



## The Suggested Technological Future Model of Using Educational Mapping Based on New Trends in Technology

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### Abstract

*This study aims to provide a suggested technological future model of using educational mapping based on new trends in technology. The suggested model was built based on the logical principles of the suggested model, the aims of the suggested model, the justifications for implementing the suggested model, the foundations and backgrounds of the suggested model, the options and description of the suggested model, the ways of implementing the suggested model, the suggestions that may contribute to facilitating the process of implementing the suggested model, and the expected limitations that may hinder the process of implementing the suggested model. The study offered many suggestions and recommendations that can facilitate the process of implementing the suggested model such as launching awareness campaigns that can shed light on the importance of learning the English language, launching awareness campaigns that can shed light on the importance of using interactive technology in teaching and learning, improving teachers' and lecturers' technological knowledge and skills, conducting workshops that can train lecturers and teachers to design educational maps, launching awareness campaigns that can direct learners to use technology appropriately while learning, and offering success stories that may encourage learners to learn English language by using technological educational mapping.*

**Keywords:** Educational Mapping, Teaching English Language, Suggested Future Model & Anticipated Technological Model

### Introduction

Everything in our life changes and improves rapidly to be in line with the current century's needs; the changes come as reactions to satisfy human needs and desires; of course, human needs vary from time to time and from one place to another place. Human needs cover many areas and domains; one of these needs is education and learning. According to the fourth aim of the sustainable development goals, education right is very important; thus, policymakers should focus on ensuring inclusive and equitable equality education and promoting lifelong learning opportunities for all (UNESCO, 2015).

According to the literature review of the current study, several previous studies stated that most Arab learners face many problems while learning the English language; some of these problems are represented by having low motivation and confidence in learning English language (Almehmadi, 2013). Besides, according to the literature review of the current study, many previous studies stressed the importance of an interactive, encouraging and motivating learning atmosphere (Shanahan et al., 2006; Hadfield, 2002; Harb, 2007; Kobari et al., 2022). Moreover, according to the literature review of the current study, several studies stressed the importance of integrating technology, using flipped learning, using

social media sites and gamification(Zhao and Su,2021;Wu et al.,2021) . Hence, it is useful to suggest a new technological learning model that may motivate and give trust to English language learners.

The suggested model is based on creating technological educational mapping; that is, it is supposed to be built on the theories and literature review of the current study for the following reasons. First, many studies stressed the importance of using graphic organizers in teaching and learning (Manoli and Papadopoulou, 2012; Douglaset al., 2011; Hibbard and Wanger, 2003). Second, several studies indicated that using games in learning and teaching has glorious and splendid outcomes (Shanahan et al., 2006; Hadfield, 2002; Harb, 2007). Third, different studies stressed the important role of constructivism theory in learning (Tam, 2000); furthermore, many previous studies found that using scaffolding strategy in teaching and learning has many benefits (Hill and Hannifin, 2011; Qunintana et al., 2005; Mckenzie, 2000). Fourth, several previous studies recommended lecturers and teachers integrate technology and use the flipped learning strategy (Zhao and Su, 2021; Wu et al., 2021). Fifth, many studies stressed the importance of using educational mapping in teaching and learning. (Al-Jarf, 2011; Goldberg, 2004; Budd, 2004, King, 2015, Zampetakis et al.,2007) .Sixth and last, the results of many studies indicated that using mapping as a game in teaching the English language positively affected students' self-efficacy , motivation achievement and attitudes (Kobari et al.,2023).

Consequently, the suggested model is supposed to develop educational mapping according to new technological trends. Therefore, what are the logical principles of the suggested model? What are the aims of the suggested model? What are the justifications for implementing the suggested model? What are the foundations and backgrounds of the suggested model? What are the options and descriptions of the suggested model? How can the suggested model be implemented? What are the suggestions and recommendations that may contribute to facilitating the process of implementing the suggested model? What are the expected limitations and obstacles that may hinder the process of implementing the suggested model?

#### **First: The logical principles or assumptions of building the suggested model**

The idea of building the suggested model was based on many logical reasons, international and local recommendations, visions, needs and plans that can create constant progress in the fields of learning, education and technology; that is, it came to satisfy the following needs:

-Achieving the fourth aim of sustainable development goals that focuses on education rights; the fourth aim focuses on ensuring inclusive and equitable equality in education and promoting lifelong learning opportunities for all.

-Satisfying the needs of the Palestinian Ministry of Education and Higher Education that focuses on learners' autonomy and student-centered learning.

-Helping Palestinian universities to achieve their educational vision that is based on creating independent and life-long learners.

-Developing the educational mapping method to be in line with the international technological teaching and learning modern trends.

-Fostering university students' English language motivation based on the result of previous studies.

-Fostering university students' English language self-efficacy based on the results of previous studies.

-Helping university students and young learners to use the educational mapping method outside the lecture in an interactive way based on the recommendations of the current study.

#### **Second: The aims of the suggested model**

The suggested model intends to achieve the following aims:

-Improving students' motivation towards learning the English language by using interactive technological educational mapping.

-Fostering students' confidence and self-efficacy towards learning the English language by using interactive technological educational mapping.

-Increasing English language students' terminology and vocabulary by using interactive technological educational mapping.

-Being in line with the international technological teaching trends that can help students to be independent learners.

-Creating an enjoying and challenging English learning atmosphere that can encourage all students/ learners to be active.

-Offering procedures and suggestions that can demonstrate effective technological and motivating English language learning environment.

#### **Third: Justifications to implement the suggested model in the Palestinian context.**

Many justifications encourage building a suggested model of educational mapping; these justifications are based on different reasons, and they are the following.

- Being in line with the modern international teaching and learning technological trends that focus on learners' interaction, participation and autonomy.

-The results of many studies that indicated that using mapping as a game in teaching English language increased university students' motivation and self-efficacy (Kobari et al.,2023).

-The results of the many studies that indicated that educational mapping can be developed by converting the map into an interactive technological game (Kobari et al.,2023).

- The results and recommendations of several studies insisted on the importance of activating flipped learning and using technology while learning (Zhao and Su, 2021; Wu et al., 2021).

- Finding interactive and attractive English language learning methods that can help Arab learners to be motivated and confident while learning.

-Offering new teaching or learning methods that can improve the status quo of teaching the English language in the Palestinian context.

-Taking advantage of using technology applications, platforms and tools to improve English language learning or teaching methods.

#### **Fourth: The Backgrounds and foundations of building the suggested model.**

The suggested model is based on the following backgrounds and foundations; these foundations and backgrounds are the following.

1) **Theoretical background and foundation:** the method is based on different theories mentioned in the study; that

is, the study is based on constructivism (Tam, 2000), assimilation and meaningful learning theories (Ausubel, 1963). Besides, it is based on the scaffolding strategy and the zone of proximal development concept (Hill and Hannifin, 2011; Qunintana et al., 2005; Mckenzie, 2000).

- 2) **Literature review background and foundation:** the method is based on different previous studies that covered different educational areas such as games, graphic organizers and mapping (Shanahan et al., 2006; Hadfield, 2002; Harb, 2007; Kobari, 2018; Kobari et al., 2022; Kobari et al., 2023). That is, many studies found that using games in teaching and learning helped students in different ways; besides, using graphic organizers and mapping increased students' motivation and confidence while learning (Jones et al., 2012; Yunus and Chien, 2016; Malekzadeh and Bayat, 2015; Pashie, 2009).
- 3) **Technological background and foundation:** the suggested educational model is based on gamification trends and the flipped learning strategy. In addition, it is based on using an online application that can be shown on Google Play Market. The application is based on offering an educational interactive English language learning game. Furthermore, using PowerPoint program to produce interactive slides. Moreover, using social media sites such as Facebook to activate the flipped learning strategy; that is, the lecturer can create a closed Facebook group that helps him/her post the mapping slides and ask questions. Then, the learners or the participants answer the questions by writing comments. Hence, the teacher or the lecturer can react, correct and respond to their answers.

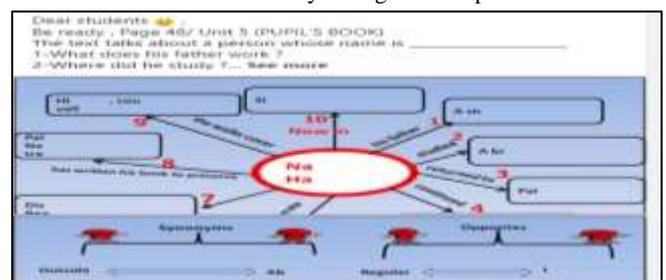
6. Writing a question on every part of the map.
7. Preparing a sample answer for every slide and lesson.
8. Working with a technology expert to produce an interactive smartphone online application that can be created by using educational mapping slides.
9. Activating the application on the Google Play market as Figure 1 demonstrates.

After creating the online smartphone application on the Google Play market, the researcher will download and test it; the online smartphone application aims to introduce the mapping game. The educational maps can be arranged to levels classified from the easy topics to the difficult topics. Hence, when the student masters level one, s/he goes to level two; if the student does not complete the map correctly, s/he will not pass level one. In addition, when the student passes the easy levels, the game transfers him/her to the difficult levels. That is, the game can be designed for all levels of English language learners. Besides, the application of the game gives the learner or the student the chance to start the game with a suitable option for him/her. That is, it allows the learner to select grammar options, vocabulary options, reading comprehension options or writing tips options.



**Figure 2: Activating the application on the Google Play market**  
**Option two:** Using Facebook closed groups (social media sites)  
 Option 2 can be achieved by the following steps.

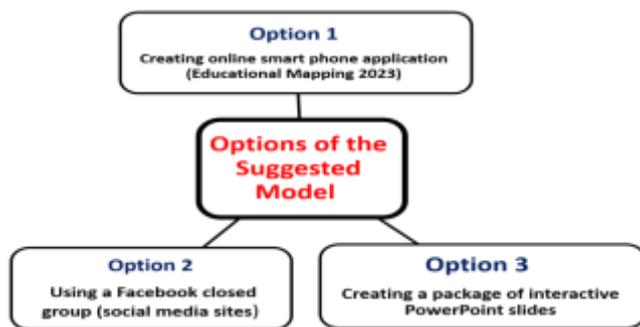
1. Choosing a specific English language textbook.
2. Analyzing the content of the textbook by dividing it into different parts: language, reading comprehension, vocabulary and writing tips.
3. Converting the content of these parts into educational maps.
4. Converting the educational maps into puzzles or games.
5. Converting the educational maps into electronic educational maps by using some programs such as PowerPoint.
6. Writing a question on every part of the map.
7. Preparing a sample answer for every slide and lesson.
8. Posting the slides as pictures on the closed Facebook group as figure 2 and 3 demonstrate.
9. Asking the students to respond to the given questions by writing comments as picture 4 demonstrates.
10. Checking, responding and correcting their answers as Figure 4 demonstrates. Besides, activating discussion with other students by letting them respond to each other.



**Figure 3: Posting the mapping slides as pictures on the closed Facebook group**

**Fifth: Description and options of the suggested model.**

The suggested model can be achieved by the following three options as Figure 1 demonstrates:



**Figure 1: The options of the suggested model prepared by the researcher.**

**Option one:** Creating an online smartphone application (Educational Mapping 2023).

The online smartphone application can be created by working on the following steps.

1. Choosing a specific English language textbook.
2. Analyzing the content of the textbook by dividing it into different parts: language, reading comprehension, vocabulary and writing tips.
3. Converting the content of these parts into educational maps.
4. Converting the educational maps into puzzles or games.
5. Converting the educational maps into electronic educational maps by using some programs such as PowerPoint.

Dear students 🌟  
 Be ready , Page 48/ Unit 5 (PUPIL'S BOOK)  
 The text talks about a person whose name is \_\_\_\_\_  
 1-What does his father work ?  
 2-Where did he study ?  
 3-Where did he return to ?  
 4-What did he continue ?  
 5-Why did he continue hiking ?  
 6-What did he write ?  
 7-What is the title of the book ?  
 8-Why did he write the book ?  
 9-What do the walks cover ?  
 10-How old is Nabil now ?  
 ----- (Additional and important questions)  
 A-Do you believe that one can resist any occupation by writing ? why ?  
 how ?  
 B-If you were a writer , how would you introduce Palestine in your  
 book ?  
 C-If you were a Minister of Culture, how would you encourage writing  
 ?  
 You can watch the following video.  
<https://www.youtube.com/watch?v=stPd-qfBNag>

Figure 4: Writing questions on the mapping slide and additional questions as a post



Figure 5: Checking, responding and correcting their answers if needed.

**Option three:** Creating a package of interactive PowerPoint slides  
 Option three offers an opportunity to learn using computers without the availability of an internet connection; the file can be given to learners on CDs, USB memories or as a link to Google documents. The file is based on an interactive game that activates the flipped learning strategy; it gives the learner instant feedback while s/he answers the questions.

Option 3 can be achieved by the following steps.

1. Choosing a specific English language textbook.
2. Analyzing the content of the textbook by dividing it into different parts: language, reading comprehension, vocabulary and writing tips.
3. Converting the content of these parts into educational maps.
4. Converting the educational maps into puzzles or games.

5. Converting the educational maps into electronic educational maps by using some programs such as PowerPoint.
6. Writing a question on every part of the map.
7. Inserting options for the expected answer to every question.
8. Adding a hyperlink for the correct answer to reward the learner verbally and visually. The answer may be: "Correct answer" as Figure 7 demonstrates.
9. Adding a hyperlink for the wrong answer to direct the learner towards the correct answer. The answer may be: "Sorry! You have chosen the wrong answer" as Figure 8 demonstrates.
10. Letting learners evaluate themselves by adding an evaluating game as Figure 6 demonstrates.



Figure 6 : The main slide that introduces the interactive slides

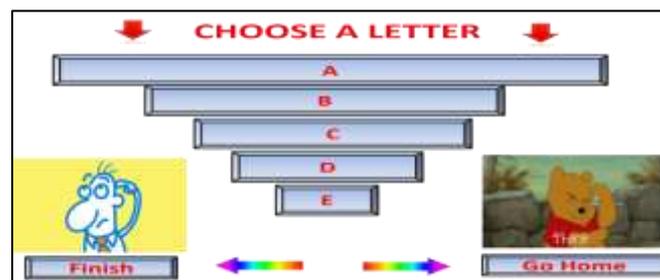


Figure 7: An interactive evaluation game to evaluate students' understanding



Figure 8: A rewarding slide appears when the learner chooses the correct answer.

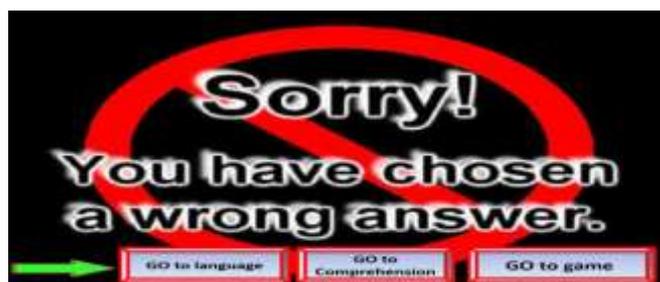


Figure 9: A warning slide appears when the learner chooses a wrong answer.

**Sixth: Implementing the suggested model**

Stage	Procedures	The responsible parties for implementing the suggested model	Implementing tools
1- Preparati on stage	1-Giving online or face-to-face lectures on the importance of learning the English language.	1-Deans of responsible faculties. 2-Head of responsible departments.	1-Laptops 2-Wi- Fi network 3-LCD
	2-Giving online or face-to-face lectures on the importance of using technology in learning the English language.	3-English language lecturers. 4-Technology experts 5-Graphic organizers 6-The researcher (if needed)	4- Workshops 5-Lectures 6-Recorded videos 7-Online posts 8-Social media sites
	3- Giving online or face-to-face lectures on the importance of using technological educational mapping.		9-English language textbook. 10-CDs 11-USB memories
	4-Elaborating the idea of the suggested model according to its aims, foundations, options, decriptions, justifications and success suggestions.		12- smartphone s
2- Planning stage	1-Writing the main purposes of the suggested model .	1-Deans of the responsible faculties. 2-Head of the	1-Online or face-to-face meetings. 2-Google

	2-Selecting qualified and skilled team members.	responsible departments. 3- Head of the planning department of the target university or universities. 4-Curriculum and instruction specialists.	forms reflection papers. 3-Reports
	3- Helping the team members to understand the main purposes of the suggested model .		
	4-Facilitating the process of communication among team members.	5- Graphic designers 6-English language lecturers.	
	5-Giving every member a specific task to work on.	7-Technology experts. 8- The researcher( if needed)	
	6-Selecting the required and needed tools to implement the suggested model.		
	7-Writing an estimated financial budget that can cover all domains of implementing the suggested model.		
3- Organiz ing stage	1-Being sure that all the required tools are available.	1-Deans of the responsible faculties. 2-Head of the responsible	1-Social networking sites and application s to develop the process

	<p>2-Being sure that every member has specific and clear tasks to work on.</p>	<p>departments.</p> <p>3-Curriculum and instruction specialists.</p> <p>4- Graphic designers</p>	<p>of communication.</p> <p>2-Daily online reflection papers or reports.</p>				<p>5-English language textbook.</p> <p>6-Financial resources .</p> <p>7- Smartphones</p>
	<p>3- Being sure that the purposes of the model are clear for all members</p>	<p>5-English language lecturers</p> <p>6-Technology experts</p>	<p>3- Rewards for excellent performance</p>		<p>-Uploading the technological educational mapping on Google Play market.</p> <p>- Giving the application the following name (Educational mapping 2023)</p>		
	<p>4-Selecting academic and technological consultants for the team members.</p>	<p>7- The researcher( if needed)</p>			<p>-Enabling the participants or learners to use it correctly.</p>		
	<p>5-Suggesting a policy to deal with emergent problems that team members may encounter.</p>				<p><u>Implementing Option 2</u> Using Facebook closed groups</p> <p>- Preparing the mapping slides</p>		
<p>4- Implementing stage</p>	<p><u>*Implementing Option1</u> Creating an online smartphone application (Educational Mapping 2023).</p> <p>- Preparing the mapping slides</p> <p>-Converting the mapping slides into a game or a puzzle</p> <p>-Preparing the sample answer of</p>	<p>1-Curriculum and instruction specialists.</p> <p>2- Graphic designers specialists</p> <p>3-Technology experts</p> <p>4- English language lecturers</p> <p>5- The researcher( if needed)</p>	<p>1- Powerpoint program</p> <p>2-A closed Facebook group</p> <p>3-Wi-Fi network</p> <p>4-Google play application</p> <p>5-CDs</p> <p>6-USB memories</p>		<p>-Converting the mapping slides into a game or a puzzle</p> <p>-Preparing the sample answer of every map.</p> <p>-Writing a question on every part of the map.</p> <p>_Posting the slides as pictures on the closed Facebook group</p> <p>-Asking the</p>		

	<p>students to respond to the given questions by writing comments.</p> <p>-Checking, responding and correcting their answers</p> <hr/> <p><b><u>Implementing</u></b> <b><u>*Option 3</u></b></p> <p>Creating a package of interactive PowerPoint slides</p> <p><b>*Option 3 can work without the availability of a Wi-Fi network</b></p> <p>-Converting the educational maps into puzzles or games.</p> <p>- Converting the educational maps to electronic educational maps by using some programs such as PowerPoint.</p> <p>- Writing a question on every part of the map.</p> <p>- Inserting options for the expected answer to every question.</p> <p>- Adding a hyperlink for the correct answer to reward the learner verbally and visually. The answer may be: "Correct answer"</p> <p>- Adding a hyperlink for the</p>				<p>wrong answer to direct the learner towards the correct answer. The answer may be:" Sorry! You have chosen a wrong answer."</p> <p>- Letting the learners evaluate themselves by using the evaluating game.</p> <p>-Giving the participants or learners the interactive PowerPoint Slides on CDs or USB memories.</p>		
				<p>5- Assessment and evaluation stage</p>	<p>1-Inserting rating system for the educational mapping 2023 application; the rating system gives the participants/ learners the chance to rate the application after using it.</p> <p>2-Checking the closed Facebook group daily.</p> <p>3-Create a Google form to let the learners/ participants write their reflection papers with or without writing their names; the reflection papers are supposed to let them express their opinions towards using the package of interactive PowerPoint slides</p> <p>4-Asking every member of the</p>	<p>1-English language lecturers.</p> <p>2- Technology experts</p> <p>3- The researcher ( if needed)</p>	<p>1-Rating system.</p> <p>2-Short daily reports.</p> <p>3-Google forms(online reflection papers)</p> <p>4- Launching trial attempts for the application and interactive PowerPoint slides.</p>

staff to write a short daily report.			
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**Seventh: Suggestions that can ease implementing the suggested model successfully.**

- Launching awareness campaigns that can shed light on the importance of learning the English language.
- Launching awareness campaigns that can shed light on the importance of using interactive technology in teaching and learning.
- Improving teachers' and lecturers' technological knowledge and skills.
- Conducting workshops that can train lecturers and teachers to design educational maps.
- Launching awareness campaigns that can direct learners to use technology appropriately while learning.
- Offering success stories that may encourage learners to learn the English language by using technological educational mapping.

**Eighth: Expected obstacles or limitations that may hinder implementing the suggested model.**

- Lack of Wi-Fi networks.
- Lack of appropriate smartphones.
- Lack of Laptops.
- Lack of teachers' and lecturers' technological knowledge and skills.
- Social media distractors.
- Lack of financial and technological resources that can help lecturers to be technologically qualified.
- Traditional convictions that underestimate using interactive technology and games in teaching and learning.
- Change resistance that is based on accepting the current teaching status as it is; that is, many policymakers may not be interested in exerting extra efforts to develop learning and teaching environments.

**References**

1. Al-Jarf, R. (2011). Teaching spelling skills with a mind-mapping software. *Asian EFL Journal Professional Teaching Articles*, 53, 4-16. <https://www.Teaching->

Spelling-Skills-with-a-Mind-mapping-Software.pdf (researchgate.net)

2. Almeahadi, M. M. (2012). A contrastive rhetorical analysis of factual texts in English and Arabic. *Frontiers of Language and Teaching*, 3, 68-76. [https://www.academia.edu/2365208/A\\_Contrastive\\_Rhetorical\\_Analysis\\_of\\_Factual\\_Texts\\_in\\_English\\_and\\_Arabic](https://www.academia.edu/2365208/A_Contrastive_Rhetorical_Analysis_of_Factual_Texts_in_English_and_Arabic).

3. Ausubel, D. P. (1963). *The psychology of meaningful verbal learning*. New York: Grune & Stratton.

4. Budd, J. W. (2004). Mind maps as classroom exercises. *Journal of Economic Education*, 35(1), 35-46. <https://doi.org/10.3200/JECE.35.1.35-46>

5. Douglas, K. H., Ayres, K. M., Langone, J., & Bramlett, V. B. (2011). The effectiveness of electronic text and pictorial graphic organizers to improve comprehension related to functional skills. *Journal of Special Education Technology*, 26(1), 43-56. <https://doi.org/10.1177/016264341102600105>

6. Goldberg, C. (2004). Brain friendly techniques: Mind mapping. *School Library Media Activities Monthly*, 21(3), 22-24. <https://www.ERIC-EJ720682-Brain-Friendly-Techniques-Mind-Mapping-School-Library-Media-Activities-Monthly-2004-Nov>

7. Hadfield, J. (2002). *Elementary communication games (3rd end)*. Hong Kong: Thomas and Nelson Sons Ltd.

8. Harb, A. (2007). *The Effectiveness of Educational Games on The Sixth Graders' Achievement in English Language in Gaza Southern Governorates*. [Unpublished Master's thesis], the Islamic University of Gaza, Gaza.

9. Hibbard, K. M., & Wagner, E. A. (2003). *Assessing and Teaching Reading Comprehension and Writing K-3 (Vol.2)*. New York: Eye on Education.

10. Hill, J., & Hannafin, M. (2001) Teaching and learning in digital environments. *The resurgence of resource-based learning. Educational Technology Research and Development*, 49(3), 37-52.

11. Jones, B. D., Ruff, C., Snyder, J. D., Petrich, B., & Koonce, C. (2012). The Effects of Mind Mapping Activities on Students' Motivation. *International Journal for the Scholarship of Teaching and Learning*, 6,1-21. <http://dx.doi.org/10.20429/ijstol.2012.060105>.

12. King, G. (2015). *Using Mind Maps for writing*. Nova Mind Software Pty Ltd. <https://www.novamind.com/mindmapping-software/writing/>.

13. Kobari, S. (2018). *The Impact of Using Mapping as a Game in Teaching Reading Comprehension on 11th Grade Students' Achievement and Attitudes*. [Unpublished Master's thesis], Birzeit University.

14. Kobari S.R., Mahamid, F. & Shaheen, M. (2023). The effect of using educational mapping as A game in teaching English language on university students' motivation. *Journal of Culture and Values in Education*, 6(2), 51-65. <https://doi.org/10.46303/jcve.2023.8>

15. Kobari, S.R., Shayeb, S.J., Dawood, I.K. (2022). The Effect of Using Games in Teaching on Students' Achievement and Motivation. In: Burgos, D., Affouneh, S. (eds) *Radical Solutions in Palestinian Higher Education. Lecture Notes in Educational Technology*.

Springer, Singapore. [https://doi.org/10.1007/978-981-19-0101-0\\_3](https://doi.org/10.1007/978-981-19-0101-0_3)

University. *The China Papers*, 2, 78-84. <https://www.The use of a constructivist-teaching model in environment...>

16. Malekzadeh, B. & Bayat, A. (2015). The effect of mind mapping strategy on comprehending implicit information in EFL reading texts. *International Journal Educational Investigation*, 2(3), 81-90. [https://www.Article Template \(ijeionline.com\)](https://www.Article Template (ijeionline.com))
17. Manoli, P., & Papadopoulou, M. (2012). Graphic organizers as a reading strategy: Research findings and issues. *Creative Education*, 3(3), 348-356. <http://dx.doi.org/10.4236/ce.2012.33055>
18. McKenzie, J. (2000). Scaffolding for Success. [Electronic version] *Beyond Technology, Questioning, Research and the Information Literate School Community*. <http://fno.org/dec99/scaffold.html>
19. Padang, J. S. M., & Gurning, B. (2014). Improving Students' Achievement in Writing Descriptive Text through Mind Mapping Strategy. *Register Journal of English Language Teaching of FBS-Untimed*, 3, 1-11. <http://digilib.unimed.ac.id/id/eprint/15933>
20. Pashaie, B. (2009). Teaching research for academic purposes. *The CATESOL Journal*, 21(1), 162-174. [https://www.ERIC - EJ1112262 - Teaching Research for Academic Purposes, CATESOL Journal, 2010 \(ed.gov\)](https://www.ERIC - EJ1112262 - Teaching Research for Academic Purposes, CATESOL Journal, 2010 (ed.gov))
21. Quintana, C., Reiser, B. J., Davis, E. A., Krajcik, J., Fretz, E., Duncan, R. Rawson, K. A., & Kintsch, W. (2005). Rereading effects depend upon time of test. *Journal of Educational Psychology*, 97, 70-80.
22. Shanahan, K., Hermans, C., & Haytko, D. (2006). Overcoming Apathy and Classroom Disconnect in Marketing Courses: Employing Karaoke Jeopardy as a Content Retention Tool. *Marketing Education Review*, 16 (1), 85-90. <https://doi.org/10.1080/10528008.2006.11488944>
23. Tam, M. (2000). Constructivism, Instructional Design, and Technology: Implications for Transforming Distance Learning. *Educational Technology and Society*, 3 (2). Thousand Oaks, CA: Corwin Press, Inc.
24. UNESCO. (2015). *Framework for Action Education 2030: Towards inclusive and equitable quality education and lifelong learning for all (draft)*. Incheon: UNESCO.
25. Wu, S. Y., & Su, Y. S. (2021). Visual programming environments and computational thinking performance of fifth- and sixth-grade students. *Journal of Educational Computing Research*, 59(6), 1075-1092. doi: 10.1177/0735633120988807
26. Yunus, M. and Chien, C. (2016) The Use of Mind Mapping Strategy in Malaysian University English Test (MUET) Writing. *Creative Education*, 7, 619-626. <https://doi. 10.4236/ce.2016.74064>.
27. Zampetakis, L.A., Tsironis, L., & Moustakis, V. (2007). Creativity development in engineering education: The case of mind mapping. *Journal of Management Development*, 26(4), 370-380. <https://doi.org/10.1108/02621710710740110>
28. Zhao, L., He, W., & Su, Y. S. (2021). Innovative pedagogy and design-based research on flipped learning in higher education. *Frontiers in Psychology*, 12, 577002. doi: 10.3389/fpsyg.2021. 577002.
29. Zhao, Y. (2003). The use of a constructivist-teaching model in environmental science at Beijing Normal