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“Optimizing Innovation in Knowledge, Education and Design”

EXTENDED ABSTRACT



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Assalamualaikum warahmatullahi wabarakatuh,



First and foremost, I would like to express my gratitude to the organizing committee of i-Spike 2023 for their tremendous efforts in bringing this online competition a reality. I must extend my congratulations to the committee for successfully delivering on their promise to make i-Spike 2023 a meaningful event for academics worldwide.

The theme for this event, 'Optimizing Innovation in Knowledge, Education, and Design,' is both timely and highly relevant in today's world, especially at the tertiary level. Innovation plays a central role in our daily lives, offering new solutions for products, processes, and services. By adopting a strategic approach to 'Optimizing Innovation in Knowledge, Education, and Design,' we have the potential to enhance support for learners and educators, while also expanding opportunities for learner engagement, interactivity, and access to education.

I am awed by the magnitude and multitude of participants in this competition. I am also confident that all the innovations presented have provided valuable insights into the significance of innovative and advanced teaching materials in promoting sustainable development for the betterment of teaching and learning. Hopefully, this will mark the beginning of a long series of i-Spike events in the future.

It is also my hope that you find i-Spike 2023 to be an excellent platform for learning, sharing, and collaboration. Once again, I want to thank all the committee members of i-Spike 2023 for their hard work in making this event a reality. I would also like to extend my congratulations to all the winners, and I hope that each of you will successfully achieve your intended goals through your participation in this competition.

Professor Dr. Roshima Haji Said
RECTOR
UiTM KEDAH BRANCH



WELCOME MESSAGE (i-SPIKE 2023 CHAIR)



We are looking forward to welcoming you to the 3rd International Exhibition & Symposium on Productivity, Innovation, Knowledge, and Education 2023 (i-SPIKE 2023). Your presence here is a clear, crystal-clear testimony to the importance you place on the research and innovation arena. The theme of this year's Innovation is "*Optimizing Innovation in Knowledge, Education, & Design*". We believe that the presentations by the distinguished innovators will contribute immensely to a deeper understanding of the current issues in relation to the theme.

i-SPIKE 2023 offers a platform for nurturing the next generation of innovators and fostering cutting-edge innovations at the crossroads of collaboration, creativity, and enthusiasm. We enthusiastically welcome junior and young inventors from schools and universities, as well as local and foreign academicians and industry professionals, to showcase their innovative products and engage in knowledge sharing. All submissions have been rigorously evaluated by expert juries comprising professionals from both industry and academia.

On behalf of the conference organisers, I would like to extend our sincere thanks for your participation, and we hope you enjoy the event. A special note of appreciation goes out to all the committee members of i-SPIKE 2023; your dedication and hard work are greatly appreciated.

Dr. Junaida Ismail

Chair

3rd International Exhibition & Symposium Productivity, Innovation, Knowledge, and Education 2023 (i-SPIKE 2023)

LEARNING GRAMMAR THE FUN WAY USING EGGA (ENGLISH GRAMMAR GUIDE APP)

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ABSTRACT

EGGA (English Grammar Guide App) is a mobile application designed as a self-directed evaluation tool that enables learners to learn basic English grammar and self-evaluate. The application provides learners with some learning materials and allows them to take quizzes via mobile devices or tablets with the Android operating system. Currently, three categories of learning materials are available; parts of speech in English, tenses, and subject-verb agreement, which are organized on a digital bookshelf. For each category, comprehensive short notes with simple examples are provided. Once learners have completed the self-instruction phase, they may self-evaluate their own comprehension of the three grammatical categories by taking a quiz. There will be ten (10) multiple-choice questions (MCQ) for each category and there is no time limit for completion of the quiz. However, only a single attempt is allowed for each question and all the ten questions must be answered sequentially. A short performance report which contains the score and grade will be displayed at the end of the quiz. This mobile application promotes self-directed learning, provides immediate feedback, makes learning fun and interactive, as well as enables learners to do self-assessment. Hence, learners will find it relatively easy to relate to and engage in the activities and exercises provided. The findings revealed that using EGGA in grammar learning can motivate learners to acquire and improve their grammar skills, as well as create a fun and interactive learning experience for them. EGGA also provides a mechanism for learners to gauge their own level of grammar competence. It is found as a useful and practical tool that can be used by learners of any age group to learn the target grammar.

Keywords: EGGA, a mobile application, English grammar, self-evaluation

INTRODUCTION

Grammar learning is often associated with dreariness and lack of learners' motivation. Research has shown that traditional grammar teaching and learning has failed to motivate learners to actively engage in grammar lessons and lifelong learning (Matas & Natolo, 2010). Learners often complain of learning complex grammar rules and having to do dull grammar exercises in the classroom. Learning English grammar is certainly not an easy task for many non-native learners of English. With the complicated sets of rules to learn and apply in their reading, speaking, listening, and writing classroom tasks, learning and mastering English grammar is quite a daunting task itself to many non-native learners of English. What is more unfortunate, learners tend to portray the English teachers as an "unattractive grammar monger whose only pleasure in life is to point the fault of others" (Baron, 1982: 226).

Grammar teaching and learning grammar may not be as boring and unattractive as it is often portrayed if the right approach is taken. A stereotypical view among learners that learning grammar is a chore suggests there is a need for a fun, engaging and more meaningful approach to teaching and learning English grammar. Hence, it is crucial to devise and implement a practical pedagogical approach to aid learners in learning, acquiring, and applying their grammar skills effectively. Learning English grammar through the English Grammar Guide Application (EGGA), a mobile application designed as a self-directed evaluation tool that enables learners to learn basic English grammar and self-evaluate their learning outcome is an attempt to make the learning of grammar an amiable, fun, and engaging learner-centred activity, while complementing the role of the regular grammar teacher in the classroom. With the increased adoption of mobile technology for teaching and learning, mobile applications like EGGA scaffold language learning by providing easy access for any learner to learn and acquire the target grammar without the constraints of both place and time. It also provides the learners with an informal, personalised learning experience and language resources beyond the classroom teacher's routine instruction, besides being entertaining, pleasant, practical and engaging (Butarbutar, 2020). Hence, students enjoy learning directly from their mobile and smart phones, making language learning an attractive and motivating experience.

Objectives of EGGA

EGGA aims to develop a platform for English grammar learning as its first objective, and second, to enable learners to acquire and improve their English grammar skills. EGGA also aims to create a fun and interactive learning experience as its third objective, and fourth, to gauge learners' level of grammar competence.

Descriptions of EGGA

EGGA (English Grammar Guide App) (see Figure 1) is a mobile application designed as a self-directed evaluation tool that enables learners to learn basic English grammar and self-evaluate. The application provides learners with some learning materials and allows them to take quizzes via mobile devices or tablets with android operating system. Currently, three categories of learning materials are available, namely, parts of speech in English, tenses, and subject-verb agreement, which are organized on a digital bookshelf. For each category, comprehensive short notes with simple examples are provided (see Figure 2). Once learners have completed the self-instruction phase, they may self-evaluate their own comprehension of the two grammatical categories by taking a quiz (see Figure 3). There will be ten (10)

multiple-choice questions (MCQ) for each category and there is no time limit for completion of the quiz. However, only a single attempt is allowed for each question and all the ten questions must be answered sequentially. A short performance report which contains the score and grade will be displayed at the end of the quiz (see Figure 4).



Figure 1. EGGA

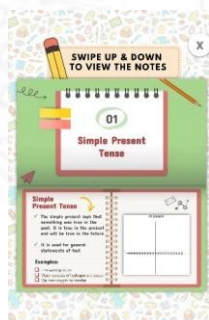


Figure 2. Short notes with simple examples



Figure 3. A feedback sample of a quiz

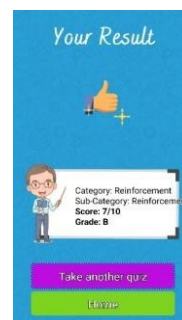


Figure 4. Score and grade

MATERIALS AND METHODS

Sample

The software was tested out with 54 diploma students of UiTM Sarawak, comprising students in the first and second semesters.

Instrumentation

For the purpose of this study, a set of questionnaires was used. The questionnaire was Usability Instrument. The instrument was selected because it has strong validity and reliability indices and has been used extensively in research. The estimated reliability at the overall level of the Usability Instrument using Cronbach's Coefficient Alpha was .972. The Usability Instrument consists of three sections: (1) Profile of the Respondent, (2) Evaluation of multimedia elements, and (3) User satisfaction. A five-point scale for rating was used and valued. The level of satisfaction of each item is indicated by referring to the mean score of each item (See Table 1).

Table 1. Mean scores of satisfaction level

Low	1.00 to 2.39
Medium	2.40 to 3.79
High	3.80 to 5.00

RESULTS

Graphic

As shown in Table 2, all of the items of the graphic element in EGGA had high mean scores ranging from 4.41 (SD=0.599) to 4.54 (SD=0.539). From the findings, it concluded that the respondents were satisfied with the graphic element in EGGA.

Table 2. The mean scores of the Graphic Element in EGGA

Items	N	Mean	Std. D.
i The colours used for graphics are attractive.	54	4.41	0.599
ii The graphics are clear.	54	4.54	0.539
ii The graphics used are suitable	54	4.48	0.637
ii Explanations using graphics are easy to understand.	54		
Valid N (listwise)	54	4.52	0.574

Sound

As depicted in Table 3, all of the items of the sound element in EGGA had high mean scores ranging from 4.30 (SD=0.743) to 4.44 (SD=0.604). From the findings, it concluded that the respondents were satisfied with the sound element in EGGA.

Table 3. The mean scores of the Sound Element in EGGA

Items	N	Mean	Std. D.
i The audios are clear.	54	4.44	0.604
ii The audios are suitable.	54	4.31	0.722
ii Instructions using audio are easy to understand.	54	4.30	0.743
ii The audios are both well-timed and relevant.	54		
Valid N (listwise)	54	4.30	0.792

Interactivity

Table 4 shows that all the items of the interactivity element in EGGA had high mean scores ranging from 4.39 (SD=0.656) to 4.52 (SD=0.574). From the findings, it revealed that the respondents were satisfied with the interactivity element in EGGA.

Table 4. The mean scores of the Interactivity Element in EGGA

Items	N	Mean	Std. D.
i Interactive tools are clear and easy to understand.	54	4.52	0.574
ii Interactive tools are easy to navigate.	54	4.46	0.605
ii The interactive links used are correct and consistent.	54	4.39	0.656
ii The number of buttons/links is reasonable.	54		
Valid N (listwise)	54	4.48	0.606

Text

As depicted in Table 5, all of the items of the text element in EGGA had high mean scores ranging from 4.59 (SD=0.630) to 4.63 (SD=0.623). From the findings, it concluded that the respondents were satisfied with the text element in EGGA.

Table 5. The mean scores of the Text Element in EGGA

Items	N	Mean	Std. D.
i Interactive tools are clear and easy to understand.	54	4.59	0.630
ii Interactive tools are easy to navigate.	54	4.59	0.630
ii The interactive links used are correct and consistent.	54	4.63	0.623
ii The number of buttons/links is reasonable.	54	4.59	0.630
Valid N (listwise)	54	4.59	0.630

Interface

Table 6 shows the mean score and the standard deviation of the interface element in EGGA. The findings depicted that all the items had high mean scores ranging from 4.39 (SD=0.738) to 4.46 (SD=0.719). From the findings, it concluded that the respondents were satisfied with the interface element in EGGA.

Table 6. The mean scores of the Interface Element in EGGA

Items	N	Mean	Std. D.
i The design is user-friendly.	54	4.46	0.745
ii Instructions given in the software applications are clear.	54	4.44	0.769
ii The organization of information is clear.	54	4.46	0.719
ii User Interface elements provide visual feedback when pressed.	54	4.39	0.738
Valid N (listwise)	54	4.39	0.738

Usefulness

As depicted in Table 7, all the items on the usefulness of EGGA had high mean scores ranging from 4.54 (SD=0.665) to 4.69 (SD=0.609). From the findings, it is revealed that the respondents were satisfied with the usefulness of EGGA.

Table 7. The mean scores of the Usefulness of EGGA

Items	N	Mean	Std. D.
ii The app helps me learn basic English grammar.	54	4.67	0.583
ii The app helps me test my understanding and knowledge of basic English grammar.	54	4.65	0.619
ii The app helps me to improve my knowledge of English grammar.	54	4.69	0.609
ii I believe that regular use of the app would positively benefit my learning.	54	4.61	0.738
ii The app has all the functions and capabilities I expected it to have.	54	4.54	0.665
ii The app would be a great revision tool.	54	4.59	0.687
ii The app is a useful resource for enhancing English grammar learning.	54	4.61	0.656
ii The app motivates me to explore English grammar further.	54	4.56	0.718
ii The app provides a fun way to learn English grammar.	54	4.56	0.718
ii I would recommend the app to others who are interested to learn and improve English grammar.	54	4.69	0.609
Valid N (listwise)	54		

Overall Analysis

Table 8 shows the mean score and the standard deviation of all of the multimedia elements in EGGA. The findings depicted that all of the multimedia elements in EGGA had high mean scores ranging from 4.34 (SD=0.613) to 4.61 (SD=0.603). From the findings, it is revealed that the respondents were satisfied with all of the multimedia elements in EGGA.

Table 8. The mean scores of all of the Multimedia Elements in EGGA

Items	N	Mean	Std. D.
ï Graphic	54	4.49	0.515
ï Sound	54	4.34	0.613
ï Interactivity	54	4.46	0.531
ï Text	54	4.60	0.610
ï Interface	54	4.44	0.680
ï Usefulness	54	4.61	0.603
Valid N (listwise)	54		

DISCUSSION

The high mean scores showed that the respondents were satisfied with EGGA's overall multimedia elements, such as its graphics, sound, textual content, interface, and usefulness. EGGA was able to attract the students' attention and they displayed a desire to know more about the grammar learning app and also the anxiety to know what would happen next in the learning process. EGGA proved it could convey information instantly. Besides, quizzes for self-evaluation were supplied in EGGA and this acted as a trigger for the students to gauge their level of grammar competence. Learning English grammar through the English Grammar Guide Application (EGGA), a mobile application designed as a self-directed evaluation tool that enables learners to learn basic English grammar and self-evaluate their learning outcome is an attempt to make the learning of grammar an amiable, fun, and engaging learner-centred activity, while complementing the role of the regular grammar teacher in the classroom. With the increased use of mobile technology for teaching and learning, mobile applications like EGGA could serve as an effective language learning scaffolding mechanism by providing easy access for any learner to learn and acquire the target grammar without the constraints of both place and time. It also provides the learner with an informal, personalised learning experience, as well as easy access to language resources beyond the classroom teacher's routine instruction, besides being entertaining, pleasant, practical and engaging (Butarbutar, 2020). Hence, students enjoy learning directly from their mobile and smartphone phones, making language learning an attractive and motivating experience.

CONCLUSION

In summary, the English Grammar Guide Application (EGGA) is a fun, practical, convenient and engaging way of learning English grammar, which provides around-the-clock access to its users while its applicability extends to any learning environment, be it inside or outside the classroom, or any age group, be it children or adults. Based on the findings, using EGGA in grammar learning can motivate learners to acquire and improve their grammar skills, create a fun and interactive learning experience for them, as well as provide a mechanism for learners to gauge their own level of grammar competence. EGGA is indeed a useful and practical tool that can be used by learners of any age group to learn the target grammar. EGGA is an effective supplementary tool for self-directed language learning as it induces learner motivation, lowers their anxiety, and offers them a fun, engaging and entertaining way of

learning English grammar.

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REFERENCES

- Butarbutar, R. (2020). Mobile assisted language learning. *Advances in Social Science, Education and Humanities Research, Proceedings of the 3rd International Conference on Social Sciences*. (pp. 39-392).
- Baron, D. (1982). *Grammar and good taste: Reforming the American language*. New Haven, NJ: Yale University Press.
- Matas, C. P., & Natolo, M. (2010). Love grammar: Student-driven Grammar Learning Games. *The International Journal of Learning*, 17(10), 371-382.

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