



Cybernetic Thinking: Serialist and Wholist style as an English Grammar Problem Solving Learning Perspective during the Pandemic

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ABSTRACT <p>This study aims to describe the way of thinking of cybernetics students with Serialist and wholist thinking styles to solve English grammar problems. The study used a qualitative approach, so the data collection techniques used questionnaires and instruments in the form of tests of English grammar questions and interviews. Implementation of research at the Faculty of English Tarbiyah in the second semester of Fatmawati Sukarno State Islamic University Bengkulu in the 2020/2022 academic year. The research sample used a purposive sampling technique, namely two students with a serialist thinking style and two students with a holistic thinking style. The results showed that the question information received by Serialist and wholist thinking style students entered the five senses directly through the senses of sight and hearing. The process of attention occurs after the questions are read and understood so that perceptions arise as concepts that are needed from long-term memory to solve problems. At the time of reunion, serialist thinking style students are very risky to improvise. While students with a wholist thinking style, the concepts needed in short-term memory are not stored properly by long-term memory, so these students often experience mistakes and forget when doing retrieval; as a result, these students are more likely to generalize excessively. These two thinking styles are expected to be able to become perspectives on the development of thinking styles in the teaching and learning process during the current pandemic.</p> <p>Keywords : <i>Cybernetics, Learning, Pandemic</i></p>			

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INTRODUCTION

The pandemic period is a global period that has such a huge influence on human civilization this century. The massive development of COVID-19 occurs in every country in the world. It automatically gives a global impact. Almost every line of human life in the world experiences changes in new habits. This situation is as described by global situation until November 4, 2021, the total ratification cases of Corona Virus disease 19 in the

world are 247,968,227 cases with 5,020,204 deaths (CFR 2.0%) in 204 infected countries and 151 community transmission countries. Various ways have been carried out by each country to cope with the surge in the rise of COVID-19.

Almost every sector of the country in the world suffered heavy losses, as well as the education sector, which had been paused for a moment until finding the best solution to continue to hold educational programs. Education must not be stopped, for that education must be able to adapt to its environment, and even education must continue to grow in the midst of the COVID-19 outbreak. In the midst of the Corona Virus Disease 19 pandemic, the education system must be prepared to make a leap in the transformation of online learning for all students and by all teachers/lecturers.

Entering a new era, creativity is built to hone students' skills by improving their quality and changing systems, perspectives, and patterns of interaction with technology. The learning process during the pandemic really requires academics to think more carefully and pattern so that the teaching process can continue to be implemented. It is not an easy matter to unite technology learning with the conventional learning process to change online, so the most basic thing is about changing mindsets. There are two types of thought patterns which are usually referred to as Construal Theory, namely abstract thinking patterns and concrete thinking patterns. An abstract mindset is also a mindset that makes it easier for someone to answer "why" questions related to a goal or action while concrete mindsets make it easier for someone to answer "how" questions.

The widespread spread of COVID-19 means that it requires the Government, academics and the public to think hard in order to find various kinds of learning alternatives that can adapt to the pandemic situation. so to determine the effectiveness of teaching in a pandemic condition, of course, one must really understand theories about learning that can provide solutions. Basically, learning is an information system process where all information needs to be managed properly so that it is easy to understand and implement in pandemic conditions.

Learning theory that explains related to information processing is Cybernetic learning theory. The Circular of the Minister of Education and Culture No. 4 of 2020, the teaching methods that are widely applied during the pandemic include Project Based Learning, Online and Offline, Home visits, Integrated Curriculum method, blended learning, and learning through Radio. All of these learning methods are used as options for lecturers/teachers to apply. The application of all these teaching methods can be carried out well but pays less attention to information processing, where information systems are information management that can determine the success of students in solving their learning problems.

Cybernetic learning theory clearly explains the flow of how the inside information is processed. Information process theories are based on three: 1) sensory receptors, 2) working memory, and 3) long term memory. The sensory receptors where information is received and stored usually only last a moment and are easily replaced with other information. It arrives at working memory is information that has received attention from individuals but if it is not routinely trained then information that has reached working

memory will be is lost. Long term memory is information that has been stored and will not be lost.

There are two types of thinking. First, a Serialist is a type of thinking that tends to use a local approach and is focused on various topics separately before building an element of interest between topics. Second, the Wholist is a type of thinking that tends to use a global approach. If we examine the interrelationships of various topics from the beginning of the learning process and focus on efforts to build a comprehensive picture of a problem at the beginning of the process. This is a clear description of the problems that students often face when solving a problem in learning English.

In simple terms, the cybernetic theory is a learning theory that focuses on the delivery of information. The creation of interaction between lecturers and students is evidence of the delivery of information, but every piece of information must be considered in order to produce a good understanding so that it can be accepted, processed, and stored properly in the memory of students [20]. Project-Based Learning has many shortcomings, especially the weakness of understanding and gathering information. Gunawan, Stefanus and Agustina (2018) in Creator Media (2021) state that one of the weaknesses of Project Based Learning is that students who have weaknessesLack in understanding the material and gathering information, as well as the experiments carried out, will experience difficulties in learning. Some students experienced difficulties during the learning process due to having weaknesses in understanding experiments and gathering information.

Online Methods have weaknesses, especially when receiving information, which is determined by the availability of the internet network. This may result in failure to understand learning because the information received is very limited. Adminuniv states that the network is unstable, and there is a Lack of understanding of the material. Online learning makes students less understanding of the material presented due to the lack of information received.

The shortcomings of the Integrated Curriculum Model lie in the teacher, namely, the teacher must master the prioritized concepts, attitudes, and skills. Its application, namely the difficulty of implementing this type in full. This type requires a team between fields of study, both in planning and implementation. The integration of the curriculum with concepts from each field of study requires a variety of learning resources. The weaknesses of using blended learning are: a. It takes a very diverse media that must be supported by facilities and infrastructure. b. Facilities must be equally owned by students, such as computers and internet access. This, of course, resulted in many students not understanding what he studied.

Based on the facts, many students do not understand how to process the information obtained into knowledge. Cybernetics theory is certainly one solution to overcome the problem of managing lesson information. Therefore, researchers are interested in researching with the title "Cybernetic Thinking: Serialist and Wholist style as an English Grammar Problem-Solving Learning Perspective during the pandemic."

RESEARCH METHODOLOGY

The research describes students' cybernetic in solving English grammar problems based on realist and wholist. According to "qualitative research is research with an approach in order to understand the meaning of individuals or groups and explore social or human problems." Therefore, a qualitative approach was used in this study. states that "This type of descriptive research is a method in the form of a description of a situation or event, both written and oral, and in the form of sentences or pictures as well as behavior that can be observed and directed on individual scientific objectives." The research was carried out from August 20 to September 2, 2021, at the Faculty of English Tarbiyah Semester 2, even in the 2021 academic year. Purposive sampling technique was used. In this study, stated that "Theoretical sampling can be defined as "the process of collecting data to produce theories in which analysts jointly collect, code, and analyze the data and decide what data to collect next and in the future." where to find them sequentially, to develop the theory when the theory emerges". Research based on lecturer information about students' communication skills who are able to convey ideas to avoid blank answers. Research questionnaire to clarify which students have Serialist and wholist by making 25 statements. Four students of the second semester of the Faculty of English Tarbiyah were selected, two serealist and two wholist. Interviews were also conducted to obtain data on students' thinking styles.

Table 1.
Research Subjects

NO	Initial Code	Thinking style according to Pask & Scott
1	AFS	<i>Serialist (X1)</i>
2	AR	<i>Serialist (X2)</i>
3	ELY	<i>Wholist (X3)</i>
4	BSS	<i>Wholist (X4)</i>

Questionnaires focused on students' thinking styles, so as to distinguish Serealist and Wholist Cybernetic written test is the form of qualitative data based on them. Test questions are done individually and interviews to obtain information on the validity of cybernetic qualitative data in solving English Grammar problems based on Serealist and Wholist. Interviews were conducted after the assignment of students to complete the questions.

The students' thinking style is in the form of the questionnaire of 25 statements to make it easier for researchers to find out students' thinking styles. Cybernetic Thinking Writing Test. Interviews are used to obtain information on written test results using Cybernetic in solving English Grammar problems with serialism and wholist. They were based on cybernetic indicators and adapted to the conditions of the research subjects. Semi-structured interview with free and unbound questions. Validity and reliability must be considered and absolutely necessary in qualitative research. The validity of the data was tested using triangulation techniques. Questionnaire analysis, a thinking style test consists of 30 statements, to make it easier for researchers to know students' thinking

styles. Data analysis uses assessment guidelines and interviews with Grammar lecturers to relate thinking styles to student assignment.

The results of the interview are qualitative data developed by stated that "Activities in qualitative data analysis are carried out interactively and continue to completion, so that the data becomes saturated. Reduction data were carried out after reading and reviewing the interview results so that the research focused on the selection process, simplification of raw data. Research interview coding: X. and Y , X: Interviewer, Y: Research Subject.

RESULT AND DISCUSSION

The data obtained were 4 students of Serealist and Wholist. Two students with Serialist and two students with Wholis. They were selected based on questionnaires, written tests and interviews to identify cybernetics as follows:

Table 1.
The List Class

Directions :	
<i>Ask and Answer question, use the Present perfect and the simple past</i>	Class :
Speaker A : <i>You are the questioner. Ask a question using the peresent perefct, and then immediately follow up with a related question that prompts the use of the simple past. Ask two or three people teh same questions</i>	Speaker A :, What countries have you been in ?
	Speaker B : Well, in USA , and I've been in Indonesia
	Speaker A : Oh? Whenyou in USA?
<i>Work as aclass with the lecturer as Speaker A or in Groups with one peson selected to be the leader.</i>	Speaker B : I in USA two years ago
<i>Given only 25 minutes to complete the exercise</i>	Speaker A : How about you, What countries have you been in ?
SCORE :	Speaker C : I.....in USA or

	Indonesia, but I've been in.....
	<i>Give a brief explanation of the procedure for forming the Simple Past and Present Perfect tenses?</i>

Table 2.
Written Answers X1

Past		Present Perfect	
Nominal	Verbal	Nominal	Verbal
Positive She, he, it, I + Was + Object	Positive She, He, It, I, They, We, You + V2 +Object	Positive She, He, It + Has + been + Object	Positive She, He, It + Has + Verb 3/ Past Participle (regular/Irregular) +Object
Subject : They, We, You + Were +Object	Irregular Verb Example : go, went. Drink, Drank	I, They, We, You +Have +been +Object	I, They, We, You +Have +Verb/Past Participle (regular/Irregular) + Object
Negative She, He, It, and I + Was +not + Object They, We, You +were + Object		Negative She, he, It +has +not(hasn't) +been +Object. I, They, We, You +have + not (haven't) +been + Object	Negative She, He, It + Has +not + Verb 3(past Participle) + Object I, They, We, You +Have + not + Verb3 (past participle) + Object
Interrogative Was / Were +	Negative She, he, It, They, We,	Interrogative Has + She, He, It +been	Interrogative Has + She, He, It + verb3 (past

Subject + Object ?	I, You + did+ not +V1+ Object	+ Object ? Have + I,They, We, You + been +Object ?	participle) + Object ?
	Introgrative Did + she, he, it, They, We, I , You + V1 +Object ?		Have + I,They, We, You +Verb3 (past participle) + Object ?

X1 assumes that operationally separated nomina land verbal, Procedurally English Grammar is more operational, but if It focuses too much on the operational process, It does not tend to see the meaning of the sentence as a whole and take the risk of improvisation.

Table 3.
Written Answers X2

Name :	
known :	
What countries have you been in ? Present Perfect Nominal	
When were you in USA ? Past tense Nominal	
Asked :	
<i>Give a brief explanation of the procedure for forming the Simple Past and Present Perfect tenses.</i>	
Answered :	
Past Tense Nominal	
Positive	
She,he it, I + Was + Object	
Subject : They, We, You + Were +Object	
Negative	
She, He, It, and I + Was +not + Object	
They, We, You +were + Obejct	
Introgrative	
Was / Were + Subject + Object ?	
Verbal	

Positive She, He, It, I, They, We, You + V2 +Object
Irregular Verb Example : go, went. Drink, Drank
Negative She, he, It, They, We, I, You + did+ not +V1+ Object
Introgrative Did + she, he, it, They, We, I , You + V1 +Object ?
Present Perefect
Nominal
Positive She, He, It + Has + been + Object
I,They,We, You +Have +been +Object
Negative She, he, It +has +not(hasn't) +been +Object. I,They, We, You +have + not (haven't) +been + Object
Introgrative Has + She, He,It +been + Object ? Have + I,They, We, You + been +Object ?
Verbal
Positive She , He, It + Has + Verb 3/ Past Participle (regular/Irregular) +Object
I, They, We, You +Have +Verb/Past Participle (regular/Irregular) + Object
Negative She , He, It + Has +not + Verb 3(past Participle) + Object I, They, We, You +Have + not + Verb3 (past participle) + Obejct
Introgrative Has + She, He,It + verb3 (past participle) + Object ? Have + I,They, We, You +Verb3 (past participle) + Object ?

X2 wrote what was known, asked and how, "What countries have you visited?" and "When are you in the US, the formation of Simple Past and Present Perfect tenses", students develop their logical thinking.

Table 4.
Written Answers X3

Nama :
Speaker A :, What countries have you..... in ?
Speaker B : Well, in USA , and I've been in Indonesia
Speaker A : Oh? Whenyou in USA?
Speaker B : I in USA two years ago
Speaker A : How about you, What countries have you been in ?
Speaker C : I.....in USA or Indonesia, but I've been in.....
Student's Answer :
Speaker A : What countries have you been in ?
Speaker B : Well, I Have been in USA , and I've been in Indonesia
Speaker A : Oh? When were you in USA?
Speaker B : I was in USA two years ago
Speaker A : How about you, What countries have you been in ?
Speaker C : I have been.in USA or Indonesia, but I've been in.....
<i>Give a brief explanation of the procedure for forming the Simple Past and Present Perfect tenses.</i>
Past is divided into two, namely nominal and verbal forms. Nnominal : Subject + was/were + object Verbal : Subject +verb2 (past Form) + Object Present perfect is divided into noun and verbal forms. Nnominal : Subject + Has/have + been + object Verbal : Subject + Has/have + V3 (Past participle Form) + object.

X3 looks at all forms, types and sentences using "Was, Were, been, Past verbs and Past participle form. It's just a bit difficult to remember, explaining the questions given

related to the teacher's explanation when X3 was still in high school and feels less sure it is 100% correct because someone has forgotten.

Table 5.

Written Answers X4

Name :
Speaker A : What countries have you been in ?
Speaker B : Well, I Have been in USA , and I've been in Indonesia
Speaker A : Oh? When were you in USA?
Speaker B : I was in USA two years ago
Speaker A : How about you, What countries have you been in ?
Speaker C : I have been.in USA or Indonesia, but I've been in.....
<i>Give a brief explanation of the procedure for forming the Simple Past and Present Perfect tenses.</i>
<i>Jhon was here two years ago</i> <i>He has been here since morning (nominal)</i> <i>Jhon went to Bali in 1998</i> <i>He has lived in Bali since 1998 (vrbal]</i>

X4 understands items and connects his thoughts with tenses without having to think to write down what is known, asked, responsive and quick to answer questions. The answer was already drawn by him without having to read it over and over, directly answering. X4 during high school had a question like that, it just didn't take the form of dialogue and explanation and had difficulty remembering the previously received material.

X1 Sensory Recording written and receiving and understanding, rereading, and determining related elements. The first store of information in sensory registers is through visual receptors. Attention is the information that the subject receives from the sensory registers that is passed on to short-term memory. It is obtained through selection and then processed and old information in the form of knowledge. Attention and perception retrieval are the stage in which information enters short-term memory. The exercise in X1 looks for sentence patterns and provides operational explanations. Encoding is shown when X1 solves English Grammar problems where in short term memory causes encoding from short term memory to long term memory. Information in the form of retrieval from short term memory is passed on to the environment through effectors that previously passed through the response generator. X1 can explain the problem-solving process that has been done. The subject rechecks the correctness of the answer, so that it gives the correct final result.

Long-term memory receives information after processing in short-term memory, either newly entered or old memory recalled, information is automatically stored in long-

term memory when the subject is encoded. However, the subject had difficulty in retrieval from long-term memory to solve English Grammar problems. Sensory Register results from writing and interviews, X2 gets information in the form of English Grammar Past and Present Perfect tense questions by understanding and reading the questions silently. X2 stores the first information in warehouse, namely the sensory register through the receptors for the sense of sight. Attention is the stage where information is received by sensory registers, which are passed on to short-term memory for processing. X2 reveals what is known and asked according to questions and explanations. X2 mentions the known on the question: "Which countries have you been to?, when were you in the US?". a brief explanation of the formation of Simple Past and Present Perfect tenses." The results of the analysis concluded that X2 has sorted out information by writing down what is known and asked in the question. The analysis shows perception can solve English Grammar problems. X2 repeats the results of previous work and so forgets the results of what is asked in the question, has the correct answer rewritten. Long Term Memory shows that information is processed in short term memory, whether new information is entered or old memory is recalled, then the information will be stored in long term memory. The process of storing information in long-term memory can be known when the subject is encoding. The researcher assumes that if X2 can explain the answers he has done, then what he has done is stored in long-term memory.

X3 Sensory Register where written data and interviews receive information in the form of English Grammar questions on Past and Present Perfect materials by reading and understanding repeatedly the sentence forms contained in the questions, then they listen back to what the researcher explains. The sensory register through the receptors for the senses of sight and hearing. Attention where information received by the subject from sensory registers is passed to short-term memory so that information is processed and used to solve problems. Perception refers to selective attention which is new information and will help the subject make perceptions so that they can determine what material is still related to the problem. X3 does not use the structured method used by most of his friends, understands and makes reasoning to find out the answer to the English grammar question given by the researcher. In short-term memory, information is selected and further processed. The result of X3's interview stated that he forgot to remember a similar question that his English teacher in high school had previously explained. The subject only tries to relate his knowledge to the problem solving that has been obtained without having to relate it to the method described by his English teacher at the previous high school. Encoding, In the subject's shortterm memory, there is an encoding stage, which is storing information from short term memory to long term memory. It obtained from the retrieval results in short-term memory is passed on to the environment through effectors who have previously passed the response generator, which is the stage where the information contained in short-term memory is transformed so that it can be passed on to the environment in the form of responses. X3 rechecks the correctness of the answer to be able to give the correct final result Short Term Memory, stores information in short term memory. X3 was able to describe solving English grammar problems and understand the

form of sentences so that the conclusions given were correct. Long Term Memory, Information is processed in short term memory, new information enters or old memory is recalled, it will be stored back in long term memory. Storage into long-term memory is known while the subject is encoding. X3 was already familiar with the form of question but only X3 uses another method without the formula. The solution is not based on the exact method because it is difficult to remember.

X4 has received information in the form of Past and Present Perfect questions by reading and the forms and types of sentences that read over and over again, stores information in the first information warehouse, namely the sensory register through receptors, the sense of sight and hearing. Attention, Information received by the subject's sensory registers will be forwarded to short-term memory for further processing. Perception is the result of selective attention, which is new information that is used to help the subject make a perception so that it can determine what material related to the subject's problem given about how the subject can solve the problem so that can solve the problem correctly. Retrieval, X4 analyzes the known forms and types of sentences and compares to the sentence, rewrites previously written answers. Encoding on X4 performs the problem-solving in short-term memory the subject also occurs at the encoding stage, which is storing information from short-term memory to long-term memory. The subject has also re-checked the correctness of the answers, thus giving the correct final result. Short Term Memory indicates that information has been stored in short term memory. Long-term memory processed information in short-term memory. New information and old memory is recalled, then some information will be stored back in long term memory. Storage of information into long-term memory can be known when the subject is encoding. The encoding process shows that X4 feels very familiar with the structure of the questions, both known and asked, but only X4 uses other ways to solve problems without using formulas because the exact method is difficult to remember. Information is processed in short memory, whether it is information that has just entered or old memory that is recalled, then it is stored back in long term memory. Storage of information into long-term memory occurs during coding but it uses another method without using the formula. The reason the subject did not use the correct formula that it was difficult to remember them. Stimuli enter the sensory register through the sense of sight receptors by reading and understanding question. Attention is focused on the meaning of new information and can be linked to existing knowledge.

Rehearsal is a concept that is repeated even though it has experienced retrieval in short-term memory and In the retrieval stage, the concepts in long-term memory are used by students. Serialist's students have difficulty at the retrieval stage because students forget a certain concept from long-term memory. Serialist's students do past and present perfect tense exercises. Information goes through the stages of retrieval and rehearsal, leaving short term memory. Stimulus information leaves short-term memory enters long-term memory and is transmitted to the environment in the form of a response. During the problem-solving process, short-term memory has a stage of encoding information from short-term memory to long-term memory. Either new information is stored or old

information is stored back from short-term memory to long-term memory, so that information can be recalled when needed. Wholist thinking style starts from information in the form of questions. When the question sheet is given, read and understand and listen to the explanation carefully to get the correct information. Then the form information is entered into a sensory register. Reading activities show that students use their sense of sight to understand and their hearing to record information. Then there is the attention of students who have the wholist thinking style. Attention, students can identify a given problem.

Students' ability to solve English Grammar questions is influenced by several things, including students' ability to identify sentence tenses which are the basic capital to determine the initial steps in solving them. Students retrieve the concepts needed in solving English Grammar problems starting from long-term memory. In the process of retrieval, students often experience errors. Students rediscover inappropriate concepts so that the responses they get are also wrong. The students' wrong responses are caused because the concepts needed are not stored properly in long-term memory, but there are several other concepts that are adapted to solve problems that are still stored in long-term memory. Information will be stored back in long-term memory, after being processed in short-term memory, whether it is information that has just been obtained or information that has been retrieved and recalled. This process is encoding because students can explain the answers obtained. EnCoding occurs in students who are demonstrated when it is proven fluent at the time of the interview. It reinforces concepts that have been retrieved from long-term memory and the answer is believed to be correct, there is coding of concepts that have been recalled from long-term memory.

CONCLUSION

Cybernetic thinking with the serialist thinking style that students have can solve English Grammar problems. The solution starts from the presence of information or stimulus in the form of problems in the questions that enter the sensory register through the sense of sight by reading the questions. Then they pay attention and give perception. The resulting perception will be realized by students when solving problems in short term memory by doing retrieval. In this realistic thinking style, have experienced forgotten lost in doing retrieval of a certain concept because of forgetting which risk of improvidence. Although Forgotten lost occurs, they have shown important components in information storage and cognitive processes of them who have the serialist thinking style have had a good function even though in reality there have been some lost memories when solving English grammar problems. The wholist thinking style possessed by students in solving English grammar problems starts from the presence of information or stimulus in the form of problems given by researchers that enters the sensory register through the senses of sight and hearing. Then there is attention and perception. However, when carrying out the process of solving English grammar problems, students also experience errors in the process of using the appropriate concept and result in forgetting, but students have other ways that are stored in long term memory to solve the problem. The facts show that the

response in the form of the answer given by the student is a little less precise, but still has a truth value because it is coincidental or it is true because there are other ways that are used to solve the problem. This is because the concepts needed in short term memory are not stored properly in long term memory, resulting in students often experiencing errors due to forgetting and at risk of overgeneralizing.

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