

ASSESSMENT RESEARCH PAPER

Western Carolina University

Course: EDEL 416 – Science Methods for Grade K-6

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INTRODUCTION

An old Chinese proverb states: "Tell me and I forget, show me and I remember, involve me and I understand." This proverb encapsulates the whole idea of the inquiry method of teaching and learning. The term inquiry, in education and in daily life, refers to seeking information to answer question. (Teaching Science for Understanding in Elementary and Middle Schools) (pg18). This method of learning allows the learner to be involved in their learning. It allows them to ask questions and carry out investigative practices to arrive at a suitable answer; that can be proved, disproved or improved on as well as to formulate ideas and concepts that allows them to use observatory skills to solve problems.

This research assessment paper seeks to look on the topic of digestion and how it happens in humans. This lesson was selected to assess grade eight students on their knowledge of the digestion process and how it occurs.

Scientifically digestion is carried out both mechanically and chemically through physical process (mastication) and chemical process (enzymes). All of this leads to the breakdown of food into smaller pieces then molecules to which it can be absorbed by the body. The body then use these nutrients to function and carry out daily activities that keeps the cells alive and healthy.

The learning objective that we focused on was whether students will be able to describe the process involved in digestion as ingestion and digestion. Based on this, I hypothesize that the students through interactive and guided instructions on the topic of digestion, will be able to explain the process of digestion along the alimentary canal by at least 50%.

The evidence that would support this hypothesis will be artifacts gathered from lesson, observations and responses received from the students. Direct questioning and the making of a

model to mimic the action of digestion in the stomach along with a worksheet. Data will then be gathered from the assessment methods and evidence presented to verify if the hypothesis was true or false or can be added to.

This project is important as it seeks to pull forth the knowledge of digestion and to build on what the learner already knows about the digestive system and how it operates to provides the body cells with nutrients. This project will also allow the learner to know about digestive enzymes and its importance in the absorption of different nutrients obtained from the food we eat daily.

Methodology

The method that was used to carry out this project was the inquiry method of teaching. This method of teaching allows the learner to investigate, make predictions, conceive hypotheses, ask questions and carry out experiments to solve given problems that maybe known or unknown to them. It was supported by creating objectives that were measurable through; discussion, critical thinking, observation, interpretations, collection of data as well as making a model.

The inquiry lesson was detailed and include a step by step procedure on how it would be executed. The teacher started the lesson with a skit (role play) that would spark their interest and get them thinking about what the lesson will be about. This was used to generate responses as well as to get them thinking. After this the students were given a cracker to chew, at this point they were questioned and was asked to make a note of what action was taking place in the mouth and to name the process of digestion that occurred in the mouth namely ingestion and the breaking down of food into smaller pieces. The students were then asked to make a model of the stomach and to make chyme to mimic the action of the stomach and its role in digestion of food using materials provided.

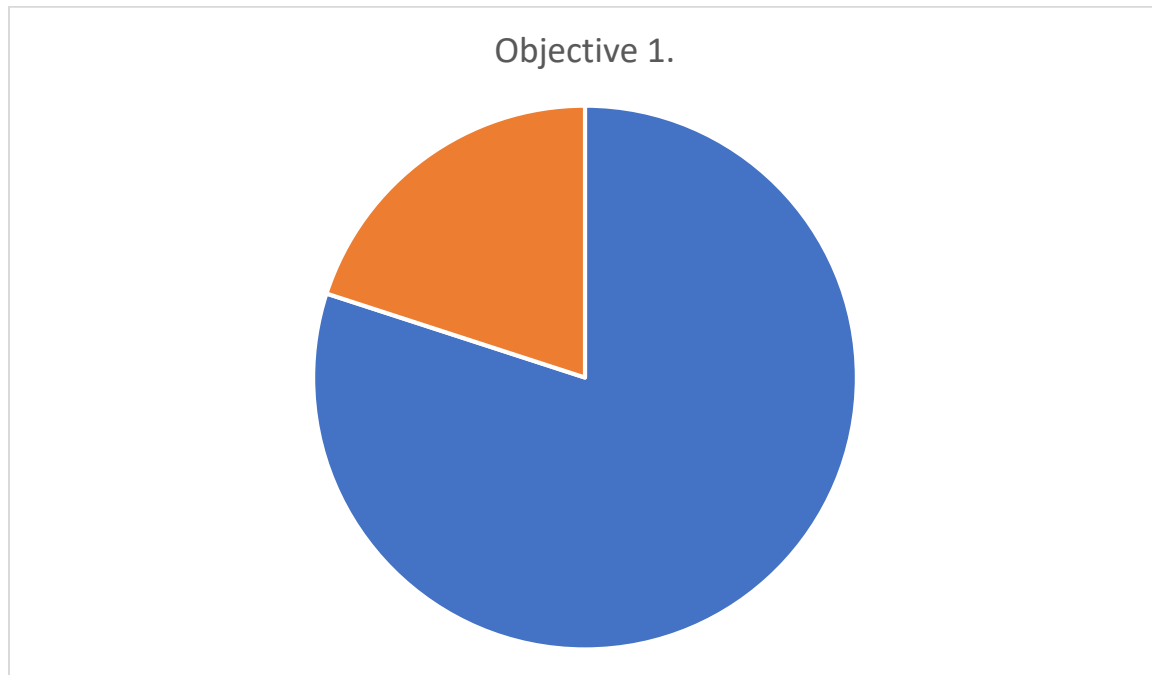
Results:

Table 1.

Table showing results of student scores

Student		Scores
Student	A	100
Student	B	100
Student	C	50
Student	D	50
Student	E	75
Student	F	75
Student	G	25
Student	H	25
Student	I	50
Student	J	100

Objective 1: Students will be able to describe a part of the digestion process as ingestion.

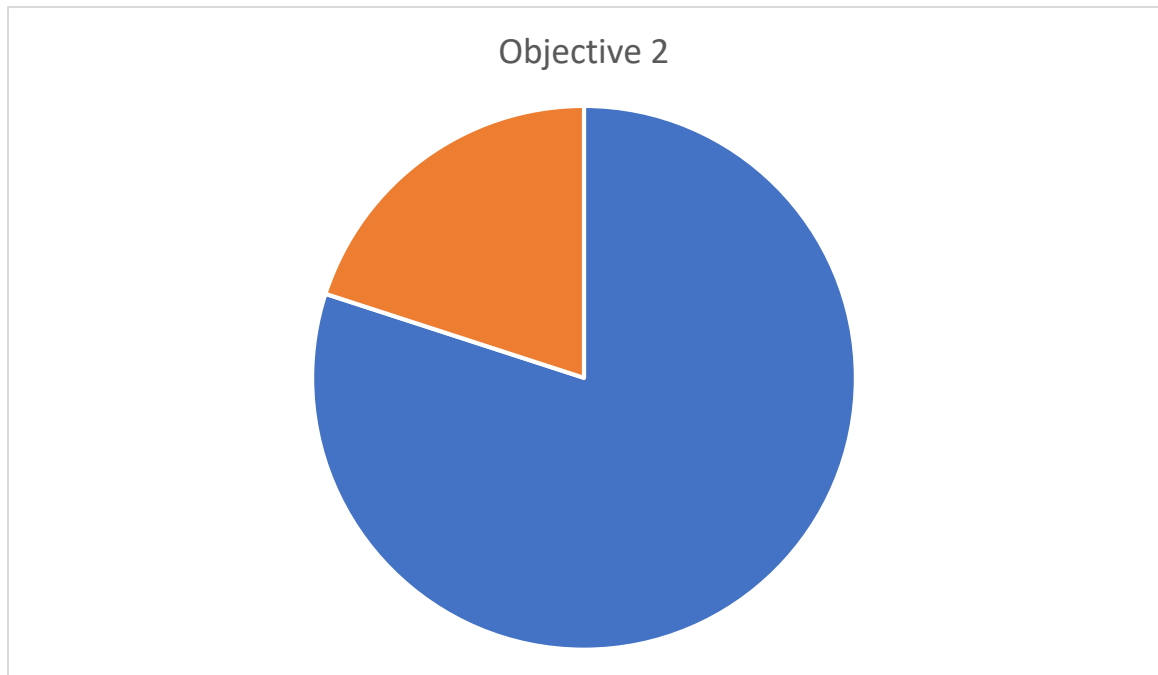


Eighty percent of the sample/students were accurately able to describe the process of ingestion.

The remaining twenty percent did not.

Objective 2

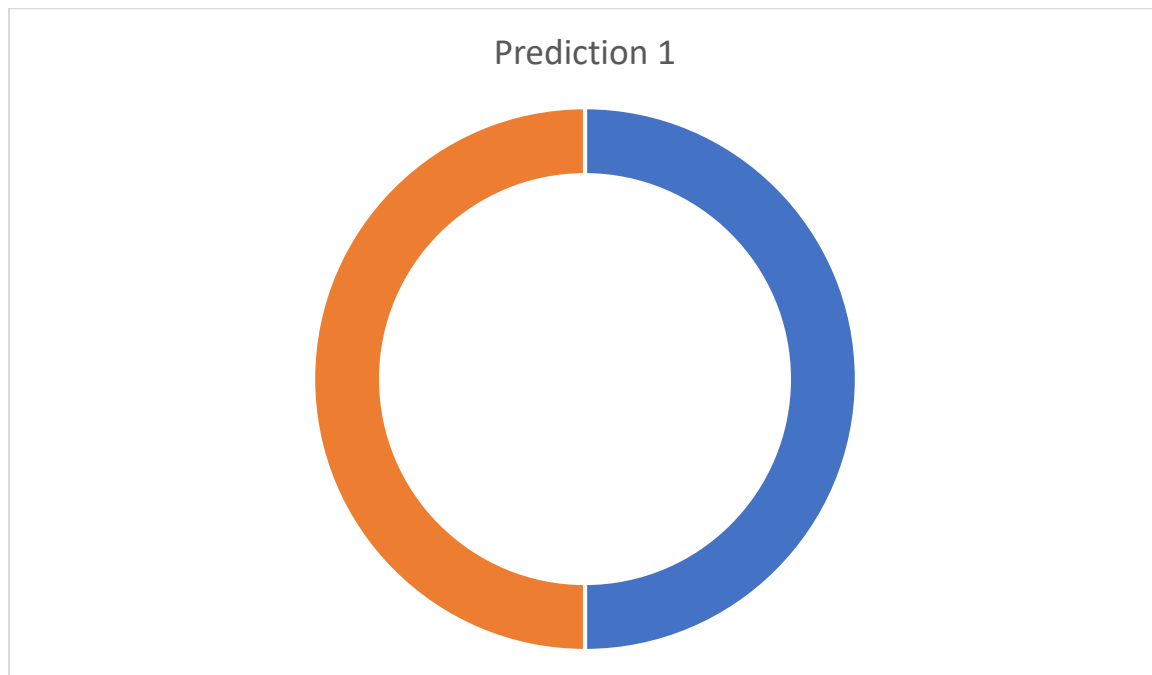
1. Students will be able to describe a part of the digestion process as digestion (Stomach).



Eighty percent of the sample/students were accurately able to describe the process involved in digestion.

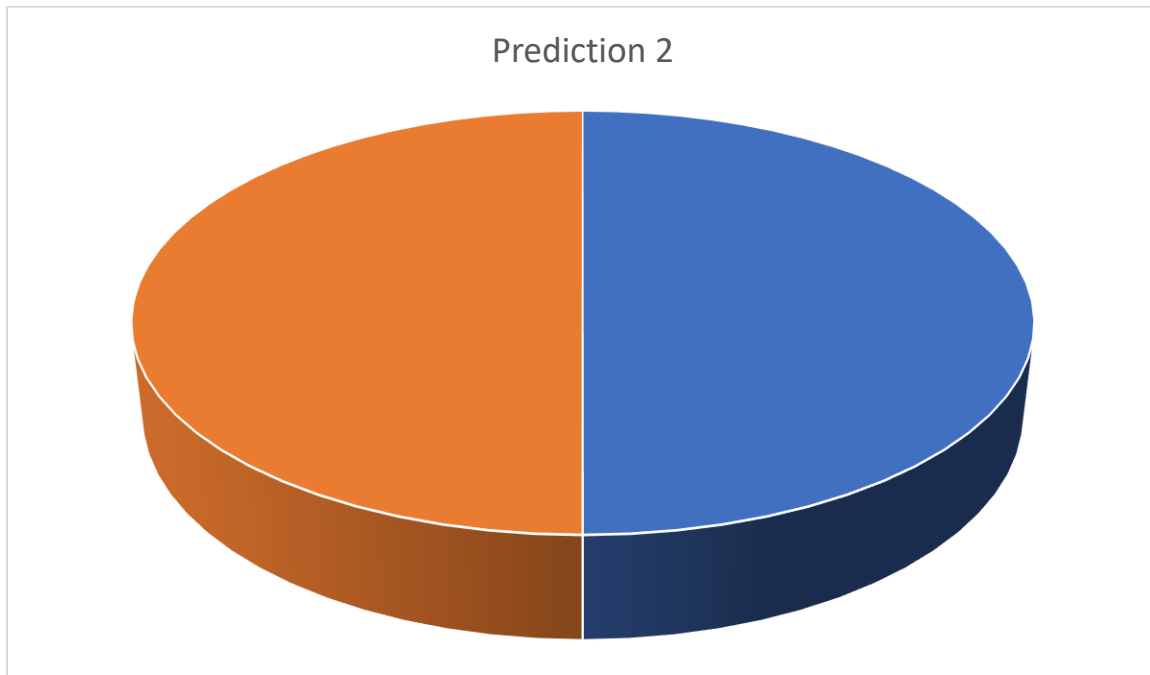
Question 2. Make a prediction of what you think will happen in the remaining sections of the alimentary canal.

- a. State what happened in the large intestine.



Fifty percent of the sample accurately made a prediction on what happened in the large intestine.

- b. State what happen in the small intestine.



Fifty percent were accurately able to describe the process that takes place in the small intestine.

Table 2

Rubric:

Keywords	# of students
<u>Stage A</u> Mouth ball Saliva crushed	- 7 - 3 - 5 - 4
<u>Stage B</u> Stomach gastic juice gullet mix	- 12 - 6 - 1 - 4
<u>Stage c</u> large intestine digested absorption of water waste	-10 - 3 - 2 - 3
<u>Stage D</u> nutrients Small intestine blood food	- 4 - 10 - 4 - 4

Discussion

Eighty percent of the sample were accurately able to describe the process involved in digestion as ingestion and digestion in the digestion process. However only fifty percent were able to give detailed description/prediction of the large intestine and small intestine during the process of digestion. This aspect may have been due to prior knowledge for some students.

These comparisons indicate that the hypothesis was supported because students understood the basic concept of digestion and ingestion; however, this lesson need to be retaught in order to improve students understanding of details related to digestion such as the specific function of core parts of the digestive system.

This assessment further indicates that some students will need more individual support in the topic than others. For example, student G and H would need more clinical supervision in the topic area. The data according to objective one (1), it shows that only five students demonstrated mastery of the topic by scoring above seventy five percent. Two students also only labeled the diagram instead of describing the process involved at the different stages. This could mean that the instruction might not have been clear to the student or the student might be unaware of the answer. Maybe using more than one assessment method would have resolved the issue in knowing if they misunderstood or unaware of the answer.

The hypothesis was supported as eighty percent accurately answered hypothesis one and hypothesis two. However, the success of the lesson when examining individual students shows the need to revise this lesson generally and meet with some students individually. This data supported my thought, and, in the future, I will use more than one assessment method to ascertain student's knowledge of the topic area.

In conclusion the activities that were used to carry out this lesson, I would use again as they were very engaging and the students enjoyed participating in the making of chyme as we used the Ziplock bag to mimic the actions that occurs inside of the stomach to breakdown food into smaller molecules to be absorbed by the body. What I would do differently is to ensure that my instructions are clear and that all the students would have come to an understanding of what was expected of them as some students only list the parts of the digestive system instead of stating what occurs their for example the mouth. This is where the food is broken down into smaller pieces by the teeth during the chewing of food. Sample members only list stage A as the mouth and ended there; if this is was done then the lesson objective would have been met by all the students and learning would have taken place across the board. Another note to highlight is that students can be carried away by the activity and so I would walk around to ensure that they are on the right track and are carrying out what is required of them and not be carried away by the excitement, this too will put things in prospective and foster learning to the fullest.

The inquiry method of imparting a lesson was very enlightening for me. I thoroughly enjoyed it; I believe it will help me in being a better facilitator. It has opened my eyes in making my science lessons more exciting and not boring anymore as some of my student usually complain of being bored with some lessons that are included in the National Standards Curriculum (NSC) that is used in Jamaica and is executed by us as teachers. I will be using this method to teach my students in the future as it will allow my students to be more proactive in their investigations as well as to improve on their data collection and critical thinking skills, enabling them to be better observers and be more inquisitive about science and its place in the real world.

Limitation

Thirteen (13) papers was issued however ten (10) persons participated in the lesson activity.