# Noticing Formulaic Sequence through Typographic Enhancement Technique: Using an Online Platform

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*Abstract*—**Knowledge of formulaic language is crucial for second-language learners, where it needs to be applied to engage with others in daily activities. Teaching formulaic sequences (FS) in language classrooms is likely to increase learners' saliency and awareness of the sequences, promote their usage and achieve fluency. Pedagogically, special attention needs to be paid to teaching techniques of FS in English as a second language (ESL) or English as foreign language (EFL) classrooms, especially now that most classrooms have been moved to online platforms such as google classrooms, WebEx, zoom and many more. It is important to understand if learning through an online platform will have the same effect as in the traditional classroom. Through quasi-experimental approach, this study looks into the effect of typographic enhancement (TE) on learners noticing formulaic sequences from reading. ESL learners in this study read passages from two versions: a) highlighted and bold formulaic sequences, and b) without any highlighting and bold enhancement. Learners were afterwards to identify the FS they remembered encountering in the texts. The findings revealed that there is a positive effect among the low proficiency learners in the experimental group compared to the control group, through an online platform.**

*Index Terms*—**Typographic enhancement, formulaic sequence, English as a second language (ESL), online learning**

## I. INTRODUCTION

Given their significance in language, it is not surprising that formulaic sequences have multidimensional pragmatic and functional values [1–8]. Take the expression "Rome was not built in a day", which is commonly used to describe how success takes time and patience. Second language English learners, particularly those who are not from Western culture or are unaware of ancient history, are possibly unable to relate the greatness of the Roman Empire many decades ago with patience and success. However, acquiring native-like fluency is not impossible because advanced second language learners' communication contains many standardised word sequences that are formulaic to native speakers [3]. To accomplish this, second language learners must be aware of, familiar with, and use the sequences in their daily communication so that they can be internalised. Due to this, the importance of formulaic language has brought about the enhancement of second language learning by incorporating formulaic language in second language teaching and learning. It has long been acknowledged that formulaic sequences are beneficial in reducing cognitive burden (e.g., [9, 10]). Individuals' social survival is ensured by formulas, which assist in reducing processing effort and maintaining fluency,

especially when the speaker is under pressure, English as a second language (ESL) or English as foreign language (EFL) learners that are less fluent in the language. For instance, Kuiper [9] looked at spontaneously occurring speech at auctions and also sports broadcasts and discovered that when auctioneers and sports commentators are pressed for time, they too, depend on formulaic words and phrases. Pedagogically, special attention needs to be paid to teaching techniques of formulaic sequences (FS) in English as a second language (ESL) or English as foreign language (EFL) classrooms, especially now that most classrooms have been moved to online platforms such as google classrooms, Webex, zoom and many more. It is important to understand the effect of the typographic enhancement technique used on noticing target FS through an online platform will have the same effect as in the traditional classroom.

While the effectiveness of typographic enhancement (TE) has generally been shown to be enhanced by accompanying explicit instructions [11, 12], the combined techniques and study design have been an ongoing issue in TE research which has prevented researchers from understanding the raw impact of TE in isolation. Moreover, recently, the education world has shifted online. Students and teachers in colleges and universities around the world have been directly and indirectly affected by the Covid-19 pandemic. To ensure educational continuity, online learning has essentially substituted traditional face-to-face study [13]. Following the outbreak of Covid-19, this study was conducted online since the Malaysian government has been closing schools and institutions across the country to prevent the virus from spreading. Therefore, the teaching and learning of this study are conducted through the online platform of Google meet and the test are conducted through Google forms.

The present study looked into the effects of typographic enhancement in a non-conflated design in order to understand the effect of typographic enhancement techniques among low proficiency ESL learners, through the use of the online platform. The research question is as below:

How effective are the combined enhancements (bold and highlight) at triggering noticing on the target collocations among low-proficiency L2 learners?

## II. LITERATURE REVIEW

### A. Formulaic Language and Fluency

Since the decline of the dominance of teaching and learning grammar in isolation, research interest in the second language has shifted from creativity to formulaicity [14], where formulaic language is recognised as an important factor in second language learning [1, 6, 15, 16]. To gain

competency in a second language needs learners to become more sensitive to native speakers' preference for a specific string of words to communicate and fulfil crucial interactional functions such as greeting someone, making small talk, or sending emails [6, 17]. Therefore, for second-language learners, knowledge of a formulaic language such as collocation is critical, as it must be utilised pragmatically and sequentially to connect with others in day-to-day conversation. Having a large collection of FS is advantageous in a variety of ways, most notably by enabling shortcuts and enhancing comprehension.

To accomplish this, second language learners must be aware of, familiar with, and employ the sequences in their daily communication so that they can be internalised. This has resulted in the increased incorporation of typographic enhancement techniques in language classrooms [18–22]. In language classes, teaching formulaic sequences is expected to raise learners' salience and awareness of the sequences, promote their use and help them attain fluency.

### B. Typographic Enhancement (TE)

Input enhancement is a concept used in second language learning that encompasses a variety of techniques that aims to make certain aspects of the target language more visible in order to attract students' attention [23]. From a cognitive standpoint, access to input is viewed as a necessary condition for language development [24, 25]. The focus-on-form approach is a type of formal training that is based on the ideas of "noticing" and "raising consciousness."

Enhancements are seen as a more implicit, less demanding, and less obstructive tool for drawing students' attention to both form and meaning in second language acquisition (SLA) research, in comparison to other more explicit ways offered under the focus-on-form method [26]. Typographic enhancement (TE) is frequently used to manipulate input by altering the physical look of specific linguistic aspects inside a text using typographic cues such as bolding, underlining, italicising, changing typefaces, or some combination of these features [27]. This less obstructive strategy will increase the visual prominence of the target linguistic forms, increasing the likelihood that they will be remembered.

## III. METHODOLOGY

Researchers frequently strive to create an appropriate counterfactual, or what would have happened if the policy or intervention had not been implemented, to provide a baseline from which causal effects can be calculated, in order to understand the causal effect of any teaching techniques, procedures, policy, or intervention. Randomized controlled trials (RCT) are regarded as the "gold standard" of causal inference due to their capacity to generate a valid counterfactual by withholding treatment from a random sample of participants known as the control group [28].

However, due to randomization, RCT are often not viable in a variety of study fields. In many educational settings, it is often not feasible to conduct an RCT as randomization may be inappropriate. This is frequently because most educational institutions do not want the researcher to determine the classroom to which the students will be assigned; as this

could lead to class streaming and administration interruption; as well as consumption of resources [29]. Similar to studies in science contexts, most policy-makers or regulators are unwilling to randomize some patients or places to a control condition, particularly for high-profile or high-urgency clinical situations. In the field of science, quasi-experimental methods allow implementation scientists to perform rigorous studies in these settings, although with some limitations [30]. Besides that, in educational settings, RCTs present some ethical issues since some students are denied potentially effective educational treatments while others receive interventions which have not been adequately assessed [28].

Therefore, when a random assignment to groups is not possible to be conducted, the quasi-experiment design is commonly employed for studies conducted in a classroom or educational settings [7, 31–35]; or in clinical trials or practices [30, 36–38], as well as in several other study areas. The present study utilized a quasi-experimental approach to look into the effects of TE in a non-conflated design in order to understand the effect of typographic enhancement techniques among low proficiency ESL learners, through the use of an online platform.

Generally, factors that affect the validity of research designs should be carefully managed in order to minimise compromises in drawing expected outcomes. Otherwise, the conclusion drawn from the data may give an incorrect understanding of the likely cause-and-effect relationship between the treatment and the outcome. The validity of a research study refers to how well the results among the study participants represent true findings among similar individuals outside the study [39]. The validity of a research study includes two domains: internal and external validity [40].

To maximise internal validity, the researcher must monitor the as many essential factor as possible (e.g., history, mortality, maturation, and participant selection). Nonetheless, the more controlled the trials, the further they are from reality and the less generalizable the results are. This is because, the context of the population will differ from the experiment setting. The more controlled the internal validity, the lower the external validity, or the applicability of the conclusion to the real population. To enhance external validity, the study should reflect the natural world. Based on the nature and significance of the study, researchers need to strike a balance between internal and external validity. Internal validity threats are classified into three major categories [40]: threats related to participants, threats related to treatment, and threats related to the experiment's procedures. While external validity threats are categorized into: interaction and selection of treatment, the interaction of setting and treatment, and interaction of history and treatment.

In the present study, we have taken controlling measures of both internal and external validity threats mentioned.

This study's participants were selected through purposive sampling and were divided into two groups. The treatment group consists of 30 learners. Through the typographic enhancement technique, the experimental groups will be exposed to the technique implicitly through reading passages. There was also a control group of 26 learners who will not get any form of treatment for learning FS.

There were four instruments employed in this study, which

were a) vocabulary pre-test, b) reading text and recognition test 1 c) reading text and recognition test 2, and d) reading text and recognition test 3. A total of 27 target formulaic sequences have been assessed in this study. The list of target vocabularies has been selected from learners' reading passages of their coursework book. The list was then put together and each of the word's frequencies are checked through British National Corpus (BNC) and Corpus of Contemporary American English (COCA), see Appendix I for the word listing and Appendix II as a sample of one of the reading passages given to the experimental and control group participants.

All the instruments and materials that were used this study were first validated by three experts, and after that a pilot study was conducted on a similar group of students to check on the difficulty level and clarity of the instructions prior applying it to the actual sample in this present study. The pilot study had taken place with a total of 49 respondents. Since one intervention had a Cronbach's alpha (CA) value of less than 0.600 ($p = 0.374$), the researcher has made some changes to the certain target linguistic components and has revised one of the reading passages, as well as the teaching procedures.

The reliability score for the instruments utilized in this study is in the table below (Table I: Instrument Reliability Analysis).

Data collection occurs in a regular university-level compulsory English course for low proficiency English learners at a public technical institution in Malaysia. The data collection has been carried out for 4 consecutive weeks. The data collection procedure started with a pre-test to check on learners' proficiency level. The pre-test scores were then run through ANOVA, to look into any differences among the learners' proficiency level in the experimental and control group.

The statistical package for social science (SPSS) are used to evaluate all the quantitative data in this research. To answer the research question on the influence of typographic enhancement on the noticing of target collocations in the experimental and control groups, we used ANOVA and Independent T-test statistical analysis.

## IV. FINDINGS

In this section, the results of the experimental study are reported. Table II shows the descriptive analysis of the pre-test scores of all participants.

To assess the effectiveness of the combined enhancements (bold and highlight) at triggering noticing on the target formulaic sequences among low-proficiency l2 learners, we first conducted a one-way ANOVA test on the pre-test scores for all participants in both groups. The mean score for the experimental group is 37.30 (SD = 4.219) and 36.38 (SD = 2.547) for the control group, the interval for the mean as well as the minimum and maximum score is tabled below (see Table II).

While the control group's mean score is slightly higher than the experimental group, however, from the ANOVA test conducted (see Table III), the mean difference is not significantly different from the control group.

TABLE I: INSTRUMENT RELIABILITY ANALYSIS

| Instruments | Reliability Test Scores | |
|---|---|---|
| | N item | Cronbach Alpha Value |
| Pre-Test | 56 | 0.853 |
| Recognition Test 1 Theme: Holiday | 12 | 0.823 |
| Recognition Test 2 Theme: Society | 7 | 0.720 |
| Recognition Test 3 Theme: Education | 8 | 0.836 |

TABLE II: MEAN SCORES (AND STANDARD DEVIATION) ON THE PRE-TESTS

| Group | N | Mean | Standard deviation | Interval for Mean | | Min. marks (n=57) | Max. marks (n=57) |
|---|---|---|---|---|---|---|---|
| | | | | Lower bound | Upper bound | | |
| Experimental | 30 | 37.30 | 4.219 | 35.75 | 38.88 | 31 | 44 |
| Control | 26 | 36.38 | 2.547 | 35.36 | 37.41 | 32 | 43 |

TABLE III: ONE WAY ANOVA FOR PRE- TEST SCORES OF THE GROUPS

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between groups | 11.671 | 37.30 | 11.671 | 0.929 | 0.339 |
| Within groups | 678.545 | 54 | 12.564 | | |
| Total | 690.125 | 55 | | | |

TABLE IV: MEAN SCORES (AND STANDARD DEVIATION) ON THE FORMULAIC SEQUENCES RECOGNITION TESTS

| Group | Recognition of formulaic sequences | | |
|---|---|---|---|
| | Reading text 1 | Reading text 2 | Reading text 3 |
| Experimental | 17.37 (1.129) | 11.53 (0.937) | 12.77 (1.406) |
| Control | 16.00 (1.386) | 10.46 (1.240) | 11.88 (1.451) |

Table IV shows the mean scores of the three recognition tests conducted and through the descriptive statistics, the

mean scores of the experimental group were generally higher than the mean scores of the control group for all three reading texts. The mean scores for the recognition test for reading text 1 for the experimental group is 17.37 (SD = 1.129) and 16.00 (SD = 1.386) for the control group.

For the second recognition test conducted through reading text 2, the score for the experimental group is 11.53 (SD = 0.937) and for the control group, the mean score is 10.46 (SD = 1.240). The third recognition test for reading text 3 is 12.77 (SD = 1.406) and 11.88 (SD = 1.451) for the experimental and control group respectively.

Independent T-test analysis was further carried out to assess the effectiveness of the combined enhancements (bold and highlight) at triggering noticing on the target formulaic sequences. The analysis, tabled in Table V, indicates that the mean scores of the experimental group were significantly higher than the mean scores of the control group in recognition test 1 (Mean difference = 1.367, $p = 0.000 < 0.05$), recognition test 2 (Mean difference = 1.072, $p = 0.001 < 0.05$), and recognition test 3 (Mean difference = 0.882, $p = 0.025 < 0.05$). This shows that the significantly higher mean scores in the experimental group resulted from the exposure to the typographic enhancement intervention in noticing the target formulaic sequences, as compared to the control group, which did not receive any intervention.

TABLE V: INDEPENDENT T-TEST CONDUCTED ON EXPERIMENTAL AND CONTROL GROUP

| Group | Independent Samples Test | | | |
| --- | --- | --- | --- | --- |
| | Mean Difference | t | df | P |
| Recognition Test 1 | 1.367 | 4.007 | 48.270 | 0.000 |
| Recognition Test 2 | 1.072 | 3.604 | 46.123 | 0.001 |
| Recognition Test 3 | 0.882 | 2.301 | 52.358 | 0.025 |

To further understand the impact of the typographic enhancement towards the noticing of the target formulaic sequence, the effect sizes for each recognition test for each group was calculated and reported in Table VI. The statistical analysis shows that there was a medium to large effect size (RT 1 $d = 0.622$; RT 2 $d = 0.973$; RT3 $d = 1.083$), constituting medium to large differences between the result of the experimental and control group.

TABLE VI: EFFECT SIZES

| Group | Effect sizes (Cohen D) | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | RT1 | | | RT 2 | | | RT 3 | | |
| | Mean | SD | *d* | Mean | SD | *d* | Mean | SD | *d* |
| Experimental | 17.37 | 1.129 | 0.622 | 11.53 | 0.937 | 0.973 | 12.77 | 1.406 | 1.083 |
| Control | 16.00 | 1.386 | | 10.46 | 1.240 | | 11.88 | 1.451 | |

## V. DISCUSSION

This study looks to determine the effects of employing typographic enhancement (TE) technique towards the noticing of the target formulaic sequences among low proficiency learners. The result showed that, there is a medium to large positive gain on the use of typographic enhancement technique among low proficiency level learners in noticing the target formulaic sequences. This result generally aligns with previous traditional classroom setting that employed typographic enhancement technique (e.g., [19, 20, 41, 42]).

Based on the findings, it seems that typographic enhancement technique through combined enhancement, when employed in isolation was effective in at inducing some level of noticing of the target form when compared to the control group. However, the small sample size suggests that there is large room for improvements which may amplify the efficacy of the methodology. Also, a qualitative approach such as interview sessions and observations may help understand further at which point the target formulaic sequences during the interventions starting to become salient and whether explicit teaching techniques will help promote its saliency.

Future studies may also consider extending the data collection period, since learners may require longer time for the noticed linguistic elements to be associated and utilized in the learners' second language output [43].

## VI. CONCLUSION

On one hand, studies in the area of input enhancement have seen that access to input is viewed as a necessary condition for language development. Formulaic sequences, on the other hand provides shortcut to comprehension and fluency where in language classes, teaching formulaic sequences through enhancements is often combined with explicit teaching techniques such as metalinguistic explanation, to raise learners' salience and awareness of the sequences, promote their use and help them attain fluency.
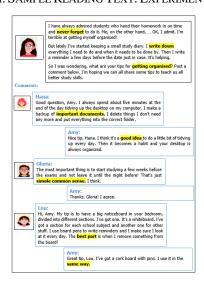
While the effectiveness of typographic enhancement has generally been shown to be enhanced by accompanying explicit instructions, the combined methodology and study design have been an ongoing issue in TE research which has prevented researchers from understanding the raw impact of TE in isolation. Besides, since the pandemic hits the world recently, teaching and learning classes have shifted online. Through quasi-experimental design, this study has looked into the effects of TE in a non-conflated design to understand the effect of typographic enhancement techniques among low proficiency ESL learners, by using an online platform. The findings of this study revealed that the effectiveness of the TE technique when employed in isolation was effective, with medium to large effect sizes, in enhancing noticing of the target formulaic language when compared to no enhancement given to the learners in their reading texts.

## APPENDIX

### APPENDIX I: LIST OF TARGET FORMULAIC SEQUENCES

| | Target formulaic sequence | Corpus Frequencies | | |
|---|---|---|---|---|
| | | COCA | BNC | |
| 1. | Huge variety | 153 | 35 | Reading Text 1 |
| 2. | Rather prefer | 33 | 3 | |
| 3. | Get to know | 7470 | 470 | |
| 4. | Hardly need | 127 | 24 | |
| 5. | Great time | 4835 | 110 | |
| 6. | New friends | 2817 | 152 | |
| 7. | Local guides | 66 | 110 | |
| 8. | A little bored | 119 | 5 | |
| 9. | Exciting range | 8 | 10 | |
| 10. | Warm weather | 841 | 68 | |
| 11. | Natural beauty | 974 | 206 | |
| 12. | Local people | 1623 | 989 | |
| 13. | Went to prison | 624 | 32 | Reading Text 3 |
| 14. | Robbing a bank | 112 | 4 | |
| 15. | Committed the crime | 313 | 10 | |
| 16. | Called the police | 1593 | 81 | |
| 17. | Police arrest | 855 | 53 | |
| 18. | Serious crime | 258 | 21 | |
| 19. | Pay fine | 343 | 19 | |
| 20. | Never forget | 7769 | 475 | Reading Text 3 |
| 21. | Write down | 3048 | 474 | |
| 22. | Getting organized | 112 | 3 | |
| 23. | Simple common sense | 75 | 4 | |
| 24. | Same way | 24567 | 2756 | |
| 25. | Important document | 119 | 20 | |
| 26. | Best part | 4234 | 201 | |
| 27. | Good idea | 21378 | 1836 | |

### APPENDIX II: SAMPLE READING TEXT: EXPERIMENTAL GROUP



### APPENDIX III: SAMPLE READING TEXT: CONTROL GROUP



## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## AUTHOR CONTRIBUTIONS

Masturah Sabri wrote the paper as the main author. Faizahani Ab Rahman and Aliff Nawi assisted with the all the materials and instruments used in this study. Faizahani Ab Rahman and Aliff Nawi then conducted a final check on the draft to improve on the paper writing. All the authors acknowledged and approved the final version of this paper.

## ACKNOWLEDGMENT

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