

# Implications of Design Thinking in an EFL Classroom: Writing in Context

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**Abstract**—Writing has been considered as one of the most creative discrete skills teaching and English as a Foreign Language (EFL) practitioners always regard it as a challenge. Many scholars explored EFL students' writing problems through qualitative and quantitative studies and offered suggestions and recommendations to address the issues. However, they reserved their conclusions with a revisit on the efficacy of the desired results. This research, in a one group pre/post quasi experimental research context, suggests design thinking's five-step strategy: Empathize, Define, Ideate, Prototype, and Test, a relatively less experimented approach, to enhance EFL students' writing performance with special emphasis on Capitalization, Punctuation, Spelling, Word-order, Tense, and Sentence-structure. The study sample consisted of 25 preparatory year students at Najran University who were taught paragraph writing using a five-step strategy based on the design thinking. The pre/post tests were conducted by the researchers to assess students' writing performance before and after the experiment. Dependent samples t-test produced a significant difference in the results in favor of the post test. It is concluded that the design thinking's five-step strategy had dramatically enhanced EFL student' writing performance. Implications through further studies of design thinking are proposed to address other EFL teaching and learning issues.

**Index Terms**—EFL students' writing issues, design thinking's five-step strategy, dramatic improvement etc

## I. INTRODUCTION

Design thinking, which is a design process that has many similarities to writing, is the most effective technique to teach writing because it gives EFL writers the abilities they need to tackle challenging real-world challenges in their writings (Noweski et al., 2012; Scheer et al., 2012; Watson, 2017; Glen et al., 2015; Purdy, 2014). Writing, particularly in an EFL situation, is one of the most challenging tasks. It, in a second language, is more difficult and important since it is a complex process (Alsamadani, 2010). Most EFL students face problems in capitalization, punctuation, spelling, sentence structure, word choice, etc. Banlomchon (2006) listed the 10 most common errors out of a total of 25 errors, including punctuation, capitalization, and misspellings. Punctuation, capitalization, and spelling errors were analyzed among these common error types.

Gustilo and Magno (2012) analyzed the frequencies of the five most common error types. The study included errors in commas, missing commas after introductory sentences or phrases, word choice, tenses, subject-verb agreement, punctuation, sentence structure, and capitalization. A study conducted by Al-Khasawneh (2014) found the most common errors at the spelling level. Another type of error was capitalization. A study conducted by Khumpee (2015) analyzed 26 error types adapted to the framework of Na-Ngam (2005). In this study, punctuation errors were the most common type found in English essays written by learners, followed by other types of errors. As the above studies suggest that students face a lot of issues mainly in capitalization, punctuation, and spelling, it is of utmost importance to focus on these three important categories and improve them.

Despite the best efforts put in by the teachers, there is not much progress noted with the write-ups of EFL students worldwide in general and Najran University in particular. Keeping the notion in mind, this study aims to enhance EFL students' writing performance with special emphasis on Capitalization, Punctuation, Spelling, Word-order, Tense, and Sentence-structure employing a five-step strategy based on design thinking. The phrase "design thinking" has several definitions according to various theorists and disciplines (Razzouk & Shute 2012; Rauth et al., 2010; Brown & Katz, 2011).

Design thinking, according to Brown and Katz (2011), is a creative process that has been explored, hypothesized, and codified into a problem-solving approach that can be applied to anything. According to Baeck and Gremett (2012), Design Thinking is a more creative and user-centered approach to problem-solving than traditional design methods. They point out that "Design Thinking defies the obvious and instead embraces a more experimental approach" (p.230). The Design Thinking methodology is not just applied to design problems. Design Thinking is seen as a way to apply design methodologies to any of life's situations. It is often used to explore and define business problems and to define products and services. Brown and Katz (2011) recognized design thinking as a human-centered approach to problem-

solving when emphasizing the empathy part of it. Rauth et al. (2010) view design thinking as a meta-disciplinary concept and a learning model within a teaching context that "supports design creativity, utilizing a project and process-based learning process by emphasizing creative confidence and competence." (p.7) Design thinking, according to this viewpoint, is a multi-stage learning strategy that fosters creativity, collaboration, problem-solving, and engagement through hands-on projects. In this study, the researchers investigated the issue from a different (relatively less experimented) perspective. To delve deep into EFL writing issues, the researchers adopted design thinking approach to diagnose the writing problems and notice any significant differences in the students' writing performance after employing design thinking's five-step strategy. Nevertheless, to the best of the researchers' knowledge, there is not any research or pieces of evidence to explore the influence of integrating design thinking into curriculum, activities, or learning strategy (Alrehaili & Alhawsawi, 2020).

To implement design thinking approach to address EFL writing issues is a relatively less experimented idea therefore, the current study employed design thinking approach to address EFL writing issues to achieve the following objectives:

#### **Objectives**

1. To find out EFL students' writing problems with special reference to Capitalization, Punctuation, Spelling, Word-order, Tense, and Sentence-structure
2. To notice any significant differences in the students' writing performance after employing design thinking's five-step strategy.

Different scholars have emphasized the importance of employing design thinking in the development of writing skills. Because of its capacity to support a varied range of interdisciplinary academic content and increase students' creativity and 21st century skills, Razzouk and Shute (2012) advocated investigating the effects of design thinking on various learning outcomes. Effective communication through writing is one of these 21st century abilities, according to researchers such as Marback (2009) and Purdy (2014). Interestingly, in Saudi Arabia, limited applications of design thinking have been observed such as in training workshops in King Abdullah University of Science and Technology and in some fabrication laboratories (fab labs), but, perhaps, no study has been conducted in teaching writing context. It is to note that writing is a process of building knowledge, Noweski et al. (2012) and Scheer et al. (2012) recommended design thinking as the best method for teaching writing.

As a result, the researchers suggested a technique built on design thinking is the ideal way to teach writing. Design-thinking approach enables students to actively develop their own unique meanings as well as a physical representation of the knowledge which Oxman (1999) referred as the written product. Writing is positioned in a problem-solving form, similar to problem-based learning, in design-based learning, but it adopts a constructionist viewpoint (Kafai, 1996) by collaborating to build a written product. Additionally, design thinking gives EFL writers the means to work with challenging, authentic issues where they take on the roles of creators and judges of the quality of their written works (Glen et al., 2015). Writing in the twenty-first century can be viewed as a social activity. It is not confined to a particular person or type of thought, but rather develops in social contexts among discourse communities.

According to Watson (2017), writing is a design process. He observed numerous parallels between the writing process and design thinking. Writers use empathy to try to understand and connect with their audience, much as designers do to understand who they are designing for. Additionally, brainstorming and drafting are steps in the writing process just as they are in the design process. Writing also comes to a finish with a written product of the topic, much like design thinking ends with a tangible example of the product. Many academics have highlighted the value of applying design thinking to the general development of writing skills. Due to design thinking's capacity to support a wide range of multidisciplinary academic topics and foster students' creativity and 21st-century abilities, Razzouk & Shute (2012) advised researching the effects of design thinking on multiple learning outcomes. Effective written communication is one of these 21st-century abilities, according to scholars like Marback (2009), Leverenz (2014), and Purdy (2014). Writing issues are wicked problems that are contingent and imprecise, making them "never finally solvable," according to Marback (2009, p. 399). These include procedural concerns with writing, responsiveness problems, and moral quandaries that affect not only the writer but also the process of creating the text and the other people who engage with it. This propels Marback (2009) to propose design thinking as a new paradigm for L1 writing. Leverenz (2014) created wicked writing workshops to encourage writing in teams and taught writing as a design thinking process to develop innovative solutions in response to writing problems. He affirmed that by using design thinking, he was able to close the gap between writing inside and outside of school and prepare students to participate in a future of writing. Purdy (2014) examines the relevance of the design thinking approach for the field of writing studies and provides useful analysis and taxonomy of the various ways the term "design" has been used by writing scholars. Shute and Torres (2012) affirm that the goal of educators should not only focus on increasing students' proficiency in traditional subjects such as writing and reading, via didactic approaches, which leaves many students disengaged. Teachers must also support them in developing new approaches like design thinking to improve their 21st-century skills that enhance their problem-solving skills and prepare them to deal with difficult situations and to solve complex problems in school, in their careers, and life in general.

Although these studies have reported influence on using design thinking in improving writing in L1, none has explored its impact on the students in Najran University. This study, in relation to the following research questions, is

very important as there has hardly been any research on implementing design thinking approach (in writing skills) at Najran University.

Research questions:

1. What are the EFL students' writing problems?
2. Is there any significant difference in the students' writing performance after employing design thinking's five-step strategy?

## II. RESEARCH DESIGN AND METHODOLOGY

### A. Research Design

The study followed the quasi-experimental design to achieve the study objectives. It employed a one group pretest-posttest design because such a design is appropriate for studies where random assignment is not possible (McMillan & Schumacher, 2006). The study aimed to find out the EFL students' writing problems. It also investigated the difference in the students' writing performance after employing design thinking's five-step strategy.

### B. Sampling

The study was conducted at the preparatory year, Najran University. The PY students volunteered as samples of the current study. A section with 25 Level One students was involved in the study. The participants were the aspirants who wish to join scientific majors such as computer sciences, engineering sciences, and medical sciences.

### C. Data Collection Tools and Procedures

- Assessment checklist

The researchers designed (created) an assessment checklist to assess students' writing performance. The checklist consisted of six domains: Capitalization, Punctuation, Spelling, Word-order, Tense, and Sentence-structure.

- t-test

The researcher used a t-test of the paired samples to show the significance of the differences between the means on the pre and posttests as shown in table 3.

- Validity (Assessment checklist)

The assessment checklist was presented to (4) specialized experts from faculty members in the English language at Najran University to judge its face validity. Based on their observations and opinions, the assessment checklist was modified. The final version of the assessment checklist consisted of (6) areas, namely Capitalization, Punctuation, Spelling, Word-order, Tense, and Sentence-structure.

- Reliability (Assessment checklist)

The assessment checklist was applied to an exploratory sample consisting of (15) students by the researcher. Also, it was evaluated by another specialized researcher. The stability of the correctors (observers) was calculated through the Holste equation = the percentage of the number of times of agreement / (the number of times of agreement + the number of times of disagreement). Table 1 shows the reliability coefficients of the assessment checklist.

TABLE 1  
RELIABILITY COEFFICIENTS OF THE ASSESSMENT CHECKLIST

No	Writing Issues Areas	No. of agreements	No. of disagreements	Reliability coefficients
1	Capitalization	13	2	0.87
2	Punctuation	12	3	0.80
3	Spelling	13	2	0.87
4	Word-order	11	4	0.73
5	Tense	12	3	0.80
6	Sent Structure	13	2	0.87
	Total	74	16	0.82

Table 1 shows that the reliability coefficient of the assessment checklist was (0.82). It is a high percentage, which indicates the reliability of the assessment checklist.

In addition, the following procedures were employed to implement design thinking's five-step strategy.

- i. Empathize (Research the Learners' Needs): To understand the writing issues and needs of EFL students, the researchers first conducted a test (pretest) to research EFL learners writing issues as part of the first stage of design thinking approach.
- ii. Define (State the Learners' Needs and Problems): The researchers gathered the data they had researched during the empathize stage. Researchers were able to define writing issue, particularly those involving capitalization, punctuation, spelling, word order, tenses, and sentence structure.
- iii. Ideate (Challenge Assumptions and Create Ideas): At this point, the researchers began to come up with solutions to writing issues facing EFL students based on the prior two stages, which involved understanding and characterizing the writing problems. The following were recognized as being innovative:
  - assigning short writing tasks

- selecting themes for EFL students' interests
- introducing three writing phases—pre, during, and post
- encouraging EFL students to use simple sentences in their writing samples
- reading aloud the writings of EFL students
- offering constructive feedback to EFL students writeups
- revising the writeups as submitted by EFL students

iv. Prototype (Start to Create Solutions): The following (previously recognized approaches/strategies) were employed by the researchers as part of their classroom instructions during this experimental stage:

- assigned short writing tasks
- selected themes for EFL students' interests
- introduced three writing phases—pre, during, and post
- encouraged EFL students to use simple sentences in their writing samples
- Read aloud the writings of EFL students
- offered constructive feedback to EFL students writeups
- revised the writeups as submitted by EFL students

v. Test (Try Your Solutions Out): Researchers conducted a test (posttest) at this step to examine the effectiveness of the earlier phases. Students' writing skills were discovered to have significantly improved. However, the constraints of this study prevented researchers from addressing certain other writing issues.

#### D. Data Analysis Methods

The assessment checklist was applied to an exploratory sample consisting of (15) students by the researcher. Also, it was evaluated by another specialized researcher. The stability of the correctors (observers) was calculated through the Holste equation = the percentage of the number of times of agreement / (the number of times of agreement + the number of times of disagreement) as shown in Table 1.

The researcher used a t-test of the paired samples to show the significance of the differences between the means on the pre and posttests as shown in Table 3.

### III. RESULTS AND DISCUSSION

Results of the research question 1: *What are the EFL students' writing problems?*

The researchers used an assessment checklist to find out the EFL students' writing problems with special emphasis on Capitalization, Punctuation, Spelling, Word-order, Tense, and Sentence-structure as shown in Table 2.

TABLE 2  
WRITING SAMPLES TO DIAGNOSE STUDENTS WRITING PROBLEMS

Domains	Writing problems		
	Sample 1	Sample 2	Sample 3
Capitalization	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  Dubai is a great place to go. There are many things to do. You can go to the Mall of the Emirates, Burj Khalifa, and the Dubai Mall. It is a great place to go with your family and friends. I love to go to Dubai every year.</p>	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  The Great Place to Go is the Great Place to Go. It is a great place to go. There are many things to do. You can go to the Mall of the Emirates, Burj Khalifa, and the Dubai Mall. It is a great place to go with your family and friends. I love to go to Dubai every year.</p>
Punctuation	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>
Spelling	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>
Word-order	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>
Tense	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>
Sentence Structure	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>	<p>Q1. Write a paragraph about ONE of the following topics.</p> <p>A Great Place to Go OR My Favorite Sport/Person</p> <p><i>A Great Place to Go</i>                  I like to go to the beach. It is a great place to go. There are many things to do. You can swim, surf, and play beach volleyball. It is a great place to go with your family and friends. I love to go to the beach every summer.</p>

Table 2 shows students writing problems in Capitalization, Punctuation, Spelling, Word-order, Tense, and Sentence-structure. This indicates that students:

- capitalized a word that does not require a capital letter or did not capitalize a word that required the same.

- used punctuation marks e.g., commas, semicolons, periods, question marks, exclamation points etc. incorrectly or did not use when they should be.
- misspelled the word(s) or spelled incorrectly implying that they had trouble remembering the letters in words or perhaps had trouble noticing, remembering, and recalling the features of language that those letters represent.
- could not place the word(s) in the right/appropriate order causing a change or confusing in intended meaning of a sentence.
- faced problems in SVA pattern followed by incorrect or inconsistent verb tense i.e., arbitrary shifts between past and present or so.
- wrote incomplete sentences as they used adjectives incorrectly. Being influenced by their mother tongue, Arabic, they wrote nouns followed by adjectives though in English it is exactly the opposite. They followed noun adjective pattern that led them write sentences incorrectly. Moreover, they were also confused with complex and compound sentences.

Results of the research question 2: *Is there any significant difference in the students' performance after employing design thinking's five-step strategy?*

The researcher used a t-test of the paired samples to show the significance of the differences between the means on the pre and posttests as shown in Table 3.

TABLE 3  
T-TEST (PAIRED SAMPLES) TO SHOW THE SIGNIFICANCE OF THE DIFFERENCES BETWEEN THE MEANS OF THE SCORES OF THE STUDY SAMPLE ON THE PRE AND POSTTESTS

Domain		Mean	Std. Deviation	t	df	Sig. (2-tailed)	Effect size	level
Capitalization	Pretest	1.68	1.282	-15.501-	24	.000	3.1	large
	Posttest	4.00	1.118					
Punctuation	Pretest	1.64	1.036	-10.024-	24	.000	2.00	large
	Posttest	3.92	1.352					
Spelling	Pretest	.80	.957	-3.588-	24	.001	0.71	large
	Posttest	1.76	1.332					
Word-order	Pretest	3.32	1.376	-5.598-	24	.000	1.12	large
	Posttest	4.84	.473					
Tense	Pretest	1.84	1.179	-8.088-	24	.000	1.62	large
	Posttest	4.44	.821					
Sentence Structure	Pretest	1.16	.898	-11.339-	24	.000	2.27	large
	Posttest	4.48	1.194					
Total	Pretest	10.44	2.647	-16.783-	24	.000	3.36	large
	Posttest	23.44	3.176					

Table 3 shows that there were statistically significant differences at (0.05) between the means on the pre and posttests in favor of the posttest with a high effect size. This result indicates the program's effectiveness in improving the experimental group's students' performance using design thinking.

This study employed T-test (Paired Samples) which indicated a statistically significant difference between the mean scores of the pre and posttests of writing performance ( $t = 16.783$ ;  $p < 0.05$ ). The researchers, in light of the findings, draw the conclusion that the five-step design thinking technique improved the writing abilities of EFL students. The collaborative character of the design thinking may be attributed to this outcome. In writing practice, the suggested technique based on design thinking served as a systematic framework for recognizing difficulties, gathering data, coming up with original ideas, honing those ideas, and testing the final output. The findings of this study are consistent with Wu's (2015) hypothesis that the collaborative and interactive aspects of the design thinking technique during the writing process may have aided students' improvement of their writing abilities. The researcher also observed that participants engaged in more discussion and negotiation when writing about their topics, which helped them comprehend the subjects better and share fresh viewpoints that improved the quality of their writing. This backs up Talib and Cheung's (2017) investigation, which came to similar conclusions. The various kinds of feedback the participants received on their drafts during the five-step process may provide a better explanation for the current study's findings. Again, Seiffedin and El-Sakka's (2017) study, which suggested that mixing various sorts of feedback improves EFL students' writing correctness, provides empirical support for this study's findings. The experiment's duration could also have contributed to the outcome. The experiment continued for the duration of an entire academic semester, giving the participants the chance to improve their writing abilities via consistent practice. One of the accepted explanations for the results included the use of real-world writing subjects. Design thinking-friendly learning settings that are consistent with social constructivist pedagogies could be the final possible answer. The relaxed environment the participants enjoyed while writing helped them produce better work. This supports the findings of Tran and Duong (2018), who came to a similar conclusion.

#### IV. CONCLUSION AND RECOMMENDATIONS

Within the premise of the study, the researchers conclude that the five-step design thinking-based technique greatly improved EFL students' writing performance. Reorienting current educational programs to foster writing proficiency can be beneficial for educational developers and policy makers. The researchers urge educators to employ design thinking as a pedagogical tool to address various issues they face in EFL teaching environments. It offers students a cutting-edge process to boost their interest and engagement in writing.

As writing may be seen as a design process, the researchers recommend using the design thinking approach in EFL writing instructions. Further research is recommended to yield the desired results.

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#### REFERENCES

- [1] Al-Khasawneh, F. M. (2014). Error Analysis of Written English Paragraphs by Jordanian Undergraduate Students. *International Journal of English Language, Literature and Humanities*, 2(8), 85–100.
- [2] Alrehaili, T., & Alhawsawi, S. (2020). Writing Approach Generation: Adapting Design Thinking to Enhance EFL Students' Writing Skills. *International Journal of Current Research*, 12(8), 1327–1329. <https://doi.org/https://doi.org/10.24941/ijcr.38499.08.2020>
- [3] Alsamadani, H. A. (2010). The relationship between Saudi EFL students' writing competence, L1 writing proficiency, and self-regulation. *European Journal of Social Sciences*, 16(1), 53-63.
- [4] Baeck, A., & Gremett, P. (2012). Design Thinking: Expanding UX Methods Beyond Designers. In H. Degen & X. Yuan, *UX Best Practices: How to Achieve More Impact with User Experience* (pp. 229–250). New York: Osborne.
- [5] Banlomchon, J. (2006). *An Errors Analysis of Free Compositions in writing English by Thai High School Students* (Unpublished master's thesis). The Christian University of Thailand.
- [6] Brown, T., & Katz, B. (2011). Change by Design. *Journal of Product Innovation Management*, 28(3), 381-383.
- [7] Glen, R. et al (2015). Teaching design thinking in business schools. *International Journal of Management Education*, 13(2), 182-192.
- [8] Gustilo, L., & Magno, C. (2012). Learner's errors and their evaluation: The case of Filipino ESL writers. *Philippine ESL Journal*, 8, 96-113.
- [9] Kafai, Y. (1996). Learning design by making games: Children's development of design strategies in the creation of a complex computational artifact. In: Y. Kafai & M. Resnick (Eds.), *Constructionism in practice: Designing, thinking, and learning in a digital world* (pp.71-96). New York: Routledge.
- [10] Khumphee, S. (2015). *Grammatical Errors in English Essays Written by Thai EFL Undergraduate Students*. (Unpublished master's thesis). Suranaree University of Technology.
- [11] Leverenz, C. (2014). Design thinking and the wicked problem of teaching writing. *Computers and Composition*, 33, 1-12.
- [12] Marback, R. (2009). Embracing wicked problems: The turn to design in composition studies. *College Composition & Communication*, 61(2), 397-419.
- [13] McMillan, J. H., and Schumacher, S. (2006). *Research in Education: Evidence-based Inquiry* (6th ed.). Cape Town: Pearson.
- [14] Na-ngam, S. (2005). *Common Grammatical Errors in Foundation English I Written Assignments of Prince of Songkla University Students with High and Low English Entrance Examination Scores*. (Unpublished master's thesis). Prince of Songkla University.
- [15] Khumphee, S. (2015). *Grammatical Errors in English Essays Written by Thai EFL Undergraduate Students*. (Unpublished master's thesis). Suranaree University of Technology.
- [16] Noweski, C. Scheer, A. & Büttner, N. et al. (2012). Towards a paradigm shift in education practice: Developing 21st century skills with design thinking. In H. Plattner et al. (eds.) *Design thinking research, Understanding Innovation* (pp.71-94). Heidelberg: Springer Verlag GmbH. [https://doi.org/10.1007/978-3-642-31991-4\\_5](https://doi.org/10.1007/978-3-642-31991-4_5)
- [17] Oxman, R. (1999). Educating the designerly thinker. *Design Studies*, 20(2), 105-122. [https://doi.org/10.1016/S0142-694X\(98\)00029-5](https://doi.org/10.1016/S0142-694X(98)00029-5)
- [18] Purdy, J. (2014). What can design thinking offer writing studies? *College Composition & Communication*, 65(4), 612-641.
- [19] Rauth, I., Köppen, E., Jobst, B., & Meinel, C. (2010). First International Conference on Design Creativity, ICDC 2010. In *Design Thinking: An Educational Model towards Creative Confidence* (pp. 1–8). Germany; Hasso-Plattner-Institut für Softwaresystemtechnik GmbH.
- [20] Razzouk, R., & Shute, V. (2012). What is design thinking and why is it important? *Review of Educational Research*, 82(3), 330–348. <https://doi.org/10.3102/0034654312457429>
- [21] Seiffedin, A. & El-Sakka, S. (2017). The Impact of direct-indirect corrective Feedback on EFL students' writing accuracy. *Theory and Practice in Language Studies*, 7(3), 166-175.
- [22] Shute, V. J., & Torres, R. (2012). Where streams converge: Using evidence-centered design to assess Quest to Learn. In M. Mayrath, J. Clarke-Midura, & D. H. Robinson (Eds.), *Technology-based assessments for 21st century skills: Theoretical and practical implications from modern research* (pp. 91–124). Charlotte, NC: Information Age Publishing.
- [23] Talib, T. & Cheung, Y. L. (2017). Collaborative writing in classroom instruction: A synthesis of recent research. *The English Teacher*, 46(2), 43 - 57.
- [24] Tran, T. Q., & Duong, T. M. (2018). EFL learners' perceptions of factors influencing learner autonomy development. *Kasetsart Journal of Social Sciences*, 41, 194-199. <https://doi.org/10.1016/j.kjss.2018.02.009>
- [25] Watson, M. (2017). *Sustainable development goals through the design thinking lens*. The India Design Project.

- [26] Wu, H. (2015). *The Effects of Blog-supported Collaborative Writing on Writing Performance, Writing Anxiety and Perceptions of EFL College Students in Taiwan*. (Doctoral dissertation). University of South Florida.

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