

**The effectiveness of adopting infographics in teaching  
English language-literature review**

إعداد

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**Abstract**

Adopting traditional way of delivering information to our students usually is not significant especially when this information is more related in its content. That is due to using one sense for delivering it. Therefore, using two ways or senses of handling significant amounts of information would be better. The infographics could achieve this goal. It can transfer knowledge about a topic faster and more effectively through visualization than pure text. This study provides an Argumentative literature review of the research done in the use of infographics in teaching English Language. Starting from 70 research papers, 32 research papers were selected using predefined selection criteria. The documents were analyzed and coded using the classifications such as: participants, educational level, study design, pedagogical practice and learning impact. This information allowed identification of major educational outcomes related to adopting infographics into English. It also shed light on the reservations and difficulties faced in integrating infographics into English classroom. The results of these literature reviews assured the importance of adopting infographics in delivering information to our students in English courses. Adopting infographics in teaching language skills was

investigated in reading, listening, digital literacy, writing and grammar. However, there is a lack of researches in the field of speaking and assessment.

### **Introduction**

Adopting more than one sense when teaching can help information processing help teachers to make their lessons beneficial to all their students. Using multiple senses allows more cognitive connections and associations to be made with a concept. Many researches assured the effectiveness of learning through multi-sensors. Students learn and remember best through combination between text and pictures. Both of Medina (2008) and of Dunlap & Lowenthal, (2016) stated that.

*“We learn and remember best through pictures, not through written or spoken words”* (Medina, 2008).

Other learner’s value pictures in combination with text,

*“People learn and remember more efficiently and effectively through the use of text and visuals than through text alone”* (Dunlap & Lowenthal, 2016).

Therefore, infographics are tools used to achieve such combination between text and pictures.

### **Infographics Definition**

Infographics has many definitions that focus on the integration between text and images. Krum (2014) defined infographics as graphic design that combines data visualizations, illustrations, images, and text. Additionally, infographics is described as a visual presentation of information that is normally difficult to understand. Infographics are a popular visual approach to deliver abstract, complex, and dense messages in small areas (Lamb et al., 2014).

### **Infographics components**

Golombisky and Hagen (2013) divided infographics into five parts; headline, chatter, callouts, source line, and by-line. These

were composed of a heading, explanation of the entire infographic, labels providing details about included elements, and information on the origin of the data and of the infographic designer, respectively. Whereas Siricharoen & Siricharoen (2015) argued that infographics include three main components:

- 1) Visual elements (colour, graphics, icons, maps, signs, etc.),
- 2) Content elements (facts, references, statistics, texts, etc.), and
- 3) Knowledge elements (conclusions, messages, etc.).

Here it is not easy to see the difference between content elements and knowledge elements. Somehow, through a combination of content, design, and technology, infographics recreate content to convey the knowledge they carry.

### **Types of infographics**

There are four types of infographics:

- Typical: Headline and various points, such as a summary of a study
- Singular: One large graphic, such as the traditional USA Today infographics
- Comparison: Display of a comparison of items, such as competing products
- Process flow: Illustration of the process of something, such as how coffee is made

### **Different kinds of information graphics**

We encounter information graphics in many different media. There are a number of different types of information graphics, Lankow et al., (2012; Marcel, 2014). There are many different kinds of information graphics, such as;

a. **Business graphics** is a general designation for information graphics that present economic and statistical data, for example: “the production of crude oil over the past five years.”

b. **Daily graphics** are generally produced against tight deadlines. News must be published in the next edition or in the next TV news slot.

c. **Dictionary graphics** is a term for information graphics in dictionaries and encyclopedias.

D. **Digital infographics** are complex intersections between data interfaces, and people.

E. **Digital political infographics** are cultural artifacts used in networked communities.

F. **Educational infographics** are used in education.

g. **Everyday graphics** have short and concentrated messages related to the content in packages.

h. **Explanatory graphics** depict the ways things were, are, or will be, for example, the weather. These graphics range from simple drawings to complex combinations of drawings, maps, and photographs.

i. **Expo graphics** are used at exhibitions and trade fairs. A subject matter is presented using verbal and visual technique and the real objects. The graphical information may aid understanding of how the real objects can be used.

j. **Feature graphics** is a general designation for information graphics that describe more timeless subjects, such as popular science. Here, the producer may have several weeks or even months to create the copy and acquire the photographs.

k. **Instruction graphics** are used for instructions, e.g., in instructional manuals. Instruction graphics may deal with how to use, e.g., a machine or how to prepare, e.g., a meal step by step.

l. **Interactive infographics** contain animated elements.

m. **Locating graphics** are used to give the physical location of an event or of an object. Based on one or more maps, movements of an object can be explained. Maps are often also included in other kinds of graphics.

### **Infographics and learning styles**

**Infographics** is used as a tool for improving learning process. It is based on the learning style. Fleming & Mills (1992) defined four types of learning styles as the “**VAR**K” style of learning. The acronym stood for Visual, Auditory, Read / Write, and Kinesthetic. He suggested that every individual has a tendency to learn better using one of these four functions, but each has the ability to use more than one style.

### **The Visual Learner and infographics**

Adopting more than a sense in learning process yields better results for students. Katsioloudis (2010) found that students from all varieties of learning styles respond well to detailed, high-quality visual aids, because this format interacts well with other styles.

Additionally, David Hyerle (2008) cited research that found, “The brain is capable of absorbing 36,000 images every minute,” and “between 80 and 90 percent of the information received by the brain comes through the eyes” (pg. 153).

Doumount (2002) provided this explanation along with the technological forms of visual education aids, there is a growing interest in “infographics,” or graphics that display information. Toth (2013) stated that Infographics often communicate complex quantitative and/or qualitative information quickly for their audience. They typically combine data displays, lists, graphics, and other visual elements to make a point; they intend to inform, and frequently persuade, their intended audience about a focused topic.

Based on this information, it is important to understand how to incorporate visual and interactive illustrations into a classroom setting to meet the needs of millennial generation students.

## **2. Methodology**

The research method of this study was based on critical review of related literature review involving 4 databases and 30 articles published from 2015 to 2019. Specifically, the survey only focused on articles that dealt directly with English language teaching and taken from various databases.

### **2.1. Information Sources**

There databases that have been used for the information sources in this research are: (1) Research Gate, and (2) Google Scholar. These databases were based on their technical relevancy that highlights the overall description of the research area involving, infographics in education field, and infographics in teaching English Language.

### **2.2 Selection of Studies**

The selections of studies have through some processes, such as the search of information sources based on specific keywords that were connected with adopting infographics in the field of teaching in general and English Language teaching in specific. The databases that had been collected was combined to produce three lists of all articles that were connected to the research. Information of the articles were checked and filtered based on the articles' titles and abstracts to select relevant research articles. Subsequently, for the next phase, the selected articles were reviewed, tested for their connectivity (through detailed reading of the main texts), and finally filtered according to the same selection criteria.

### **2.3 Data Collection Process**

In the data collection process, information connecting to the selected articles was organized into a table. Articles were classified into three categories to facilitate the process of organizing studies based on specific themes/topics that have been mentioned before.

### **The analysis of literature review ٢.٤**

There are many faculty and researchers exploring and studying the value of infographics as learning and communication tools. The following literature review will provide an overview of twenty-two research studies that delve into the experience and impact of infographics in the learning process. The following literature review is divided into three parts;

#### 2.4.1 The first part

It includes the tips and strategies of the effective infographic research. It is based on nine researches. It deals with strategies and tips to create infographics.

**Table 1 offers several tips and strategies for effective infographic development (Yarbrough, J. (2019).**

**Table 1**

#### **AUTHOR PROVIDE TIPS FOR EFFECTIVE INFOGRAPHIC DESIGNS**

Effective Infographic Strategies	Author
1. Maintain a simple and focused infographic.	Harris, 2013
2. Allow time for design and communication.	Richard, 2015
3. Select a topic that people care about.	Khoja, 2017
4. Keep a specific audience in mind.	Fain, Laihow & Claveria, 2017
5. Present information clearly and truthfully.	Martin, 2018
6. Stick to one topic.	Toporoff, 2018
7. Include explanatory narrative in support if comprehension.	Walton, 2018
8. Create a visual style and clear information flow.	Compact Creative, 2019
9. Include credible sources.	Jordan, 2019

### 2.4.2 The second part

It deals with effectiveness of the infographics in learning process in different fields such as environmental health, digital media, training sessions and postgraduate studies.

**Table 2. Infographic researches in different fields**

Author and date	Participant	Field of the study	Study goal	Study impact
1. Miller & Barnett (2010)	138 undergraduate students	Environmental health	to specifically examine how audiences respond to environmental health risk information presented in an infographic format	Infographics can synthesize information creating benefits to both educators and students alike. Educators can use infographics to present core ideas of a lesson, and students can create infographics for presentations or to summarize valuable facts.
2. Noh et al. (2014)	Ninety-nine learners completed questionnaires recording their experiences with the infographics.	digital media learners at UiTM Maleaka	The researchers examined the use of infographics as an instructional tool among graphic design and digital media learners	a good infographic design including attractive colors, concise texts and relevant diagrams could encourage better learning outcomes
3. Alrwele (2017)	165 participants	training sessions	examined the impact of infographics of student achievement	90% of the participants in the experimental group stated that the infographics had a positive impact on their intellectual and affective development.
4. Bicen & Beheshti (2017)	163 undergraduate participants	four different departments of Education faculty at Near East University, N. Cyprus.	to investigate the students' perceptions of using infographics in education	almost all the students had a positive opinion about infographics and that the students preferred to study with visual materials rather than books or other traditional materials
5. Yilmaz	15	the Computer	It explored	an infographic-based training

& Bilici (2018)	postgraduate students	Education and Instructional Technology Department of a large university in Turkey	postgraduate students' academic achievement while studying with infographics	process had a significant effect on academic achievement and metacognition skills, especially on facilitating the management of the learning process.
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### 2.4.3 The third part

It deals with effectiveness of the infographics in English language learning. It includes 18 researches related to English language teaching.

**Table 3. Infographic researches in English Language teaching**

Author and date	Participant	Field of the study	Study goal	Study impact
1. Kos, B. A., Sims (2014)	8th grade classroom at Mountain Vista Middle School (MVMS)	Writing skills	investigated the effectiveness of infographic on the writing skills	infographics were better suited than traditional essays in areas that involved creativity and visual appeal, limited writing for ESL (English as a Second Language) students, fostering and appealing to student's interests, and overall student enjoyment
2. Matrix and Hodson (2014)	two case studies, both from the communication field, one online class and a blended one, taught at two different institutions	students' visual digital literacies	examined the use of infographics as a teaching assignment in the online college classroom	this kind of creative assignment requires students to practice exactly those digital competencies required to participate in an increasingly visual digital culture
3. Rezaei, & Sayadian (2015)	60 Iranian EFL learners of both male (n = 26) and female (n = 34)	Grammar	explored the impact of infographics instruction on Iranian EFL learners' grammar learning based on the researcher's motivation to find empirical evidences in Iranian English language learners	infographic instruction was an effective instrument to help EFL learners learn foreign language grammar
4. Abu El-Magd (2016)	a group of 27 1st year	idioms and Slang	to help the freshmen of Touristic Guidance	Using infographics had a significant positive effect on

	students	vocabulary	Department at Ismailia Faculty of Tourism and Hotels learn idioms and Slang vocabulary for their later use in their future career	Tourism and Hotel Students' Idioms and Slang Vocabulary Learning.
5. Al Hosni (2016)	27 students from two sections (selected randomly) in FPEL 0560 commerce program and the reading teacher of each section	Reading comprehension	investigated the effectiveness of using infographics as a learning tool in enhancing learners' comprehension and memory retention in the Foundation Program of the English Language (FPEL) in the Language Center at Sultan Qaboos University	the use of infographics in EFL classes enhances students' comprehension of what is learned in class and boosts their ability to recall it after one week
6. Calabro (2016)	Two groups, 25 each	Vocabulary	examined the effectiveness of adopting infographics in teaching vocabulary	The use of infographics to scaffold EFL vocabulary learning in Spanish secondary school. They did not perform well in the test.
7. Castellano, 2016	128 students for two years	Advanced Media English L2 digital literacies	that requiring students to complete media projects in an L2 might expand their breadth of literacy as well as provide an opportunity to collaborate in English	The data provide perspectives on Japanese university students' evaluation of their own digital literacy and suggest that multimedia projects can create a halo-effect that may transfer new skills to other domains
8. SUKMA, N. (2016)	The subjects of this study were VII G students that were chosen by using purposive sampling technique	Preposition	identify on how infographic is implemented in learning preposition to improve students' written descriptive text of the seventh graders	infographic can be one of media in teaching preposition to improve students' written descriptive text understanding.
9. Tekin and Parmaksız (2016)	126 students	Listening skills	examined whether using feature films in video lessons has an effect on the development of listening skills of students or not	Categories of the films did not make statistically significant difference in the success of the students while there was a statistically significant difference in the success of male students in each film categories with long length in respect of short replicas.
10. Bin Dahmash et al (2017)	186 Saudi female college students from the Department of	Linguistics	investigate the impact of using information graphics in the teaching of linguistics on Saudi students	the students' positive attitude towards using infographics even though the majority were not familiar with them. While creating infographics, the participants found practicing

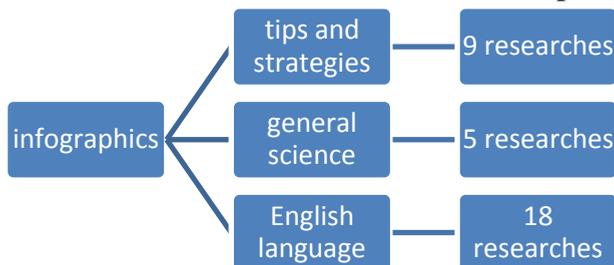
				various skills such as higher thinking skills beneficial
11. Manowong(2017)	27 tertiary-level students enrolled in English for Science and Technology	Reading skills. The pedagogical intervention, based on the use of infographics as the main learning assignment along with other online tools	explored EFL learners' English reading and learning experiences while using online tools in a face-to-face EFL classroom	The students viewed the use of infographics as motivating, and the easy-to-read visual texts enabled them to understand the assigned reading topics much easier
12. Fadhil, A. (2018)	32 English Department Students	Grammar	students' perception in learning grammar through this media	Infographics is effective in learning English grammar
13. Pazila & Hashimi (2018)		21st century skills in an ESL classroom	effectiveness of using infographics in developing 21st century skills in an ESL context	the use of infographics for teaching and learning would definitely bring a much more impacts and meaningful learning
14. Huseyin B., & Mobina B. (2019)	130 students by means of a questionnaire and a focus group environment	students' academic achievements level	assess the perceptions and evaluate the achievements of ESL students in learning English language through flipped classroom instructional infographics	Students' motivations in the experimental group compared to the control group are more triggered by the engaging and comprehensive nature of flipped classroom instructional infographics, meaning that they could absorb the concepts easier, memorize the information faster, and become more confident in the educational process.
15. Kongwat (2019)	18 participants	Reading comprehension	examined the infographic effect on reading comprehension	Students' comprehension was improved by the experiment and the information presented through the infographics creation was effective.
16. Lestari, I. (2019)	1. 15 students for new vocabularies 2. 19 students for understand material in English language learning 3. 14 students for reading comprehension	English skills	to know the students' responses to infographics, to know the students' comprehensions to infographics, to know the students' motivation to learn English in the seventh semester of practicing teaching English as foreign language by using information computer technology of English Department of IAIN Salatiga 2018/2019	the students' responses and comprehensions to infographics are good, and it is in line with the students' motivations to learn English

17. Liu, S. (2019)	30 students in a foreign language high school in China	critical literacies	How films can enrich students' multiliteracies—specifically how the science fiction genre can develop students' critical literacies under careful meaning-making curriculum design	key points in successful design of the course in an EFL classroom include posing critical questions to promote critical thinking and actively analyzing multimodal texts to uncover underlying meanings in source material
18. Sukerti, (2019).	19 fourth-semester students	Mastering English skill for students at a vocational institution of higher education	It is expected to develop practical English skills in specific disciplinary knowledge and internalize the attitudes and professional values.	Students gained better understanding on grammar and vocabulary during peer review and showed positive attitude in designing infographics as they could revise the structure of their presentation

### 3. Results and Discussion

#### Results

Based on the previous data, the number of research papers that were selected out of seventy were 32 papers. They were divided into three parts in dealing with infographics. The figure below is the explanation of the number of the articles for each part.



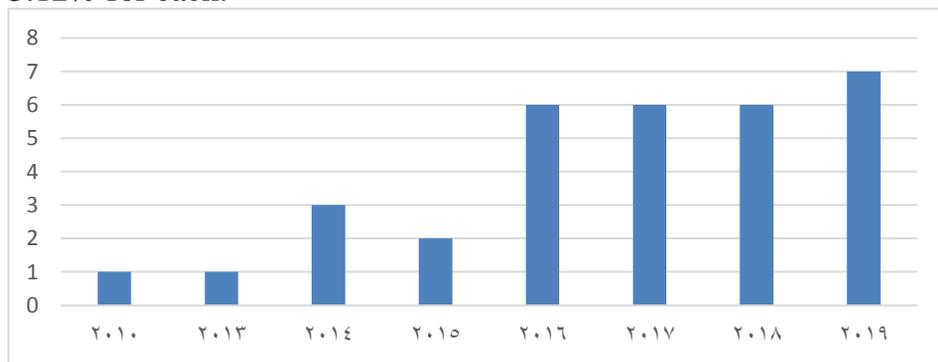
**Figure 1. A Taxonomy of Research Literature on Infographics**

Out of the seventy papers, the researcher selected thirty-two papers for the final revision. The majority of papers were for English language teaching. They dealt with different aspects for language. It was organized as follows;

No.	Language aspect	Number of researches
	Assignment	1
	Writing skills	1
	Digital literacy	2

Grammar	2
idioms and Slang vocabulary	2
Reading comprehension	4
Preposition	1
Listening	1
Linguistics	1
Students' achievement	1
English skills	2

The total of the articles were eighteen research papers. Reading skills represented 22.2% of researches. These researches investigated the effectiveness of infographics in developing reading skills. Digital literacy, grammar, vocabulary and English language skills represented 6.25% for each item. Listening, preposition, assignments and linguistics represented 3.12% for each.



**Figure 2. Infographics Categories and the Year of Publication**

Based on the taxonomy above, the researchers have found the information about the years of publications and the number of researches. It can be concluded that in 2019 has contributed seven articles for the research, and there were six articles for the previous three years in 2016, 2017 and 2018. In 2014, there were

three articles, and in 2015, there were two articles and for 2010 and 2013, there were one articles for each year.

There is a rise of the studies conducted about infographics in teaching English language in the last year.

### **Discussion**

This research shed more light on the literature review in infographics. The researcher reviewed thirty – two researched out of seventy research in the first process from two databases; the googlescholars and researchgate from 2010 to 2019. The results of the review revealed that adopting infographics in teaching process as general and teaching English language in specific is effective. However, there are some elements can change infographics to ineffective tools like the foremost structure, accuracy, reliability, depth, and functionality and then think about decoration. Infographics need analyzing, evaluation, and creation. There are many studies conducting on infographics in the field of education. In addition, it has a vital role in different fields like mathematics, arts Agricultural Science, Health Education, Algorithms, Geographical Information Science, Education, and Science, Technology, Engineering, and mass media. Davidson (2014) studied the use of infographics in the science classroom. Infographics can support students in learning and retaining new information. Not only are they effective, infographics are a preferred learning tools by some students. However, it is important that the instructor or designer of the infographic have not only content knowledge but also awareness of effective visual communication techniques. Additionally, the current geography textbooks contain a high ratio of graphic visualizations, including diagrams, infographics, maps and satellite images (Behnke, 2017).

Learning styles and enjoyment of the information affect infographics perception and they investigate how infographics

affect learning. Infographics is used to develop English language skills such as reading, writing and listening. It is clear in the number of researches used in this study. Teaching reading with infographics is an enjoyment or a fun portrait for information included in the passage. Information that represented through infographic created an interest in the reader's mind that help him realize the content of the reading passages. It provides him with inspiration of the content of reading. It develops his comprehension for the content. In teaching grammar, infographics can be the main tool in teaching grammar. The teacher could change or transfer the grammatical rules that used in course book to infographics. He can attract his students' attentions to these rigid rules. Through infographics, he can curve the rule in their minds. The students relate between the grammatical information and picture with this information.

However, the complexity of writing from students and instructors' standpoints, Maamuujav et al. (2019) proposes an integration of infographics into the L2 writing curriculum as a means of

- (1) Supporting the writing development of multilingual students and
- (2) Scaffolding the cognitive demands L2 writers face while composing.

The conventional form of lectures might be possible to transform towards easy understandable courses by having much more infographics. The educators can extend the learning for the construction of elaborations of multiple languages and written readings by using infographics and it can be very useful to make the abstract lessons are more concrete in teaching and learning process for the students to think critically (Naparín & Saad 2017).

## Conclusion

The advancement of technology and the needs for the students to learn English language make adopting infographics, as the visualization tool is an aim for learners. As using infographics is a vital in learning English language, infographic design is also a vital for understanding the content. The design of this visualization tools will help teachers and students to understand difficult and complex materials. Therefore, there is a need for training courses for the teachers and students on how to create an effective infographics in their fields. Just only, a research paper related to English linguistics course is investigated. There is lack of English researches in other fields of the language learning and teaching like the translation courses, literature, short stories and semantics and pragmatics course. An infographic slide or picture could afford many expressions in the field of pragmatics. There is only a research paper dealt with English preposition. There should be other researches deal with pronouns, nouns categories, and conjunctions in details. In addition, there is a lack of researches in the field of speaking and assessment. Finally, this research could be used as reference or information to conduct further research to develop infographics as an effective learning tool. They can make use of related results and analysis of this research data.

## References

1. Abu El-Magd, M. (2016). The Impact of Infographics on Tourism and Hotel Students' Idioms and Slang Vocabulary Learning. *Curriculum and Instructions studies Journal*, No. 212. Academy of Educational Leadership Journal Volume 23, Issue 2, 2019
2. Al Hosni, J. (2016). The power of image in English language teaching. **The journal of teaching English for specific and academic purposes** Vol. 4, No 1, Special Issue, 2016, pp. 229 – 235.
3. Alrwele, N. (2017). Effects of infographics on student achievement and students' perceptions of the impacts of infographics. *Journal of Education and Human Development*, 6(3), 104-117. Retrieved to: [http://jehdnet.com/journals/jehd/Vol\\_6\\_No\\_3\\_September\\_2017/12.pdf](http://jehdnet.com/journals/jehd/Vol_6_No_3_September_2017/12.pdf).
4. Behnke, Y. (2017). Mapping the Reading of Graphic Visualisations in Geography Textbooks. In N. Pyyry, L. Tainio, K. Juuti, R. Vasquez & M. Paananen (Eds.). *Changing Subjects, Changing Pedagogies: Diversities in School and Education*. Finnish Research Association for Subject Didactics.
5. Bicen, H., & Beheshti, M. (2017). The psychological impact of infographics in education. *Broad Research in Artificial Intelligence and Neuroscience*, 8(4), 99- 108.
6. Bin Dahmash, A., Ashwag Al-Hamid, A., & Alrajhi, M. (2017). Using Infographics in the Teaching of Linguistics. *Arab World English Journal*, 8 (4). DOI: <https://dx.doi.org/10.24093/awej/vol8no4.29>
7. Bin Dahmash, A., Ashwag Al-Hamid, A., & Alrajhi, M. (2017). Using Infographics in the Teaching of Linguistics. *Arab World English Journal*, 8 (4).
8. Calabro, V. (2016). The use of infographics to scaffold EFL vocabulary learning in Spanish secondary school. Unpublished M.A thesis. Universidad De La Rioja.

9. Castellano, J. (2016). Advanced Media English – A Modern ProCALL Course. CALL-EJ, 17(1), 52-66
10. Compact Creative. (2019). Designing an infographic? 5 elements you must include. *Design Shack*. Retrieved from: <https://designshack.net/articles/graphics/5-key-infographic-elements/>.
11. Davidson, R. (2014). Using infographics in the science classroom: three investigations in which students present their results in infographics. *The Science Teacher*, 81(3), 34–39
12. Doumont, J. (2002). Verbal versus visual: A word is worth a thousand pictures, too. *Technical Communication*, 49(2), 219.
13. Dunlap, J. C., & Lowenthal, P. R. (2011). Situational qualities exhibited by exceptional presenters. ECAR Research Bulletin. Boulder, CO: EDUCAUSE Center for Applied Research.
14. Fadhil, A. (2018). An Analysis of Students' Perception in Learning English Grammar through Infographics. Skripsi thesis, UIN Ar-Raniry Banda Aceh.
15. Fain, C., Laihow, C., & Claveria, K. (2017). Pretty and pretty useful: How to create awesome infographics. *Vision Critical*. Retrieved from: <https://www.visioncritical.com/pretty-and-pretty-useful-how-create-awesome-infographics/>.
16. Fleming, N. (2001). VARK -- A guide to learning styles. *VARK -- A Guide to Learning Styles*. Retrieved from <http://www.vark-learn.com/>.
17. Fleming, N.D. & Mills, C. (1992). *Helping Students Understand How They Learn*. The Teaching Professor Magma Publications, Madison, Wisconsin, USA. 7(4).
18. Golombisky, K., & Hagen, R. (2013). White Space is Not Your Enemy: A Beginner's Guide to Communicating Visually Through Graphic, Web & Multimedia Design. Taylor & Francis.
19. Harris, S. (2013). 5 Important principles of effective infographics. *Search Engine Journal*. Retrieved from: <https://www.searchenginejournal.com/5-important-principles-of-effective-infographics/65085/>

20. Huseyin B., & Mobina Bi (2019) Assessing perceptions and evaluating achievements of ESL students with the usage of infographics in a flipped classroom learning environment, *Interactive Learning environments*, DOI: 10.1080/10494820.2019.1666285
21. Hyerle, D. (2008). Thinking maps: Visual tools for activating habits of mind. *Learning and leading with habits of mind: 16 essential characteristics for success*. Alexandria, IL: Association for Supervision and Curriculum Development, 149-174.
22. Jordan, C. (2019). How designers do it: 15 easy steps to design an infographic from scratch. *Canva*. Retrieved from: <https://www.canva.com/learn/create-infographics/>
23. Katsioloudis, P. (2010). Identification of quality visual-based learning material for technology education. *Journal of Industrial Teacher Education*, 47(1), 71-99.
24. Khoja, N. (2017). 7 principles to creating great infographics. *Content Marketing Institute*. Retrieved from: <https://contentmarketinginstitute.com/2017/05/principles-creating-infographics/>
25. Khoja, N. (2017). 7 principles to creating great infographics. *Content Marketing Institute*. Retrieved from: <https://contentmarketinginstitute.com/2017/05/principles-creating-infographics/>
26. Kongwat, A. (2019). The effects of collaborative reading instruction using infographics on students' reading comprehension. *An Online Journal of Education (OJED)*, Vol. 14, No. 2, 2019.
27. Kos, B. A., Sims, E. (2014, October 23–24). Infographics: The new 5-paragraph essay. Paper presented at the Rocky Mountain Celebration of Women in Computing, Laramie, WY. Retrieved from [http://scholar.colorado.edu/cgi/viewcontent.cgi?article=1001&context=atlas\\_gradpapers](http://scholar.colorado.edu/cgi/viewcontent.cgi?article=1001&context=atlas_gradpapers)
28. Krum, R. (2014). *Cool infographics: Effective Communication with Data Visualization and Design*. San Francisco, California: John Wiley & Sons.

- 29.Lamb, A. & Jhonson, L. (2014). Infographics part 1: Invitations to inquiry. *Teacher Librarian*, 41 (4), 54-58.
- 30.Lankow, J., Ritchie, J., & Crooks, R. (2012). *Infographics: The power of visual storytelling*. Hoboken, NJ: John Wiley & Sons.
- 31.Liu (2019). Using Science Fiction Films to Advance Critical Literacies for EFL Students in China. *International Journal of Education & Literacy Studies*, Volume: 7 Issue: 3
32. Maamuujav, U, Krishnan, J, Collins, P. (2019). The utility of infographics in L2 writing classes: A practical strategy to scaffold writing development. *TESOL J.* e484. <https://doi.org/10.1002/tesj.484>
- 33.Manowong, S.(2017). Incorporating Online Tools to Promote English Reading for EFL Learners: an Action Research Study. *P A S A A P A R I T A T J O U R N A L* v o l u m e 3 2
- 34.Marcel, F. (2014). Infographics and data visualization tools to engage your language learners. *Contact*, 40(1), 44-50.
- 35.Martin, L. (2018). Designing effective infographics. Nielsen Norman Group. *World Leaders in Research-Based User Experiences*. Retrieved from:<https://www.nngroup.com/articles/designing-effective-infographics/>.
- 36.Matrix, S., & Hodson, J. (2014). Teaching with infographics: practising new digital competencies and visual literacies. *Journal of pedagogic development* (4), 2. <http://www.beds.ac.uk/jpd/volume-4-issue-2/teaching-with-infographics>
- 37.Medina, J. (2008). *Brain rules: 12 principles for surviving and thriving at work, home, and school*. Seattle, WA: Pear Press.
- 38.Miller, P.C., & Barnett, O.W. (2010). *Family violence across the lifespan: An introduction*. Sage.
- 39.Noh, M., Shamsudin, W., Nudin, A., Nariham, N. (2014). The use of infographics as a tool for facilitating learning. In: Hassan O., Abidin S., Legino R., Anwar R., Kamaruzaman M. (eds). *International Colloquium of Art and Design Education Research (I-CADER 2014)*. Springer, Singapore, 559-567.

40. Pazila, F., & Hashimi, H. (2018). Using infographics as a technology-based tool to develop 21<sup>st</sup> century skills in an ESL context. *Journal of Educational and Learning Studies*, Vol.1, No.1, 2018, pp. 35-38.
41. Piktochart. (2012). Structuring a story for your infographic. Retrieved from <http://piktochart.com/structuring-a-story-for-your-infographic/>
42. Rezaei, N., & Sayadian, S. (2015). The Impact of Infographics on Iranian EFL Learners' Grammar Learning. *Journal of Applied Linguistics and Language Research*, Volume 2, Issue 1, 2015, pp. 78-85
43. Richard, D. (2015). 4 Tips for creating effective infographics. *Market Strategies*. Retrieved from: <https://www.marketstrategies.com/blog/2015/05/4-tips-for-creating-effective-infographics/>
44. Siricharoen, W. & Siricharoen, N. (2015). How infographic should be evaluated? ICIT 2015 The 7th International Conference on Information Technology
45. Sukerti, G. (2019). Fostering students' presentation skill using infographic: the implementation of project-based learning in English for specific purposes. *International Journal of Indonesian Education and Teaching (IJIET)*. Vol 3, No 2
46. SUKMA, N. (2016) *the use of infographic to increase students' mastery in using preposition in written descriptive text (A Classroom Action Research of the Seventh Graders of SMPN 3 Ungaran in the Academic Year of 2014/ 2015)*. Under Graduates thesis, Universitas Negeri Semarang.
47. Tekin, I. and Parmaksız, R. (2016) Impact of Video Clips on the Development of the Listening Skills in English Classes: A Case Study of Turkish Students. *Journal of Education and Training Studies*. Vol. 4, No. 9; September 2016
48. Toporoff, R. (2017). Infographics for nonprofits: How to create one and why they're effective. *Dip Jar*. Retrieved from:

<https://www.dipjar.com/blog/infographics-for-nonprofits-how-to-create-one-and-why-its-effective>

49. Toth, C. (2013). Revisiting a genre: Teaching infographics in business and professional communication courses. *Business Communication Quarterly*, 76(4), 446-457.

doi:10.1177/1080569913506253.

50. Walton, M. (2018). 7 ways you can write compelling infographic copy. *Visme*. Retrieved from: <https://visme.co/blog/how-to-write-an-infographic/>

51. Yarbrough, J. (2019). Infographics: in support of online visual learning. *Academy of Educational Leadership Journal*.

52. Yilmaz, R., & Bilici, S. (2018). An examination of postgraduate students' use of infographic design, metacognitive strategies and academic achievement. *Journal of Computing in Higher Education*, 1-19.