



ENHANCING STUDENTS' READING COMPREHENSION OF SCIENTIFIC TEXT BY USING KWL CHARTS FOR SENIOR HIGH SCHOOL

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Abstract

This paper deals with the use of KWL charts as Know, Want, and Learned (what is known, what is known, and what has been learned) in enhancing students' comprehension of reading scientific texts in Senior High School students. KWL charts can be used by teachers to make learning English more enjoyable. The use of this KWL chart is used as a solution for teachers to solve students' problems in reading texts, especially scientific for senior high school students. KWL charts help the teachers in teaching reading scientific text more interesting, so that it will motivate students to comprehend the text. Giving a table consisting of 3 columns, K, W, and L, which column K is for background knowledge, column W for something unknown or form of a question for the child, and column L for conclusion about what the student has learned or questioned earlier in column W of the scientific text given. These methods or KWL charts are suitable for application in high school to all classes.

Keywords: Reading Comprehension, Scientific text, KWL charts.

INTRODUCTION

In English there are four skills that should be mastered by the students, they are listening, speaking, reading, and writing. To write, read, listen, and communicate in English, the students have to master all of these skills. Nevertheless, the process of teaching and learning of English should emphasize on helping students to be able to read comprehensively any kinds of texts, or their comprehension in reading has to be better. Thus, the ability of having reading skill in English is needed.

Reading comprehension is the goal of reading, since the purpose of all reading is to gather meaning from any texts. If a student reads words in a passage without gathering their meaning, one cannot share the idea from that reading. Many types of textbooks can be a problem for reading comprehension to the students. The types are divided into factual and literary texts. The factual texts are about informing, instructing or persuading by giving facts and information. The factual texts are recount,

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explanation, exposition, description, report, procedure, and discussion. Literary texts is about entertain or elicit an emotional response by using language to create mental images. They are literary description, literary recount, personal response, review, and narrative. Those textbooks are hard for pupils to look for information on it, and to pass the information to others.

Besides that, the problem of reading comprehension can be happened in the class. It can be happened in Junior High School and Senior High School. According to Shehu (2015), that investigated senior high school student in Albania, there are some problem in reading comprehension among them which are: the first is Vocabulary, new words are seen by students as a great obstacle to comprehend a text. Second, Working memory, the students often complain of the fact that they cannot recall the information they just read. Third, Absence of extensive reading, students read a little or nothing. Fourth, Type of text, the type of text is another factor that influences a lot reading comprehension. Besides that, Seyabi and Tuzlukova (2015) in Oman to investigate problems which Omani students had in reading English materials. Their investigations included the area of pronunciation in order to investigate whether the students had difficulty in pronouncing English words.

Some students also have problem in their background knowledge. The student should not have it. As Nunan (2003) says that reading is a fluent process of readers combining information from a text to their own background knowledge to make or create meaning. Furthermore, As Graham and Bellert (2005) conclude that reading comprehension problems often happens in recognizing and applying background knowledge, poor decoding and word recognition skills, limited vocabulary knowledge, developing reading fluency, a less than strategic approach to comprehension, including the use of ineffective or inefficient strategies, and limited understandings about common text structures.

In addition, There are four probabilities that poor reading comprehension are *Dyslexia*, *Attention-deficit hyperactivity disorder (ADHD)*, *Auditory processing disorder (APD)*. According to Lam (2001), *Dyslexia* is a common learning issue. Children with dyslexia have difficulty distinguishing letters and knowing which sounds the letters arrive at. They may struggle with rhyming and sounding out new words. They may forget words they have seen before. It can take a long time for kids with dyslexia to become familiar enough with a word to know it at a glance, and they may be able to take it fairly easily one day, but not the next. They may also skip words and lose their place. It is not just the ability to recognize words that suffers.

Dyslexia may also affect reading comprehension. It is hard to understand what is happening in a story when it takes so long to get through each individual word. Dyslexia can also affect spelling, writing and even speaking skills. But despite all the challenges it creates, dyslexia is not a sign of low intelligence (Anita C. and Huycke, 2007).

According to Hanna (2009), Attention-deficit hyperactivity disorder (ADHD) is the most common brain-based condition in childhood, can make it hard to stay focused during reading and other bodily functions. Many children with ADHD also have hyperactivity as a symptom. Kids who have reading issues may fidget from

frustration or they may play up in class to cover up not knowing how to meet in certain tasks. Only it's not uncommon for kids to engage in both conditions. Nearly a third of students with attention issues are considered to also have dyslexia.

According to D-E Bamiou, F E Musiek, and L M Luxon (2001), *Auditory processing disorder (APD)* affects kids' ability to process the information they hear. It makes it hard to understand what people are saying or to follow a story that is read aloud. APD can also affect reading skills. Reading requires being able to associate sounds with letters.

Unfortunately, Most of the students feel bored to learn English and they do not interest to read long sentences. Nowadays, rather than learn English or make something useful, the students spend their time with play games, watching movies, chat with their friends on social media, and so on. When they play on social media, read about the gossip and newspaper, they are actually good readers, but they just do not realize it.

In this case the writer proposes KWL chart to help students in reading kind of text, especially scientific text. A Know-Want-Learn (K-W-L) chart is one of the most commonly used graphic organizers to tap students' prior knowledge. "The chart consists of three columns, one titled "Know," another titled, "Want," and a third titled, "Learn." KWL strategy is a reading strategy that uses questioning to activate prior knowledge, to understand metacognition, and to write to learn.

In the first step students, alone or with others, brainstorm what they know about the reading topic. Next, students write what they want to learn about the topic. In the last, students read the material and share what they have learned" (Risnawati, Riswanto, and Lismayanti, 2014). Then, Lenski in Risnawati, Riswanto, and Lismayanti (2014), KWL strategy helps student become proficient readers by drawing them to perform many of the things that good readers do. After knowing about KWL charts, hoped it can assist the pupils in learning process, particularly in reading.

REVIEW OF RELATED LITERATURE

Reading Comprehension

According to Bajovic (2010), Reading is a complex, purposeful, interactive, comprehending, flexible activity that takes considerable time and resources to develop. So, it means that reading is rapid which readers should maintain flow of information at a sufficient rate to make connections and inferences vital to comprehension. To get more comprehension from the text, the students should repeat all of the text many times to get understanding. He also said that Reading is not merely a process of exact identification of letters, words, and ultimately sentences leading to comprehension built from letter to word to phrase to sentence. So the readers or students have to have background knowledge what the text is, even they need to guess what will happen on the text.

Reading comprehension is the ability to read text, process it, and interpret its substance. Reading comprehension is at the level of understanding of a text or message. Graham and Bellert (2005) state that reading comprehension is a complex interaction between automatic and strategic cognitive processes that enables the reader to make a mental representation of the schoolbook. They also say that

comprehension is a complex cognitive operation that require the intentional interaction between the teacher and the substance of the school book.

Reading comprehension is a multicomponent, complex process that involves many interactions between the reader and what she/he brings to the text (previous knowledge, strategy use), as well as variables related to the text itself (interest in the text, understanding of the types of texts). While many junior high school, senior high school, college students – and even adults - have learned to read, some will struggle with reading for meaning; and, as with learning to read, these students need explicit strategies to use during the process of reading in order to support them with gaining, using and remembering information from their texts.

Strong readers use strategies that work for them and can identify which strategy to use for different types of texts. Those struggling with reading can improve their reading comprehension skills by being taught strategies, as well as when and how to use them with different types of texts. Some strategies are Discovering Main Idea, Identifying Detail, Sequencing Events, Using Context, Getting Facts, Drawing Conclusions/Predicting Outcomes, Distinguishing Between Fact and Opinion, and Understanding Cause and Effect.

The process of comprehension begins before we start to ‘read’ and continues even after the ‘reading’ is finished. Good readers use pre-reading strategies like previewing the text and use post-reading strategies like summarizing in addition to the many strategies they use to make meaning during ‘reading’ itself.

According to Pardo (2004), By dividing instruction into pre-reading, during reading and post-reading, teachers can design activities for each stage that will improve student’s comprehension and also provide opportunities for teachers to demonstrate strategies that readers can use at each stage. He also advised some strategies that can improve or enhance reader comprehension about reading text, they are predicting, connecting, comparing, inferring, Synthesing, skimming, and scanning.

KWL charts

KWL chart, is a graphical organizer designed to help in learning. The letters KWL are an acronym, for what students, in the course of a lesson, already know, want to know, and ultimately learn. It is a part of the constructivist teaching method, where students move away from what are considered traditional methods of teaching and learning. In this particular methodology the students are given the space to learn by constructing their own learning pace and their own style of understanding a given topic or idea.

A Know-Want-Learn (K-W-L) chart is one of the most commonly used graphic organizers to tap students’ prior knowledge. “The chart consists of three columns, one titled “Know,” another titled, “Want,” and a third titled, “Learn.” KWL stands for Know, Want, Learn. What I KNOW. What I WANT to know. What I LEARNED. A KWL Chart is reading strategy that helps to students through text. It also helps to organize thoughts in a graphical (visual). According to Riswanto (2014), KWL strategy is a reading strategy that uses questioning to activate prior knowledge, to understand metacognition, and to write to learn.

A teacher has many reasons for using KWL charts in the classroom. First, a KWL chart activates students' prior knowledge of the text or topic to be studied. By asking students what they already know, students are thinking about prior experiences or knowledge about the topic. Next, KWL charts set a purpose for the unit. Students are able to add their input to the topic by asking them what they want to know. Students then have a purpose for participating and engaging in the topic. Also, using a KWL chart allows students to expand their ideas beyond the text used in the classroom. By being aware of students' interests, the teacher has the ability to create projects and assignments that the students will enjoy. A KWL chart is a tool that can be used to drive instruction as well as guide student learning. KWL charts are used by elementary teachers from literature to science. They are also used to teach historical content at the elementary level.

According to Jared and Jared (1997), KWL was established with the motive to enhance the comprehensive reading skills of the students. This was done by designing the three levels of the activity focusing on the different learning styles of the individuals. According to Glazer (1998), students fail to enjoy the text or content because they fail to understand it. Hence, KWL increases their comprehension skills as the activity goes through each topic step by step.

According to Szabo (2006), a KWL table uses a strategy of before-during-after for the students to enhance their comprehension skills. The students start by brainstorming the prior knowledge about the topic and then eventually develop curiosity about the topic. This builds their interest in the topic and they would want to learn more about the topic. KWL chart gives an opportunity to the individual to build up self-motivation regarding the topic. Through KWL table, the students go through self-evaluation as they know what they intend to learn and what they really understood. Hence, KWL gives the students some space to explore the topic through other sources and build up their knowledge.

Disadvantages of KWL chart are may discourage to ask questions, "K" column can be difficult if student has NO prior knowledge of topic, students may find this task difficult if they lack memory, thinking, and unable to think beyond the text, students may get bored and refuse to complete exercise, takes a lot of space to hang up chart, and possible to misinterpret the early assessment.

Scientific text

Scientific text can be categorized into three types are report text, exposition or hortatory text, and explanation text.

1) Report text

Report is a text which presents information about something. A report text is a type of document written by someone or group of people to announce the result of an investigation or announce something to the proper authorities. The information given in a report text is very general information. In addition, Gerot and Wignell (1994: 196-197) state that report is a text which functions to describe the way things are, with reference to a range of natural, manmade and social phenomena in our environment. Report means a text which describes things in general.

It's a little bit different from descriptive text which describe specific things.

A. Generic Structure of Report text

- General Classification ; Stating classification of general aspect of thing; animal, public place, plant, etc which will be discussed in general.
- Description : tells what the phenomenon under discussion ; in terms of parts, qualities, habits or behaviors

B. The Characteristics / Language Feature of Report text:

- Use of general nouns
- Use of relating verbs to describe features.
- Some use of action verbs when describing behavior.
- Use of technical terms.
- Use of paragraphs with topic sentences to organize bundles of information.

2) Analytical Exposition text

An exposition persuades a reader or listener by presenting one side of an argument. By taking a point of view and justifying it. It aimed to convince others to see only that side of an issue. Some expositions speculate as to what might be and persuade others as to what should be. It can be also said Analytical Exposition is a text that elaborates the writer's idea about the phenomenon surrounding. Its social function is to persuade the reader that the idea is important matter, and to analyze the topic that the thesis/opinion is correct by developing an argument to support it.

A. Generic Structure of Analytical exposition Text

- Thesis :Introducing the topic and indicating the writer's point of view.
- Argument :Explaining the argument to support the writer's position. The number of arguments may vary, but each argument must be supported by evidence and explanation.
- Reiteration: Restating the writer's point of view / to strengthen the thesis. We can use the following phrase to make conclusion in reiteration.

B. The Characteristics / Language Feature of Analytical exposition Text:

- Using relational process
- Using internal conjunction
- Using causal conjunction
- Using Simple Present Tense
- Using compound and complex sentence.
- Use word that link argument, such as firstly, secondly, and reasoning through causal.

3) Explanation text

An explanation is written to explain how and why something in the world happens. It is about actions rather than about things. Explanations play a valuable role in building and storing our knowledge. In the other sentence, Explanation is a text which tells processes relating to forming of natural, social, scientific, a cultural phenomena, geography and history text books.

A. **Generic Structure of Explanation Text**

- General statement; stating the phenomenon issues which are to be explained.
- Sequenced explanation; stating a series of steps which explain the phenomena.

B. **The Characteristics / Language Feature of Explanation Text:**

- Featuring generic participant; sun, rain, etc.
- Using chronological connection; to begin with, next, etc.
- Using passive voice pattern.
- Using simple present tense.

DISCUSSION

The KWL (Know, Want, Learn) chart, introduced by Ogle in 1986, provides a structure for activating and building prior knowledge, establishing a purpose for reading and for summarising what was learned. The strategy can help students reflect and evaluate their learning experience, as well as serve as a useful assessment tool for teachers. According to Jared and Jared (1997), KWL was established with the motive to enhance the comprehensive reading skills of the students.

A teacher has many reasons for using KWL charts in the classroom. First, a KWL chart activates students' prior knowledge of the text or topic to be studied. By asking students what they already know, students are thinking about prior experiences or knowledge about the topic. Students are able to add their input to the topic by asking them what they want to know. Students then have a purpose for participating and engaging in the topic. Also, using a KWL chart allows students to expand their ideas beyond the text used in the classroom.

As senior high school, the students have their own knowledge. They are different from junior high school that still need more help in thinking or find out some ideas. Using KWL chart in senior high will be good because the text in senior high will be difficult than in junior high school. In K-W-L, the teacher engages students in a brainstorming session about the key concepts of a topic to be studied or a text to be read. As students share their ideas, usually some disagreement ensued and they begin to question what they "know". From this situation, the teacher can help students by guiding them to write their list of knowledge related to the topic in the three column format of the K-W-L method.

| K-W-L Chart | | |
|--------------|---------------------|----------------|
| Topic: _____ | | |
| What I Know | What I Want to Know | What I Learned |
| | | |

| | |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| K | <i>The step Know (K) refers to what students know about topic, which was done before the students began to read. In this step, the students wrote down the words or phrases that they already knew related to the topic. The more things they knew, the better chance for them to comprehend the content of the text given.</i> |
| W | <i>The step Want (W) means what students want to learn more about the topic. In this step, the students made a list of questions about what they expected to learn in the topic during the reading activity. If they were curious about something related to the topic, they were supposed to write down the question.</i> |
| L | <i>The last step Learned (L) indicates what students have learned. In this step, they paraphrased the important information, such as surprising or interesting ideas obtained from the text. Then, they checked the ideas against those in the W column. The L step occurred after the students had finished their reading.</i> |

As informed, Choose a general topic and create a table with three columns. Label the first column with a K for “What I Know,” the second with a W for “What I Want to know,” and the third with an L for “What I Learned” or a variation of this. Introduce the KWL strategy and model how to use it with the topic. From above we can conclude about,

| K | W | L |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| What I Know | What I Want to Know | What I Learned |
| Introduce the topic and brainstorm it. Note is needed. | Note any questions the class has about the topic and/or turn textbook subheadings into questions. | After reading or listening text, students note what they have learned, and they are able to |

| | | |
|--|--|--------------------------------|
| | | answer the questions column W. |
|--|--|--------------------------------|

As we already know and learn about scientific text that the text is about fact one and it already we categorized into 3 kinds of text (report, expository or exposition, and explanation). We used for report text as the example.

| | | |
|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Tittle : Bat | | |
| K | W | L |
| What I Know | What I Want to Know | What I Learned |
| <ul style="list-style-type: none"> • Cold blooded animal • Living in cave • Supersonic sounds | <ul style="list-style-type: none"> • What class are they? • What are they food? • How many species are they? • How does their supersonic sounds work? | <p><i>After reading, they will find the answer for W</i></p> |

The Bat

Bats are the only mammal that can truly fly. They are from the order Chiroptera. There are around 1.200 species of bats in the world and they spread widely. Most of them are nocturnal and usually sleep in a cave during the day. Each species have different diets, some of them are: insects, pollen, nectar, fruit and vertebrates.

Each species of bats can grow into a different maximum body size. Some of them can grow up to the size of 32 cm. Mostly the color of the body is black with gray or brown fur around their head. They have two arms attached to a large webbed wing made of delicate membranes called as “the patagium”. The wing is supported by some finger-like bone structure which make it easy to be folded and it allows them to do more maneuver in the air. They also have two legs and the hind part of the wing is attached to it. Their head is small with two large protruding ears, small eyes and a snout.

Bats can produce ultrasonic sounds and use it to map the environment. With this ability, they manage to fly in a dark cave without crashing to something. They also have a unique ability to roosting with upside down position. It is recorded that most of them can live up to 30 years in the wild.

After reading the text about the Bat, they are able to answer what they want to know.

| | | |
|--------------|---------------------|----------------|
| Tittle : Bat | | |
| K | W | L |
| What I Know | What I Want to Know | What I Learned |

| | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Coldblooded animal • Living in cave • Supersonic sounds • Eating fruits | <ul style="list-style-type: none"> • What class are they? • How many species are they? • How does their supersonic sounds work? | <ul style="list-style-type: none"> • <i>They are from the order Chiroptera.</i> • <i>There are around 1.200 species of bats in the world.</i> • <i>they manage to fly in a dark cave without crashing to something.</i> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

For another example, we use explanation text as part of scientific text. For this text, we explain why thing can happen.

| Tittle : How A Tsunami Happens | | |
|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------|
| K | W | L |
| What I Know | What I Want to Know | What I Learned |
| <ul style="list-style-type: none"> • Huge waves • Earthquake | <ul style="list-style-type: none"> • What is tsunami definition? • are there any reason how its happen? | |

How A Tsunami Happens
The term of “tsunami” comes from the Japanese which means harbour (“tsu”) and wave (“nami”). A tsunami is a series of waves generated when water in a lake or a sea is rapidly displaced on a massive scale. A tsunami can be generated when the sea floor abruptly deforms and vertically displaces the overlying water. Such large vertical movements of the earth’s crust can occur at plate boundaries. Subduction of earthquakes are particularly effective in generating tsunami, and occur where denser oceanic plates slip under continental plates. As the displaced water mass moves under the influence of gravity to regain its equilibrium, it radiates across the ocean like ripples on a pond. Tsunami always bring great damage. Most of the damage is caused by the huge mass of water behind the initial wave front, as the height of the sea keeps rising fast and floods powerfully into the coastal area.

| Tittle : How A Tsunami Happens | | |
|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| K | W | L |
| What I Know | What I Want to Know | What I Learned |
| <ul style="list-style-type: none"> • Huge waves • Earthquake | <ul style="list-style-type: none"> • What is tsunami definition? • Are there any reason how its happen? | <ul style="list-style-type: none"> • <i>A series of waves generated when water in a lake or a sea is rapidly displaced on a massive scale.</i> |

| | | |
|--|--|---------------------------------------------------------------------------------------------------------------------------------------------|
| | | <ul style="list-style-type: none"> • <i>Such large vertical movements of the earth's crust can occur at plate boundaries</i> |
|--|--|---------------------------------------------------------------------------------------------------------------------------------------------|

CONCLUSION AND SUGGESTION

Reading comprehension is the ability to read text, process it, and interpret its substance. And also reading comprehension is at the level of understanding of a text or message. For senior high school, students are welcomed by more difficult text in learning. Some of them are difficult in reading a text, it can be caused of do not understand of text given and feel bored. Therefore, by using KWL charts can absolutely enhance student reading comprehension in scientific text.

KWL charts, developed by Ogle in 1986, is graphical organizer designed to help in learning. The charts consists of three columns, one titled "Know," "Want," and, "Learn." KWL stands for What I KNOW, What I WANT to know. What I LEARNED. What I KNOW is used for the background knowledge of the students, what I WANT to know is used for what the student need to know more or if there are many question in their mind, and what I LEARNED is about what they know after they learn or know the text, and they are able to answer their question. Using this method for senior high school is very helping, and it can enhance for their reading comprehension in scientific and they can more comprehend in understanding the text.

Based on the discussion above, the writer suggests English language teachers to use KWL charts to enhance reading comprehension of student senior high school, because it can make the students in analyze reading text easily. By using KWL charts, students are able to read and comprehend any scientific text possibly. In addition, teacher can create the classroom atmosphere more enjoyable by using this chart or method because they will encourage and feel happy, not getting stressed of scientific text given.

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