

What is the structural analysis model in teaching

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APSTRACT

This research represents a review of the structural analysis model in terms of its concept, its nature, its foundations, the features of teaching based on the structural analysis model, its functions, its advantages, and the teacher's role in the structural analysis model, with a mention of the stages of teaching in this teaching model represented by its stages (first stage: sorting). The ideas that the student has) (second stage: information processing) (third stage: information mining) (fourth stage: collective context) After completing the writing of the research, the researchers will mention some of the conclusions and recommendations he reached from the structural analysis model in teaching.

His concept:

The structural analysis model is one of the models based on the constructivist philosophy that stems from the ideas of both (Piaget) in the cognitive structure and (Vygotsky) in social constructivism, where (Piaget) confirms that the process of acquiring knowledge is an active, continuous and subjective constructive process, which is done by modifying the cognitive structures of the student Through the processes of representation, alignment and organization, while Vygotsky sees the acquisition of knowledge through social negotiation (negotiation between teacher and student and negotiation between students themselves). (Al Kasbani, 2008: 262)

What is the structural analysis model:

Cognitive constructivism is one of the constructivist intellectual currents that deals with learning and knowledge from the student's perspective, in which the student builds knowledge in a highly individual manner, relying on his already existing knowledge, and dependent on formal teaching experiences, and cognitive constructivism also focuses on meaningful learning that depends on personal experience. In it, the student tests and transforms information, imposes hypotheses, and makes decisions, while relying on the cognitive structure or structure to achieve this. Students keep the ideas they consider reasonable, but they cannot apply them in many situations because

they may lack internal consistency, which hinders the growth of cafes and interpretations. (Olive, 2008: 182)

The basis of the structural analysis model:

The basis of the structural analysis model is due to the study (Appleton, 1997), which aimed to describe and analyze student learning in science classes using a model based on constructivism. Three classes for students aged between (11-13 years) in Australia, and the study found a model for teaching science that allows the teacher to identify and describe the cognitive progress of students by focusing on the students, and knowing how they reached to solve the scientific issues contained in the lessons, which is useful in identifying strategies Appropriate teaching, and the (Ableton) model presents a logical structure in synthetic analysis that focuses on the cognitive processes of the student according to the structural framework. The combination of these two trends is the ideal and good expression of students' educational needs, which is the development of solutions to life problems and their development CARE is innovative, teamwork and cultural. (Skrabanakova,2011,p220)

Features of teaching based on a structural analysis model

First: Presenting a paradoxical event:

It means a confusing or ambiguous event, in the form of a question, activity, or problem, which leads to the activation of the students' prior knowledge that is related to the subject to be taught.

Second: Interpretation of the paradoxical event:

When the teacher presents the contradictory event to the students he asks them to explain it and then they make hypotheses and do some experiments as well as dialogue and discussion with the different groups to come up with the explanation of the event.

Third: The student's use of metacognitive processes:

Teaching by using the structural analysis model is characterized by the fact that the student practices the process of thinking in terms of thinking, and that is in his possession of concepts. The use of metacognition has a profound impact on the outcomes of cognitive learning and information processing, and plays a major role in the process of forming the cognitive structure.

Fourth: Using Learning Scaffolding:

Learning scaffolding is intended to transfer students from the level of realistic development to the level of possible development, because teaching based on structural analysis requires that the teacher provide students with all kinds of guidance and assistance, so that they can perform tasks that they cannot perform on their own.

Fifth: Cooperation:

The structural analysis model allows students to work in groups, which increases their motivation towards achieving the required tasks, and increases the opportunities for participation in work and

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speaking for the growth of thinking and the development of their social skills. (Appleton, 1993, p 61-26)

Functions of the structural analysis model:

- 1- It is used as a tool to clarify and analyze the cognitive progress of students during lessons and to help teachers who are not familiar with the principles of constructivist learning.
- 2- This model is used to provide teachers with prior knowledge of how students reach solutions to the problems they face during all lessons, and thus determine appropriate teaching strategies during teaching.
- 3- A tool for evaluating students using contrasting events, where the model is used to understand students' potential trends during learning, allowing teachers to make more efficient decisions about teaching.
- 4- It is used to develop teaching strategies that maximize student learning opportunities.
- 5- The teacher helps prepare learning scaffolds that help students understand difficult tasks in the event that they cannot explain on their own.
- 6- Modifying the alternative perceptions that students have, (Appleton, 1997a, 303-314)

Features of the structural analysis model:

- 1- It shows the responses that reveal the students' previous knowledge and their understanding of the topic or concept.
- 2- This model can be used as a tool to analyze the cognitive progress that students make during the lesson.
- 3- It is useful for the teacher who is not familiar with the constructivist learning and its path.
- 4- It can help students both in planning and implementing all lessons and in scientific practice. (Atiya, 2015: 349)

The teacher's role in the structural analysis model:

- 1- Providing an educational environment and learning-educational practices that develop desirable individual or social mental skills as in teamwork, teamwork, problem solving, evaluative thinking, brainstorming, positive mutual learning, learning how to learn and self-evaluation, and thus we get an interactive classroom environment.
- 2- Helping students to employ previous experiences in new educational situations, and linking them to new learning to help the student build new experiences acquired in a way that produces distinct learning that is properly integrated into the student's knowledge building.
- 3- The teacher encourages and accepts the student's self and initiative and expresses it freely, away from fear of neglect, mockery or criticism.

4- The teacher seeks to develop the initial responses and reformulate them by refinement and refinement, and then proceeding to investigate and research the students' interests and tendencies by asking questions. (Al-Saadi, 2015: 45)

Stages of teaching using the structural analysis model:

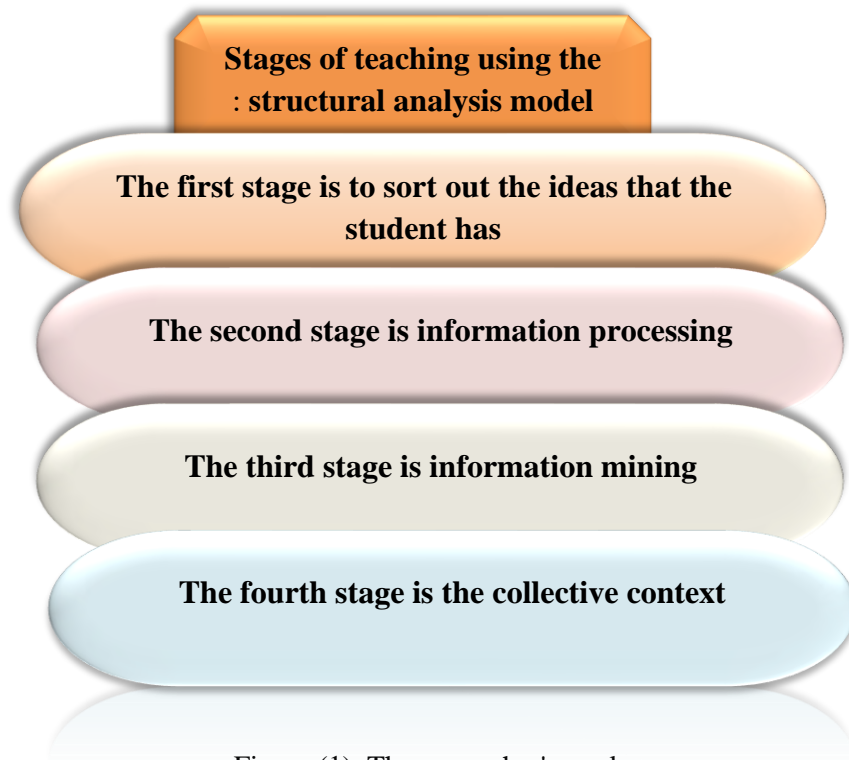


Figure (1) The researcher's work

The first stage: sorting out the ideas that the student has:

This stage represents the starting point in the constructivist learning, which sees that new learning builds on previous experiences, by diagnosing and sorting the ideas that students have before starting to display the content.

At this stage, different methods are used, such as concept maps, interviews, or reconnaissance questions to sort out the ideas of the students. In light of the students' answers, the experiences are organized into images of ideas and cognitive systems that can be referenced when explaining the new events and experiences presented to them. The world and its spectral interpretation of the events of that science and the behavior that it practices .

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The second stage: information processing:

At this stage, the student tries to determine the best interpretation that fits the meaning and can use it to construct a meaning around the new situations. Either a new form of information is formed that completely matches the existing idea, completely updated with the existing idea, creating a state of satisfaction for the student, or a partial match occurs. The last possibility is an epistemological conflict.

This state of cognitive conflict and the incompatibility between what is in the student's cognitive system and the new learning leads to a state of cognitive conflict that makes the student active in search of what he can get rid of this state of cognitive conflict, rid him of this state of cognitive conflict, which leads to a serious result by sharpening and revitalizing the student's memory towards education

The third stage: information mining:

At this stage, students who were not able to provide complete answers about the situation need the so-called scaffolding, which are hints that help them in the process of reaching the complete answers through research and exploration. Thus, the role of the student at this stage is the encouragement and support that pushes the search for answers. By providing students with search keys, and this exploration process, as seen by the model designer, is carried out by more than one means, including the practical presentations provided by the teacher or his ideas, including the educational materials available in the learning environment, including the educational materials available in the learning environment, including the ideas of other students and colleagues, and these are used. The sources are based on the premise of the social context of teaching and learning that the constructivist sees, and that the social context takes several forms, including verbal or non-verbal allusions, the use of similar ideas in memory, or by observing the manifestations of the educational situation.

The fourth stage: the collective context:

At this stage, the teacher identifies the complex part of the event, and this part is explained and clarified by using appropriate scaffolding, which represents the scaffolding between the teacher and the student and the societal context of the lessons. In general, this model is used as a tool to clarify and analyze the cognitive progress of students during the lesson, and it helps teachers who are not familiar with the principles and contents of constructivist learning. (Appleton,1997A,p307)

A model plan for teaching according to the structural analysis model

First : The specific objective: At the end of the lesson, the students will be able to know the concept of the judiciary and its related sub-concepts.

Second: Behavioral Objectives: To make the student able to:

1. The judiciary is known.

2. He justifies the interest of the Prophet (may God bless him and his family) in organizing the rules of the judiciary.
3. Enumerates the sources of enactment of laws.
4. He cites the Quranic verse that confirms the return of believers to the Prophet (may God bless him and his family) to judge between them.
5. A balance between the Umayyad and Abbasid eras in appointing and exercising the judiciary.
6. Distinguishes between the concepts of (the judge, the judge of the judges, and the judge of judges).
7. He explains the stages of judicial development.
8. Extract the qualities that must be available in the judge.
9. He formulates in a manner the elements of giving the Prophet (may God bless him and his family) the right to make judgments of Imam Ali bin Abi Talib (peace be upon him).
10. In his own way, he expresses the importance of the judicial system in nation-building.
11. He expresses his opinion on the style of governance and the Umayyad and Abbasid judiciary.
12. He expresses his opinion on the style of governance and the judiciary in the era of Imam Ali bin Abi Talib (peace be upon him).

Third: Teaching aids:

Historical photos.

- Projectors (POWER POINT, Datashow)

Fourth: Presentation of the lesson according to the structural analysis model:

Dear students, today we are studying a topic that is one of the most important topics that humanity has been concerned with and has given great attention to throughout the ages, and it is a topic approved by the various heavenly laws, their books, legislation and teachings that were brought by the messengers and prophets, and it is the topic of governance and the judiciary, as the organization of the affairs of societies and their multiple dealings with each other. And what is between them and state institutions, needs laws, regulations and legislation that regulate these multiple matters and make them within a framework through which people's lives are facilitated, and therefore these legislation and laws need to be enacted, codified and applied in a just and practical manner on the ground, and the goal of this civilized practice is The formation of civilized societies in which the values of justice and integrity prevail, and guaranteeing the rights and duties of all people without exception, between the rich and the poor, the ignorant and the scholar, the ruler and the ruled, leading to humanity's integration and transcendence. Therefore, this topic was given great attention on the social, economic, political and moral levels, and the

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impact of these levels on individuals and societies In general, this is what we will stand at in our lesson for today.

The first step: sorting out the ideas that students have about the concept of justice:

To reveal their previous learning experiences on the subject by asking the following questions:

It is represented by a set of questions, dialogues, and making plans.

- **The teacher** / What is the judiciary?

- **Talib:** it is the conclusion of the matter and the completion of it

Teacher: Well done

Another student: Repeat the answer. / **Teacher:** Good

Another student: The Qur'anic verse came, the Most High said: "And were it not for a word that preceded from your Lord for an appointed term, it would have been decided between them."

Teacher: God bless you.

The teacher: Why did the Prophet (may God bless him and his family) care about the judiciary?

Student: This is to establish justice and the rule of law in society, and to resolve multiple disputes, at the level of the members of society among themselves, and between people and state institutions.

Teacher: Yes, well done.

- The teacher: Who enumerates the sources of enacting laws?

Student: The Noble Qur'an, the Noble Sunnah, consensus, and reason.

Another student: Bring it back.

Then the teacher displays the pictures, including the following:



Then ask the following questions:

The teacher: What is the verse that confirms the return of the believers to the Prophet (may God bless him and his family) to judge between them?

Student: The Almighty said: ((No, by your Lord, they will not believe until He makes you judge over the disputes between them and then they do not find in themselves a quarrel)).

Teacher: Yes, good, students. Through this verse, what do we infer?

Students talk to each other:

One of the most important sources of legislation and governance is the Noble Qur'an, which is the best guide for us, and the best interpreter of the Qur'an is the Prophet, and he is the one who judges between people when they disagree and they submit to wisdom.

Teacher: Yes, well done.

- **Teacher:** Where was the judge ruling?

- **Student:** In the mosque,

Teacher: Why?

- Another student: because it is the first institution that adopted the regulation of all Muslims' affairs and affairs.

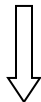
Teacher: Excellent.

The teacher uses questions to ask the students what they have in answering the following question (Worksheet 1- Group work): What are the sources of legislation important in organizing our daily lives? Through the following graphic organizer:

Objective: To clarify the importance of the judicial system in our lives



Importance



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Classification of the importance of the judicial system according to its relationship with other systems

The most important impact from the point of view of the students

The second step: Information processing: The teacher starts building new information about the judicial system by asking questions, using similes, interpretation, comparison, analysis, using cognitive maps, and all the methods that help her to clarify her lesson.

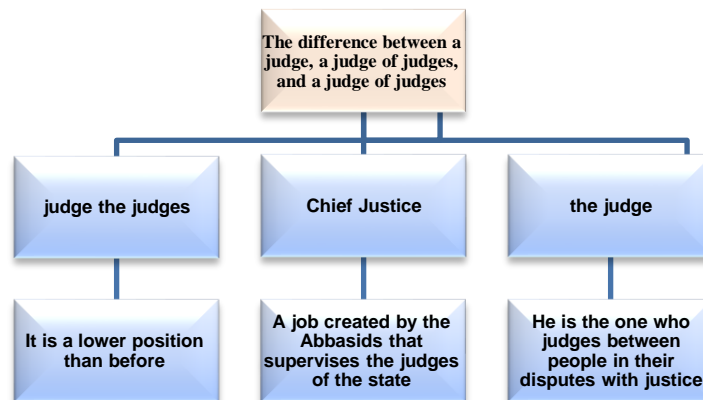
Teacher: What is the difference between a judge, a judge of judges, and a judge of judges?

Talib: the judge: is the one who judges between people in their disputes with justice, and the judge of the judges: it is a job created by the Abbasids who supervises those who take over the judges of the state. As for the judges who judge: it is a position of lower status than the previous one.

The teacher returns the answer?

Another student: The teacher answers: Well done, may God bless you.

We can explain the difference more clearly as follows: The teacher displays a chart on the display (Data show)



The third step: prospecting for information: in which the teacher uses everything that helps students to search for information for evaluation, so they follow the following:

Presenting historical pictures of the judiciary and what is used to complete their work, then ask the students to determine the time period for the displayed pictures and to make each picture by asking the following questions:

The teacher: What is the difference between judges in the era of the message and the era of Rashidi?

- **Talib:** The judge in the era of the message was appointed by the Prophet (peace be upon him), in addition to the fact that the Prophet (peace and blessings of Allaah be upon him) was the one who held the position of judge, and he knew the affairs of truth and justice because he was the mediator between heaven and earth, but in the era of the caliphs, they were the ones who appointed judges They are in need of many times and resources for the advice and guidance of the Prophet (pbuh).

- **And my dear students, watch the difference in a more accurate way, and my agencies:**
(Data show)

Judgment in the Umayyad period	Judiciary in the era of the message
,It was they who appointed the judges	The judge in the era of the message is appointed by the Prophepeace be upon him
They are in need of many times and resources for the advice and guidance of the Prophet peace and blessings of .Allaah be upon him	That the Prophet peace be upon him was the judge and was the most knowledgeable in the affairs of truth and justice because he is the mediator between heaven and earth

The teacher: What is the difference between judges in the era of the Umayyads and the era of the Abbasids?

Talib: The Umayyad era, the appointment and dismissal of judges was in the hands of the rulers, but during the Abbasid era, the appointment and removal of judges was in the hands of the caliphs themselves.

- **Another student:** In the Umayyad era, salaries were given by the governors, and in the Abbasid era, the central system worked.

Teacher: Well done, may God bless you.

Fourth step: Societal context (cognitive support): At the end of the lesson, the teacher uses all verbal (well done, excellent, ...) and nonverbal (shaking the head to agree...) techniques and hints

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to accept or reject the students' ideas on the topic of the lesson, and provide feedback In light of this, the following questions will be asked in the final assessment:

Final calendar:

- What do you explain the reason for appointing judges in all Islamic cities?

Who was the first to enact laws, regulations and the judiciary?

- Give justifications for giving the Prophet (peace be upon him and his family) the right to make judgments to Imam Ali bin Abi Talib (peace be upon him).

- What do you think of the ruling of Imam Ali bin Abi Talib (peace be upon him)?

- What do you think about the rule of judges in the Umayyad and Abbasid eras?

Can we live in a country that is not protected by the judiciary or the law?

Who knows the judiciary?

What do we mean by judge of judges, judge judges?

- Who balances the judicial system in the Abbasid and Umayyad rule.

Spelling summary: The teacher writes the students' correct answers as a summary of the lesson, either in prose or as an explanatory chart (concept maps).

homework :

Prepare the topic for consideration of grievances.

Sources: The book to be taught and the Biography of the Prophet, if available.

Second:

The researcher's conclusions from the structural analysis model:

1- The student in the structural analysis model performs the process of acquiring knowledge in an active constructive style, as well as teaching the first experimental group to modify the cognitive structures of students, relying on knowledge they already have, and this in turn led to raising the level of academic achievement and evaluative thinking better than their achievement and thinking for the previous years as well. The statistical results came out.

2- The researcher concluded that the structural analysis model allows the subject teacher to identify the students' cognitive progress, describe it through focus, and know how they came to know the historical events contained in the subjects of the history of Arab Islamic civilization, which led to the activation of the students' previous knowledge and the building of new experiences, which It produced a distinct and sound learning in the student's cognitive construction, which was shown by the high average of their grades in the subject, and also gave the fourth-grade literary students a kind of evaluative thinking.

3- Teaching with the structural analysis model was distinguished by the fact that the student entering the classroom practices the process of evaluation thinking in a systematic manner, through what he possesses of historical information and linking it to the subject to be taught from the history of Arab Islamic civilization, where the effectiveness of the deep model appeared on the outcomes of cognitive learning, and address information, and thus the students' academic achievement increased, and this led to raising the level of their evaluative thinking.

4- The structural analysis model, through teaching the first experimental research group, allowed to work within heterogeneous study groups, which increased their thinking and achieving the required tasks, and increased opportunities for scientific participation to express, take initiative, and accept ideas completely freely, away from fear of neglect, or Mockery, or criticism, encouraged by the researcher, led to raising the level of academic achievement and developing evaluative thinking.

5- The structural analysis model helped the students of the first experimental group in the planning and implementation of lessons, and scientific practice within the study groups, as this model was used as a tool to analyze the cognitive progress achieved by students during the course of the experiment when teaching the subjects of the history of Arab Islamic civilization for the fourth literary grade, and this What was found to raise the level of their academic achievement and develop their evaluative thinking.

Recommendations:

In light of the current research, the researchers recommend the following:

- 1- Directing teachers to use the teaching models emanating from the social constructivist theory in teaching textbook subjects.
- 2- The necessity of issuing a guide from the Ministry of Education that includes models of social constructivist theory in learning, and that educational supervisors and specialists have a prominent role to view the foundations and steps of teaching these teaching models.
- 3- Adopting modern teaching models, including the aforementioned social constructivist theory models, when preparing curricula that are decided by the curriculum preparation directorates.
- 4- Work to increase students' awareness and focus on teaching situations that stimulate intellectual ability by exposing them to educational situations and activate the ability to generate new creative ideas for students and add contexts that require the use of modern teaching models that employ and exploit their creative mental abilities.

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References:

1. Al Kasbani. Mohamed El-Sayed (2008): Teaching: Models and Applications, Dar Al-Fikr Al-Arabi, Cairo, Egypt.
2. Al-Saadi, Abdul Rahman (2015) 0 Scientific education: its entrances and strategies 0 Cairo: Dar al-Kutub al-Hadith 0
3. Appleton ,K.(1993). Students‘ learning in science lessons ,responses to discrepant events . Unpublished doctoral dissertation, faculty of education ,university of central Queensland.
4. Hassani, A. T. . (2021). The Influence of French on Vocabulary Knowledge of Arabic-speaking University students learning English as a Foreign Language: A Melting Pot. Middle Eastern Journal of Research in Education and Social Sciences, 2(3), 1-14. <https://doi.org/10.47631/mejress.v2i3.286>
5. Appleton, K. (1997). Analysis and description of students' learning during science classes using a constructivist- based model. Journal of research in science teaching , 34 (3) , 303:318.
6. Attia, Mohsen Ali (2015): Constructivism and its applications (modern teaching strategies), Dar Al Masirah for Publishing and Distribution, Amman, Jordan.
7. Skrabankova , J& Republic ,C.(2011).The factors of the development of cognitive processes of gifted pupils in the constructivist frame work . the new educational review , 26 (4), 219-227.
8. Saleh, S. J., & Majeed, S. J. (2021). Motivation toward English Language Learning among Iraqi University Students. Middle Eastern Journal of Research in Education and Social Sciences, 2(3), 46-56. <https://doi.org/10.47631/mejress.v2i3.294>
9. Zeitoun, Kamal Abdel Hamid (2008): Designing educational programs with the thought of constructivism, intellectual rooting and empirical research, World of Books, Cairo, Egypt.