investigate the syntactic structures in which student teachers were weak. The program consists of parts of the syntactic structures related to essay writing as shown in materials of the study. The researcher prepared a program for student teachers and guidelines of the program. Handouts were given to student teachers to help them know how to write syntactic structures well through reading essays using the Internet

4.2.1 Test Validity

A pre/post test was prepared and it was submitted to Jurors to achieve validity to assess what the test is put for.

4.2.2 Test Reliability

The formula of Alpha Chronbach was used to achieve reliability. After administering the pre/test, the program was given to student teachers. The researcher used the

program guidelines while carrying out the program during lectures at Faculty of Education, Beni-Suef University.

4.3 Procedures of the Study

The student-teachers who attended the pre/test were 45. The researcher was helped by more than one rater to be away from bias. During implementation of the program the researcher met them once a week. He told them about the program and how to deal with issues mentioned during lectures. The researcher was helped by student teachers as they were enthusiastic to use the program. The student teachers did their best and they were helpful to the researcher while carrying out the program and before administering the post test.

In the post test, student teachers were 39 after they had been 45 in the pre test making use of the theoretical background, the researcher helped student teachers. He worked as a facilitator during discussions of issues in an atmosphere of encouragement and enthusiasm. Student teachers were given the opportunity to ask and discuss during lectures to know the resolutions through problem based learning at Faculty of Education. Student teachers got fruitful information that they used while showing their responses in the post test.

At Faculty of Education, the student- teacher made use of his ideas while discussing the topic with other student-teachers. Every one shared, participated and got ideas from other student - teachers during discussion. Student-teachers were assessed from time to time to know to what extent they were progressive during lectures at Faculty of Education at Beni-Suef. Feedback was taken into account to develop their standard because standard needs standard from time to time to know strengths and weaknesses. Student teachers were given handouts. Weaknesses were focused on through knowing the right answers and developing performance of Student- teachers.

4.4 Statistical Analyses and Interpretations of Results

To answer question 2, which is: "To what extent does using problem–based learning strategy affect syntactic structures skills of third year English majors at Faculty of Education, Beni-Suef University?", statistical manipulations are shown in the following table:

Table 4: Means, standard deviations, and t value of syntactic structures skills

		Mean	N	Std. Deviation	t	df	Sig.
Pair1: Subject	pre	1.833	39	.3862	6.023	38	0.01
	post	2.346	39	.4610			
Pair 2: Predicate	pre	1.397	39	.3660	6.812	38	0.01
	post	2.090	39	.5946			
Pair 3: Sub.& Pred.	pre	.821	39	.5192	7.797	38	0.01
	post	1.590	39	.5486			
Pair 4: Sentence type	pre	3.56	39	1.046	9.014	38	0.01
	post	5.08	39	.957			
Pair 5: Paragraph	pre	4.33	39	1.420	12.912	38	0.01
	post	7.33	39	1.009			

It is shown that the mean in pre-test is 1.833 in skill1, whereas, the mean in the post test is 2.346. Dealing with standard deviation, in the pre-test, it is .3862, while in the post test it is .4610. The value of t is 6.023 in skill 2, the mean in the pre-test is 1.397, but in the post test, it is 2.090. Considering standard deviation, in the pre-test, it is .3660, while in the post test, it is .5946. The value of t is 6.812. The mean in pre-test is .821 in skill 3, whereas, the mean in the post test is 1.590. Dealing with standard deviation, in the pre-test, it is .5192, while in the post test, it is .5486. The value of t is 7.797. In skill 4, the mean in the pre-test is 3.56, but in the post test, it is 5.08. Considering standard deviation, in the pre-test, it is 1.046.while in the post test, it is .957. The value of t is 9.014. In skill 5, the mean in the pre-test is 4.33, but in the post test, it is 7.33. Considering standard deviation, in the pre-test, it is 1.420, while in the post test, it is 1.009. The value of t is 12.912

It is obvious that means of the post test are more than those of the pre test. These results showed that third year English majors at Faculty of Education, Beni-Suef University made use of the program.

To answer question 3, which is: "To what extent does using problem–based learning strategy affect syntactic structures skills of third year English majors at Faculty of Education, Beni-Suef University in general?", statistical manipulations are shown in the following table:

Table 5: Means, standard deviations, and t value of overall syntactic structures skills

		Mean	N	Std. Deviation	t	df	Sig.
Total	pre	11.90	39	2.315	18.373	38	0.01
	post	18.44	39	2.075			

It is shown in the totality of paired sample statistics that the mean score of the pre test is 11.90 whereas in the post test it is 18.44. Standard deviation in the pre test is 2.315 and in the post test is 2.075and the value of t is 18.373.

4.6 Limitations of the Study

1. At first, it was difficult for a student teacher to form a well-organized essay, but with the help of the internet and discussion during lectures, his essay writing Skills have been gradually improved;
2. In the very beginning, student teachers were not enthusiastically accepting the idea, but by the end of the program, they were energetically writing essays involving well syntactic structures;
3. Some student teachers were absent in the post test. Their numbers were: 12, 16, 18, 36, 37 and 38;
4. Carrying out the program took a long time and some students were tired of using the internet, but they were happy during discussions at Faculty of Education.

5. Recommendations of the Study

It is recommended to take into account the following:

- problem-based learning should be considered in secondary education to train students on syntactic structures.
- problem-based learning should be involved in activities at faculties of educations.
- the difference between males and females should be considered while doing other researches on syntactic structures.
- directing teachers, trainers, and supervisors to the necessity of problem-based learning in general and syntactic structures in particular to develop students' writing sub-skills.
- first and second year students at faculty of education should be given courses in writing to be prepared for teaching in schools.

5.1 Suggestions for Further Studies

The following studies are suggested:

- the effect of problem-based learning on the functional writing skills of secondary school students;
- the effect of feedback on developing syntactic structures skills in English of prep school students;
- the effect of problem-based learning. on developing paragraph writing of secondary school students;
- the effect of using problem-based learning on developing some English speaking skills of first year students in basic education at faculty of education;
- the effect of using feedback on developing essay writing skills of English majors at faculties of education;
- the effect of using problem-based learning strategies on developing some reading comprehension skills of secondary school students.

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