
Usability Insight of Animated Infographic Module in Arabic Grammar Learning

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Abstract

The use of multimedia technology in teaching and learning in Arabic grammar is very crucial in line with the needs and interests of today's students. As such, an animated infographic module in learning Arabic grammar has been developed to adapt the use of this instructional mean. This study aimed to evaluate the usability of an infographic module known as the iGQA Module. The process of module development employed a Design and Development (DDR) approach which involved few phases such as needs analysis, design and development phase, and usability evaluation phase. This study adapted a survey method to evaluate the developed modules. Questionnaire instruments were distributed to 74 students of ISM Arabic Studies, Sultan Zainal Abidin University who participated in the online module learning sessions. Data were analysed descriptively using the Statistical Package for Social Science (SPSS). The results showed that the level of student satisfaction is high on the elements applied in the module. In conclusion, the developed modules help students to understand Arabic grammar easily and are able to pique their interest in learning it.

Keywords: *Multimedia technology, infographic module, Arabic language, DDR, usability.*

INTRODUCTION

Each language has certain specialised methods that need to be mastered in order to avoid errors in speech and writing. The basis of the notion is to master the grammar. According to Abdul Karim et al., (2020), all the languages in the world are very concerned about grammar in their own language and the effort to correct the usage of that language including Arabic. Arabic grammar acts as the basis for the rules of the Arabic language that will determine whether the Arabic language can function effectively or otherwise (Jaffar & Sha'ari, 2016). A deep understanding of Arabic grammar is essential to be practiced in all aspects of the language. According to al-Khuli (1986) and Abdul Rahman et al. (2020), the learning of grammar for every language in the world is a very important foundation in ensuring that the language is used in the right way while serving to provide an accurate understanding of the meaning behind an Arabic sentence or text.

This is in line with Arabic language researchers who recognize the importance of grammar towards mastering a language. According to Syed Ab Hamid et al. (2017), failure to master

grammar has a profound effect on overall Arabic language proficiency. The efforts of previous scholars have opened a new chapter in learning Arabic. However, the mastery of grammar still requires to be studied and parsed as the discussion poses quite a complicated notion for the current generation. Although there have been attempts to make changes to the way Arabic is taught in general and grammar in particular, looking at the curriculum and related textbooks, it is still overshadowed in the traditional way.

According to Mohamed et al. (2003), teaching and learning in Arabic grammar requires an entertaining approach towards understanding it. Simple and student-friendly presentation aims to prevent them from feeling bored and perceive that the language is difficult to learn. Some students are able to memorise the content that they learned. However, the most important aspect is comprehension to allow students to practice what they have learned correctly and consistently. Alongside the development of technology today, every academician must also adapt new ways in methodology of presenting information to their students (Abdul Hamid et. al, 2020). The method of presentation requires a creative, innovative, and entertaining approach such as the use of multimedia technology that contains audio-visual with a combination of graphic elements, animation, color, and sound can have a deeper and more lasting effect in students' memory (Che Hat, 2013; Wan Jamel, 2013). Moreover, the teaching process will be improved and effective by combining modern teaching methods and technology (Jamali et al., 2015).

PROBLEM STATEMENT

Researchers found that the difficulty of learning Arabic grammar is a major problem that students often face compared to other aspects of the language (Ismail et al., 2018; Che Mat, 2013). The teaching and learning methodology of Arabic grammar which is synonymous with traditional methods, i.e. involving teacher -centered learning has contributed towards this problem (Zaini et al., 2019; Mat Teh, 2009). Teachers 'boring and unenticing approaches and presentations are often a factor in students' lack of interest in the subject (Sheikh Salleh, 2006; Mohamed et al., 2003). Besides, the tendency to use traditional methods involves lectures and there is little discussion as compared to using technology, resulting in learning not encouraging students' interest to master the knowledge (Yahaya, 2012; Ismail, 2008).

Additionally, Arabic textbooks contain detailed information and are presented in long, winded descriptions that it leads towards unfocused content. This situation contributes to the lack of student's interest to continue learning the contents from the book. According to Mat Jusoh (2013), if we look at how the presentation of the content of Arabic grammatical information is panned out, the information presented is too detailed and philosophical. Referring to the textbook Syarah Ibn 'Aqil for example, the information presented contains long descriptions and does not focus on the important contents. This situation makes students easily bored and find it difficult to delve into the contents of the textbook. Therefore, teaching materials play a very important role in the curriculum (Sjahrony, 2017). The neglect and failure of teachers in choosing the right teaching approaches also contributes to the problem of Arabic language proficiency (Samah, 2009). Diversity of teaching and learning

patterns was not implemented because teachers were comfortable, accustomed, and neglects trying to diversify teaching techniques and methods.

As an alternative to finding solutions to the stated problems, the use of information presented through infographics is a good and effective method. The study of Mohd Noh et al. (2017) found that students are more likely to understand information through effective visual communication and a combination of interesting graphics and it is an agreed notion that presented information should emphasise the use of attractive colours along with simple and easy to understand text – supported with diagrams, relevant charts or tables to produce a systematic and effective presentation of information.

Thus, an Arabic grammar learning module was developed in this study by using animated infographics as an alternative method for the purpose of attracting students to learn it as well as facilitating understanding based on the advantages inherent in the method. This module is called the Qawa'id Arabiyyah Infographic Module or its abbreviation, which is the iGQA Module.

THE APPLICATIONS OF ANIMATED INFOGRAPHIC IN TEACHING AND LEARNING

Infographic is a term taken from the English language stemming from combination of "info" and "graphics", which is a state-of-the-art technology of visual presentation involving graphic drawings (illustrations, symbols, maps, graphics and so on). It transfers complex data and concepts into images and drawings that can be understood in a concise, clear, and interesting way (Krum, 2013). Infographics are divided into three types, namely static infographics, animated infographics, and interactive infographics (Afify, 2018). The focus of this study was to develop an Arabic grammar module using animated infographics. Animated infographics refer to graphics produced for video screen display such as YouTube, TV commercials or on smartphones and others. The process involves static infographics animated with motion texts and picture graphics as well as the inclusion of audio elements making this type of infographic more appealing for information sharing. Animated infographics have the same functionality as other animations but not all animations are accompanied by infographics. An information presented in the form of an infographic gives a clearer picture of an information or a story.

According to Lankow et al. (2012), animated infographics are able to attract audience emotionally through audio, music or voice in the background of the animation. Viewers have the opportunity to communicate with the conveyed message in an effective way. Animated infographics that combine graphics and moving words are becoming increasingly popular as they are able to attract viewers to enjoy them as opposed to just looking at words alone (Rahim, 2017). Moreover, according to Soyluççek (2015), this medium is also able to convey more information with successive image movements compared to static images. Infographics have also become one of the very useful techniques for communicating information to the audience (Rahim et al., 2018). Animation is able to convey meaning in a deeper sense, which makes it possible to portray more complex concepts in a very simple visual (Lievemaa, 2017). In the teaching and learning process, animation gives students something more than what they need when learning complex cognitive content or scientifically shaped processes (Peters, 2014).

According to Hassan (2016), animation provides a brief overview through visual presentation. This is a key component in graphics-based education which supports learning

activities. If a concept is best presented in animated form, then digital platforms should take advantage of this. Animations can also explain complicated things in the simplest way. Viewers may not be able to imagine the visuals explained in purely textual material but infographics can help to materialise the information through animations and in turn, promoting clearer and deeper comprehension. Besides, very complex infographics become easier to understand if the information is portrayed in the form of animations through a timeline akin to a storytelling.

The development of the iGQA Module involves the process shown in Figure 1.

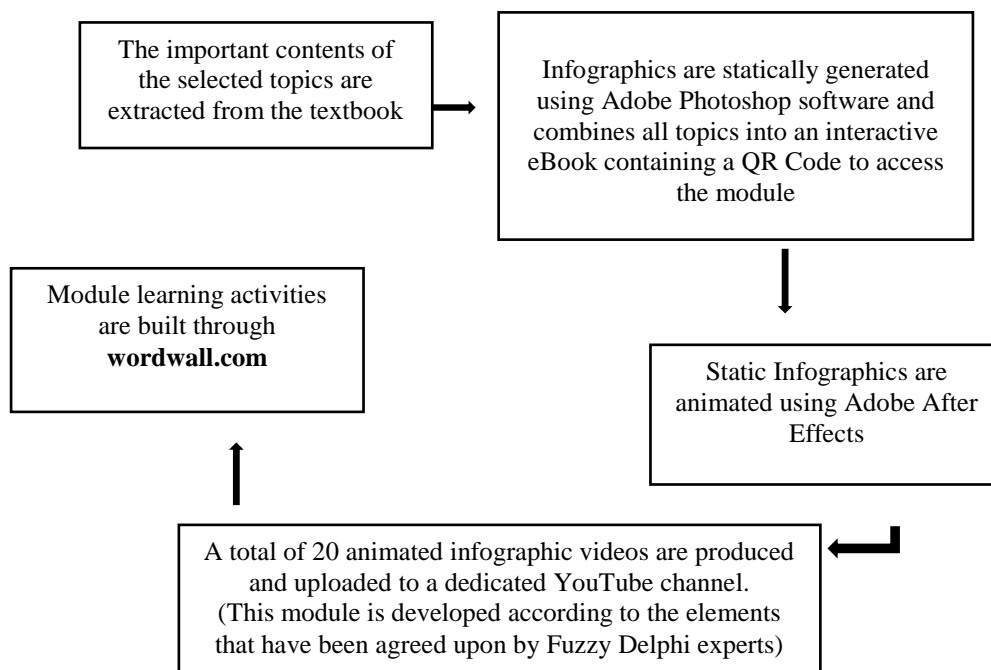


Figure 1: iGQA Module Development Process

RESEARCH OBJECTIVES

The objective of this study aims to evaluate the usability of animated infographic module in learning Arabic grammar also known as the iGQA Module.

RESEARCH QUESTIONS

This study answers the following research questions in detail:

1. What are the students' views on the content of the iGQA Module?
2. What are the students' views on the design of the iGQA Module?
3. How is the user experience of the iGQA Module based on students' views?
4. To what extent does the iGQA Module impact learning based on students' views?

RESEARCH METHODOLOGY

In this study, the development of this module adopted the Design and Development Research (DDR) approach (Richey & Klein, 2007). The DDR approach involves three phases, namely the needs analysis phase, the design and development phase, and the usability assessment phase. The module design and development process used was based on Sidek's (2001) Module Construction Model and Infographic Design Model (IDM) (Kibar & Akkoyunlu, 2015). Theories of language learning are also based on the process. The content of this module involves the Ibn 'Aqil Syntax Text Study Course offered to students pursuing the Bachelor's Degree Program (ISM) in Arabic Studies, Sultan Zainal Abidin University (UniSZA).

For the usability evaluation phase of the module, survey method was used through questionnaires. A five-Likert questionnaire was constructed and consisted of five constructs, namely; respondent demographics, module content, module design, module usability and module impact. Data were analysed using SPSS to find the mean and standard deviation.

A total of 74 students from the Bachelor in Arabic Studies, Faculty of Language and Communication, UniSZA Semester Three for the 2019/2020 session were involved in the use of the module. They underwent online learning classes through the Google Meet, Webex, and Whatsapp apps appropriately for seven weeks. For each learning session, they were provided with a learning plan so that the steps of using the iGQA Module were easily managed and follows the intended procedures. Upon completion of the module learning class with the researcher, questionnaires related to the usability of the module were distributed online to the respondents.

RESEARCH FINDINGS

Information of the students as referred in table 1 below:

Table 0 Respondent's Gender

Gender	Frequency	Percentage	Cumulative Percentage
Male	17	25	25
Female	57	75	100
Total	74	100	

A total of 74 respondents were involved in the iGQA Module learning sessions. Based on Table 1, the gender analysis of respondents showed that a total of 17 respondents of the study were male (25%) while the rest, namely 57 respondents were female (75%).

a) Module Content

This section consists of the analysis of items to obtain respondents' views on the content of the module. Table 2 shows the mean scores and standard deviations of each item in those aspects.

Table 2 Module Content Analysis

B: Module Content	Mean	SD	Interpretation
B1 Concise and clear learning information	4.82	.417	High
B2 The language is easy to understand	4.78	.414	High
B3 The exercises provided is appropriate to the student's level	4.72	.511	High
B4 Exercises related to the topic test student's comprehension	4.72	.454	High
B5 Content is presented in the form of animated infographic videos appropriate to the student's level	4.78	.446	High
B6 Content presented in the form of animated infographic videos helps students to understand it much easier	4.85	.358	High
B7 Content presented in the form of animated infographic videos is able to attract student's interest to learn Arabic grammar	4.78	.414	High
B8 The content of the module corresponds to the allotted time	4.54	.623	High
B9 Module content can improve student's performance	4.77	.455	High
Percentage	4.752	.363	High

Based on Table 2 above, the interpretation of the data showed that the module content aspect based on the students' views is at a high level, namely at an overall mean value of 4.752 and a standard deviation of .363. This showed that the usability of the content in the iGQA Module is suitable for students at a high level. The item that recorded the highest mean score was 'Content presented in the form of animated infographic videos helps students to understand it much easier' (M = 0.485, SP = .358). followed by the item 'Concise and clear learning information' (M = 4.82, SP = .417).

This was followed by items that recorded a mean score value equal to the value of 0.478, namely 'Language is easy to understand' (M = 0.478, SP = .414), 'The content presented is appropriate to the student's level' (M = 0.478, SP = .446) and 'Content presented in the form of animated infographic videos is able to attract student's interest to learn Arabic grammar' (M = 0.478, SP = .414). Then, followed by the item 'Module content can improve student's performance' which recorded a value of (M = 4.77, SP .455). The next two items recorded a mean value of 4.72, namely 'The exercises provided is appropriate to the student's level' and

‘Exercises related to the topic test student’s comprehension. The last item that recorded the lowest mean value compared to other items was ‘Module content corresponds to the allotted time’ (M = 4.54, SP = .623). All items recorded a mean value at a high level.

b) Module Design

This section analysed several items to obtain respondents' feedback on the design of the iGQA Module. Table 3 showed the mean scores and standard deviations of each item in those aspects.

Table 3 Module Design Analysis

C: Module Design	Mean	SD	Interpretation
C1 Graphic design is attractive	4.80	.468	High
C2 The text contained in the module can be read clearly	4.70	.542	High
C3 The graphics assist students to better understand the content	4.78	.414	High
C4 Colour used are eye-catching	4.81	.394	High
C5 Font size is suitable for reading	4.76	.463	High
C6 Easy-to-read text	4.65	.607	High
C7 Clear and concise information	4.82	.383	High
C8 The voice audio in the background of the animated motion is clear and appropriate	4.84	.371	High
C9 The movement of animated information is readable (display period)	4.68	.500	High
Percentage	4.760	.353	High

Based on Table 3, the interpretation of the data showed that the module design was at a high level at an overall mean value of 4.760 and a standard deviation of .353. The item that recorded the highest mean score was ‘The voice audio in the background of the animated motion is clear and appropriate’ (M = 4.84, SP = .371). Then, followed by ‘Clear and concise information’ (M = 4.82, SP = .383), ‘Colour used are eye-catching’ (M = 4.82, SP = .383), ‘Graphic design is attractive’(M = 4.80 , SP = .468), ‘The graphics assist students to better understand the content’ (M = 4.78, SP = .414), ‘Font size is suitable for reading’ (M = 4.76, SP = .463), ‘The text contained in the module can be read clearly’ (M = 4.70, SP = .542), ‘Movement of animated information is readable (display period)’ (M = 4.68, SP = .500). The item ‘Easy-to-read text’ recorded the lowest mean score value compared to the other items, namely (M = 4.65, SP = .607). To sum up, all items recorded a mean value at a high level.

c) Usability of Module

This section analysed items from respondents on the usability of the iGQA Module. Table 4 showed the mean score and standard deviation of each item

Table 4 Usability Module Analysis

D: Usability Module	Mean	SD	Interpretation
D1 The animated video is easily accessible with a QR Code scan and provided link	4.69	.521	High
D2 The instructions used in the module are clear and easy to understand	4.70	.542	High
D3 Modules are divided into chapters making learning more focused	4.77	.455	High
D4 This module can be accessed at any time regardless of time and place	4.77	.424	High
D5 The feedback found in the exercises encourages student's motivation	4.74	.440	High
D6 Students are allowed to practice repeatedly to improve understanding	4.81	.428	High
D7 Students get immediate feedback after completing the exercises	4.81	.428	High
Percentage	4.757	.375	High

Based on Table 4 above, the interpretation of the data showed that the usability aspect of the iGQA Module is at a high level, namely at an overall mean value of 4.757 and a standard deviation of .375. The items 'Students are allowed to practice repeatedly to improve understanding' and 'Students get immediate feedback after completing the exercises' recorded the highest mean score, namely 4.81 and SP = .428. This was followed by 'Modules are divided into chapters making learning more focused' (M = 4.77, SP = .455) and 'Feedback found in training motivates students' (M = 4.77, SP = .424). The item 'The feedback found in the exercises encourages student's motivation' recorded a value (M = 4.74, SP = .440) followed by 'The instructions used in the module are clear and easy to understand' (M = 4.70, SP = .542) and the last item 'Animated video easily accessible with QR Code scan and provided link' (M = 4.69, SP = .521). All items recorded a mean value at a high level.

d) Impact and effectiveness

This section analysed several items to obtain respondents' feedback on the impact of the iGQA Module. Table 5 showed the mean scores and standard deviations of each item.

Table 5 Module Impact Analysis

B: Module Impact	Mean	SD	Interpretation
E1 The module is suitable for self-learning	4.76	.491	High
E2 Students are able to relate the content of the module to what they have learned	4.76	.432	High
E3 Students can build their own understanding after using the module	4.70	.489	High
E4 Students and lecturers can interact using the module	4.74	.440	High
E5 Students can reflect on what they have learned throughout the module	4.74	.440	High
Percentage	4.741	.383	High

Based on Table 5 above, the interpretation of the data showed that the impact of the iGQA Module is at a high level, namely at an overall mean value of 4.741 and a standard deviation of .383. Two items recorded the highest mean score, namely the item 'The module is suitable for self-learning' (M = 4.76, SP = .491) and 'Students are able to relate the content of the module to what they have learned' (M = 4.76, SP = .432). This was followed by the items 'Students and lecturers can interact using the module' and 'Students can reflect on what they have learned throughout the module' which recorded values of (M = 4.74, SP = .440) for both items. The item that recorded the lowest mean score compared to the other items was 'Students can build their own understanding after using the module' with a value (M = 4.70, SP = .489). All items recorded a mean value at a high level.

DISCUSSION OF FINDINGS

As for the findings of the content and design aspects of the module, the animated infographic elements attract students' interest to learn Arabic grammar more easily and allows for better understanding. This coincides with the opinion of Lievemaa (2017) in that animation is capable of conveying deeper meaning making it possible to show complex concepts in very simple visuals. The combination of moving information graphics along with background voice audio enabled students to focus on what is to be conveyed, therefore promoting comprehension which helps to remember important contents more quickly. This is because the presentation of modules in the form of videos that integrate information along with animated graphics can help students understand complex textbook information. The exercises and activities provided were also able to attract and help them to embrace the content of the topic quicker and easier. In line with the study of Mohd Noh et al. (2017), students were more likely to understand information through effective visual communication with a combination of graphics, the use of attractive colours, and easy to understand text for an effective and systematic presentation of information.

As for the findings of the usability aspect, the learning of the iGQA Module becomes more systematic and orderly with clear usage instructions and specific steps. The concept of modules that leveraged the use of technology and are self-accessible by students also helped them apply self-learning without a full teacher guidance. Self-learning and student-centered learning is one of the important aspects of 21st century learning. According to Abdin Lubis and Taib (2019), self-learning involves students making full use of their role in engaging the content to understand learning methods and the knowledge. Problems related to teacher centralisation in teaching and learning could be overcome with the use of this module. Besides, the module design findings also found students outlook that providing activities and exercises could help them make drills and in turn strengthen memorisation and comprehension. In line with the statement of Mustari et al. (2012), the drill method is appropriate for any form of language learning because language skills are necessary for the process of repeating what is learned -- spoken or written.

The last aspect, i.e., the impact of the module found that students were able to relate the content of the module to what they have learned in class. They were also able to build their own understanding after using the module. In terms of pedagogy, they think that the element of self-learning can be practiced. The discussion activities also helped them to better understand the content through the lecturer's interaction with the students and the evaluation aspect of the module provides feedback on the training to assist with the students' understanding. The strength of the module in the teaching and learning process helped the lecturer in diversifying teaching techniques and to not rely solely on lectures from textbooks. Students were also able to overcome the limited time problem in learning Arabic grammar during classroom learning because the modules produced become self-reference materials that can be accessed at any time.

Overall, all students who answered the questionnaire were satisfied with the aspects presented. The mean score level for all items was high, which indicated that the usability of the module was well received by the students.

CONCLUSION

On a conclusive notion, the findings showed that students were satisfied with the usability of the iGQA Module. The results of the analysis of the questionnaire found that students' perceptions of the content, design, usability and impact of the module were upstanding and met the criteria they wanted. Based on students' views on this module, the production of the iGQA Module is a special contribution to the learning of the Syarah Ibn 'Aqil Syntax Text Study Course for Bachelor students of UniSZA Arabic Studies. Lecturers and students can use the module at any time due to its easy-to-access features.

REFERENCES

- Abdin Lubis, M. A. L., Taib, S. H., & Ismail, M. A. (2019). Inovasi sistem pendidikan dan strategi pengajaran bahasa Arab di era milenial 4.0. *Asean Comparative Education Research Journal on Islam and Civilization (ACER-J)*, 3(2), 9–20.
- Abdul Hamid, M.F, Ab. Halim, Z., & Sahrir, M.S. (2020). An insight on needs analysis towards the development of animated infographic module in arabic grammar learning.

Journal of Language and Linguistic Studies, 16(3), 1387-1401.

- Abdul Karim, Z. H., Zainal. H., & Zailani, S. (2020). Kajian literatur maf'ul mutlaq. *BITARA International Journal of Civilizational Studies and Human Sciences*, 3(1), 97-106.
- Abdul Rahman, A., Zulkifli, M. S., Hashimee, M., Wazir, A., Sayed, M., & Mansor, N. (2020). Tahap penguasaan ilmu nahu dalam kalangan guru bahasa Arab. *e-Jurnal Bahasa dan Linguistik*, 3(1), 102-117.
- Afify, M. K. (2018). The effect of the difference between infographic designing types (Static vs animated) on developing visual learning designing skills and recognition of its elements and principles. *International Journal of Emerging Technologies in Learning (iJET)*, 13(9), 204–223.
- Al-Khuli, Muhammad Ali. (1986). *Asalib tadris al-lughah al-arabiyyah*. Ed-2. Matba'ah al-Farazdaq al-Tijariyyah.
- Che Hat, N., Sha'ari, S. H., Abdul Hamid, M. F. (2013). Persepsi pelajar terhadap penggunaan animasi dalam pembelajaran bahasa Arab. *Jurnal Teknologi (Social Sciences)*, 63(1), 25-29.
- Che Mat, A. (2013). Sikap pelajar terhadap pembelajaran bahasa Arab di IPTA. *Academia Journal UITM*, 2(2), 61–68.
- Hassan, H. G. (2016). *Designing infographics to support teaching complex science subject: A comparison between static and animated infographics*. Master Thesis: Iowa State University.
- Ismail, U. S., Atoh, N. Azrae, M., & Abdul Pisal, N. (2018). Urutan pemerolehan al- damir al-munfa'il dalam ayat nominatif bahasa Arab dalam kalangan pelajar UiTM Perlis. *Asian People Journal (APJ)*, 1(1), 66–81.
- Ismail, Z. (2008). *Penilaian kemahiran bertutur bahasa Arab dalam kurikulum bahasa Arab komunikasi di sekolah menengah kebangsaan agama*. PhD Thesis: Universiti Kebangsaan Malaysia.
- Jaffar, M. N., & Sha'ari, A. (2016). Penggunaan laman web i-MAJRURAT sebagai alat bantu mengajar tatabahasa Arab. *Al-Qanatir International Journal of Islamic Studies*, 3(1), 1–8.
- Jamali, H. N., Abd Rahman, A., & Ku Azizan, K. F. (2015). Tahap penggunaan bahan bantu mengajar dalam pembelajaran dan pengajaran bahasa Arab di USIM, UniSZA dan Pusat Asasi UIAM. *The e-Journal of Sultan Alauddin Sulaiman Shah*, 2(1), 1-14.
- Kibar, P. N. & Akkoyunlu, B. (2015). Searching for visual literacy: Secondary school students are creating infographics. *European Conference on Information Literacy*, 241–251.

- Krum, R. (2013). *Cool infographics: Effective communication with data visualization and design*. John Wiley & Sons.
- Lankow, J., Ritchie, J. & Crooks, R. (2012). *Infographics: The power of visual storytelling*. John Wiley & Sons.
- Lievemaa, J. (2017). *Animated infographics in digital educational publishing case study of educational animated infographics*. Bachelor's Thesis: Tampere University of Applied Sciences.
- Mat Jusoh, M. N., Hamed, S., Zainal, H., & Abu Bakar, K. (2013). Teaching innovation: module construction for teaching of Arabic language grammar based on symbols (formulas) for secondary schools in Malaysia. *IOSR Journal of Humanities and Social Science (IOSR JHSS)*, 18(5), 45–51.
- Mat Teh, K. S. (2010). *Perkembangan awal nahu Arab*. Dewan Bahasa dan Pustaka.
- Mohamed, A. K., Muhammad, A., & Jasmi, K. A. (2003). Permasalahan pengajaran nahu bahasa Arab kepada pelajar Sarjana Muda Sains Serta Pendidikan (Pengajian Islam) UTM. *Prosiding Fourth International Seminar on LSP in Practise: Responding to Challenges Fakulti Pengurusan dan Sumber Manusia Universiti Teknologi*, 1-12.
- Mohd Noh, M. A, Mohd Fauzi, M. S. H., Jing, H. F., & Ilias, M. F. (2017). Infographics: Teaching and learning tool. *Attarbawiy: Malaysian Online Journal of Education*, 1(1), 58-63.
- Mustari, M. I., Jasmi, K. A., Muhammad, M. A., & Yahya, R. (2012). Model pengajaran dan pembelajaran bahasa Arab. *Seminar Antarabangsa Perguruan dan Pendidikan Islam [SEAPPI2012]*, 867-878.
- Peters, D. (2014). *Interface design for learning: Design strategies for learning experiences*. New Riders Publishing.
- Rahim, N. N. (2017). *An islamic animated infographic model for da'wah dissemination: A case study of prophet's sunnah in eating and drinking*. Master Thesis: Universiti Malaysia Kelantan.
- Rahim, N. N., Khidzir, N. Z., Mohd Yusof, A., & Zuhid Saidin, A. Z. (2018). An expert evaluation on islamic animated infographic prototype as an alternative in da'wah dissemination. *MALTESAS Journal in Islamic Studies for Science and Technology*, 1(1), 1-9.
- Richey, R. C. & Klein, J. D. (2007). *Design and development research: Methods, strategies and issues*. Lawrence Erlbaum Associates Publishers.
- Samah, R. (2009). *Isu pembelajaran bahasa Arab di Malaysia*. Penerbit USIM.

- Sharifah Fatimah Wan Jamel. (2013). *Penggunaan multimedia dalam pembelajaran bahasa Arab: Satu kajian kes*. PhD Thesis: Universiti Malaya.
- Sheikh Salleh, S. I. (2006). Masalah penguasaan pertuturan bahasa Arab dalam kalangan pelajar sekolah menengah agama di Selangor. Dalam Mohd Rosdi Ismail & Mat Taib Pa (Pnyt.). *Pengajaran dan pembelajaran bahasa Arab di Malaysia* (pp. 61-88). Penerbit Universiti Malaya.
- Sjahrony, A., Lubis, M. A., Baharudin, H., & Kamis, M. S. (2017). Kepentingan pembelajaran motivasi bahasa Arab dalam kalangan pelajar IPTA dari perspektif sorotan kajian. *Asean Comparative Education Research Journal on Islam And Civilization (ACER-J)*, 1(2), 102–112.
- Soyluçiçek, S. (2015). Animated information design. *Global Journal on Humanities and Social Sciences*, 1(1), 367–372.
- Syed Ab Hamid, S. M. A., Mohamad, A. H., Kamis, M. S., Lubis, M. A., & Mat Arriffen, A. (2017). Kelemahan pelajar-pelajar sekolah menengah kebangsaan agama (SMKA) dan sekolah agama menengah (SAM) dalam penguasaan topik terpilih dalam tatabahasa Arab. *Asean Comparative Education Research Journal on Islam And Civilization (ACER-J)*, 1(2), 67–78.
- Yahaya, M. F., Sahrir, M. S., & Nasir, M. S. (2013). Pembangunan laman web ez-arabic sebagai alternatif pembelajaran maya bahasa Arab bagi pelajar sekolah rendah Malaysia. *Jurnal Teknologi (Social Sciences)*, 61(1), 11–18.
- Zaini, A. R., Zakaria, N., Hamdan, H., Ghazali, M. R., & Ismail, M. R. (2019). *Pengajaran bahasa Arab di Malaysia: Permasalahan dan cabaran*. *Jurnal Pengajian Islam*, 12(1), 47–57.