THE IMPACT OF GRAPHIC NOVELS ON MALAYSIAN SECONDARY SCHOOL ESL LEARNERS' READING COMPREHENSION

NADIA BINTI MOHD DANI GOH

FACULTY OF LANGUAGES AND LINGUISTICS
UNIVERSITY OF MALAYA
KUALA LUMPUR

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NADIA BINTI MOHD DANI GOH

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Name of Candidate: **NADIA BINTI MOHD DANI GOH**

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ABSTRACT

Based on PISA 2009, 2012, and 2015, Malaysian reading literacy rate is at a worrying state. The Ministry of Education has made a move to use graphic novels as a part of its literature component in schools which is a great way in increasing reading literacy. This raised two sides of arguments pertaining to the use of graphic novels in language learning: one supports while the other disapproves. This study seeks to explore the impact of reading graphic novels on ESL learners' reading comprehension. An explanatory mixed methods design is adopted. It comprises two phases: Reading comprehension tests for descriptive statistics (The first test used the text-only novel while the second test used the graphic novel) and one-to-one interviews. 60 students participated in the study with results showing that reading graphic novel has a positive impact on ESL learners' reading comprehension. From the interviews, two elements were found to be overarching the factors: *the reader* (positive perception of text format, positive affect, effective reading strategies, linguistic knowledge and visual literacy skills) and *the stimuli* (visual and verbal in relation to cognition). Learners stated that reading graphic novels helped them: retain the story in their memory better, imagine and compensate lack of imagination, have a clearer picture of characters and the storyline, and boost their reading motivation. Via graphic novels, readers were allowed to oscillate between verbal and visual elements and these findings were in support of Paivio's Dual Coding Theory (DCT) which involves two systems (*verbal* and *nonverbal*) working together, leading towards better storage of information and accelerating the process of activating *logogens* and *imagens*. On a different note, there were a few readers, representing the minority, who preferred and performed better without graphics due to lack of visual literacy skills and ineffective reading strategies.

ABSTRAK

Berdasarkan keputusan PISA 2009, 2012 dan 2015, kadar literasi pembacaan di Malaysia adalah pada takuk yang membimbangkan. Kementerian Pendidikan Malaysia telah mengambil langkah untuk menggunakan novel grafik sebagai sebahagian daripada komponen sastera di sekolah yang turut merupakan kaedah yang baik untuk meningkatkan kadar literasi di Malaysia. Penggunaan novel grafik untuk mempelajari Bahasa Inggeris menimbulkan hujah-hujah yang bertentangan dari segi pendapat: pihak yang menyokong dan pihak yang tidak menyokong. Kajian ini bertujuan mengkaji impak membaca novel grafik pada pemahaman pembacaan pelajar-pelajar Bahasa Inggeris kedua. Kajian metod campuran berbentuk penerangan "explanatory" digunakan dalam kajian ini. Ia terdiri daripada dua fasa: Ujian pemahaman pembacaan untuk mendapatkan statistik deskriptif (Ujian pertama menggunakan novel teks sahaja manakala ujian kedua menggunakan novel grafik. Seramai 60 pelajar menyertai kajian ini dengan keputusan yang menunjukkan bahawa membaca novel grafik memberi kesan positif pada pemahaman pembacaan pelajar-pelajar Bahasa Inggeris sebagai Bahasa Kedua. Berdasarkan temuduga, dua elemen didapati memayungi faktor-faktor yang mempengaruhi keputusan ujian pemahaman: *pembaca* (persepsi positif terhadap format teks, emosi positif, strategi membaca yang berkesan, pengetahuan linguistik, dan kemahiran literasi visual) dan *perangsang* (visual dan lisan yang berkaitan dengan kognisi). Pelajar-pelajar menyatakan bahawa membaca novel grafik membantu mereka: mengingati cerita dengan lebih baik, membayangkan dan membantu bagi yang tidak boleh membayangkan cerita, memberi gambaran yang jelas berkenaan watak-watak dan jalan cerita, dan meningkatkan motivasi untuk membaca. Dengan menggunakan novel grafik, para pembaca dapat menggunakan elemen lisan dan visual dan dapatan ini adalah disokong oleh Teori Dual Coding (DCT) oleh Paivio yang melibatkan dua system (*lisan* dan *bukan lisan*) bekerja bersama, membantu menyimpan maklumat dengan lebih baik dan mempercepatkan proses pengaktifan *logogens* dan *imagens*. Namun, ada beberapa pelajar dari golongan minority yang lebih gemar dan mendapatkan tidak mempunyai peningkatan dalam ujian pemahaman dengan grafik disebabkan oleh kekurangan kemahiran literasi visual dan penggunaan strategi membaca yang tidak efektif.

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LIST OF ABBREVIATIONS

DCT   :   Dual Coding Theory

PISA   Programme for International Student Assessments

RCT   :   Reading Comprehension Test

UPSR   :   Ujian Pencapaian Sekolah Rendah

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DEFINITION OF TERMS

For ease of reference, the following key terms used in the study are listed as follows:

Graphic novel	**:**	A book consists of texts and graphics in the style of comics. The graphic novel used in the study is *20,000 Leagues under the Sea* that is used in Form 1 Malaysian literature component.
Text-only novel	**:**	The texts taken from the graphic novel with removal of graphics, which in the study is *20,000 Leagues under the Sea*.
ESL learners	:	Second language learners of the English language which in this study refers to Form 1 students in Malaysian public schools.
Logogens	**:**	Verbal representational units according to Dual Coding Theory.
Imagens	**:**	Nonverbal representational units according to Dual Coding Theory.
PISA	**:**	Programme for International Student Assessments that Malaysia participates in to assess students' performance in science, mathematics and reading, specifically students aged 15.
Factors (in relation to graphic novels)	**:**	The factors in relation to graphic novels in this study are the elements that contribute to the process of reading graphic novels which are attributed to the graphic novels and/or the readers.

CHAPTER ONE

INTRODUCTION

1.0 Background

In this present world, learning a language is no longer limited to learning the alphabets, the grammar and the written language per se. The existence of advanced technology incorporating various modes of communication makes the original, unabridged text version of William Shakespeare's *Romeo and Juliet*, Jane Austen's *Pride and Prejudice* and even J.K. Rowling's *Harry Potter* seem rather too traditional, outdated, effortful and time-consuming for readers. This is supported by Carter (2007) that the current generation is more suitable at adopting visual media for learning.

The invention of technology, specifically smartphones, though having its benefits, does have its negative impact on reading. In a study done by Liu and Huang (2016) where they studied the effect of reading on smartphones, novel behaviours are found to have developed such as employing "more browsing and scanning, more selective reading, less in-depth reading, and less concentrated reading" (Liu and Huang, 2016). The authors expressed their concern that the new generation might develop "reading avoidance" for longer texts such as academic texts (p. 240).

Thus, many believe that one of the ways to make classroom learning more innovative, creative, motivating and engaging is by using graphic novels in the teaching of English language. Graphic novels, according to Scholastics' guide for teachers and librarians, are books consist of texts and illustrations in the form of comics. The term 'graphic novel' is first coined and made popular by Will Eisner in his attempt to differentiate

between his work *A Contract with God* (1978) and comic strips in newspapers. Weiner (2002) described a few characteristics of graphic novels: complete 'sophisticated' fiction or non-fiction books and have more pages than comics. Schwarz (2002) stated that graphic novels are useful to aid comprehension and boost motivation for learners who have difficulties in reading or even for those who are skilled but bored or busy.

1.1 Statement of Problems

From the introduction, it has been briefed that graphic novels have the capacity to boost motivation and comprehension in reading, the essential elements that are beneficial for ESL learners in Malaysia. This statement is due to the drop in Malaysia's reading literacy performance in the Programme for International Students Assessment (PISA) in 2009, 2012 and 2015 as elaborated below.

1.1.1 Malaysia's Poor Performance in PISA 2009, 2012 and 2015 Reading Literacy

According to PISA, Malaysia was ranked 55th among the participating countries with a mean score of 414 in 2009 and further went down to 58th in 2012 with a mean score of 398 in reading. The following table shows the reading scale used in PISA 2009, 2012 and 2015[1]:

Table 1
PISA Reading Scale (Adopted from PISA 2015 Draft Reading Literacy Framework)

Level	Score points on the PISA scale
6	Higher than 698.32
5	Higher than 625.61 and less than or equal to 698.32
4	Higher than 552.89 and less than or equal to 625.61
3	Higher than 480.18 and less than or equal to 552.89
2	Higher than 407.47 and less than or equal to 480.18
1a	Higher than 334.75 and less than or equal to 407.47
1b	262.04 to less than or equal to 334.75

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[1] PISA 2015 Draft Reading Literacy Framework. Retrieved 27 October 2016 from http://www.oecd.org/callsfortenders/Annex%20IB_PISA%202015%20Reading%20Framework%20.pdf

Nonetheless, it can be observed that Malaysia has been giving its concentrated efforts in improving reading literacy among students besides contravening the possibility of current and future generations developing reading avoidance.

In 2010, the English literature component was updated and new novels, poems, short stories and graphic novels were introduced to the students. The content of the texts was more engaging and cover pages were eye-catching as well. In 2015, another cycle of updated literature component has been implemented and still, graphic novels that had never been used before the first cycle are now being used in schools, particularly Primary Year 5, and Secondary Form 2.

Prior to the release of PISA 2015 results, it had been speculated that there might be improvements in literacy score as there had been a revamp on Malaysia's education system with the introduction of Malaysia Educational Blueprint (2013-2025) and it was ascertained by the then Minister of Education II and the present Minister of Higher Education, Datuk Seri Idris Jusoh:

> "Saya yakin apabila keputusan PISA keluar nanti, keputusannya
> akan lebih baik. Saya bagi jaminan sebagai menteri."[2]
>
> Translation: "I'm sure that when the results are released,
> they will be much better. I give my assurance as a minister."

Upon the release of results on the 6th of December 2016, Malaysia indeed showed a slight improvement in reading literacy with a mean score of 431, with 62.8% above the

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[2] Keputusan Pisa 2015, kedudukan Malaysia dijamin lebih baik. (2015, March 24). Retrieved October 27, 2016, from http://www.utusan.com.my/berita/parlimen/keputusan-pisa-2015-kedudukan-malaysia-dijamin-lebih-baik-1.73064

baseline and 37.2 below the baseline,[3] compared to the previous PISA results though the results remained at level 2 of PISA scale.

1.1.2 Prejudices against Graphic Novels

Another problem that needs to be addressed is the contradicting notions on the use of graphic novels in English language classrooms as a part of the syllabus. This raised two sides of arguments pertaining to the use of graphic novels in language learning: one supports while the other disapproves. Some of the issues raised in the latter stems from prejudices against graphic novels. Callahan (2009, as cited in Pishol and Kaur, 2015) stated that teachers reject the idea of using graphic novels in class because graphic novels are not "real books". Cases are observed where works are being abridged thus losing some detailed descriptions and plot, besides limiting the number of characters that are supposed to feature in the story. Take the case of graphic novels used in Malaysian schools, the number of chapters is reduced, narration is simplified, and only main characters are reserved. From the same article, Groensteen (2003) listed other reasons for going against the use of graphic novels in classrooms and two prominent ones are the perception of graphic novels as "low" art in the caricature realm and that the literary features are deemed as non-equivalent to high-end literature.

More criticisms are vocalised from outside and inside the classroom in Hansen's (2012) article. Beyond the parameters of the classroom, violence and inappropriate illustrations are commonly associated with graphic novels of which are unsuitable for classroom learning. Nonetheless, these issues can be addressed by proper selection done by teachers and curriculum developers. The perception of graphic novels as "easy" and that

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[3] Abas, A., & Mohd Shahar, F. (2016, December 06). PISA 2015: Malaysia shows significant improvement in Math, Science & reading. Retrieved December 07, 2016, from http://www.nst.com.my/news/2016/12/194973/pisa-2015-malaysia-shows-significant-improvement-math-science-reading

they fit the characteristic of "lazy readers", is also mentioned in the article as being one of the criticisms outside the classroom. Within the parameters of the classroom, students also have their own stigma towards the graphic novels, assigning the role of graphic novels for struggling readers. As an effect, both struggling and proficient readers feel discouraged to read "less challenging texts" so as to avoid being associated with the stigma.

On the other hand, those who side with the use of graphic novels in classrooms forwarded strong arguments worthy for consideration. Pishol and Kaur (2015) stated that second language learners are less anxious to learn the language as graphics are available to help readers make meaning besides presenting authentic language for language learners to experience. In another article, Pantaleo (2011) reviewed several studies and found that graphic novels are seconded for helping learners to visualise (Lyga, 2006), boosting learners' vocabulary (Brenner, 2006), benefiting learners who are struggling in reading (Lyga, 2006) and encouraging learners to think critically besides developing comprehension skills (Carter, 2007; Schwarz, 2007).

More studies showing support of graphic novels are as written in the following paragraphs. Schwarz (2006) elaborated the benefits of using graphic novels in classrooms. Graphic novels assist educators meet the objectives of traditional literacy, in which one of the objectives is to get the students to read. Graphic novels also allow educators to be critical with the media in classrooms that call for students' voices in analysing the themes and values.

Hecke (2011) listed advantages of using graphic novels in terms of international cultural competence. Graphic novels provide mental imagery, comprehensive storylines and

strong characterisation for readers who have difficulties in reading and intercultural values that can be learnt via selected graphic novels. However, words of caution must be exercised as knowledge of visual literacy and tools for interpretations are to be developed via training before the students can engage in visual analysis. Prior content knowledge should also be made available to prepare the students for reading.

Weighing the arguments from two opposing sides, what can be concluded here is that the opponents of graphic novels based their arguments on 'stigmatised' reasons such as the stigma of 'lazy readers', 'weak readers', and 'inappropriate' illustrations for students while the proponents of graphic novels offered legitimate reasons that are strong enough to acknowledge the benefits of graphic novels particularly in relation to reading. Correlating to that, it is important to delve deeper into the proponents' arguments which stated that graphic novels are beneficial in language learning, specifically in reading comprehension.

1.2 Graphic novels in Malaysian schools

Malaysia has taken its stance in supporting the case for graphic novels by introducing them as a part of the literature component in the teaching of English language. Previously, literature was taught only in the form of text, without visual accompaniment but in recent years, Malaysia has witnessed the fresh approach in the syllabus. In *The Star* online newspaper article published in 2010, Dr Mohamed Abu Bakar representing the Education Ministry's Curriculum Development Centre stated that the fresh approach is necessary for students to experience learning in an enjoyable ambience and to develop a reading habit (Kaur, 2010).

The implementation of graphic novels in secondary schools is quite recent as the first cycle can be traced as far back as in 2010 which consists of abridged versions of classic literature *Black Beauty, The Boscombe Valley* and *Journey to the Centre of the Earth.* In 2015, the second cycle of the implementation consists of new titles from the classics: *The Swiss Family Robinson, 20000 Leagues under the Sea* and *King Arthur.*

1.3 Research Purposes

Considering Malaysia's on-going efforts in promoting graphic novels in classrooms, this study is targeted to offer an insight into the use of graphic novels in language learners' reading comprehension.

The first purpose of the study is to examine the impact of graphic and text-only novels on ESL learners' reading comprehension, specifically Form 1 students who participated in the study. The purpose of the study shall be met via three research questions formulated as listed in the following section (cf. section 1.4 on research questions). A comparison of reading comprehension scores using both novels is done to observe if graphics have any influence on students' reading comprehension using Dual Coding Theory to explain the phenomena. As elaborated earlier, graphic novels contain images, panels, colours and other visual elements that accompany the narrative and dialogues which are not present in textual novels thereby raises the questions, "What if the graphics were removed? Will their comprehension be affected (negatively and/or positively)?" The findings shall contribute to educators the extent to which ESL learners benefit in their reading comprehension using graphic novels.

The second purpose of the study is to explore the factors in relation to graphic novels that might affect ESL learners' reading comprehension and these factors were suggested

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by the ESL learners via interviews. Because information was gathered from the ESL learners' perspectives, the findings would be helpful for educators as to why and how graphic novels influence their reading comprehension.

1.4 Research Questions

To meet the purposes of the study, the following questions serve as a guide in this research:

1. *What is the performance of Malaysian Form 1 students reading text-only novel?*

2. *What is the performance of Malaysian Form 1 students reading graphic novel?*

3. *Is there a significant difference in reading comprehension scores of students between reading text-only novel and graphic novel?*

4. *What are the factors in relation to graphic novels that influence the reading comprehension performance of students?*

The first and second research questions are aimed to investigate the impact of text and graphic novel in reading comprehension. These questions shall confirm the arguments made by proponents of graphic novels in the teaching of English language as discussed earlier in this section. Besides, the questions will provide insights through evaluation and justification on the move made by the Ministry of Education. The third research question is targeted to compare reading comprehension scores using a text-only novel and a graphic novel to observe if there is any improvement while the fourth research question is to interrogate further on the factors in relation to graphic novels that influence ESL learners' reading comprehension scores.

The hypothesis underlying this research is based on the notion that reading graphic novels has a positive impact on ESL learners' reading comprehension. Using Dual Coding Theory (cf. section 2.4 on Dual Coding Theory) as the theoretical framework for the study, the hypothesis is supported by the theory in that the graphic novel represents both systems: visual and verbal systems. There are three types of processing; they are *representational* (verbal stimuli activate verbal representations or visual stimuli activate visual representations)*, referential* (verbal stimuli activate the visual system or visual stimuli activate the verbal system) and *associative* (verbal representations activate other verbal representations or visual representations activate other visual representations within respective systems). *Representational* processing is often more direct than the other two types of processing and takes a shorter period of time (Paivio, 1986, p. 69). (cf. section 2.4 on Dual Coding Theory).

As graphic novels have a combination of both coding systems: verbal and visual systems, ESL learners are assumed to be able to rely on both verbal and visual input in reading comprehension instead of depending only on a single form of input that can provide more direct activations of representations accelerating comprehension of the materials being read as summed up by the following research hypothesis.

Research hypothesis   *: Reading graphic novels has a positive impact on ESL learners'*
*   reading comprehension scores.*

Null hypothesis   *: Reading graphic novels doesn't have a positive impact on ESL*
*   learners' reading comprehension scores.*

1.5 Significance of the Study

The study serves to provide an understanding of the capacity of graphic novels in enhancing ESL learners' reading comprehension in the context of Malaysia. Based on the literature, graphic novels do possess the properties that motivate students to read, as well as assisting them in comprehension (Pantaleo, 2011), and the findings of the study shall contribute to the literature in the local context.

Noting that ESL learners of the present generation are exposed to printed and electronic media, of which most of them are visual, graphic novels can serve as a bridge between the generation and reading literacy. The browsing and scrolling habits are feared to create reading avoidance which makes graphic novels the 'just right' medium to improve reading literacy among ESL learners.

The study adopts Dual Coding Theory as its theoretical framework which is used in several studies in relation to graphic novels and illustrated books. However, most research did not go far into explaining the cognitive phenomena via the processes involved in the verbal and nonverbal systems, delimiting the potential of the theory. The study targets to offer an explanation of the impact of reading the graphic novel and the text-only novel on reading comprehension from the viewpoint of Dual Coding Theory.

1.6 Limitations of the Study

Several limitations were recognised in the present study. The first is due to the rather small number of participants, which is 60, though it is sufficient for statistical purposes due to cost and time constraint faced by the researcher. Second, the study only tested one graphic novel (two out of four divisions) of the book which can be improved by testing the whole book or even better; increase the number of graphic novel being used

in the study. Third, the study used only two types of reading comprehension assessments: multiple choice questions and sequencing assessment. Story retelling and open-ended questions can be included alongside the previous two. More information on the limitations of the study is discussed in Chapter Six (cf. section 6.2 on limitations of the study).

CHAPTER TWO

REVIEW OF LITERATURE

2.0 Introduction

In this section, past research and relevant theories are discussed in greater depth to provide a strong foundation and understanding besides identifying the gaps that should be filled through this study.

2.1 The Conflicting Definitions of Reading Comprehension

With regards to definitions of reading comprehension, it can be considered that reading comprehension has diversified definitions. Anders (2002) reviewed definitions of key terms in reading comprehension instruction where the term 'reading comprehension', being one of the key terms, was offered with various definitions. One of the reasons the occurrence of such a situation is because the wording used in restatement of definitions proposed by previous studies changed the initial meaning of the definition, that inevitably altered the objective and the process involved in reading.

To fathom the issue at hand, the following definitions quoted by Anders (2002) show how the original definition was altered due to misquotation.

Durkin (1993) in Anders (2002) defined comprehension as "the essence of reading" and that reading entails "intentional thinking during which meaning is constructed through interactions between text and reader" while reading comprehension, according to Harris and Hodges (1995, as cited in *Chapter 1 Reading Comprehension: Definitions, Research and Considerations*, 2007), is

…the construction of the meaning of a written or spoken communication through a reciprocal, holistical interchange of ideas between the interpreter and the message…The presumption here is that meaning resides in the intentional problem-solving, thinking processes of the interpreter,…that the content of the meaning is influenced by that person's prior knowledge and experience. (Harris and Hodges, 1995, p.39)

Authors of The Report of the National Reading Panel (NICHD, 2000) in Anders (2002) misquoted Harris and Hodges' (1995) definition of reading comprehension as "readers derive meaning from text when they engage in intentional, problem-solving thinking process."

Anders (2002) argued that the definition provided by Durkin (1993) whose definition was redefined by Harris and Hodges (1995), was later inaccurately quoted in the report. The definition eventually arrived at the reader '*deriving'* meaning from the text, of which the original word '*constructing'* had been altered. Anders argued that the two words, '*deriving'* and '*constructing'* are unequal in definition. The former gave an impression that the text has an upper hand in the reading process, as if the reader is simply imparting information from the text, and that the text and indirectly the author, dominate the whole process. The latter, on the other hand, does not imply such dominance of one over the other.

In tandem with the definition provided by Harris and Hodges (1995) (it is chosen as it is more comprehensive), Spiro, Bruce and Brewer (1980) recognised three elements existing in most reading comprehension models: *Multilevel*, *Interactive* and *Hypothesis-Based*. Merging the three elements with the definition, it is apparent that reading is a

two-way process (between the readers and the author's message) leading readers to different levels of understanding that entails readers' background knowledge and experience while adopting a critical mind to interpret and hypothesise issues presented in the reading text. Clearly, it can be summed up that readers' vocabulary and background knowledge are influential factors in reading comprehension.

2.2 Visuals in Reading Comprehension

Visuals in reading comprehension, in this context, can mean the external images such as pictures, graphics, graphs, charts and drawings accompanying the text, and internal images that readers conjure in their minds due to verbal and nonverbal cues received from their readings which are also referred to as mental images or imagery.

Often times, readers create mental images to understand a particular text. According to Sadoski and Paivio (2004), "mental imagery plays an invaluable role in adding concrete sensory substance to the meaning; taken literally, this is what "making sense" in reading is all about (p. 13)". Mental imagery, therefore, has its part in making the meaning of texts being read more concrete and intelligible. In a study done by Hibbing and Erickson (2003), it was discovered that developing 'mental images' can help readers comprehend texts while failure in doing so is due to their limited vocabulary or schemata. Limited vocabulary or schemata are usually experienced by learners of second or other languages, which can be frustrating when they stumble upon too many unfamiliar words, causing them incomprehension. To address this shortcoming, Levin (1981) claimed that visual aids used strategically can be a source of schemata and 'memory pegs' for readers to understand complicated texts. The study confirmed Levin's statement when visual aids such as sketches, illustrations, picture books and

movies worked in helping readers form 'mental images' among middle school struggling readers.

Schallert (1980) wrote a book chapter on the role of illustrations in reading comprehension which she discussed the effectiveness of using internal illustrations (also known as 'imagery') and external illustrations (such as graphics and pictures) in reading comprehension. There was not much difference in the results as the use of both equally resulted in positive effects. Schallert also found that pictures aid readers in understanding a text when the information provided is pivotal and new, and portrays structural relationships that exist in the text. In her view of a study done by Rasco, Tennyson and Boutwell (1975) where students performed better in answering questions when drawings or imagery instructions or both were given, Schallert hypothesized that pictures (external) and images (internal) deliver similar functions in reading comprehension processes. This means that being handicapped with a lack of vocabulary or existing schemata relevance to the text, young learners or second language readers may be able to comprehend a text with the accompaniment of external images.

2.3 Graphic Novels

In this section, some studies on graphic novels will be reviewed in light of multimodality and reading comprehension.

2.3.1 Multimodality in Graphic Novels

In the present study, the type of visuals in reading comprehension being tapped into is in the form of graphic novels. Past studies on graphic novels mostly covered the issues of multimodality and how multimodality assists readers in meaning making. Kress (2003) stated that graphic novels are multimodal in nature as modes of writing and

images work together to form an interpretation (as cited in Pantaleo, 2011, p.115). Subjects in the study were taught to read visual elements in graphic novels such as panelling, gutters and shades of colours while reading picture books and graphic novels in the effort of promoting visual literacy. The findings showed that understanding, interpreting and appreciating the visual and linguistic elements in graphic novels can be realised via the knowledge of conventions used in graphic novels. From the same article, Pantaleo (2011) also listed the benefits of using graphic novels in the study: providing visual aids for visualisation, developing skills in multiple literacies as well as helping learners who are less proficient in the language. Note that 'visualisation' is a fundamental point in Dual Coding Theory proposed by Paivio (1971) which shall be discussed in the section on theoretical framework (cf. section 2.4 on Dual Coding Theory).

In another article, Rajendra (2015) noted the use of graphic novels in Malaysian schools has been identified to benefit students' literacy. It was then discussed with references to theories that promote literacy. One of the prominent theories discussed is pertaining to multimodality in graphic novels which has been claimed to have the capacity of tapping into learners' multiple intelligences (Rajendra, 2015, p.14).

Connors (2012), in another study on multimodal meaning and graphic novels, discovered that there was an active use of both Visual and Linguistic designs by participants to make meaning of the graphic novels assigned to them. The study used categories of designs by the New London Group consisting of six designs for coding: Linguistic, Visual, Audio, Gestural, Spatial and Multimodal. He concluded with several noteworthy points, one of which is to extend the definition of literacy to "transactions with sign systems beyond written language". The call to go "beyond written language"

is aligned with Paivio's Dual Coding Theory which places equal values on verbal and nonverbal elements.

In an article on business communication and pedagogy, Short and Reeves (2009) used McLuhan's "hot" and "cool" media serving as a theoretical framework in the study. "Hot media" tend to involve low audience's participation as the media are data-sufficient while "cool media" involve high audience's participation as there are gaps the audience need to fill in. In explaining the advantages of using "cool" media to convey business concepts to students of Generation Y, Short and Reeves (2009) recognised that the graphic novel format is useful as it presents visual information that is suitable for certain types of learning styles. This statement is in line with the findings of a study done by Sabbah, Masood and Iranmanesh (2013) who reported that visual students scored significantly better than verbal students in their experimental test using graphic novels. The format also addresses the recent trend circulating Generation Y that emphasizes current content as it sparks participation in interactions, increases one's attention span and is more practical in its application.

A review of past studies shows that readers do make use of visual and verbal (multimodal) resources in reading. Although visual and textual interactions can be studied from a multimodal outlook in relation to visual semiotics, the purpose of the present study is to study the impact of graphic novels on readers' comprehension, in which, Paivio's Dual Coding Theory is more eligible to explain the phenomenon.

2.3.2 Graphic Novels and Reading Comprehension

In Chapter 1, the existence of graphic novels has been briefly reviewed in light of their benefits in reading and language learning as well as the prejudices that educators have of graphic novels.

To recapitulate some of the advantages of using graphic novels in reading, several studies are reviewed in this section.

Hecke (2011) stated that graphic novels aid comprehension of intercultural values via comprehensive storylines and strong characterisation for readers. Pantaleo (2011) did a study on graphic novels which involved students to read, discuss and create their own texts incorporating multimodal elements that they had been taught and exposed to. In the discussion, she concluded that students could comprehend and acknowledge the complex aspects in reading and designing graphic novels by focusing on the general and specific features spread across the pages. Such detailed reading would boost students' ability to appreciate graphic novels as a format of existing literature.

Of late, graphic novels have become an interest in the research field and some notable theses published are by Cook (2014) and Wood (2015). Cook (2014) found that graphic novels aided students' reading comprehension in the tests whether or not they were provided with graphic novels or graphic novels and traditional texts. Wood (2015) in her thesis on graphic novels and traditional texts discovered that the test scores were in partial support of the assumption made about graphic novels, that the accompaniment of the graphic novels would enhance students' reading comprehension. Nevertheless, research in reading comprehension using graphic novels still calls for more studies to be done in the future which justifies the importance of the present study.

2.4 Dual Coding Theory

Allan Paivio, the pioneer of the Dual Coding Theory, came up with a theory that places equal values on verbal system (language being spoken or written)[4] of which its unit is called *logogen,* and nonverbal system (nonlinguistic things and phenomena)[5], *imagen* as its representational unit. Initially, Dual Coding Theory was developed to explain the function of mnemonics on memory based on the method of loci developed by Metrodus of Scepsis from the Greek history (Paivio, 2014, p.142), but after continuous effort in research, Paivio (2014) found that Dual Coding Theory's scope could be broadened to other cognitive phenomena such as "imagery instructions, language concreteness-abstractness …. and picture superiority over words in free recall,…" (p. 145)

Logogens are hierarchical in nature and are arranged sequentially (from phonemes to syllables to words to sentences and to discourses) while *imagens* are spatially hierarchical (in nested sets) (Paivio, 2014, p. 146) instead of being sequentially hierarchical. The hierarchy for *imagens* should begin from a small, focused scene to a larger scene that can be likened to the scene of a penalty kick where one's vision zooms in the ball (the round object where one kicks in a football game) then zooms out to the goal to the football field to the spectators and to the whole stadium.

According to Paivio (2014), Dual Coding Theory works in a manner where there are direct and indirect activations of *imagens* and *logogens.* Direct activations happen when stimuli from the context immediately activate these representational units. Indirect activations, on the other hand, occur when the stimuli cannot directly activate the

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[4] Source: Retrieved May 11, 2016 from http://teorije-ucenja.zesoi.fer.hr/doku.php?id=learning_theories:dual_coding_theory.
[5] Paivio, A. (n.d.). DUAL CODING THEORY AND EDUCATION - University of Michigan. Retrieved May 11, 2016, from http://www.umich.edu/~rdytolrn/pathwaysconference/presentations/paivio.pdf. Draft chapter for the conference on "Pathways to Literacy Achievement for High Poverty Children"

logogens or *imagens* due to issues such as differences of representational systems and unfamiliarity of stimuli to the individual, therefore, referential associations are needed.

To allow concretisation of words, abstract words demand for such associations as conveyed in the example: the word 'happiness' is an abstract concept but can be concretised by associating it with a more concrete word such as 'smile'. Having the two systems work together leads to better storage of information, accelerating the process of activating *logogens* and *imagens,* principally at a higher level of processing consisting of abstract words. Sadoski and Paivio (2004) wrote that one of the assumptions of Dual Coding Theory is that the two systems, *verbal* and *nonverbal* are independent of one another and at the same time, have additive effects in comprehension.
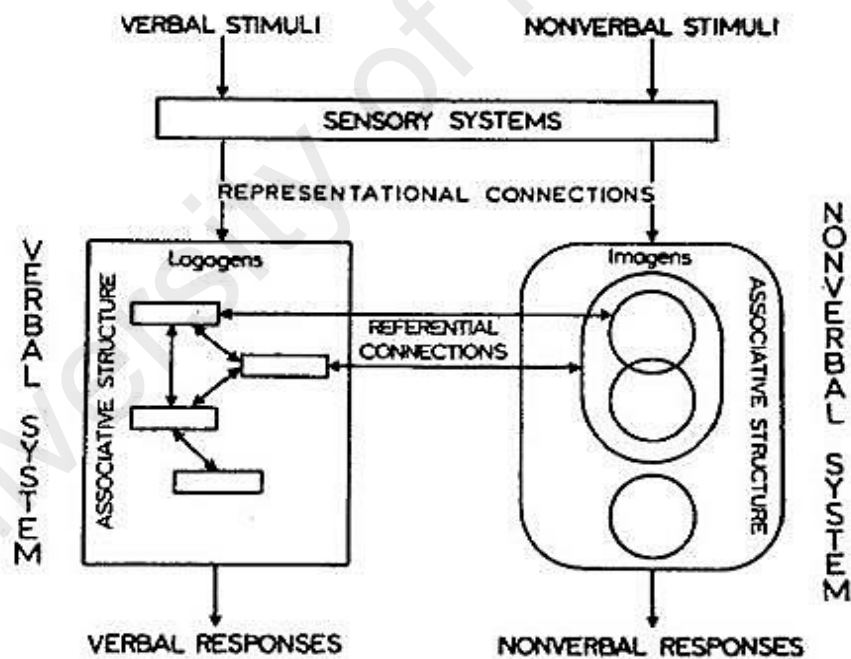
Figure 1. Dual Coding Theory (Adapted from Paivio, 1986) Mental Representations: A Dual Coding Theory (p. 67)

2.4.1 Dual Coding Theory in Reading

Dual Coding Theory was initially a cognitive theory but later it has been expanded to reading by Sadoski and Paivio. Sadoski and Paivio (2004) stated that the theory offers a comprehensive explanation for decoding, comprehension and response whereas other theories do not usually give attention to all of these facets of reading. They explained that the reading process consists of the *stimulus* which is defined by characteristics of the text and *individual differences* that encompasses one's ability in reading, schemata, instructions and others.

Representations are activated relative to the situation of the stimulus as well as individual differences inherent in readers. This is because different individuals read with different intensity and elaboration in accordance with intentions as well as being affected by individual differences (Sadoski and Paivio, 2004).

Referring to the definition of reading comprehension provided in the earlier section, it is agreed that the construction of meaning is influenced by one's background knowledge and experience as what Dual Coding Theory highly emphasizes. The role of background knowledge is important to activate *logogens* and *imagens* that a lack of it may cause difficulties in rendering the meaning of words or images being represented in reality.

A fundamental factor in reading comprehension proposed by Dual Coding Theory is the concreteness of language. Mental images can be activated via the presence of concrete language through referential and associative activations while abstract language, on the other hand, has less admittance to the imagery system. Sadoski and Paivio (2004) stated that comprehension is often depthless due to factors of time, requirement and capability to make the reading more detailed.

Memory in reading, according to Dual Coding Theory, is enhanced when dual-coded representations work together in reading. Affect, being one of nonverbal stimuli, plays an exceptional role in recall. Sadoski, Paivio and Goetz (1991) in their critique of Schema Theory made clear that Dual Coding Theory has the potential to account for affect which schema theory lacks. Imagery and affect are stated to be theoretically linked. A study on the burglar/homebuyer passage was cited and it was found that the information pertaining to the burglar's viewpoint was recalled better than the homebuyer's viewpoint. They presumed that readers were emotionally affected when they read the text from the burglar's viewpoint which made the recall better. Thus, in the present study, it is assumed that ESL learners will remember the story better depending on affect that the texts, either text-only novel or graphic novel, arouse.

Additive effects of verbal and nonverbal codes are undeniable as results of studies done by Paivio (Paivio, 1974 and 1975 as cited in Paivio, 1986) proved that pictures and words have an additive effect that is unequal in distribution, in which pictures are double in the contribution. The independence of verbal and nonverbal codes has a significant implication in memory as "dually-coded items will be remembered better than unitarily coded item" (Paivio, 1986, p. 142).

The relationship between memory and reading comprehension does exist as stated by Min Jin (2014) that working memory capacity in second language could be an indicator of second language reading achievement together with other factors such as vocabulary and grammatical knowledge in second language based on research findings.

2.4.2 Dual Coding Theory and L2 reading

Dual Coding Theory's ability to explain L2 reading is evident in several studies. In a localised context, Sabbah, Masood and Iranmanesh (2013) conducted a study on graphic novels and reading comprehension among 60 Standard 5 students in Malaysia. The study used both textual and graphic novels comparing the two forms of novels (textual and graphic novels) besides taking into account the level of difficulties of each novel. Simple graphic novels were categorised by having less words and pictures while more words and pictures are available in difficult graphic novels. The study investigated the relationship between learning styles (visual and verbal) and reading comprehension scores using textual and graphic novels. The results showed that there was no significant difference in their reading comprehension scores using simple graphic novels. However, visual students scored significantly better than verbal students in reading comprehension using difficult graphic novels. Two other findings are that graphic novels can benefit visual learners more than verbal learners, and using textual novels in reading classes is indeed feasible. Contradict to some studies done before, this study raises the question as to whether or not, the use of graphic novels is beneficial to all students. Without indiscriminately accepting the findings of the study, several issues can be raised: the study did not exactly state the students' proficiency level of the language which is a variable that could affect the results of the study and both textual and graphic novels used for every experiment were different, which could lead to variations in findings.

In a study on concreteness effect (an aspect of reading) by Farley, Pahom and Ramonda (2014), Dual Coding Theory was used as the theoretical framework. The findings showed that L2 learners of Spanish language recalled abstract words better when pictures were provided in the immediate posttest but not on the delayed posttest. This

discovery suggests that the association of pictures with abstract words is effective on one's short term memory as proven in the immediate posttest. Although it is only on short term memory that the results were in support of Dual Coding Theory, the theory does indeed provide an explanation as to how abstract words are made concrete by the assistance of pictures.

Liu (2004) conducted an experimental study on reading comprehension of ESL learners by incorporating comic strips. Participants were grouped according to their proficiency level (low intermediate and high intermediate). They were given two types of text; one is high level while the other is low level, with or without a comic strip. The results showed that the comic strip did not reinforce high intermediate level students' ability to recall but significantly improved the low intermediate level students' performance when the comic strip was given with a difficult text.

Based on the studies cited, Dual Coding Theory has been around in the research arena to explain reading that generally involves dual codes: verbal and imagery.

2.4.3 Dual Coding Theory and the present study

The selection of Dual Coding Theory as the theoretical framework guiding the present study was done after considering it deliberately in comparison to several eminent theories, particularly, the Schema Theory and Transactional Theory.

Schema Theory, as saluted by Sadoski, Paivio and Goetz (1991), has made a great impact in research, chiefly in reading for since then, reading has been studied extensively with the notions that comprehension builds up in a constructive manner and that readers' background knowledge is key in comprehension. Even Dual Coding

Theory acknowledges the importance of background knowledge in comprehension. Nonetheless, Sadoski, Paivio and Goetz (1991) criticised Schema Theory for three reasons. The first reason is in terms of its ambiguity of definitions and the level of abstraction. Schemata definition varied: from frameworks to packets of knowledge, to scripts, plans and grammars. The second reason is reification being an epistemological issue for scientific reasoning. This is due to "…the difficulty of formulating alternatives, operationalizing variables, and devising adequate empirical tests". The third reason is the lack of empirical evidence to support research done in Schema Theory. Sadoski, Paivio and Goetz (1991) reviewed Alba and Hasher's (1983) study who concluded that Schema Theory is unsuccessful at explaining the extensive and precise details of multiplex events and episodes in research focusing on memory. Besides the three reasons, Sadoski, Paivio and Goetz (1991) highlighted that Schema Theory neglects the role of imagery and affect in explaining the abstract nature of knowledge.

Transactional Theory, another well-known theory of reading, explains that the meaning, in reading, is formed during transactions between the text and the reader. The meaning does not originate within the text nor the reader but a transaction between the two, creating a dynamic process to interpret texts. Rosenblatt (1969) studied how a group of men and women react to literary works and it was observed that readers responded actively via trial-and error, modification and rejection as more of the text was revealed. This theory also acknowledges the role of background knowledge and cultural background; however, as in Schema Theory, this theory lacks the ability to explain the role of images as clearly as Dual Coding Theory does.

Dual Coding Theory is favoured over Schema Theory and Transactional Theory for the main reason being that the theory is modality-specific while others do not. Because the present study examines the impact of both verbal and nonverbal stimuli on reading comprehension, Dual Coding Theory seems the most fitting theory to account for two distinct modalities inherent in graphic novels.

2.5 Conclusion

The present study consists of two sets of reading comprehension with the first using a text while the second using a text and visuals (the graphic novel). In the effort of exploring Malaysian Form 1 students' reading comprehension of graphic novel, Dual Coding Theory served its functions as the theoretical framework to guide this study. The test using the text-only novel represents the verbal units where comprehension is measured with the accompaniment of text; the test using the graphic novel, on the other hand, allows readers to oscillate between verbal and visual elements and open up opportunities for activation of *imagens* and *logogens* to comprehend the story. As what Schallert (1980) discovered, both 'internal' (imagery/visualisation) and 'external' (such as illustrations/graphics) images led to positive results in reading comprehension.

Thus, the present study works on the assumption that one reads a text better with the presence of visual aids (which in this case is a graphic novel) because visuals have resemblance with the *imagens* stored in one's memory and that their activation will be less effortful because they are from the same class (images activate *imagens*).

CHAPTER THREE

RESEARCH METHODS AND METHODOLOGY

3.0 Introduction

In this section, a description of participants, data collection methods and analysis are discussed in detail.

3.1 Data: Background of Participants

Participants of the study were form 1 students studying in Malaysian public schools. Two schools were accessed to obtain participants. There were two important reasons for choosing thirty students per school instead of sixty: one was due to the upcoming monthly examination at the time research took place and therefore schools would not allow such a huge number of students to participate in the study as teachers were holding revision classes with them, and second was due to management issues. Controlling sixty participants without an extra hand would be challenging and since teachers were busy at the time, it would not be convenient for schools to cater to the researcher's request.

Participants' UPSR results were obtained: thirteen (13) students had grade A, twenty-three (23) students had grade B, eighteen (18) students had grade C, three (3) students had grade D and three (3) students had grade E. The results of reading comprehension questions of the participants in the actual study were correlated with their UPSR results to observe the strength of relationship between the two variables. In terms of gender, participants consist of thirty three (33) female students and twenty seven (27) male

students. However, since the present study's focus was not on gender, therefore, correlation was not done.

3.1.1 Ethical considerations

The very first step at initialising the research was obtaining permission from the Ministry of Education. The process of obtaining permission required fourteen (14) working days and comprises the following attachments:

1. BPPDP 1.2. form.

2. A student confirmation letter approved by University of Malaya.

3. A copy of research proposal that has been approved by the faculty.

Besides the basic documents needed for the application, the research must obey the rules as stipulated by the Ministry of Education:

a. Participants must not involve students who will sit for national

examinations such as PT3 or SPM.

b. Research instruments must be translated in Bahasa Melayu and are not

capitalizing on sensitive issues.

c. A report or dissertation or thesis must be submitted to the Director of

Educational Planning and Research Division (EPRD). The address is

as shown below (in Bahasa Melayu):

Pengarah

Bahagian Perancangan dan Penyelidikan Dasar Pendidikan

Aras 1-4, Blok E8,

Kementerian Pendidikan Malaysia,

Kompleks Kerajaan Parcel E,

62604 Putrajaya.

3.2 Data Collection Methods

The present study adopts a mixed methods research design specifically the Explanatory Sequential Design, which is "the most popular form of mixed methods design in educational research" (Cresswell, 2012). The first phase takes a quantitative approach in the form of descriptive statistical research design which is then followed by with a qualitative approach in the form of survey, specifically interviews.

3.2.1 Pilot Study

Advantages are abundant for conducting pilot study besides ensuring the instruments used are workable, reliable and valid, such as identifying problems that may hinder the smooth flow of the research. Prior to conducting the research in the schools, the instruments used for data collection: comprehension questions consist of multiple choice questions and sequencing assessment and one-to-one interviews were piloted twice.

The first pilot study was conducted with ten Form 1 students who did not participate in the actual study. It was discovered that there were a few items needed to be modified in reading comprehension questions as elaborated in Section 3.3 on research instruments. There were technicalities to be addressed such as misspelling of words in the text-only novel and misnumbering of answer options in multiple choice questions and rewording of key events in sequencing assessment, that is, from phrases to sentences. Pertaining to the interview questions, the researcher felt that the second and third questions (as shown below) were too clumsy for respondents to respond:

2. How did you find answering the Multiple Choice Questions with graphic and without graphic?

3. How did you find answering the Event Sequencing Assessment with graphic and without graphic?

Therefore, the researcher separated the two-pronged questions as shown below:

2. How did you find answering the Multiple Choice Questions without graphics? Why?

3. How did you find answering the Multiple Choice Questions with graphics? Why?

4. How did you find answering the Event Sequencing Assessment without graphics? Why?

5. How did you find answering the Event Sequencing Assessment with graphics? Why?

During the interviews, the researcher noticed that some respondents mentioned their feelings and their experience learning the graphic novel in school setting during the pilot study. Therefore, three additional questions (Questions 8, 9 and 10) were added to the interview question list:

8. Can you describe your feelings while reading the text-only novel?

9. Can you describe your feelings while reading the graphic novel?

10. What kind of setting is suitable/good for reading the graphic novel?

The second pilot study was done with another six Form 1 students who volunteered to undergo the two phases of the study. Since all the problems in relation to the reading comprehension tests were ironed out in the second round of pilot study, it was then assured that the revised research instruments were ready to be used for actual data collection. The interview questions were also found to be more organised and assisting in gaining more insights into the factors in relation to graphic novels in reading comprehension.

Students were given one hour to read and answer each reading comprehension test. Interviews were conducted a day after each reading comprehension test was taken. The gap between the two tests was one week as a preventive measure from fatigue.

3.2.2 Actual Study: Phase 1 (Reading Comprehension Tests for Descriptive Statistics)

An explanatory sequential research design begins with a quantitative approach in data collection. The closest research design to the design intended for the study was pre-experimental design because one experimental group was formed to go through pre-test and post-test to observe improvements after treatment. Nevertheless, reading comprehension cannot be tested on its own without receiving any forms of treatment which means the text-only novel and the graphic novel cannot be given for pre-test and post-test. It was then decided that pre-experimental research design was incompatible for the study. For that reason, this study simply refers to it as reading comprehension tests.

In this study, two sets of reading comprehension tests (the first set using text-only novel and the second set using graphic novel) were administered for descriptive statistics and

later were analysed via Paired Samples T-Test to compare the score between the two sets.

To ensure that validity was ensured, firstly, samples were selected using simple random sampling method. All Form 1 students regardless of their proficiency level had a fair chance of being selected. Secondly, to deter the possibility of being subjected to external threats, the time interval between the two reading comprehension tests was sufficient to avoid fatigue as the second test was conducted a week after the first test. A final point to mention is that the graphic novel was swapped among the three zones. This means that the study used a graphic novel that was not specified for the zone. Such measurements were exercised so that external validity of the study was intact.

In the first set of reading comprehension test (using a text-only novel), students were given a text (only the first chapter or section of the story) from the assigned graphic novel, with the absence of visuals (refer to Appendix 3). A justification for choosing only the first section of the story is to avoid fatigue or boredom (maturation) and to save time. Division of the novel was made based on Sasbadi's division in *Light on Lit* reference books.

A set of comprehension questions was given to students, which were in the form of multiple choice questions and sequencing assessment (refer to Appendix 5). For multiple choice questions, four choices were provided: three questions pertaining to the content and one 'unsure' choice. Such choices were offered to increase the reliability and validity of the study as participants were expected to indicate their actual comprehension.

There are numerous other methods of measuring comprehension and one particular famous one is story retelling where students are asked to retell the story after reading texts. Although it is ideal and is very much in favour to adopt this method, it is time-consuming to conduct story-retelling with 60 participants besides it being linguistically and cognitively challenging for young learners (as cited by Gabig, 2008 in Charun, 2012). To address this issue, another question type was added to multiple choice questions to measure readers' comprehension of the story which was to have participants arranged events in the correct sequence. In this study, sentences representing key events were provided and participants were to choose from the given sentences and order them according to their appearance in the story.

In the second reading comprehension test (using a graphic novel), students were given a text with visuals from a different section of the graphic novel (refer to Appendix 4) and instead of simply repeating the same procedure and reading comprehension test, another set of comprehension questions was administered (refer to Appendix 5). This was to ensure that students did not memorise answers, or exchange answers with other participants during the interval as the text with visuals was taken from another division of the book and another set of comprehension questions was provided to test their reading comprehension.

The duration for students to read and answer each set of reading comprehension test was an hour. The second test was taken a week after the first test to prevent maturation in subjects.

The reading comprehension score from the first test using a text-only novel was used to answer the first research question while the score gained from the second test using a

graphic novel answered the second research question. Subsequently, a comparison between results from the two tests was done to answer the third research question. The analysis of this phase is further explained in the section specified for data analysis.

3.2.3 Actual study: Phase 2 (One-to-One Interviews)

As a follow up to the first phase, qualitative approach was selected to answer the fourth research question. To understand how English graphic novels work in reading comprehension, one-to-one interviews were carried out to justify the choices made during reading comprehension tests. For the interviews, students were chosen based on their cases: students who had an increase, a decrease and no changes in the second test. Interviews were conducted a day after the second test to avoid fatigue.

A set of semi-structured interview questions (refer to Appendix 6) acts as a guide for the researcher to gain data that should cover similar points with every informant interviewed. It was chosen because it allowed the researcher to rephrase the questions in cases where language used was too difficult for their level, and that simplified language might be a better way to acquire data. The researcher could also ask impromptu questions that were deemed relevant at the moment of interviews.

The interviews were recorded in the forms of audio using a smart phone. To ensure recordings were secured, recordings were done using two smart phones that were in good condition and had the capacity to record and store quality recordings. It was indeed useful to have two phones as one of the phones had a technical problem during the interviews and the recordings were saved in the other phone.

The interviews took about an hour in a quiet room. The medium of communication was in Malay (Bahasa Melayu) as requested by students. Although it was much better to allow Chinese and Tamil languages for communication, the researcher only masters two languages, Malay and English. After the interviews, recordings were transcribed into verbatim and later translated to English to fulfil the requirement of the study. Themes were highlighted, codified and analysed to understand the factors in relation to graphic novels that might affect reading comprehension from the perspective of Form 1 students. The following table is an overview of the processes involved in data collection:

Table 3
An overview of processes involved in data collection

Number Of Participants	Studies/ Phases	Data Collection Methods
10 students (First)	**Pilot Study**	Reading Comprehension Test (Text-Only Novel) Reading Comprehension Test (Graphic Novel) Interview
6 students (Second)		
30 students (School A)	**Actual Study**	Reading Comprehension Test (Text-Only Novel) Reading Comprehension Test (Graphic Novel) Interview
30 students (School B)		

3.3 Research Instruments

Research instruments used in data collection consists of two sets of reading comprehension questions, two texts (text-only novel and graphic novel), and interview questions as described below.

3.3.1 The Texts

In this study, texts were taken from the graphic novel, *20,000 Leagues under the Sea* that is being used in public schools in Malaysia. Justification for the selection is as discussed.

3.3.1.1 Text-Only Novel

Representing verbal stimuli as proposed by Dual Coding Theory, text-only novel was adopted as a part of the reading comprehension test. Such a selection was made in accordance with an appropriate readability score of the text. The following is an excerpt of 200 words of the text that was entered and tested:

An excerpt of 20,000 Leagues under the Sea (Text-only novel)

I am Professor Pierre Aronnax, of Natural History, and the author of the much acclaimed book 'Mysteries of the Ocean Depths'. I am considered an expert on undersea life. I remember the year 1866, which was marked by mysterious events at sea.
Ships from many countries met 'an enormous thing' hundreds of feet long! This enormous, unidentified 'thing' was first seen in July 1866, off the coast Australia.
Person A   : Look!
Captain A   : What on earth is it? It must be some sea monster!

In 1867, this sea monster ceased being a scientific problem and become a real danger. Merchant steamers and passenger ships were being struck and destroyed by it!

Was it a ... rock? A reef? Or a sea monster??? One ship, the Scotia was examined by engineers after one such incident. They were shocked to find a rectangular hole in her thick steel hull. When I analysed all these different sea accidents on the map, I was amazed to find...
Professor Aronnax : If this giant creature is seen each time at different locations
                   around the world at such short intervals, it means that it moves
                   at an unbelievable speed. What can this creature be?

Using text readability consensus calculator[6] provided at www.readabilityformulas.com website, it was discovered that the readability score of the excerpt taken was 6 after calculating it using eight readability formulas: Flesch Reading Ease score of 72.2, which translates to fairly easy to read; Gunning Fog score of 8.4, which is fairly easy to read; Flesch-Kincaid Grade Level which is 5.8, equivalent to sixth grade; The Coleman-Liau Index of 8, equivalent to eighth grade; The SMOG Index of 4.5, translating it to be between fourth and fifth grade; Automated Readability Index of 5, suitable for 8-9 year

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[6] http://www.readabilityformulas.com/freetests/six-readability-formulas.php

old readers; and Linsear Write Formula with a score of 5.7, equivalent to sixth grade. In summary, the readability of the text is at grade 6, with a fairly easy to read level, and suitable for readers between 10 to 11 years old.

In providing a justification for text selection, the previous sample was then compared to a sample of the original, unabridged text of 20,000 Leagues under the Sea as shown below:

An excerpt of 20,000 Leagues under the Sea (The original, unabridged version)

In the year 1866 the whole maritime population of Europe and America was excited by a mysterious and inexplicable phenomenon. This excitement was not confined to merchants, sailors, sea-captains, shippers, and naval officers of all countries, but the governments of many states on the two continents were deeply interested.

The excitement was caused by an enormous 'something' that ships were often meeting. It was a long, spindle-shaped, and sometimes phosphorescent object, much larger and more rapid than a whale.

The different accounts that were written of this object in various log-books agreed generally as to its structure, wonderful speed, and the peculiar life with which it appeared endowed. If it was a cetacean it surpassed in bulk all those that had hitherto been classified; neither Cuvier, Lacepede, M. Dumeril, nor M. de Quatrefages would have admitted the existence of such a monster, unless he had seen it with his own scientific eyes.

By taking the average of observations made at different times-rejecting the timid estimates that assigned to this object a length of 200 feet, as well as the exaggerated opinions which made it out to be a mile in width and three in length- we may fairly affirm that it surpassed all the dimensions allowed by the ichthyologists of the day, if it existed at all.

The sample (of about 200 words) was analysed for its readability score. Results show that the Flesch Reading Ease score is 47.2, therefore the text is difficult to read; Gunning Fog shows a score of 16.2, which means the text is hard to read; Flesch-Kincaid Grade Level is 12.8, equivalent to college grade; The Coleman-Liau Index is 10 for tenth grade; The SMOG Index is 12, equivalent to twelfth grade; Automated Readability Index is 13.4, which means the text is suitable for 18-19 year olds; and

Linsear Write Formula score which is 16.6, suitable for college graduates and above. In summary, the readability score of the original, unabridged text is 13, categorised as difficult to read, and suitable for readers between the ages of 18 to 19 years old, at a college entry level.

Although it was compelling to test reading comprehension using the original text 20,000 Leagues under the Sea written by Jules Verne, the readability score of the original text (which is labelled at grade 13) is at a difficult level and is rather too advanced for Form 1 students, aged 13, thus making it incomparable to the graphic novel being tested (which is labelled at grade 6). To address the issue of text readability, the text-only novel was taken from the same graphic novel but only graphics were removed to ensure the readability score of both texts is similar, that is grade 6.

3.3.1.2 Graphic novel

The nonverbal and verbal stimuli, as proposed by Dual Coding Theory, were represented by the graphic novel as it is. The following is a sample page of the graphic novel used in schools and the present study:

A sample page of 20, 000 Leagues under the Sea (The graphic novel)

The text (approximately 200 words) from the graphic novel was tested again using readability consensus calculator and results showed similar score for the eight readability formulas and the overall score.

An excerpt of 20,000 Leagues under the Sea (The graphic novel)

> *We surfaced from the water and reached the fisherman's boat. When he regained consciousness, Captain Nemo placed a bag of pearls in the man's hands. Once we were back into the Nautilus, Captain Nemo thanked Ned.*
> *Captain Nemo   :   Thanks for saving my life, Mr Ned.*
>
> *Once we left Ceylon, the Nautilus steered west across the Arabian Sea. When Ned saw our course on the map, he exclaimed...*
> *Ned Land   :   Professor, we are heading right for the Red Sea which is a dead end! Perhaps, one day when Suez Canal is constructed, we will be able to reach the Mediterranean through it.*
>
> *Ned's observation filled me with curiosity. But I couldn't gather the courage to ask Captain Nemo. One day, when we were cruising on the surface, Captain Nemo came up to the platform.*
> *Captain Nemo   :   Well, Professor, how are you enjoying the wonders of the Red Sea?*
> *Professor Aronnax :   Monsieur, I am enjoying myself at Nautilus. I heard we are heading towards the Mediterranean, but the Suez Canal is yet under construction!*
> *Captain Nemo   :   The Suez Canal would be a great help to other people. But I can't risk having the Nautilus seen. We will reach the Mediterranean.*
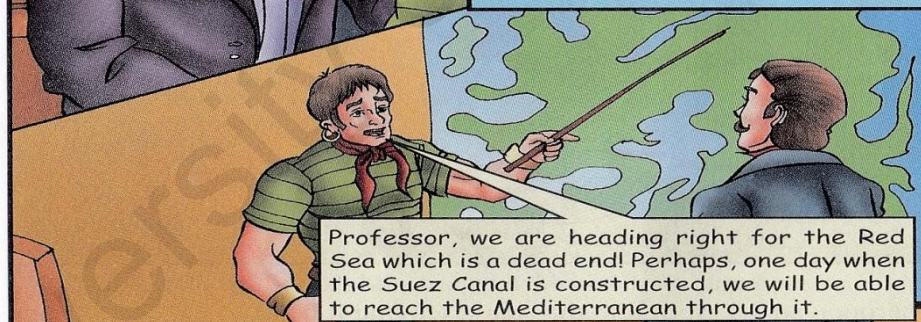
The Flesch Reading Ease score is 72.2 which is fairly easy to read; Gunning Fog formula gives a 6.2 score which is rated fairly easy to read; Flesch-Kincaid Grade Level is 5.9 which translates to sixth grade; The Coleman-Liau Index is 9; The SMOG Index is 6.4, equivalent to sixth grade; Automated Readability Index is 5.3 for fourth and fifth graders; and Linsear Write Formula which is 5.7, equivalent to sixth grade. The overall readability score is grade 6 which is rated fairly easy to read.

3.3.2 Reading Comprehension Questions

The present study used two sets of reading comprehension: the first set was to test students' reading comprehension with the aid of a text-only novel, representing verbal stimuli while the second set was to test students' reading comprehension with the aid of a graphic novel, representing the verbal and nonverbal stimuli.

Each set consists of two sections: multiple choice questions and sequencing assessment. Both sections were adapted from existing exercise books namely *Light on Lit Form 1. Selected Poems, Short Story &20,000 Leagues Under the Sea* and *Understanding Literature Series. Poems, Short Story and Graphic Novels: 20,000 Leagues under the Sea, Form 1,* where some of the questions were modified to ensure that the question types were similar for the two sets of reading comprehension tests, that are, with text-only and graphic novels.

3.3.2.1 Multiple Choice Questions

To ensure the content validity of the multiple choice questions was secured, three experts in the field were asked to review the questions for their content as well as their organisation and technicalities. The experts comprise of a teacher trainer at the Ministry of Education who has been in the field for more than 10 years, an English teacher and a Polytechnic lecturer who both have been in the teaching field for more than five years. The experts also had to evaluate the questions and categorise them according to the types of comprehension as devised by Day and Park (2005).

There are six types of reading comprehension proposed by Day and Park (2005): *literal, reorganisation, inference, prediction, evaluation* and *personal response.* After categorisation was done, it was noted that the two sets of multiple choice questions were made up of three types which are *literal, reorganisation* and *inference.*

Literal comprehension, as defined by Day and Park (2005) is a type of comprehension where meaning can be retrieved directly from the text as it is explicitly stated. Reorganisation is founded on literal comprehension but a mix and match of parts of the

text is required in developing deeper understanding. Inference requires readers'

knowledge and discernment to digest what is literally and stated in the text.

Most of the time, the categorisation of questions was not based on how the questions

were worded; rather, it was done based on how the questions were answered. The table

below sums up the number of questions (the total number of questions for each set is

fifteen) and the types of reading comprehension for the two sets of reading

comprehension questions:

Table 4
Types of Reading Comprehension Questions

Types of Reading Comprehension	Reading Comprehension Questions Set	
	Text-Only Novel	Graphic Novel
Literal	9	9
Reorganisation	2	2
Inference	4	4
Prediction	0	0
Evaluation	0	0
Personal response	0	0

The following table shows the questions and the types of comprehension based on Day

and Park's (2005) taxonomy:

Table 5
Multiple Choice Questions for Text-only Novel

Number	Question	Literal	Reorganisation	Inference
1	Who wrote the book 'Mysteries of the Ocean Depths'?	√		
2	Which is incorrect regarding the description of the 'enormous thing'?		√	
3	How did the monster become a real danger?	√		
4	Conseil brought a letter to Professor. What was the letter for?	√		
5	How did Commander Farragut welcome Professor?	√		
6	Why did everyone feel anxious after three months had passed?	√		
7	What happened after three days when the captain had planned to retreat if nothing happened?	√		
8	Why do you think Ned was holding his terrible harpoon?			√
9	Why was the Professor swimming in the sea?	√		
10	What happened to Professor after he left Conseil's hand?			√
11	How did they get the crew to open the 'steel plates'?			√
12	What two languages did they speak to Captain Nemo?	√		
13	What did the letter 'N' engraved on the crockery stand for?	√		
14	Why did Captain Nemo say, "I have the right to treat you as my enemies"?			√
15	Why do you think Captain Nemo said he was 'not a civilised man'?		√	
Total		9	2	4

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Table 6
Multiple Choice Questions for Graphic Novel

Number	Question	Literal	Reorganisation	Inference
1	Why couldn't the three companions escape to New Guinea?	√		
2	Why did Ned want to hunt?	√		
3	Why do you think Captain Nemo agreed to the hunting expedition?			√
4	What weapons did the cannibals use?	√		
5	What happened to the savage who tried to climb down the ladder?			√
6	Besides locking the Professor and his companions in the cell, what else did Captain Nemo do to keep them away?		√	
7	Why did Captain Nemo ask the Professor if he was a doctor?		√	
8	Why did Captain Nemo cry?			√
9	Why did Captain Nemo bury the dead man in the coral garden?	√		
10	What was the professor afraid of?	√		
11	Why did Captain Nemo approach the shark?	√		
12	How did Ned save Captain Nemo?	√		
13	Why do you think Captain Nemo gave the East Indian diver the bag of pearls?			√
14	What did Ned say about the Red Sea?	√		
15	How did the *Nautilus* reach the Mediterranean?	√		
Total		9	2	4

3.3.2.2 Sequencing Assessment

Sequencing, according to Teacher Vision website, is "the identification of the components of a story, such as the beginning, middle, and end, and also to the ability to retell the events within a given text in the order in which they occurred."[7] This type of assessment adds to the variety of reading comprehension assessments besides multiple choice questions.

Initially, the assessment composed of phrases of key events in the story. Nonetheless, after piloting was conducted, students experienced difficulties in comprehending what the phrases meant, of which could be attributed to unfamiliarity of format. The phrases were later modified from phrases to complete sentences so that students' comprehension would not suffer due to unfamiliarity of format.

Table 7
Pilot Study (Key Events in Phrases)

Saw Conseil and Ned
Attack on the steward
A horrible crash
Kept in prison
Blacked out
Struggled in water
Let go of the steward
A creature hit
Captain Nemo entered
Thrown into the sea

---

[7] Source: Sequencing. Retrieved 3rd April 2016 from https://www.teachervision.com/skill-builder/reading-comprehension/48779.html

Table 8
Actual Study (Key Events in Sentences)

When Professor opened his eyes, he saw Conseil and Ned.
The steward was knocked to the floor.
There was a horrible crash.
They were kept in prison.
Professor Aronnax blacked out and began to sink.
Conseil dived into the sea.
Captain Nemo invited Professor Aronnax to see the ocean.
Ned hit the creature.
Captain Nemo startled them with his voice.
Professor Aronnax was thrown into the sea.

It should be stated that neither reading comprehension questions nor sequencing assessment followed the PT3 format questions as the literature section is graded using the following criteria: task fulfilment; development, organisation and development of ideas; effective use of various sentence structures; width and precision of vocabulary and the arousal and sustainment of interest. Therefore, the study could not follow the exact PT3 format to test ESL learners' comprehension because it is a comprehensive test, measuring ESL learners' reading, writing and grammar skills while this study only tested reading.

3.3.3 Interview Questions

Ten semi-structured interview questions were devised to gain sufficient and relevant data from respondents in relation to research objectives. Chua (2016) stated that for individual interviews, the suggested number of items ranges from ten to fifteen, with a minimum of ten questions and a maximum of twenty questions. The following is a list of questions posed during interviews:

1. Which one do you prefer? The graphic novel or the novel without graphics? Why?

The question on preference was asked to begin the session as well as getting information about students' preference for novel types.

2. How did you find answering Multiple Choice Questions without graphics? Why?

3. How did you find answering Multiple Choice Questions with graphics? Why?

Questions 2 and 3 asked about students' experience in answering multiple choice questions with a text-only novel and a graphic novel. The subjectivity of these questions could open up a myriad of insights as they recalled their experience while answering them.

4. How did you find answering Sequencing Assessment without graphics?

5. How did you find answering Sequencing Assessment with graphics?

Similar to questions 2 and 3, questions 4 and 5 inquired students' experience in answering sequencing assessment with a text-only novel and a graphic novel. The subjectivity of these questions was the key element to obtaining useful information in explaining statistical information once it was analysed.

6. Do you think that the graphic novel helped you understand the story better? If yes, in what ways did it help you?

Question 6 was posed to have a clear understanding as to whether or not the graphic novel helps in their reading comprehension. Respondents were also required to explain how graphics play their role in their own words, just as they perceived.

7. Did you encounter any problems reading the text and the graphic novel? If yes, what were they?

Question 7 was intended to detect any kinds of problems that might hinder comprehension in reading the text-only novel and the graphic novel.

8. Can you describe your feelings while reading the text-only novel?
9. Can you describe your feelings while reading the graphic novel?

Questions 8 and 9 were designed to gain an understanding of learners' affective domain as they read the text-only novel and the graphic novel. Dual Coding Theory does not only focus on the cognition but other domains are conjointly taken into account.

10. What kind of setting is suitable/good for reading the graphic novel?

Question 10 was attempted to learn about characteristics of the setting, whether or not the setting affect the reading process as well as reading comprehension as the reading took place.

3.4 Data Analysis Methods

The study is a mixed methods research therefore quantitative and qualitative types of analysis were needed for data analysis.

3.4.1 Reading Comprehension Tests

Data gathered from this phase were in the interval form and results gained were from reading comprehension tests which consist of multiple choice questions and sequencing assessments. The results were then checked for normality and outliers before other statistical analyses were run. Once the normality of data was approved and outliers were ruled out, (if there were any), the data was then computed and analysed for descriptive statistics such as mean scores and standard deviations.

To measure if there was an improvement in scores when the graphic novel was used (representing verbal and visual systems) in the tests, the Paired Sample T-Test was run by computing the scores gained from the first reading comprehension test and the second reading comprehension test. The mean scores and standard deviations were derived from the Paired T-Test results. Mean scores represent the sum of participants' reading comprehension scores that are divided by the number of participants involved in the study. Standard deviations show how far the scores of participants differ from the mean scores of a particular group. Thus, research question 1 (concerning the performance of Malaysian Form 1 students reading text-only novel) and research question 2 (concerning the performance of Malaysian Form 1 students reading the graphic novel) were answered via the mean scores and standard deviations values.

Mean scores of both reading comprehension test 1 (with the accompaniment of text-only novel) and reading comprehension test 2 (with the accompaniment of the graphic novel) provide an insight as to which test gains a better score. The data was then analysed with the conjecture that if the mean score is negative, the second test has a greater mean score than the first test, which helps conclude that the graphic novel aids reading comprehension in the study. The p-value that is less than .05 indicates the

significance of the results. The results gained from this step were targeted to answer research question 3.

To observe if there were any relationships between proficiency level and reading comprehension scores, students' UPSR results were correlated with the results gained from Paired T-Test.

3.4.2 One-to-One Interviews

The recordings of the interview were transcribed from audio to text of which the process of transcribing took about two to three weeks. The text was then translated to English for the ease of coding and content analysis which took around two weeks to complete.

3.4.2.1 Coding

Based on the theories described in the literature section, themes in relation to the graphic novel in reading comprehension that emerge from interviews were highlighted, coded, categorised and discussed. Interview transcripts (cf. Appendix 7) were presented in tables with line numbers, the labels 'researcher' and 'informants', transcripts of interviews, codes and categories. Relevant transcripts were highlighted in yellow, with codes labelled in the next column. Codes were then categorised before themes were finalised.

3.5 Conclusion

The following figure 2 is a flowchart of research design showing the processes involved

in data collection and data analysis in the research design.

```
┌─────────────────────────────────────────────────────────────┐
│                      DATA COLLECTION                          │
│                         Stage 1                               │
│   Obtain permission from the Ministry of Education, State     │
│   Education Department and the schools (approximately six     │
│                          weeks)                               │
└─────────────────────────────────────────────────────────────┘
                            ↓
┌─────────────────────────────────────────────────────────────┐
│                  Stage 2 (PILOT STUDY)                         │
│  Conduct the first pilot study with 10 students and the       │
│           second pilot study with 6 students                  │
│     Phase 1: Administer Reading Comprehension Tests           │
│        Phase 2: Conduct One-to-One Interviews                 │
└─────────────────────────────────────────────────────────────┘
                            ↓
┌─────────────────────────────────────────────────────────────┐
│                  Stage 3 (ACTUAL STUDY)                        │
│     Phase 1: Administer Reading Comprehension Tests           │
│        Phase 2: Conduct One-to-One Interviews                 │
└─────────────────────────────────────────────────────────────┘
                            ↓
┌─────────────────────────────────────────────────────────────┐
│                       DATA ANALYSIS                           │
│                     Stage 1 (Phase 1)                         │
│   Mark comprehension questions and compute data in SPSS.      │
│  Check for normality of data and outliers that might exist    │
│                      in the data.                             │
│  Run Paired T-test analysis and Pearson's Correlation         │
│                      Coefficient.                             │
└─────────────────────────────────────────────────────────────┘
                            ↓
┌─────────────────────────────────────────────────────────────┐
│                     Stage 2 (Phase 2)                         │
│        Transcribe recordings (Malay language version)         │
│      Translate recordings to English (refer: Appendix 7)      │
│  Code themes that emerged from the interviews (refer          │
│                      Appendix 7)                              │
│      Present the themes in a table (refer: Appendix 9)        │
└─────────────────────────────────────────────────────────────┘
                            ↓
┌─────────────────────────────────────────────────────────────┐
│                         Stage 3                               │
│  Triangulate data from Phase 1 and Phase 2 and discuss in     │
│           relation to Dual Coding Theory                      │
└─────────────────────────────────────────────────────────────┘
```

Figure 2. Research Design Flowchart

CHAPTER FOUR

ANALYSIS AND FINDINGS

4.0 Introduction

The present study consists of two phases: the first part of the findings was gathered from a quantitative method, specifically reading comprehension tests, while the second part was from a qualitative method, which was in a survey form, specifically one-to-one interviews.

4.1 Quantitative Data Analysis

In this section, data collected from the first phase of the study that tested Form 1 students' reading comprehension using a text-only novel and a graphic novel are presented. Prior to analysing the data, normality of data was checked and outliers were ruled out.

4.1.1 Normality of Data and Outliers

Before Paired Sample T-Test was run, data should be tested for normality by looking at skewness and kurtosis. The normal range for normally distributed data is between -1.96 and +1.96. The table below shows the results of skewness and kurtosis for reading comprehension scores from multiple choice questions and sequencing assessment using text-only novel and graphic novel are within the range of normality. The data were also screened for outliers and based on boxplot analysis, no such outliers were found.

Table 9
Skewness and Kurtosis of Reading Comprehension Scores

Reading Comprehension Test	Skewness	Kurtosis
Text-Only Novel (Multiple Choice Questions)	.525	-.809
Text-Only Novel (Sequencing Assessment)	.521	-1.166
Text-Only Novel (Total Score)	.553	-.985
Graphic Novel (Multiple Choice Questions)	-.459	-.846
Graphic Novel (Sequencing Assessment)	.051	-1.407
Graphic Novel (Total Score)	-.018	-1.307

4.1.2 Phase 1: Reading Comprehension Tests

In Phase 1, two sets of reading comprehension tests were devised and administered to test participants' reading comprehension using two types of text: the text-only novel and the graphic novel.

Research Question 1:

What is the performance of Malaysian Form 1 students reading text-only novel?

To answer this research question, the mean and standard deviation were computed and results were generated as shown in table 10.

The mean score for Multiple Choice Questions section is 7.88 with a standard deviation of ± 3.19 out of 15 (the total score) which amounts to slightly above the intermediate score of 7.5 for this component. The mean score for Sequencing Assessment is 4.25 with a standard deviation of ± 3.61 out of 10 (the total score), which is slightly lower than the intermediate score of 5. The mean score of the combination of both sections is

12.13 with a standard deviation of ±6.39 out of 25 (total score) which is just below the

intermediate score of 12.5.

Table 10
Means and Standard Deviations for Reading Comprehension Scores using Text-Only
Novel

Text-Only Novel Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Multiple Choice Questions	7.88	60	3.189	.412
Sequencing Assessment	4.25	60	3.611	.466
Total	12.13	60	6.392	.825

Research Question 2:

What is the performance of Malaysian Form 1 students reading graphic novel?

The second research question was intended to observe the impact of graphic novels on

reading comprehension. The mean score for Multiple Choice Questions is 9.13 with a

standard deviation of ±3.09 out of 15 (total score) which is somewhat higher than the

intermediate score of 7.5. The mean score for Sequencing Assessment is 5.57 with a

standard deviation of ±3.45 which is above the intermediate score of 5. The mean score

for both sections is 14.70 with a standard deviation of ±5.88 out of 25 (total score)

which is above the intermediate score of 12.5.

Table 11

Means and Standard Deviations for Reading Comprehension Scores using Graphic Novel

Graphic Novel Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Multiple Choice Questions	9.13	60	3.094	.399
Sequencing Assessment	5.57	60	3.451	.446
Total	14.70	60	5.884	.760

Research Question 3:

Is there a significant difference in reading comprehension scores of students between reading text-only novel and graphic novel?

The third research question seeks to discover the impact of reading graphic novels on reading comprehension by comparing the results gained from the test using the text-only novel and the graphic novel. The mean score gained from Graphic Novel Statistics (14.70 with a standard deviation of ±5.88) is 2.57 points higher than that of from Text-Only Novel Statistics (12.13 with a standard deviation of ±6.39) as demonstrated in Table 12 and Figure 3 below.

Table 12

Means and Standard Deviations for Reading Comprehension Scores using Text-Only Novel and Graphic Novel

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Text-Only Novel Multiple Choice Questions	7.88	60	3.189	.412
Graphic Novel Multiple Choice Questions	9.13	60	3.094	.399
Text-Only Novel Sequencing Assessment	4.25	60	3.611	.466
Graphic Novel Sequencing Assessment	5.57	60	3.451	.446
Text-Only Novel Total	12.13	60	6.392	.825
Graphic Novel Post-Test Total	14.70	60	5.884	.760
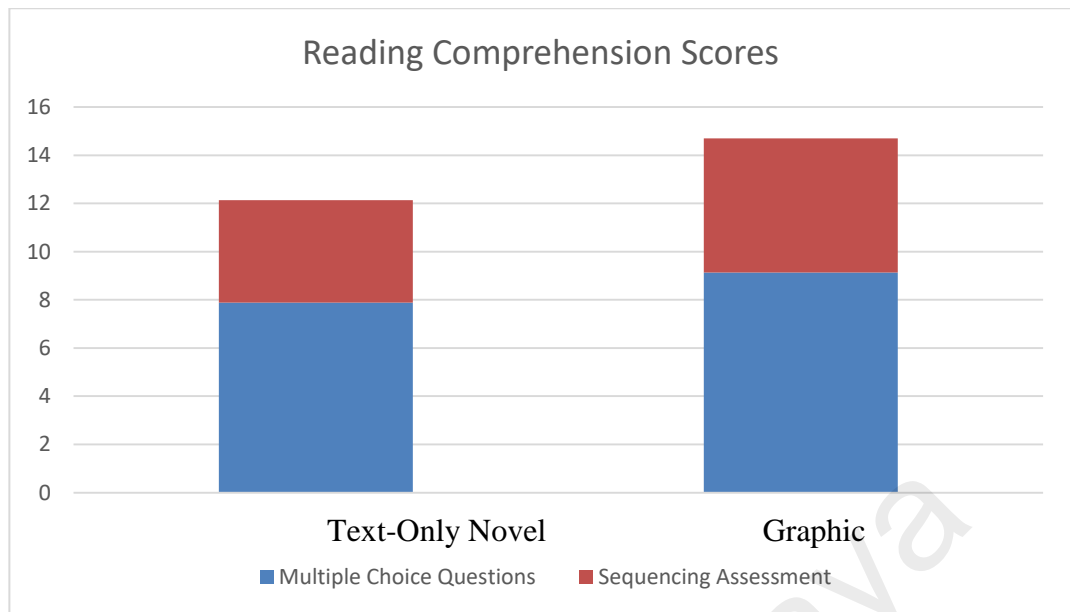
Figure 3. Reading Comprehension Scores using Text-Only Novel and Graphic Novel

Paired Samples T Test Analysis was run and results showed that the increase in Reading Comprehension using the Graphic Novel results for all pairs is significant (as shown in Table 5). Pair 1 looks at Text-Only Novel and Graphic Novel reading comprehension test results in Multiple Choice Questions. The difference in mean score is (-1.250 with a standard deviation of ±2.22) which means students' reading comprehension score increases with the aid of the graphic novel given to the students in the Graphic Novel test. The increase in result is indeed significant as the p value is (.000), which is less than (.05) (t=-4.358, df=59, p<.05).

In Pair 2, the difference in mean score for Text-Only Novel and Graphic Novel reading comprehension test results in Sequencing Assessment is (-1.317 with a standard deviation of ±3.24) which shows reading comprehension improves with the aid of graphic novel. The increase is significant as the p value for this pair is (.003) which is less than (.05) (t=-3.149, df=59, p<.05)

Pair 3 examines the overall score of Multiple Choice Questions and Sequencing

Assessment in Text-Only Novel and Graphic Novel reading comprehension scores. The

mean score of this combination is (-2.567) which proves that the text-only novel has a

lesser impact than the graphic novel.

The increase is indeed significant as the p value for Pair 3 is (.000) which is less than

(.05) (t=-4.743, df=59, p<.05)

Table 13
Results of Paired Samples T-Test

| | | Paired Differences | | | | | | | |
| | | | | | 95% Confidence Interval of the Difference | | | | |
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Text-Only Novel Multiple Choice Questions – Graphic Novel Multiple Choice Questions	-1.250	2.222	.287	-1.824	-.676	-4.358	59	.000***
Pair 2	Text-Only Novel Sequencing Assessment – Graphic Novel Sequencing Assessment	-1.317	3.239	.418	-2.153	-.480	-3.149	59	.003***
Pair 3	Text-Only Novel Total – Graphic Novel-Test Total	-2.567	4.192	.541	-3.650	-1.484	-4.743	59	.000***

* significant at p < 0.10; ** significant at p < 0.05; *** significant at p < 0.01

From the findings, it can be concluded that the null hypothesis "There is no difference

in mean reading comprehension score between reading the text-only novel and reading

the graphic novel" can be rejected as the results of Paired T-Test shows there is a

significant increase in learners' reading comprehension scores.

From the total score of Paired T-Test, a correlational analysis between students' level of

proficiency and scores from Pre-Test and Post-Test was done to observe the relationship

between the two variables.

Table 14
Table of correlation between students' proficiency level and Text-Only Novel and
Graphic Novel results

		Text-Only Novel Total	Graphic Novel Total
UPSR English Grade	Pearson Correlation	.621**	.623**
	Sig. (2-tailed)	.000	.000
	N	60	60

**. Correlation is significant at the 0.01 level (2-tailed).

The results showed that students' proficiency level is moderately positively correlated

with reading comprehension scores using Text-Only Novel and Graphic Novel and the

correlation is significant for both tests at 1% significant level.

4.2 Qualitative Data Analysis

In this study, qualitative data were gathered from one-to-one interviews with selected informants to further understand the factors in relation to the graphic novel that influence ESL learners' reading comprehension.

4.2.1 Phase 2: One-to-One Interviews

Research Question 4:

What are the factors in relation to the graphic novel that influence the reading comprehension performance of students?

To answer the fourth research question, ten interview questions were posed by the researcher to informants who were selected based on their cases and convenience. Informants were selected based on their performance in the reading comprehension using the text-only novel and the graphic novel:

    a. Improvement in the second reading comprehension test results (6 students)

    b. Decline in the second reading comprehension test results (5 students)

    c. No changes in the second reading comprehension test results (3 students)

Ideally, the number of informants should be equal across cases but due to inconvenience such as absenteeism and reluctance, the researcher had to report based on available data. Nonetheless, the minimum number per case that the researcher required is three therefore, having met the minimum requirement for each case is deemed feasible.

The following table shows the details of informants selected for one-to-one interview.

Table 15
A list of informants for one-to-one interviews

UPSR grade	Text-Only Novel Test	Graphic Novel Test	Remarks	Remarks	Informant
C	10	21	+11	increase	Informant 1
B	13	10	-3	decrease	Informant 2
B	5	14	+9	increase	Informant 3
A	22	22	0	neutral	Informant 4
A	24	24	0	neutral	Informant 5
D	21	17	-4	decrease	Informant 6
A	12	22	+10	increase	Informant 7
B	22	18	-4	decrease	Informant 8
B	11	22	+11	increase	Informant 9
C	7	4	-3	decrease	Informant 10
C	5	13	+8	increase	Informant 11
C	6	18	+12	increase	Informant 12
A	21	15	-6	decrease	Informant 13
A	23	23	0	neutral	Informant 14

In this chapter, interview data are presented in the following steps to accommodate readers in reading the results:

1. Results are presented based on interview questions.

2. Themes that emerged from the previous step are coded and categorised hierarchically.

4.2.2 Findings based on interview questions

Question 1: Which one do you prefer? The graphic novel or the novel without graphics? Why?

This question steered the conversation to be more focused on the texts used in the study, which were the graphic novel and the text-only novel. Although this phase's focus was not to quantify the informants' responses from the interviews, however it was obvious

to report that majority of the informants chose the graphic novel over the text-only novel. The reasons for their choice were as listed below:

a. Preference for graphic novel and the reasons:

i. Ease of understanding

The aim of conducting interviews is to gain information about factors in relation to the graphic novel and the text-only novel in reading comprehension. Just by asking this question, informants were ready to tell that graphic novel appealed the most to them for its ease of understanding.

Table 16
A preference for the graphic novel due to ease of understanding

Informant	UPSR grade	RCT performance	Line	Transcript
1	C	increase	24	*Understand the storyline better*
2	B	decrease	11	*...because it is easier to understand...*
3	B	increase	12, 14	*Easier to understand*
5	A	neutral	12	*Because I understand better*
6	D	decrease	11	*Hmm because it is easier to understand*
7	A	increase	13	*Because I feel if...if I use the graphic novel, it's easier to understand*
9	B	increase	13	*...to me, it's easy to understand in this format*

*RCT: Reading Comprehension Tests

Majority of the informants who stated their preference for reading comprehension tests (RCT) results showed an increase, except for Informant 2 and Informant 6, while Informant 5's results remained neutral.

Helping majority of them understand the story did not end there as some of them continued giving their insights about how the graphic novel aid comprehension. One reason was because of the presence of pictures. It gave them the benefit of seeing the situations and characters that either helped them to imagine or compensate their inability to imagine as conveyed below:

Table 17
The presence of pictures in the graphic novel aid comprehension

Informant	UPSR grade	RCT performance	Line	Transcript
1	C	increase	30	*There are situations in the pictures like…ways…what they are doing.*
3	B	increase	14 16 23	*…it has pictures. There are people. Can see the storyline.*
5	A	neutral	15, 16	*Because when reading the one without graphics, I had to imagine, but this one didn't require imagination.*
6	D	decrease	15	*Okay, doesn't really need to imag…imagine.*
11	C	increase	13 15	*Because it's got pictures and colours. Um…they can grab our attention.*
12	C	increase	13	*I could uh… could imagine something.*

RCT: Reading Comprehension Tests

These informants agreed that pictures aided their comprehension. Nonetheless, Informant 5 showed no changes in the scores while Informant 6 showed a slight decrease in the second reading comprehension test. This could be attributed to the fact that Informant 6 has low proficiency.

ii. Positive affect

A few informants elaborated that their choice was made due to positive affect that the graphic novel initiated in readers:

Table 18
The graphic novel initiates positive affect

Informant	UPSR grade	RCT performance	Line	Transcript
1	C	increase	18	*...more fun when reading (the graphic novel)*
13	A	decrease	14	*...more interesting.*

*RCT: Reading Comprehension Tests

Positive affect, at this point when they were asked the question, shows that it does not guarantee the increase in reading comprehension.

iii. Positive perception of text format

The graphic novel was chosen based on readers' perception of text format. The belief that the text-only novel was lengthy was one of the reasons they chose the graphic novel instead, though both texts were of equal length.

Table 19
The graphic novel initiates positive perception of text format

Informant	UPSR grade	RCT performance	Line	Transcript
5	A	neutral	9	*Because it's easier than reading words which are lengthy.*
9	B	increase	13	*...to me, it's easy to understand in this format.*

*RCT: Reading Comprehension Tests

Table 20
The text-only novel initiates negative perception of text format

Informant	UPSR grade	RCT performance	Line	Transcript
12	C	increase	22	*Because…there were too many letters giving me a headache.*

*RCT: Reading Comprehension Tests

Informant 2 showed a significant increase (+12) in the second reading comprehension test which could be related to the perception of text format of text-only novels and graphic novels.

b. Preference for text-only novel and the reasons:

i. Ease of understanding

Similar to the responses provided by informants regarding the graphic novel, those who preferred the text-only novel claimed that the text aided their understanding.

Table 21
A preference for the text-only novel due to ease of understanding

Informant	UPSR grade	RCT performance	Line	Transcript
8	B	decrease	18	*Because it's…easier to understand, I think.*
14	A	neutral	11, 12	*Because…because…it can…it can make students understand the situation better without looking chap…looking at the pictures and…*

*RCT: Reading Comprehension Tests

Informant 14 made an interesting remark about having autonomy in reading by not depending on pictures to comprehend the story. Informant 14 was one of those who performed well in both reading comprehension tests (the text-only novel and the graphic novel). Perhaps, such autonomy is preferred by those unaffected by the kind of stimuli given to them.

ii. Positive perception of text format

A few readers perceived that the text-only novel has a lot of information and detailed explanation, when in reality they were taken from the same source, where only graphics were removed.

Table 22
The text-only novel initiates positive perception of text format

Informant	UPSR grade	RCT performance	Line	Transcript
4	A	neutral	15	*Because it explained in more detail than the one with graphics.*
8	B	decrease	20, 21 26	*Because all information is in it but with the graphic novel, we have to think on our own. Like simply based on pictures. Because…there's a lot of information.*

*RCT: Reading Comprehension Tests

Such explanations, especially the one stated by Informant 8, showed that the belief that the text-only novel has more details while the graphic novel seems to gage critical thinking is in fact, a denial in using higher order thinking skills to make sense of nonverbal stimuli represented by graphics in the graphic novel.

Question 2: How did you find answering Multiple Choice Questions without graphics? Why?

Two kinds of responses were gained from posing this question: positive and negative. Some informants provided explanations for their responses while some left them as they were.

a. Positive responses

Below are excerpts of explanations in support of their responses that in actuality stem from reading strategies:

i. Effective reading strategies

Table 23
Positive responses in regards to answering Multiple Choice Questions without graphics: Effective reading strategies

Informant	UPSR grade	RCT performance	Line	Transcript
6	D	decrease	25, 26	*The story is straightforward…just go with the flow. You can see it from there.*
7	A	increase	29	*I read until I've understood, memorised it then I answered the questions.*
8	B	decrease	36 41 46	*Easy.* *All the information is in it so my task is to look for it…it's just…* *We look for essential points.*
13	A	decrease	32	*Uh…read and look for answers.*

*RCT: Reading Comprehension Tests

b. Negative responses

The following are excerpts of explanations for their negative responses which originated from lack of visualisation, perception of text format, and negative affect that the text-only novel stimulates in readers.

i. Lack of Visualisation

Table 24
Negative responses in regards to answering Multiple Choice Questions without graphics: Lack of visualization

Informant	UPSR grade	RCT performance	Line	Transcript
1	C	increase	42 46	*Quite difficult…* *… because…couldn't see what was happening.*

*RCT: Reading Comprehension Tests

The informant was unable to imagine what was happening in the story due to lack of ability to visualise.

ii. Negative perception of text format.

Table 25
Negative responses in regards to answering Multiple Choice Questions without graphics: Negative perception of text format

Informant	UPSR grade	RCT performance	Line	Transcript
3	B	increase	28	*Difficult to understand because it is purely textual.*
9	B	increase	31 33 38	*Difficult.* *Because there's a lot to read so I had to read it carefully.* *A lot of times.*
11	C	increase	36	*This novel, it's difficult to find its…uh…its points…*
12	C	increase	30 34	*Challenging.* *Going through a lengthy writing like this in detail.*

*RCT: Reading Comprehension Tests

By studying the responses given above, it is clear that informants had negative perceptions of the text-only novel which they believed to be difficult, lengthy and detailed, and required a number of readings before comprehension was secured. As mentioned earlier, the length of both the text-only novel and the graphic novel was similar; therefore such perceptions might not be a predictive measure in reading comprehension.

iii. Negative affect

Table 26
Negative responses in regards to answering Multiple Choice Questions without graphics: Negative affect

Informant	UPSR grade	RCT performance	Line	Transcript
10	C	decrease	22 24	*Hmm…headache.* *I don't know…confused.*

*RCT: Reading Comprehension Tests

Informant 10 showed a strong dislike towards the text-only novel based on words "headache" and "confused" when it came to reading it.

Question 3: How did you find answering Multiple Choice Questions with graphics? Why?

Similar to Question 2, this question gained two kinds of answers: positive and negative.

a. Positive responses

Informants attributed their positive responses regarding the use of the graphic novel while answering multiple choice questions to verbal and visual stimuli for their useful characteristics.

i. Verbal and Visual stimuli

Table 27
Positive responses in regards to answering Multiple Choice Questions with graphics:
Verbal and visual stimuli

Informant	UPSR grade	RCT performance	Line	Transcript
3	B	increase	36	*Understand better as it got pictures.*
9	B	increase	41 43, 44	*Easy.* *Because there were fewer sentences, and the pictures kinda make it easier to comprehend.*
11	C	increase	42 47	*I wasn't confused.* *Because it's got pictures and then if…read the text.*
12	C	increase	36, 37, 38	*It was easy because it's got letters and pictures. We could remember…read till we remember later. That made it possible to rearrange the sentences.*
13	A	decrease	26, 27	*…to me it was easy because it's got answers…because it's got pictures.*

*RCT: Reading Comprehension Tests

Informants associated ease of understanding and answering the questions due to having texts and pictures in the graphic novel. What is more interesting, Informant 12 mentioned that both types of stimuli helped in remembering the story which later aided the task of rearranging the sentences. Whilst all Informants had an increase their test results, Informant 13showed a decrease in the results which could be influenced by unknown factors that were not investigated in the present study. Nonetheless, Informant 13 mentioned that the text-only novel was more helpful than the graphic novel.

b. Negative responses

Negative responses, on the other hand, were attributed to language barrier and ineffective reading strategies that informants experienced.

i. Language barrier

One of the informants spoke about English language being a barrier towards understanding the graphic novel.

Table 28

Negative responses in regards to answering Multiple Choice Questions with graphics: Language barrier

Informant	UPSR grade	RCT performance	Line	Transcript
1	C	increase	49 51 53 55	*Answerable but not all of them.* *Because there were parts I didn't understand.* *English language (the cause)*

*RCT: Reading Comprehension Tests

Based on the response given, it can be said that graphics may aid understanding to a certain point where language used is still accessible. Beyond the point, readers might still experience difficulties due to being less proficient in the language.

ii. Ineffective reading strategies

One of the informants highlighted an important factor that could be the reason affecting reading comprehension as shown in the excerpt below:

Table 29

Negative responses in regards to answering Multiple Choice Questions with graphics: Ineffective reading strategies

Informant	UPSR grade	RCT performance	Line	Transcript
2	B	decrease	27, 28	*...even if I didn't read the text, I could look at the pictures and write the answers.*
			30 34	*No, I didn't read.* *If I didn't understand, I'd read it.*

RCT: Reading Comprehension Tests

Upon further questioning, it was found that the informant practised an ineffective reading strategy by skipping lines in reading as shown in the transcription lines: 30 and 34. The informant would only read it if she didn't understand it.

Question 4: How did you find answering Sequencing Assessment without graphics?

Based on informants' responses, it can be observed that majority responded it was difficult to answer Sequencing Assessment without graphics, that is, with the text-only novel. However, only several gave further explanations as to why they said answering it was difficult. Adhering to the presentation format done in questions 1,2 and 3, the positive responses were presented first.

a. Positive responses

Those who responded positively knew the tactics or the reading strategies to be used effectively in dealing with text-only novels.

i. Effective reading strategies

Table 30
Positive responses in regards to answering Sequencing Assessment without graphics:
Effective reading strategies

Informant	UPSR grade	RCT performance	Line	Transcript
5	A	neutral	43, 44	*We can use the sentences and rearrange them. Uh…just by rearranging them.*
6	D	decrease	41, 42 46	*I…I had to look (at the text) a few times using the novel without graphics. Read it many times.*
7	A	increase	41	*I memorised it too.*
8	B	decrease	69 71, 72	*Oh…easy. Because…uh…the, the information is all in it, so, uh…just need to follow the sequence.*
9	B	increase	51 55, 56 60, 61	*Hmm…easy, using the text was easy. Because…when I used the text, I could…uh…what…like I had to read a few times and then I could understand. (Laughed) Then like…I'd remember the last parts of the story so I'd recall the last parts and then go over the first parts.*

*RCT: Reading Comprehension Tests

Informants seemed to have ideas on how to tackle the text such as using sentences as clues for rearranging, rereading, and memorising to answer sequencing assessment in measuring reading comprehension. Nevertheless, Informant 6 and Informant 8 showed a decrease in the test results which could be influenced by other factors such as inability to recognise which reading strategy to use when they encounter different circumstances.

b. Negative responses

Those who responded negatively believed that language barrier and negative affect that the text evoked were the cause of their having difficulties in answering sequencing assessment using the text-only novel.

i. Language barrier

Table 31
Negative responses in regards to answering Sequencing Assessment without graphics: Language barrier

Informant	UPSR grade	RCT performance	Line	Transcript
1	C	increase	63 67	*Difficult to rearrange.* *Because without pictures, there were aspects of English language that I didn't understand.*
11	C	increase	54 56, 57	*Hmm…it was hard.* *Because I didn't understand from the beginning so how was I to do the last part?*

*RCT: Reading Comprehension Tests

Just as the response discussed earlier regarding the graphic novel and language barrier, the same applies here as language is really an obstacle to ESL learners. Perhaps, what can be assumed now is that, the more proficient an ESL learner in the language, the higher score that he/she will attain reading comprehension tests, regardless of texts being used.

ii. Negative affect

Table 32
Negative responses in regards to answering Sequencing Assessment without graphics:
Negative affect

Informant	UPSR grade	RCT performance	Line	Transcript
2	B	decrease	41 43 45 48	*Difficult.* *Couldn't understand…* *And then, there was a lot to read.* *Felt lazy.*

*RCT: Reading Comprehension Tests

Negative affect was stimulated when the reader felt there was too much to read which

eventually led to laziness.

Question 5: How did you find answering Sequencing Assessment with graphics?

Similar to question 4, the question was intended to probe into informants' experience in

answering sequencing assessment using graphic novel. Most informants responded

positively due to reasons as provided below:

a. Positive responses

i. Visual stimuli

Visual stimuli appeal to informants' cognition in terms of clarity, visualisation and

memory. The following are excerpts taken from interviews with the informants:

Cognition-clarity

Table 33
Positive responses in regards to answering Sequencing Assessment with graphics:
Visual stimuli (Cognition-clarity)

Informant	UPSR grade	RCT performance	Line	Transcript
1	C	increase	75	*Because I could see what was happening.*
4	A	neutral	48 50	*The one with graphics, the storyline is clearer.* *So it is easier when it comes to rearranging.*
6	D	decrease	35, 36 48	*About the storyline, there is one...one part of the story. But with graphics, it's already there.* *I looked at it, found it, and answered it.*

*RCT: Reading Comprehension Tests

Graphics, which are also the verbal stimuli in this study, provide clarity in the readers'

minds which then smoothens their tasks to rearrange the sentences in correct order.

Informant 6's results, as in the discussion of previous cases, did not comply with the

opinions given.

Cognition-visualisation

Table 34
Positive responses in regards to answering Sequencing Assessment with graphics:
Visual stimuli (Cognition-visualisation)

Informant	UPSR grade	RCT performance	Line	Transcript
12	C	increase	45, 46	*We could skip...uh imagine...we could imagine the whereabouts as we read. Then we looked at the pictures to see them.*

*RCT: Reading Comprehension Tests

Besides providing clarity, visualisation is also aided. Informant 12 stated that looking at the pictures came after imagination. This means that pictures do not necessarily create overdependence on the stimuli but rather enhances visualisation.

Cognition-memory

Table 35
Positive responses in regards to answering Sequencing Assessment with graphics: Visual stimuli (Cognition-memory)

Informant	UPSR grade	RCT performance	Line	Transcript
9	B	increase	65 67	*That was also easy.* *Because it's easy to remember with pictures.*

*RCT: Reading Comprehension Tests

It has been mentioned a few times that graphics aid readers to remember the story well. Again, Informant 9 drew attention to the capacity of graphics for memorisation, which might be a factor in ESL learners' reading comprehension.

ii. Perception of text format

Table 36
Positive responses in regards to answering Sequencing Assessment with graphics: Perception of text format

Informant	UPSR grade	RCT performance	Line	Transcript
5	A	neutral	46	*The graphic novel…it's already in sequence.*

*RCT: Reading Comprehension Tests

The positive perception of text format is undeniably important as Informant 5 stated that the graphic novel is already arranged accordingly, thus making rearranging an easy task.

b. Negative responses

Nonetheless, there were also informants who reported having difficulties in answering

Sequencing Assessment with the graphic novel.

i. Negative affect

Table 37
Negative responses in regards to answering Sequencing Assessment with graphics:
Negative affect

Informant	UPSR grade	RCT performance	Line	Transcript
8	B	decrease	90	*Yeah. Confused.*

*RCT: Reading Comprehension Tests

But two other informants explained how they managed to answer the questions using

effective reading strategies:

ii. Effective reading strategies

Table 38
Negative responses in regards to answering Sequencing Assessment with graphics:
Effective reading strategies to overcome difficulties

Informant	UPSR grade	RCT performance	Line	Transcript
7	A	increase	44, 45	*Uh-huh…sometimes, there were parts that I had to recheck, to follow the storyline.*
8	B	decrease	75, 76	*In some parts of the graphic novel, it's like...we had er... we had to read it carefully to understand.*

*RCT: Reading Comprehension Tests

These informants knew how to overcome the difficulties in reading the graphic novel and answering the questions by adopting reading strategies such as rechecking and careful reading.

Question 6: Do you think that the graphic novel helped you understand the story better? If yes, in what ways did it help you?

As justified in the previous chapter, this question was intended to have a clear understanding as to whether or not the graphic novel helped in their reading comprehension. Majority claimed that the graphic novel was helpful in comprehending the story better. One respondent had an indifferent perspective regarding the two types of texts and another had negative experience using it.

a. Positive responses

i. Visual stimuli

Cognition-Clarity

Table 39
Positive responses in regards to the use of the graphic novel: Visual stimuli (Cognition-clarity)

Informant	UPSR grade	RCT performance	Line	Transcript
1	C	increase	82	*Because we could see the situation.*
2	B	decrease	63	*By studying the pictures.*
3	B	increase	59	*Have a picture of the storyline*
4	A	neutral	59	*It has…it has pictures, it has colours, so it further attracts us to read.*
			61	*Understand better.*

*RCT: Reading Comprehension Tests

Just as mentioned earlier, the graphic novel has the capacity of providing clarity to readers via available pictures in the novel.

ii. Visual and verbal stimuli

Cognition-Clarity

Table 40
Positive responses in regards to the use of the graphic novel: Visual and verbal stimuli (Cognition-clarity)

Informant	UPSR grade	RCT performance	Line	Transcript
5	A	neutral	52, 53 57 59 61	*Because… clearer to read the… the… one with pictures than the one without.* *That it… can discuss, it's at the top… at the top… (referring to narration).* *He's talking to this man.* *This, then the fisherman's boat…reached the island.*
7	A	increase	59	*Because we got to know who's talking, its motives.*
11	C	increase	70	*Because…it's got dialogues and pictures.*
12	C	increase	57	*Hmm…how do I describe it? It's like the story… has pictures which made it somewhat easier to digest.*

*RCT: Reading Comprehension Tests

More specifically, informants were ready to talk about how pictures and words work together in the graphic novel towards developing an understanding of the story being read. Informant 5 elaborated how narration, dialogues and pictures in the graphic novel assist in reading comprehension. Informant 7 added that motives can also be detected when dialogues and pictures were available.

Table 41
Positive responses in regards to the use of the graphic novel: Visual and verbal stimuli (Cognition-visualisation)

Informant	UPSR grade	RCT performance	Line	Transcript
9	B	increase	89, 90	*As for me, I prefer the one with text and this (referring to the graphics) so that's easier for me to imagine.*

*RCT: Reading Comprehension Tests

Informant 9 was straightforward in stating that the text and graphics help in imagination. The ability to imagine varies from one person to another and this fact can be attributed to individual differences factor.

iii. Perception of text format

Table 42
Positive responses in regards to the use of the graphic novel: Perception of text format

Informant	UPSR grade	RCT performance	Line	Transcript
9	B	increase	81, 82	*Because it's shorter so the sentences used are like what we always use…interacting with people.*

*RCT: Reading Comprehension Tests

Repetitively mentioned, the perception of text format being shorter in sentences than the text-only novel could be an affecting factor in reading comprehension.

b. Neutral responses

Table 43
Neutral responses in regards to the use of the graphic novel

Informant	UPSR grade	RCT performance	Line	Transcript
13	A	decrease	36 48 53	*The novel without graphics. (was more helpful)* *Um…they're the same.* *Didn't make any difference.*

*RCT: Reading Comprehension Tests

Informant 13 believed that both novels were easy to read though initially, the informant

stated that the text-only novel was more helpful than the graphic novel.

c. Negative responses

i. Poor visual literacy skills

Table 44

Negative responses in regards to the use of the graphic novel: Poor visual literacy skills

Informant	UPSR grade	RCT performance	Line	Transcript
4	A	neutral	74 76 79	*Because I felt…dizzy when I read the comic.* *Because it was like…here…so I didn't know how to read in sequence.* *Uh-huh. This…this one. I didn't know if I should read this or that first.*

*RCT: Reading Comprehension Tests

Informant 4 clearly stated that poor visual literacy skills were the problem in reading the

graphic novel. Based on the statement "I didn't know how to read in sequence" and "I

didn't know if I should read this or that first" proved that Informant 4 lacks the skill to

read in a book in comic style.

*Question 7: Did you encounter any problems reading the text and the graphic novel?
If yes, what were they?*

Informants stated that problems using the text-only novel were caused by language barrier, lack of clarity provided by the stimuli and ineffective reading strategies employed by them. Problems using the graphic novel were also present which were identified to be poor visual literacy skills and language barrier but were then compensated by effective reading strategies adopted by informants.

a. Text-only novel

i. Language barrier

Table 45
Problems encountered while reading the text-only novel: Language barrier

Informant	UPSR grade	RCT performance	Line	Transcript
1	C	increase	89 94	*Couldn't understand English.* *The meaning of words.*
2	B	decrease	76 78 80 85	*It was difficult to read.* *And didn't understand.* *There were words that I didn't understand.* *That was like "near into" like that. Challenging words.*
3	B	increase	67 70	*Hard to understand.* *Words…uh…storyline.*
9	B	increase	96	*Some sentences were incomprehensible.*
11	C	increase	78 80	*Hmm…first was due to the meaning…uh…didn't know the meaning.* *Second was because uh…never seen the sentences before.*

*RCT: Reading Comprehension Tests

Problems encountered by ESL learners were not only limited to words but sentences too. Informant 11 noticed that unfamiliarity of words and sentences were the main hindrance towards comprehension.

ii. Lack of visualisation

Table 46
Problems encountered while reading the text-only novel: Lack of visualization

Informant	UPSR grade	RCT performance	Line	Transcript
7	A	increase	69	*Difficult to understand and difficult to picture who's doing the talking.*
			84	*I was a bit confused.*

RCT: Reading Comprehension Tests

But this informant had determination to understand the text as stated below:

Table 47
Determination to understand the text-only novel

Informant	UPSR grade	RCT performance	Line	Transcript
7	A	increase	87	*I kept on reading, till I truly understood.*
			89	*I reread it like twice or thrice.*

RCT: Reading Comprehension Tests

Determination could also be a personal factor in reading comprehension, which can be attributed to individual differences.

iii. Ineffective reading strategies and perception of text format

Table 48
Problems encountered while reading the text-only novel: Ineffective reading strategies and perception of text format

Informant	UPSR grade	RCT performance	Line	Transcript
6	D	decrease	74 76	*Sometimes I mistakenly read the paragraphs.* *Uh-huh. Unintentionally skipped.*
12	C	increase	68, 69 71	*The problem was that when we read, we tend to skip a few lines here and there. It's got too many lines.* *Uh-huh, unintentionally skipped them.*

*RCT: Reading Comprehension Tests

Both informants tend to skip lines while reading the text-only novel which could be caused by the layout of the text. The text-only novel is presented in continuous form while the graphic novel is presented in a comic form where graphics fill the spaces in between texts. This could be a factor affecting ESL learners' reading comprehension.

b. Graphic novel

i. Poor visual literacy skills

Table 49
Problems encountered while reading the graphic novel: Poor visual literacy skills

Informant	UPSR grade	RCT performance	Line	Transcript
4	A	neutral	86	*Uh…yeah, the confusion (in sequencing)*
8	B	decrease	93	*Uh, there's…a question, it's uh… the one that had to rearrange…*

*RCT: Reading Comprehension Tests

Informants 4 and 8 had a problem in sequencing which was caused by poor visual literacy skills. This problem can be addressed through educating them beforehand so that they might not come across the issue again in the future.

ii. Language barrier

English language is a challenge for ESL learners especially when they encounter unfamiliar words or sentences.

Table 50
Problems encountered while reading the graphic novel: Language barrier

Informant	UPSR grade	RCT performance	Line	Transcript
11	C	increase	86, 87	*Like…never…never seen…never seen the sentences (in the novel) but uh… never seen them. Look at the words after them.*

*RCT: Reading Comprehension Tests

But these obstacles caused by poor visual literacy skills and language barrier were countered via effective reading strategies.

iii. Effective reading strategies

Table 51
Effective reading strategies to overcome poor visual literacy skills and language barrier

Informant	UPSR grade	RCT performance	Line	Transcript
8	B	decrease	97, 98	*That means, I had to…had to really confirm it…had to…study it. Look for the information carefully.*
11	C	increase	89 93, 94, 95	*Look at the words after the sentences. Like… an example that I didn't understand. For example, I didn't know the words "after", so I looked at the words next to it "chopping the meat". If…if I understood the following words, then I could guess what the story was.*

*RCT: Reading Comprehension Tests

Despite the problems uttered, a few informants claimed they had no problems reading the graphic novel. One attributed it to text format:

iv. The perception of text format

Table 52
The perception of text format to overcome poor visual literacy skills and language barrier

Informant	UPSR grade	RCT performance	Line	Transcript
12	C	increase	75	*No, because it had fewer lines, it's shorter, uh…*

*RCT: Reading Comprehension Tests

Question 8: Can you describe your feelings while reading the text-only novel?

a. Negative feelings

Most of the responses were negative saying that feelings they experienced while reading the text-only novel ranges from difficult to nervous to bored to anxious and uninterested.

Table 53
Negative feelings while reading the text-only novel

Informant	UPSR grade	RCT performance	Line	Transcript
1	C	increase	101	*Difficult.*
3	B	increase	76 78	*Nervous.* *Quite difficult to understand.*
9	B	increase	115 117	*Bored.* *Because I didn't like it.*
10	C	decrease	66 68	*A little bored.* *That made answering (the questions) a tough task.*

11	C	increase	109 111	*Felt…bored.* *And then felt…uninterested.*
12	C	increase	80, 81	*Anxious because I had to read it one by one, to answer the questions immediately.*
13	A	decrease	65	*Felt bored reading the novel without graphics.*

*RCT: Reading Comprehension Tests

b. Positive feelings

A few reacted positively, particularly Informant 2 who was happy though it was difficult to read the text-only novel.

Table 54
Positive feelings while reading the text-only novel

Informant	UPSR grade	RCT performance	Line	Transcript
2	B	decrease	91 93	*Hmm… happy.* *Difficult.*
8	B	decrease	112	*Uh…felt happy because it was easy.*
14	A	neutral	72	*Amazed.*

*RCT: Reading Comprehension Tests

c. Neutral feelings

Two informants had indifferent feelings towards the text-only novel as shown in the excerpts below:

Table 55
Neutral feelings while reading the text-only novel

Informant	UPSR grade	RCT performance	Line	Transcript
4	A	neutral	95	*I felt fine.*
6	D	decrease	83	*Usual.*

*RCT: Reading Comprehension Tests

Question 9: Can you describe your feelings while reading the graphic novel?

Majority of the responses were positive when it came to describing their feelings reading the graphic novel. Positive feelings experienced by informants were happy, easy, okay, amazed, good, less confusing, and fun.

a. Positive feelings

Table 56

Positive feelings while reading the graphic novel

Informant	UPSR grade	RCT performance	Line	Transcript
1	C	increase	109, 110	*Easy, I felt okay, no problems… a few but not as many as reading the novel without graphics.*
2	B	decrease	98	*Happy and easy to understand.*
3	B	increase	84	*Easy to understand; it has pictures.*
5	A	neutral	77 82	*Easy.* *Felt…good.*
6	D	decrease	85	*Felt amazed because of his… his adventures.*
7	A	increase	95	*Less confusing compared to the lengthy text.*
9	B	increase	124	*Happy. Because I like reading comics and the likes.*
10	C	decrease	72 74 76	*A bit easier.* *There were pictures.* *Yeah, less boring.*
11	C	increase	115	*That was… amazing.*
12	C	increase	83 87	*Not as difficult as it's got pictures so it's easier to look for answers.* *Fine. Because it isn't timed.*
13	A	decrease	69	*This one, it's fun to read.*
14	A	neutral	74	*Amazed.*

*RCT: Reading Comprehension Tests

Six informants who reported the positive feelings had an increase the second reading comprehension test, two informants had the same score in the second test, and four informants had a decrease in the second test.

b. Negative feelings

Only one informant expressed that reading the graphic novel was boring and this could be the reason why the text-only novel was preferred to graphic novel:

Table 57
Negative feelings while reading the graphic novel

Informant	UPSR grade	RCT performance	Line	Transcript
8	B	decrease	114	*Uh…no. It was boring.*

*RCT: Reading Comprehension Tests

c. Neutral feelings

Informant 4 had a neutral feeling towards graphic novel but was more interested in the graphic novel than the text-only novel although preference was for the text-only novel.

Table 58
Neutral feelings while reading the graphic novel

Informant	UPSR grade	RCT performance	Line	Transcript
4	A	neutral	102 108	*Normal.* *More attracted to the one with graphics rather than the textual one.*

*RCT: Reading Comprehension Tests

Question 10: What kind of setting is suitable/good for reading the graphic novel?

Majority said that the graphic novel is suitable to be used regardless of the context it is read. Therefore, schools, home and other places such as bus stops do not affect their reading negatively. Some of the reasons that are in support of the graphic novel are ease of understanding, the fun factor and the support of imagination that it stimulates in students.

Table 59
Reasons for reading the graphic novel regardless of context

Informant	UPSR grade	RCT performance	Line	Transcript
3	B	increase	94, 98	*Easy to understand.*
5	A	neutral	87	*Uh…so that students can understand better when using it.*
7	A	increase	102, 103	*Because they're easier for the students…they can understand as it's got pictures, and see everything they're doing.*
8	B	decrease	124 126	*There might be students who like imagination, and pictures.*
9	B	increase	135	*Because using it in schools makes the students…happier to read.*
10	C	decrease	85	*Because there were a lot of people who love reading without pictures.*
12	C	increase	95	*Usually, sometimes, kids love seeing pictures in the story. They have more fun reading all that.*

*RCT: Reading Comprehension Tests

After all questions were analysed, majority of the informants who supported the graphic novel had either an increase or neutral in the second reading comprehension test with

the accompaniment of graphics. Only a few informants (Informants 2, 6, 8, 10 and 13) had a decrease in the second reading comprehension test.

By studying their cases individually, it can be said suggested that Informant 2 might have applied ineffective reading strategies (c.f. Table 29). The text was not read and there was overdependence on graphics to understand the story. Informant 6 and 10 reported having a positive feeling while reading the graphic novel. However, the decrease could be related to the informant's low proficiency in English based on English UPSR grade which is C (Informant 10) and D (Informant 6). Informant 8 had a negative affect towards the graphic novel and a preference for the text-only novel as shown in Table 21 and 57 (cf. Table 21 and 57). Negative affect could be a factor in Informant's 8 decrease in the second reading comprehension test. Informant 13 is indeed a special case as the proficiency level of the informant is high (English UPSR grade A) but the results showed a decrease in the second test. When asked which novel was more helpful, the informant had a neutral perception towards the text-only novel and the graphic novel. Perhaps there are other factors contributing to the decrease of Informant 13's second test results which were not explored in the present study.

4.2.3 Hierarchically categorised emerging themes.

Factors that emerged from one-to-one interviews conducted were codified and thematically analysed. The factors are identified to be sheltered under two overarching elements: *reader* and *stimuli*. Figures 4 and 5 below show an overview of the elements and the factors categorised under each element.

i. Perception of Text

One informant (Informant 9) stated that the graphic novel is shorter in length as compared to the text-only novel while several others mentioned that the text-only novel is lengthy, has more details and information. In reality, the length of both graphic and text-only novels is within the same range and they originate from the same novel- only graphics were removed for the purpose of the study so as to label it 'text-only' novel. Studying the correlation of readers' perception of texts and reading comprehension performance might be a possible area in future studies.

ii. Perception of Reading Context

Most of them (Informants 1, 2, 3, 4, 5, 6, 8, 9, 11, and 13) being interviewed stated that the graphic novel is possible to be read in schools and home which gives way for both intensive and extensive reading to happen because reading context does not affect their understanding in reading. This is further affirmed by an informant (Informant 1) proposing that graphic novels need not be read in quiet places, unlike text-only novels.

c. Affect towards the graphic novel

Reading the graphic novel was often associated with positive affect such as feeling fun, easy, happy, good, amazed, attracted, interested, less confusing and less boring as reported by majority of the informants (Informants 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14). Positive feelings could be a factor in increasing ESL learners' motivation and concentration in reading.

d. Reading strategies

Strategies employed by ESL learners in reading the graphic novel can thus be categorised into effective and ineffective. Effective strategies mentioned are rechecking, skimming, scanning, finding contextual clues, careful reading and memorisation while the ineffective strategies taken by ESL learners are intentional line skipping, dismissal of careful reading, prioritising visual stimuli to the extent of omitting verbal stimuli. These ineffective reading strategies used in reading graphic novels might cause a decrease in reading comprehension scores.

e. Prior knowledge

The role of prior knowledge cannot be denied in this study, particularly linguistic knowledge and visual literacy skills. Informants reported that language barrier such as understanding the meaning of words was not purely resolved but was minimally assisted in word comprehension. Despite this statement, from the gist of the interviews, majority of the informants (Informants 1, 2, 3, 4, 5, 6, 7, 9, 11, 12 and 13) did inform that answering questions with the aid of graphic novel was much easier than the text-only novel.

Another type of knowledge/skills required in reading the graphic novel is visual literacy skills. Informant 4 raised the issue of confusion in sequencing (that is reading the dialogue boxes and panels) that could be related to the fact that they were not equipped with the skills needed to operate the graphic novel. Lacking in visual literacy skills might be a factor influencing ESL learners' reading comprehension and this technical issue can be resolved by educating readers with visual literacy skills.

Graphics are also believed to have the ability of compensating and assisting visualisation. The ability to visualise may vary from one person to another and graphic novels might be a great way to cater to individual differences.

Another issue of cognition being mentioned is memory. Memory is also aided when informant 9 realised that the graphic novel help in remembering the story better.

b. Verbal

Verbal stimuli being discussed are rooted from the text in the text-only novel and the graphic novel. Positive and negative views of the verbal stimuli emerged: from the positive viewpoint, texts are said to aid comprehension and provide information of the situation and the plots while the negative viewpoint, texts inhibit visualisation and spark negative affect such as boredom and giving the reader (Informant 10) "a headache".

c. Visual and verbal

A combination of both visual and verbal stimuli is complementary to each other in comprehending the story besides helping the readers remember and organise the story. This is in line with the principles of Dual Coding Theory which involves the verbal and visual systems in cognitive processing.

4.3 Conclusion

Based on the findings from Phase 1, reading text –only novel has a lesser impact on ESL learners' reading comprehension. From Phase 2, factors raised in relation to reading graphic novels such as positive perception of text format, positive affect, effective reading strategies, linguistic knowledge and visual literacy skills play their roles in ESL learners' reading comprehension. Therefore, a conclusion that can be drawn from the findings is that graphic novels provide assistance in comprehension specifically in the aspect of cognition which is also ascertained by Dual Coding Theory. Direct activations of *logogens* and *imagens* smoothens ESL readers' journey in reading comprehension besides becoming an impetus for a rise in reading literacy which is greatly needed by Malaysian students.

CHAPTER FIVE

DISCUSSION

5.0 Introduction

This chapter discusses the results gained from data collection in relation to Dual Coding Theory. As mentioned earlier in Chapter Two, representations in Dual Coding Theory are activated according to the situation of the stimulus as well as individual differences deep rooted in readers. The reading process consists of the *stimulus* which is defined by characteristics of the text and *individual differences* that encompasses one's ability in reading, schemata, instructions and others. Interestingly, this statement is in harmony with the factors based on emerging themes from interview data. The two elements: *reader* and *stimuli* are aligned with *individual differences* and *situations of stimuli* as asserted by the theory.

This chapter discusses the overall findings in relation to Dual Coding Theory from a triangulation of two research designs: quantitative and qualitative methods. Past literature was also drawn to understand the phenomena better.

Quantitative method (Reading comprehension tests) + Qualitative method (One-to-one interviews to identify factors to explain the phenomenon) → The Impact of Reading Graphic Novel and Text-Only Novel on Reading Comprehension
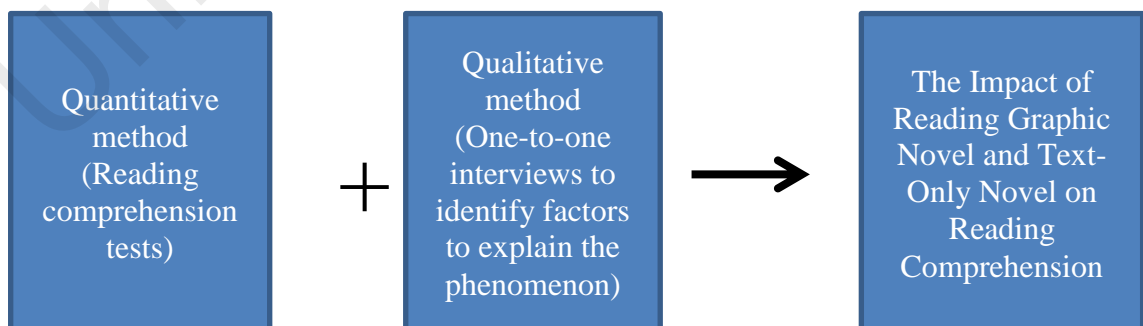
Figure 6. The overview of research designs

5.1 Factors in relation to graphic novel that influence reading comprehension scores

As presented in Chapter Four, quantitative data show there is an increase in ESL learners' reading comprehension score in the test using a graphic novel, and the increase is indeed significant. The results are in support of Schallert's (1980) discovery that 'internal' (imagery/visualisation) and 'external' (such as illustrations/graphics) images contributed to the improvement in reading comprehension (cf. section 4.1.2 on reading comprehension tests). As a follow-up to quantitative data gathered, one-to-one interviews were conducted to gain more insights into the factors influencing their reading comprehension scores from the point of view of ESL learners themselves. The elements overarching the factors (the reader and stimuli) are interactively discussed in relation to past literature and Dual Coding Theory.

5.1.1 Preference for graphic novels as a way to entice ESL learners in reading

The issue of preference is not an issue to be easily dismissed or be taken lightly. Students' preference is a manifestation of learners' motivation from the perspective of cognitive psychology. Brown (2001) defined motivation based on three theories from the perspective of cognitive psychology: *drive theory, hierarchy of needs* and *self-control theory.* The issue of preference corresponds with *self-control theory* in which Brown (2001) explained that "Motivation is highest when one can make one's own choices, whether they are in short-term or long-term contexts" (p. 75). Since majority of informants stated their preference for the graphic novel, it is imperative to state that ESL learners' text preference could be a contributing factor in reading comprehension.

Their preference is supported by reasons such as ease of understanding, positive affect that the graphic novel evoked in them and positive perception of text format. At the

beginning of Chapter One, Schwarz (2002) was cited in stating that reading graphic novels is beneficial as it helps in comprehension and increases motivation for learners who have difficulties in reading and those who are skilled but bored or busy. The graphic novel is said to have evoked positive affect such as feeling happy, good, easy, amazed and attracted. Citing the work of Pishol and Kaur (2015) from Chapter Two, graphics make learners less anxious to learn the language as they are ready to aid readers in meaning making whilst presenting authentic language for language learners to experience. The positive emotions the graphic novel evoked counteract with language learners' anxiety in learning the target language. In addition to that, Fang (1996), though picture books were used instead of graphic novels, learned four benefits of illustrations, one of which is being an "enticement" for children to read and get connected with the text. Since the current generation is now exposed to visuals which a lot of them are from social media, getting them hooked on reading printed books, including graphic novels, is a true success.

From the results and interviews, graphic novels are one of the reading materials that might "entice" ESL readers to read, follow the storyline and believe that the graphic novel can lead them towards understanding the story. This is a gradual process to enhance reading literacy of ESL learners in Malaysia, as well as improving future PISA scores.

Their reasons for such a preference can be ascribed to the interaction of individual differences and stimuli, exactly as suggested by Dual Coding Theory in the reading process. Informants firmly stated that the graphic novel help them understand the story better as the graphics available either aid them in observing the situation and characters or compensate the lack of ability to imagine. This ability indeed is an issue of individual

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differences that varies across individuals; therefore some might be able to imagine scenes vividly while some might not.

However, it should be noted that out of fourteen informants, four informants (Informants 2, 6, 10 and 13) did not perform better in the second reading comprehension test which could be caused by other factors that can be further investigated in future research. Informants 6 and 10 might have experienced difficulties due to their low proficiency in English based on their UPSR grades while Informant 2's decrease in results could be caused by ineffective reading strategies employed while reading. The factors that caused a decrease in the second reading comprehension test results cannot be ascertained as such certainty can only be achieved by devising other research instruments.

The issue of preference opens up paths to venture into the deeper factors of their choosing a particular text format, of which, the graphic novel is preferred by majority of the informants. The factors shall be discussed in the following points.

5.1.2 The perception of text being "lengthy" and ineffective reading strategies disrupt reading

ESL learners have their own perception of texts prior to reading the text-only novel and the graphic novel given to them during reading comprehension tests. A few informants perceived that the text-only novel as having more details and information, thus making it lengthier than the graphic novel, when in reality, both texts were taken from the same book with one graphics removed. Perhaps, this can be associated with their familiarity of the conventional text format such as the unabridged *20,000 Leagues under the Sea,* with 340 pages of pure text. The test was not designed to trick them but when this issue

was raised; it could be related to their perception of pure text as being lengthy. Texts without visuals might give an impression that there is an abundance of information to be digested, just as what Informant 2 mentioned:

Table 60
The perception of text being "lengthy" disrupts reading comprehension

Role	UPSR grade	RCT performance	Line	Transcript
Informant 2	B	decrease	45	*And then, there was a lot to read.*
Researcher	-	-	46-47	*A lot to read. So when you said that there was a lot to read, how did you feel then?*
Informant	B	decrease	48	*Felt lazy.*

*RCT: Reading Comprehension Tests

The scrolling technique that people adopt as they browse social media such as Instagram and Facebook probably create an impression that information presented in textual form is lengthy.

It is a habit they do every single day, skipping lines or paragraphs in reading and scanning for interesting topics to be read online is more likely to occur, and that habit is transferred to reading textual books. This could explain the ineffective reading strategies that ESL learners employed in reading text-only novel:

Table 61

Ineffective reading strategies employed in reading the text-only novel

Informant	UPSR grade	RCT performance	Line	Transcript
6	D	decrease	74	*Sometimes I mistakenly read the paragraphs.*
12	C	increase	68, 69	*The problem was that when we read, we tend to skip a few lines here and there. It's got too many lines.*

*RCT: Reading Comprehension Tests

Referring to their statements above, effective reading strategies are lacking and this could be related to Liu and Huang's (2016) study on the effect of reading on smartphones where undesirable habits such as "more browsing and scanning, more selective reading, less in-depth reading, and less concentrated reading" are developed (Liu and Huang, 2016).

Just as smartphones being portable, so are graphic novels. Because graphic novels have pictures and fewer words compared to the original texts, ESL learners perceive that graphic novels can be read in classes, at the canteen, at the bus stops or even at home. This is certainly good news to the researcher cum educator having heard the statements first hand from informants. Graphic novels can be seen as a means to reach out to students in enhancing their English reading literacy.

5.1.3 Linguistic knowledge for reading comprehension

Dual Coding Theory places a great emphasis on background knowledge, which in this case refers to acquired skills and past experience. In this study, participants are second language learners of English language, therefore their proficiency levels vary across individuals. From the interviews, informants stated English language being one of their

problems that they encountered in reading both text-only and graphic novels. In Dual Coding Theory, *logogens* and *imagens* are different in meaningfulness from the semantic point of view. *Logogens* have semantic meaning when the verbal input given is familiar to the individual while *imagens* have semantic meaning that are innate in the individual so long they have resemblance with the objects perceived (Paivio and Sadoski, 2011). Paivio and Sadoski (2011) who are in agreement with Rumelhart (1979) and Elman (2004) stated that meaningfulness of *logogens* is finite, "that lexical words are clues to meaning rather than being semantically meaningful in themselves" (p.200).

From the interviews, it is noted that ESL learners experienced difficulties in understanding the English language, with the text-only novel in particular, as reported by the informants.

Table 62
Language barrier in reading the text-only novel

Informant	UPSR grade	RCT performance	Line	Transcript
1	C	increase	66, 67	*Because without pictures, there were aspects of English language that I didn't understand.*

*RCT: Reading Comprehension Tests

Informant 1 expressed how comprehension is dependent on graphics when language is a hurdle. Aspects of language, as mentioned by Informant 1, may refer to words, phrases and sentences and even the story as a whole, which are in line with Dual Coding Theory's concept of verbal system. The verbal representational units, or *logogens,* are arranged hierarchically from phonemes to syllables to words to phrases to sentences to paragraphs to the whole text.

The following excerpts are taken to show aspects of language that they find difficult.

<u>Words:</u>

Table 63
Aspects of language barrier: Words

Informant	UPSR grade	RCT performance	Line	Transcript
1	C	increase	89 94	*Couldn't understand English.* *The meaning of words.*
2	B	decrease	76 78 80 85	*It was difficult to read.* *And didn't understand.* *There were words that I didn't understand.* *That was like "near into" like that. Challenging words.*
3	B	increase	67 70	*Hard to understand.* *Words…uh…storyline.*

*RCT: Reading Comprehension Tests

<u>Sentences:</u>

Table 64
Aspects of language barrier: Sentences

Informant	UPSR grade	RCT performance	Line	Transcript
9	B	increase	96	*Some sentences were incomprehensible.*
11	C	increase	78 80	*Hmm…first was due to the meaning…uh…didn't know the meaning.* *Second was because uh…never seen the sentences before.*

*RCT: Reading Comprehension Tests

Because the semantic meaning of *logogens* relies on familiarity of the words perceived, without assistance of other stimuli might cause making sense of what is being read a challenging task for ESL learners. When the verbal input is unrecognisable to the

reader, its match that is the *logogen* cannot be found in the verbal system for any kinds of connections to be activated. This also happens even when Informant 11 read the graphic novel:

Table 65
Unfamiliarity of verbal input disrupts reading comprehension

Informant	UPSR grade	RCT performance	Line	Transcript
11	C	increase	86, 87	*Like…never… never seen… never seen the sentences (in the novel) but uh… never seen them. Look at the words after them.*

*RCT: Reading Comprehension Tests

Upon further questioning by the researcher, it was found that Informant 11 tried to make sense of the sentence by looking at the words next to the "unfamiliar" word (contextual clues) and by looking at the pictures:

Table 66
Reliance on contextual clues and pictures for reading comprehension

Informant	UPSR grade	RCT performance	Line	Transcript
11	C	increase	100	*Based on the text and the pictures.*

*RCT: Reading Comprehension Tests

Referring to the statement made by Informant 11, it can be concluded that linguistic knowledge is still needed to read the two types of text but by having nonverbal stimuli available, it assists ESL learners in reading comprehension. This is where graphics in the graphic novel play their roles in assisting ESL learners make sense of what they read as majority of informants stated that the graphic novel assists them in comprehending the story.

5.1.4 Graphics and texts to activate *logogens* and *imagens*

Graphics are the nonverbal stimuli accessible in the present study. As discussed in the previous section, it is clear that when verbal inputs received are unfamiliar, the activation of *logogens* is halted and our brain attempts to activate other possible *logogens* or *imagens*. However, such connections are difficult to establish when inputs are unrecognisable.

In graphic novels, text and graphics are available which means, the range for verbal and nonverbal inputs perceived are wider. This indeed increases the chance for *logogens* and *imagens* in the verbal and nonverbal systems to be activated. From the interviews, quite repetitively informants stated how graphics assist them in "seeing" the situation and characters. These are the nonverbal stimuli that readers receive to activate familiar *logogens* and *imagens* in their verbal and nonverbal systems. The following excerpts show how informants describe the characters in action using the graphic novel which consists of both verbal and nonverbal stimuli:

Table 67
Verbal and nonverbal stimuli to describe characters in the graphic novel

Informant	UPSR grade	RCT performance	Line	Transcript
1	C	increase	30	*There are situations in the pictures like… ways… what they are doing.*
3	B	increase	16 23	*There are people.* *Can see the storyline.*
5	A	neutral	59 61	*He's talking to this man.* *This, then the fisherman's boat… reached the island.*
7	A	increase	59	*Because we got to know who's talking, its motives.*

*RCT: Reading Comprehension Tests

These informants (Informants 1, 3, 5 and 7) were descriptive in telling how graphics work for them. They got to see what the characters are doing, how the story flows and the motives behind the characterisation. Fang (1996), in her article, listed the functions of illustrations in picture books: create the setting of the story, describe characters, expand the plot, give alternative perspectives, make the text coherent and strengthen text. Here, the graphic novel is successful at creating the setting, describing the characters and expanding the plot fairly well which all make understanding the story less effortful.

To explain the phenomenon from a Dual Coding Theory perspective, the available verbal and nonverbal stimuli in the graphic novel provide input for representational processing (the basic connection) to occur. **Representational connections** happen when external stimuli activate representational units (*logogens* and *imagens)* in the verbal and nonverbal systems. Let's say a reader is unfamiliar with some lexical words used in the story; he might experience difficulties in finding *logogens* to match it with the unrecognised verbal inputs. If he managed to get some contextual clues from the surrounding words, he might be successful at activating other *logogens* and/or *imagens* (via associative and referential connections) using the surrounding words as verbal input. **Associative connections** happen when *a logogen* activates other *logogens* or *an imagen* activating other *imagens* while **referential connections** happen when *logogens* activate *imagens* and vice versa. But, if he does not apply effective reading strategies, he might not be able to activate the *logogens* that he needs to understand what is read from the surrounding words for contextual clues. Therefore, graphics as nonverbal stimuli could be a great help in providing an alternative way to activate relevant *imagens* as well as *logogens* (via referential connections).

5.1.5 Additive effects of dual codes in memory

As elaborated in Chapter Two, there exists a relationship between memory and reading comprehension as stated by Min Jin (2014). Min Jin (2014) stated that working memory capacity could be an indicator of reading achievement in second language. Fuchs, Fuchs and Maxwell (1998) studied informal reading comprehension measures with recall being one of the methods. The findings showed that the written production of recall has stronger correlations than oral production of recall. Here, two things can be digested: written production of recall is better than oral production of recall, and reading comprehension can be measured via recall. Recall involves memory which is necessary to be explained via Dual Coding Theory.

As detailed earlier in Chapter Two, dual-codes (verbal and nonverbal) work well in reading, particularly in enhancing one's memory. Affect, being one of nonverbal stimuli, plays its role well in recall. Sadoski, Paivio and Goetz (1991) in their critique of Schema Theory stated how Dual Coding Theory has the potential to account for affect that Schema Theory is inadequate in explaining the role of affect in its theory. In Dual Coding Theory, imagery and affect are theoretically linked. This is proven via a study cited in Chapter Two regarding the burglar/homebuyer passage. The findings of the study showed that the information pertaining to the burglar's viewpoint was recalled better than the homebuyer's viewpoint. They believed that readers were emotionally affected when they read the text from the burglar's viewpoint as their recall of information from the burglar's viewpoint was better. Linking the cited study with the present study, it can be hypothesised that ESL learners remember the story better as there are positive feelings aroused from reading the graphic novel such as feeling happy, good, easy, amazed and attracted from earlier section (see section 5.1.1). This could be

an indicator to better storage of information in verbal and nonverbal representational systems.

Pictures are in fact the main nonverbal stimuli present in the study and from the interviews, informants stated that pictures help them remember the story. More specifically, Informant 12 commented how reading was made easy besides having the memory aided when both types of stimuli were made available.

Table 68
Additive effects of dual codes in memory

Informant	UPSR grade	RCT performance	Line	Transcript
9	B	increase	16, 17	*Because it's got pictures… it's… I can remember easily when there are pictures.*
12	C	increase	36, 37, 38	*It was easy because it's got letters like this and pictures. We could remember… read till we remember later. That made it possible to rearrange the sentences.*

*RCT: Reading Comprehension Tests

This is in line with the additive effects of verbal and nonverbal codes as proven by Paivio in his past studies (Paivio, 1974 and 1975 as cited in Paivio, 1986). From Chapter Two, it has been cited how he proved that pictures and words have an additive effect that is unequal in distribution, in which pictures contributed twice than using the text alone. Such an effect is due to the distinctiveness of verbal and nonverbal codes as separate systems that have a significant impact on memory. Paivio (1986) made it clear that "dually-coded items will be remembered better than unitarily coded item (Paivio, 1986, p. 142)"

5.1.6 Visual literacy skills to operate the graphic novel

Another factor that ought to be taken into consideration is visual literacy skills. Because graphic novels are used in Malaysian public schools, it is advisable to ensure that students are equipped with visual literacy skills to operate the novels. Although only one informant indicated the confusion of reading the novel in comic format, still it could have affected reading comprehension negatively based on the comments shown below:

Table 69
Lack of visual literacy skills affects reading comprehension negatively

Informant	UPSR grade	RCT performance	Line	Transcript
4	A	neutral	74	*Because I felt…dizzy when I read the comic.*
			76	*Because it was like… here… so I didn't know how to read in sequence.*
			79	*Uh-huh. This…this one. I didn't know if I should read this or that first.*

*RCT: Reading Comprehension Tests

Reading graphic novels is like reading comics. They are presented in panels while dialogues are presented in dialogue boxes. If a reader does not know how to order the dialogues or panels, he may have difficulties processing information in sequence. Comprehension is not merely decoding words; rather, it is to make sense of the text as a whole. Thus, it is crucial for ESL learners to be equipped with visual literacy skills needed to operate graphic novels.

5.2 Conclusion

Factors categorised under *readers* and *stimuli* interact with each other affecting reading comprehension. Because readers are humans and humans are well-known to be complex beings, individual differences lie inherent in them must be acknowledged. Their preference for texts is not as simple as saying "I prefer reading graphic novels" because that simple statement is a driving force for readers to increase their focus in reading as proposed by *self-control theory,* a cognitive psychology theory. In Chapter One, the challenges in teaching the current generation were mentioned as they are now becoming visual generations. These challenges are evident when informants from interviews spoke about the text-only novel being lengthy which somehow turned them off and the scrolling technique that they use while browsing social media does not help them in reading performance. In consequence, they resorted to skipping lines which sometimes was done intentionally and unintentionally (unintentionally when it has become a habit to browse or scroll).

Linguistic knowledge is a possible factor for activations of *logogens* and *imagens* to happen. Based on a simple correlation done between English UPSR grades to represent their proficiency level, the strength of correlation between UPSR grades and reading comprehension scores is moderately positive and the correlation is significant. Informant 6 who has a very low proficiency in English showed a decrease in the second reading comprehension text while on the other end of the proficiency continuum, Informants 4,5,7, and 14 whose UPSR English grade is A had either an increase or no changes in the second reading comprehension score. Informants who have intermediate proficiency showed mixed results. Thus, to state that linguistic knowledge is a factor in reading comprehension can be considered but might not be an absolute factor, acknowledging other factors that might intervene reading comprehension

Relating the findings to Dual Coding Theory, *Logogens* (as verbal representational units) can only be activated if the verbal stimuli are familiar and recognised by the reader. This is when graphics (nonverbal stimuli) in the graphic novel come into picture to offer another path of activating *imagens* (via representational connection) and *logogens* (via referential connection) for comprehension. The interplay of graphics and texts produce additive effects in memory and recall has been used in measuring reading comprehension which emphasizes the role of memory in reading comprehension. Finally, from the interviews conducted with informants, visual literacy skills must not be overlooked by educators as this is also a factor in relation to graphic novels that influence the reading performance of ESL learners.

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CHAPTER SIX

CONCLUSIONS

6.0 Introduction

In Chapter One, it has been elaborated that language learning is not only within the confine of alphabets, that is, purely textual but it is essential to state that the present generation is constantly exposed to visual media since technology is made handy and portable, like the invention of smartphones. Smartphones, as commented by Liu and Huang (2016), are linked to the development of poor habits such as browsing, and selective and shallow reading are feared to affect reading performance negatively. What is even more feared is the emergence of reading avoidance among the present and future generations.

Hence, reading graphic novels is seen as a way to curb the issue of reading avoidance as this trending reading material has a great potential to bridge the gap between current readers and reading literacy. As stated by Schwarz (2002), graphic novels are useful in comprehension and motivating students who have problems in reading as well as those who are skilled but bored or busy.

Bringing the issue into the context of Malaysia, it can be observed that the school syllabus has begun incorporating different types of reading materials with graphic novels being one of them. The move is a great way to boost reading performance among Malaysian students considering their PISA reading literacy scores are at a worrying state. In 2009, Malaysia scored 414 (level 2), in 2012, the score went down to 398 (level

1a) and in 2015, 431 (level 2). The 2015 PISA score was recently released in December, 6, 2016.

Nonetheless, the implementation of graphic novels in school syllabus raised contradicting opinions: those who support and those who are against the use of graphic novels in schools. From reviewing the literature, it can be summarised that the reasons of disapproval of graphic novels were due to stigmatised reasons, such as avoidance of being stigmatised with negative labels like "lazy readers", "low art of caricature", and "not real books".

The present study observed the flow of problems and would like to offer insights into the capacity of graphic novels as well as text-only novels in ESL learners' reading comprehension. Applying Dual Coding Theory as the theoretical framework, reading graphic novel is predicted to outperform reading comprehension scores of ESL learners, specifically Form 1 Malaysian students, using text-only novel. The theory is comprehensive to account for verbal and nonverbal systems existing in one's mind. Three types of connections are recognised by the theory: *representational, associative* and *referential.* Representational connections are said to be the most direct of the three. *Logogens* and *imagens* are the representational units belonging to verbal and nonverbal systems respectively. *Logogens* in particular are activated only if the verbal stimuli are familiar to the reader. Therefore, activation of *logogens* can be problematic to readers with limited vocabulary. The present study hypothesized that the graphic novel can assist readers by providing them two types of stimuli, verbal and nonverbal stimuli, so that activations of representational units can happen more frequently. If the reader is unfamiliar with the verbal stimuli given, the reader is offered an alternative input in the

form of nonverbal stimuli, to activate *imagens,* before the other two connections can be activated (should there be a necessity to do so).

The present study consists of two phases. The first phase is designed to answer three research questions, all referring to the reading performance of Malaysian Form 1 students using a text-only novel and a graphic novel, and the comparison of the two. From the first phase of the study which was based on quantitative research design, it was noted that there is a significant increase in ESL learners' reading comprehension scores when the story is presented in the form of graphic novel. A correlation between reading comprehension scores and students' proficiency level shows the correlation is moderately positive and the correlation is significant for both tests (using the text-only novel and the graphic novel) at 1% significant level.

From the second phase of the study, the fourth research question seeks to gain insights into the factors in relation to the graphic novel and the text-only novel that might influence reading comprehension scores. The two important elements, *reader* and *stimuli* are found to be overarching other factors as explained in Chapter Four and Five. ESL learners' positive perception of text format, positive affect that the graphic novel evoked, effective reading strategies that ESL learners used, linguistic knowledge and visual literacy skills have the capacity to influence their reading comprehension. These factors were thoroughly explained in Chapter Five in reference to Dual Coding Theory and literature that has been reviewed.

6.1 Implications of the study

The study, though it was done in a small scale, has contributed to the society in its minute forms. The implications are as shown below.

6.1.1 Research implications

There are several implications that the study has done in the literature:

1. Research in Dual Coding Theory

Dual Coding Theory is a theory that has existed since 1970s and it is still being refined by its pioneer, Paivio (1979, 1986 and 2014) together with other scholars namely Sadoski and Goetz (Sadoski, Paivio and Goetz, 1991; Sadoski and Paivio, 2004; and Paivio and Sadoski, 2011) in diverse dimensions of cognition. This means that the researchers are dynamic and ever-progressing in developing and refining the theory. The researcher, through the present study, believes in the potential of the theory to be expanded to many other areas, such as the dimension of affect, memory and individual differences. The findings of the study pertaining to the factors influencing reading comprehension especially on the roles of reader's affect, background knowledge, perception and preference may add up to existing literature using Dual Coding Theory to explain cognitive phenomena. Placing equal values on verbal and nonverbal stimuli is in line with the current generation's appeal for different kinds of sources to gain information in the era domineered by media in print and electronic (Muniran and Md. Yusof, 2008).

2. Research in graphic novels and reading comprehension

Graphic novels are trending in bookstores as well as in research too. Nevertheless, research done has been focusing more on semiotic aspects of meaning making by

reading the semiotic signs found in the pages of graphic novels as exemplified by the study done by Connors (2012). Research in reading comprehension using graphic novels is still lacking and this study serves to fill in the research gap. In the past, reading comprehension was researched using illustrated texts such as picture books as discussed by Schallert (1980) in a book chapter but reading comprehension using graphic novels has not been well researched. Thus, the present study has added to the literature with findings that are in support of the use of graphic novels in reading comprehension as well as in identifying the factors in relation to the text that influence reading comprehension.

6.1.2 Pedagogical implications

What drives the study to be conducted is the awareness of the researcher as an ESL teacher seeking for a deeper understanding of graphic novels being one of the trending reading materials in language learning all over the world. The awareness is raised in the effort of empowering reading literacy among language learners particularly in the context of Malaysia. The findings of the study show that the use of graphic novels in schools is warmly welcomed by Malaysian Form 1 students with majority stating their preference for graphic novels. Realising that the factors in relation to graphic novels may influence ESL readers' reading comprehension positively, it is highly recommended for ESL teachers to incorporate graphic novels more often into the syllabus. Without limiting the students to the graphic novel being used in schools, what ESL teachers can do is to find other appropriate graphic novels available in bookstores to be shared with students. Carter (2007) used graphic novels of various titles such as the famous "Transformers" to keep his students engaged in the discussions held. Students relate well with stories that they are familiar with, as what they watch at the cinema is now a topic of discussion in schools. Teachers of other subjects such as

history can adopt this method by assigning characters to people of prominence in history and present history in narrative forms.

Knowing factors such as visual literacy skills and linguistic knowledge are important for readers to activate representational connections; it is wise for teachers to pre-teach the skills (such as reading the panels and dialogues in the correct order) and vocabulary (particularly less frequently used vocabulary) prior to using the graphic novels. Doing so may assist students in the activation of representational connections before more complex processing can take place as they read the story.

6.2 Limitations of the study

The study is limited in its research design and this is well-noted by the researcher and can be improved for future studies.

First and foremost, the research design, particularly the quantitative research design is not a pure-experimental research, a quasi-experimental research or even a pre-experimental research. By adopting an experimental research design, inferential statistics can be done and the results will be more valid and reliable as variables are controlled to the best extent. The present study only used reading comprehension assessments to gain quantitative data but it would be more valuable to adopt an experimental research design.

Second, the text used representing text-only novels is limited in such a way that it does not conform to the conventional novel form. It is actually the text from the graphic novel with graphics being removed from it. Ideally, the remedy for this limitation is to find abridged text versions of the story, which in this case is *20,000 Leagues under the*

Sea. The abridged version available in bookstores found is one published under the line Vintage Classics. However, the readability of the text does not match with the readability of the graphic novel. Thus, it is wise to find the books online such as from Amazon.com to ensure the books are of similar readability score as the graphic novel. The researcher is limited financially and constrained by time to search for an unabridged text with appropriate readability level, hence the use of the text-only novel.

Third, the reading comprehension tests used in the present study consist of two types: multiple choice questions and sequencing assessment that can be varied using other methods of assessments. The types of questions used to observe their understanding of the text comprise of only *literal*, *reorganisation* and *inference* and the number of questions allocated for each type is unequal in distribution. The three other types: *prediction, evaluation* and *personal response* are not tested in this study. This happens because questions used in the study are adapted from reference books to ensure the content validity of the research instruments is intact.

Fourth, in the aspect of qualitative research design, the study is limited in a way that interviews were done once without follow-ups with the informants. Meeting the informants a few times to bond and obtain information until the point of saturation is met is more favourable.

Fifth, the study conducted using participants from a mixture of proficiency levels to get a randomised sampling. In actuality, the research design can be improved by conducting stratified sampling so that groups of different proficiency levels can be formed and compared. The best that the researcher could do to compensate this issue in the present study was to run a correlational analysis to observe if there was a correlation between

students' proficiency level and reading comprehension scores, which in this case is, moderately positively correlated.

Finally, the study was only conducted in two schools for sampling and data collection, with 60 participants in total, aged 13 at the time the study was done. Therefore, the findings from quantitative and qualitative data may not be representative of all ESL learners' reading comprehension, considering the differences of age, cultural background and exposure to English language learning experience.

6.3 Suggestions for future research

Future research may endeavour the following suggestions to accommodate the limitations of the present study.

The research design can be improved via selecting appropriate research design, the right sampling as well as valid and reliable research instruments. Mixed methods research such as explanatory and exploratory designs are viable to study the impact of reading graphic novels on reading comprehension.

To gain quantitative data, an experimental research design using stratified sampling can be conducted to examine the impact of reading graphic novels in students' reading performance besides observing the relationship between students' proficiency levels and reading comprehension scores. Research instruments used to gain an understanding of reading comprehension can be diversified using other methods such as story retelling in verbal and nonverbal forms, and open-ended subjective questions which can be done with students. The tests can include other types of assessments and the types of questions asked. All six types of reading comprehension questions can be devised

consisting of *literal, reorganisation, inference, prediction, evaluation* and *personal response.*

Qualitative research design, being another part of the study, can be done to explain the quantitative data gained or to introduce themes for devising quantitative research, depending whether the mixed methods design is explanatory or exploratory. Interviews and open-ended questionnaires can be incorporated in future studies by adding more informants and the number of meetings so that the point of saturation can be met.

Future research in reading comprehension may also put an emphasis on the aspects of memory, reading strategies, linguistic knowledge and individual differences based on the emerging themes found in the study. These factors are a great window to enhance educators' and researchers' understanding of the reading process involving verbal and nonverbal stimuli from the perspective of Dual Coding Theory.

6.4 Conclusion

Reading graphic novels is discovered to be an agreeable way in enhancing ESL learners' reading comprehension. From previous literature and the findings of the study, the genre graphic novels has its merits in catching up with the demand of a plenitude of visual media in ESL teaching and learning. The richness of graphic novels in providing verbal and nonverbal stimuli for representational activations assists ESL learners in making sense of the text. It is hoped that the findings of the study will serve as an impetus for more future research in the areas of graphic novels and reading with Dual Coding Theory as the guiding framework.

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