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ENHANCING AIRCRAFT MAINTENANCE LEARNERS' SPECIALISED VOCABULARY UNDERSTANDING THROUGH THE USE OF SOCIAL NETWORKING PLATFORMS

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Abstract— Social Networking Sites (SNSs) is an important medium of communication utilised by many users worldwide in different fields, including business, politics, education, and personal enjoyment. Besides being used as a tool of communication, higher learning institutions have integrated SNSs such as Twitter, Instagram, TikTok, Facebook, and YouTube as learning tools to deliver information and connect with learners. The popularity that SNS have gained over the years has become a debate about whether social media platforms can be used as effective teaching and learning tools. This paper attempts to report on investigation on the use of SNS in the acquisition of specialised vocabulary among aircraft maintenance students. This study employed a qualitative research design, and 14 first-year Diploma in Aircraft Engineering (DAE) learners took part in this study. The data used in this study were Facebook and Instagram class page postings, online discussions, comments and semi-structured interviews. The findings revealed that learners generally used Facebook and Instagram to acquire the specialised vocabulary in doing their assignments. These findings elucidate the use of SNSs as an influential platform to help increase their knowledge, taking part in discussions and writing effectively. The findings of this research could be prototyped for learning other professional courses in view of the demand for Technical and Vocational Education Training (TVET) in Malaysia. The findings also suggest that educators adapt learners' learning preference via interactive SNS tools in the process of sharing and enriching students' learning experiences.

Keywords— Social Networking Sites; Teaching and Learning, Multimedia; aircraft maintenance Learners; specialized vocabulary

I. INTRODUCTION

In recent years, SNSs have developed into a crucial mode of communication for most people. Numerous online networking sites, such as Twitter, Instagram, Facebook, TikTok, and other notable platforms have fulfilled a plethora of functions, such as chatting or commenting on a person's page, media sharing, staying up to date with the latest news and events, watching videos and many more. Since English language is widely used on social media, such tools have indirectly aided English language learners in mastering the language [1]. It can be mentioned that social media is also used as a learning aid in the classroom. Students use SNSs to disseminate and exchange their academic content, as well as to network with one another. Learners may learn how to use words in an actual real-life scenario by interacting with them on social media. [2] pointed out that the use of SNSs has also been shown to have beneficial impacts, such as improving pronunciation and expanding one's vocabulary.

It can be mentioned that the human desire for exploration, limitless connection, and the free exchange of ideas and opinions with other users who share similar interests may be the driving force behind the use of SNSs expansion. Users of social media platforms can connect with one another across national boundaries and express themselves on a global scale. Even the Malaysian educational system is being reshaped by Information Technology and this practice of learning must apply to TVET education. Through its interactive two-way communication, the internet significantly contributes to the development of a prominent language context and environment [3]. For instance, SNSs, particularly Twitter, Facebook, Instagram and blogs, can assist learners in connecting with other language learners. Undoubtedly, a social and interactive learning approach using SNSs can benefit language learners. [4] asserts that socialisation gives language "novices" the ability to learn from more "experienced" people, particularly in speech communities. According to [5], SNSs are very useful for learners who are



studying in the Higher Education, especially English language and using them as a pedagogical tool improves learners' learning results. Technologically assisted social media, in fact, paves the way for more exciting and meaningful learning settings [6]. The global technology and Internet revolution, particularly in the sphere of education, have altered learners' preferred learning methods. Who said this?

Vocabulary instruction is crucial to determining English language proficiency, particularly in the second language (L2) classroom settings. A non-native learner with very little L2 vocabulary will likely encounter many challenges when trying to comprehend texts in English, which may cause issues with reading and writing. Thus, a greater focus should be placed on vocabulary learning and teaching in L2 classrooms. A similar focus should be placed on learning specialized vocabulary in the context of English for Specific Purposes (ESP). Learners should be well-versed in the usage of the language within the subject because the major goal of ESP courses is to equip learners with the rhetoric discourse within a certain field. One example of a specialized field with a distinct spoken and written discourse in a particular genre is aircraft maintenance. However, it is worth noting that the delivery of ESP courses at Malaysian higher education institutions has prioritized fields like business and medicine [7]. More interest has just lately grown in Malaysia's aviation sector, particularly in the field of aircraft maintenance. Therefore, additional study is required to assist learners and instructors in obtaining proficiency in terms of academic literacy in aircraft maintenance related subjects, especially with the growth of aviation studies in higher education, notably in the ESP courses.

Understanding a word's meaning is important as this is largely because knowledge of words is a crucial tool to enhance effective communication [8]; [9]. Additionally, [10] indicated "Lexical knowledge is crucial to communicative ability and to the learning of a second language." (p. 55). Conversely, learning the definitions of new terminologies used in a particular field is a fundamental and essential part of acquiring topic knowledge [11]. Institutions try to provide learners with the specialized vocabulary needed in their disciplines before or while preparing them for the speciality in which they will major. Such training occurs in the English for Specific Purposes (ESP) classes, and the core objective of which is to give learners specialized vocabulary training in their subject areas. Due to their unfamiliarity with the specialized vocabulary, [12] pointed out that new learners place a greater emphasis on specialist/specialized vocabulary, also known as technical words or subject-specific core vocabulary [13].

This article reports on a study aimed at exploring the use of SNSs (Facebook and Instagram) in acquiring specialised vocabulary among first year aircraft maintenance learners in a university setting. Since vocational and technical instructors have engaged in technology-intervened teaching methods during the online lessons to provide opportunity for their learners, it is important to understand this method of learning from the learners' perspectives.

This study was undertaken based on the supposition that SNS would facilitate the acquisition specialised vocabulary by the aircraft maintenance learners. In Malaysia, it is found that the Higher Education learners lack interest in reading due to their insufficient knowledge of vocabulary, and this ultimately contributes to their inability to communicate effectively [14]. In the context of this study, the private university's aircraft maintenance learners, who are the participants in this study lack the required specialised vocabulary for the aircraft maintenance course and this continuously affects their overall academic performance since they are unable to comprehend the materials that they must read for assignments, quizzes, and tests.

Aviation English is an essential course for the aircraft maintenance programme. The main objective of this course is to teach specialised vocabulary related to aircraft maintenance. The researchers' interaction with the learners demonstrated their inability to understand the specialised vocabulary is mainly due to their insufficient technical term knowledge. Knowledge in technical term will assist students to cope with their academic requirements, as it has been identified as the "most important indicator of oral language proficiency, which is particularly important for the comprehension of both spoken and written language" [15], while lack of appropriate technical term knowledge may significantly lead to miscommunication, even in the context of the Higher Education (HE) [16]. It is therefore, vital that future aircraft maintenance engineers should always avoid any linguistic misunderstanding [17]. Uncertainty and ambiguity in conveying meaning could lead to catastrophe as pointed out by [18] that air-to-ground communication often becomes a challenge for pilots and aircraft maintenance engineers during unprecedented situations and bad weather conditions.

Aircraft maintenance learners have not had the exposure needed for them to learn the specialised vocabulary efficiently and this will eventually impact their acquisition of specialised vocabulary. Without the technical term knowledge, the learners will not be able to write the assignment task proficiently. Insufficient proficiency in specialised vocabulary is caused by the lack of background knowledge of the subject matter in secondary school [19]. In addition, the lack of knowledge of specialised vocabulary among aircraft maintenance learners can cause misunderstanding, which is commonly referred to as human error [20]. While most studies have focused on students' vocabulary acquisition, little has been done on how SNSs assist in the acquisition of specialised vocabulary among aircraft maintenance learners. The present research aims to investigate the learners' use of SNSs, especially Facebook and Instagram in acquiring specialised vocabulary at the university level. Hence, with the difficulty of technical term acquisition, as well as the fact that aircraft maintenance is a relatively new course in Malaysia, it is timely that this study explores and understands how the SNSs assist learners in acquiring specialised vocabulary. In order to fill the gap, this study aims to answer the following research question:



How do the aircraft maintenance learners use SNSs in acquiring the specialised vocabulary?

II. LITERATURE REVIEW

Several studies have examined the accessibility of social media and the new opportunities they have given people, particularly among young people [21]. Among these platforms, Twitter is used for micro-blogging, Facebook and LinkedIn are used for social networking, YouTube and Flickr are used to share visual content, and Wikipedia specialises in the creation of collaborative information [22]. Social media platforms for example Facebook, Twitter, and YouTube, according to [23], allow users to create and share content with other users all over the world.

It can be mentioned that researchers have supported the use of social media in the field of education due to its widespread use and the opportunities they present [24]. Facebook and YouTube have reportedly been used to publish educational films or learning resources for students [25]. Due to the popularity of digital media among learners, the learners utilise them to supplement and improve their classroom learning due to their simplicity and speed of communication, such action has been taken.

It is also crucial to understand that exposure to different events, scenarios, forms, and settings as well as frequency of use affect technical term learning [26]; [27]. Yet, there is no universal linguistic discourse, and the users' purpose for using the SNSs themselves offer varied contexts because SNSs by their very nature offer users different reasons for use, ranging from study through to job or enjoyment. The many contexts offered by SNSs enable learners to develop their technical term [28] through formal and factual conversation to more informal discourse.

The use of various SNSs for vocabulary acquisition has been the subject of multiple researches over the past five years [29]; [30]; [31]. According to these researchers, SNSs can increase learner motivation and engagement [32]; [33]; [34]. Another research by [35] revealed that SNS use had aided learners in improving their vocabulary acquisition. This data demonstrates that SNSs have the potential to be beneficial learning resources and tools.

According to a study on the use of Facebook to increase students' vocabulary knowledge [36], it was found that the majority of the learning happened when students interacted and socialised with other students and Facebook users, particularly those who were native speakers of the target language. Facebook may be a useful educational tool, according to the researchers, as it can inspire students and improve their involvement, interaction, teamwork, and self-assurance. Facebook has the ability to boost student engagement and participation, according to [37].

[38] investigated how a Facebook game affected students' vocabulary growth, and they discovered noticeably good results. The same outcomes were observed in a study on

schoolchildren's usage of SNSs (via Facebook) for vocabulary learning [39]. Additionally, according to [40], "learners had a favourable opinion of using social networking to help their learning" and mobile learning (p. 54).

According to [41], there are many potential advantages of adopting SNSs in education. It is crucial for learners to learn about the potential advantages that SNSs may offer to the modern education. SNSs can also support in enhancing communication between learners and instructors. Learners can communicate more with one another by using SNSs features to discuss assignments or exams, share educational materials, and boost communication. In fact, [42] emphasised how at ease students are using SNSs as a learning tool. Notwithstanding the detrimental effects that SNSs had on students' learning, as indicated by [43] in their study, they considered SNSs useful for communicating with other users and the features themselves made the learning environment more meaningful. Hence, it serves as a timely reminder for educators to stay abreast of technology advancements and maximise learners' potential talents in order to facilitate English language skills, particularly technical term growth [44].

Since studies on the effectiveness of multimedia on technical term acquisition have shown positive impact on the learners' vocabulary learning [45]; [46]; [47]; [48], [49] the notion of learning technical term using SNS, should be thoroughly examined. This study, with the aim of determining the effectiveness of Facebook in acquiring specialised vocabulary among first year aircraft maintenance learners in a university setting can contribute meaningfully and enhance HE learners' technical term knowledge and skills.

Theoretical perspective

According to the social constructivist model of language acquisition, the study of language development requires learners to take an active role in their own learning experience. Interaction between people in a community is encouraged by the social constructivist theory. According to [50], the cultural and social environment has a significant impact on intellectual development. When striving for improved cognition and performance, there is a shift from culturally assisted controlled performance to independently controlled performance, which is referred to as the transition from inter-psychological to intra-psychological performance.

[51] social constructivism theory is used as the foundation of this study since SNSs can provide an alternative to the actual and authentic contexts and settings. Social constructivism theory believes that the world is shaped by the dialogue and discourse we have with one another. Social networking tools, such as Facebook and Instagram, can assist in building community through dialogue and conversation, selectively making sense of the past and present experiences. According to social constructivism theory, the understanding of the world arises from our own shared construction of the world. Daily



social interaction and relationships are the source of what is true for us. Therefore, Facebook and Instagram are sites where people curious about the lives of their peers participate in regularly to create a shared worldview.

Additionally, the constructivist learning theory, which is based on student-centered learning approach, focuses the learner's role in constructing knowledge. [52] indicated that learning takes place when the education model concentrates on the students' interest rather than on the needs of the outside world. The theory showed that student's language development depends on self-chosen learning items and practices the items within a collaborative learning group or with the assistance from more proficient students. In this study, the utilisation of the SNSs can engage students in a much more dynamic learning process through active learning and group connection at multiple levels as well as to enhance specialised vocabulary learning through self-determination and collaboration [54]. [55] emphasised that learners can share their online acquisition among the group members in the Facebook and Instagram page by supporting each other to construct knowledge. Hence, social constructivism will be able to assist in the acquisition of technical terms using the SNSs.

The current study's focus is on how the SNSs are utilised to acquire specialised vocabulary by the aircraft maintenance learners. [56] noted that social constructivism could be applied in the online classroom using instructional methods such as case studies, research projects, problem-based learning, brainstorming, collaborative learning or group work, guide discovery learning, simulations among others. This is because it has the ability to encourage learning on a social constructivist paradigm given the wide range of applications available on the Internet and the web [57]. Since constructivism is a learner-centered approach, the objective is to create a meaningful learning environment that includes communication and collaboration [58] and [59]. According to [60], collaboration is a key component of making meaning. SNSs, therefore, allows for construction of knowledge through collaboration with their online peers, and learners acquire deeper understanding because of the opportunities for exposure to multiple perspectives and interpretations [61]. In this study, the use of SNSs such as Facebook and Instagram enabled the learners to collaborate with peers and engage in

discussions. This process encourages the exchange of diverse perspectives, which leads to the acquisition of specialised vocabulary [62]. The instructor in this study encouraged collaboration among learners by dividing them into groups as well as pairs and utilised the SNSs to understand the specialised vocabulary according to the intended objectives. [63] pointed out that the collaborative method enhances learning by giving students the opportunity to develop their communication skills. The role of the instructor in this method is that of a facilitator, as the instructor guides the learners through informed discussion to discover things for themselves. Additionally, [64] posits that the use of SNSs provide learners an opportunity to actively participate in the learning process, through Facebook and Instagram. According to [65], these learning processes promote the development of higher levels of thinking and encourage learners to construct their knowledge through the utilisation of the SNSs. Overall, in the context of this study, learners learn specialised vocabulary through SNSs such as Facebook and Instagram and it is enhanced when learners are given the opportunities to communicate.

III. METHODOLOGY

This section begins with the research design; which addresses strategies and methods employed in this study. Then, a brief description of the research participants will be given. The next part is an elaboration of the research instruments and the procedure for data collection and analysis. Finally, an explanation of the reliability and validity of this study will be elaborated.

A. Research Design

The qualitative approach was used to collect and analyse data to further strengthen the findings of the study [66]. According to [67], qualitative research aims to understand a phenomenon by concentrating on the whole picture rather than breaking it down into elements. By applying a qualitative approach in this research, it provides the opportunity to represent the capability of using SNSs in understanding of the specialised vocabulary by the learners.

B. Participants

Table 1: Participants' Demographic Data

No.	Participants	Gender	Age	SPM English Language Result
1	Participant 1 (P1)	Male	19	C
2	Participant 2 (P2)	Male	20	C+
3	Participant 3 (P3)	Male	19	B
4	Participant 4	Female	19	B-



	(P4)				
5	Participant (P5)	5	Female	20	B-
6	Participant (P6)	6	Male	19	C+
7	Participant (P7)	7	Male	20	A
8	Participant (P8)	8	Male	20	B
9	Participant (P9)	9	Male	19	B
10	Participant (P10)	10	Female	20	C
11	Participant (P11)	11	Male	19	B+
12	Participant (P12)	12	Male	21	A-
13	Participant (P13)	13	Male	19	C-
14	Participant (14)	14	Male	20	C+

Table 1 depicts the participants demographic data. 14 first-year Diploma in Aircraft Maintenance Engineering (DAME) learners studying in a private university and agreed to participate in this study voluntarily. The participants were all school leavers and used the Sijil Pelajaran Malaysia (SPM) or the Malaysian Certificate of Education to enroll for the aircraft maintenance programme. To ensure participants' confidentiality, they were given codes such as "P1" or "P2", meaning P1 is Participant 1 and P2 is Participant 2, respectively. The participants were selected from an intact class that was conducted fully online. They were selected based on the following three criteria:

1. First-year undergraduate students, who did not have prior knowledge or experience of the aircraft maintenance specialised vocabulary.
2. The learners were registered for the 'Academic English with Research' course.
3. School-leavers using the Malaysian Certificate of Education (SPM) results, which is a national examination sat for by all fifth-form secondary school students in Malaysia.

The Academic English with Research is a compulsory course for learners majoring in aircraft maintenance. Furthermore, the course provided introduction to the specialised vocabulary of the aircraft and exposed the learners to the writing style for preparing aircraft maintenance reports and developing their writing towards becoming an effective writer.

C. Social Networking Sites Postings, Discussions and Comments

The data collection through Facebook and Instagram postings, discussions and comments during the online classes were carried out on week 9 of the semester (September 2023). The Facebook and Instagram postings, discussions and comments were carried out on a consistent schedule agreed upon by the course instructor and the researchers starting from the second half of the semester once a week for 2 hours for a total of 9 weeks. The postings, discussions and comments also provide information to the researcher that cannot be gathered through interviews. The researchers focused on the instructor's emphasis on specialised vocabulary and how often she drew attention to them during the online lectures. Video recordings during the online classes allowed the researchers to utilise the data as a reference. In this study, coding aided the researcher in breaking down, conceptualising, categorising, and presenting the data in a comprehensible manner. It is worth emphasising that the data were manually coded by the researcher since the researcher experienced issues in analysing the data using computer software programmes, such as confusing or misleading data, which implies the data provided to the researcher may be incorrect.

D. Semi-Structured Interview

The semi-structured interview session conducted in the current study, involved a series of various questions regarding different aspects of using the SNS as a tool to acquire specialised vocabulary such as: the English language learning materials provided in the SNS, the problems and challenges that learners faced while being involved in the specialised vocabulary-acquisition processes during the online lessons. It

also consists of some questions regarding the learners' willingness to participate in the SNSs, learners' challenges and difficulties while participating in the SNSs activities, learners' opinions on learning independently, learners' ideas regarding the limitation of learning time and space during the learning process, learners' feelings of anxiety and stress while getting involved in learning process via the SNS, usefulness of using blogs, and finally learners' opinions on using the SNS as a platform to improve their class assignments. A series of in-depth interview questions was given to the respondents in order to give them a chance of further explanations and elaborations to answer the questions, as semi-structured interview does not limit respondents to a set of pre-determined answers unlike a structured questionnaire. Finally, the analysis of the semi-structured interviews was carried out through recording, transcription and classification of categories and patterns. The data obtained from the semi-structured interviews were analysed qualitatively. (The interview questions are listed in the Appendix). Finally, the researcher categorised the interview data for the research question into three themes, which are: engaging in SNSs, collaborating with peers and enriching personal experience.

E. Reliability and Validity of Data collected

The interview questions were validated by three English language lecturers from the university to ensure the clarity of the interview questions in relation to the study [68]. A total of ten (10) students from the August 2023 semester who took the aircraft maintenance course were interviewed as pilot study. Based on the pilot study, the interview questions were further improved. Relying on a single method of verification will not effectively expound on the interwoven and shared phenomena; therefore, the researcher utilised one additional coder (a language lecturer) to ensure thoroughness of the method and trustworthy interpretation of data [69].

Another ethical issue that was addressed is the relationship between the researcher and the participants. As the research activity required the researcher to have a number of visits to the online classroom, the expectation was that he might get personally engaged with the research context, which included the participants of the research. According to [70], it is good that the closeness between the two parties may bring about deep and rich data, yet it may also result in unintended influences on objectivity and data interpretation. To get this problem avoided, the researcher had to stay focused on the objectives of the research, besides practising epoche [71] and reflexivity [72].

IV. FINDINGS AND DISCUSSION

This section provides the findings which are categorised according to the themes that emerged from the data.

Table 2: Major themes emerging from the data

Number	Themes from data	Example	Number of students utilising
1.	Engaging in SNSs	The use of Facebook and Instagram to identify the specialised vocabulary	10
2.	Collaborating with peers	Learning and using specialised vocabulary among the classmates for the assignments	9
3.	Enriching personal experience	Participants demonstrated a better understanding with the use SNSs	8

i) Engaging in SNSs

Excerpts from the aircraft maintenance participants confirmed that the use of SNSs during the online lessons was engaging and fun due to their online engagement on SNSs such as Instagram and Facebook (refer table 4.1). For example, participants who initially thought assignments on Facebook was too consuming of their time, changed their minds:

"At first I thought the assignment on finding the technical term had too many items to find, but once I started checking out the terms and fun activities, I realized it was easy" (participant 3).

Another participant echoed the sentiment:

"When I got the assignment on Facebook, I was nervous, but I kept checking with the others in the group and it helped me a lot in understanding the terms" (participant 4).

Students demonstrated that using social networks increased both motivation and enthusiasm for learning.

"I love using Facebook and Instagram; it has pictures and I can understand the term as well as its functions" (participant 6).

In fact, another student pointed out:

"This was the best assignment I did using Facebook and I manage to answer most of the questions!" (participant 8). Interestingly, none of the students reported boredom with the Facebook assignment and participants thought the assignment was fairly manageable. Likewise, some participants were very interested in the social media Instagram. One student remarked:

"I learned using various tools such as Reels, Post and Story highlight on Instagram to increase my knowledge on technical term" (participant 10).

Several participants' pointed out the following:



“Creating an Instagram account helped me realize that learning technical term is easier and I can see the aircraft parts as well, I do not need to go to the hangar” (participant 13).
“Social media is going to be very helpful for aircraft students to grasp the specialised vocabulary” (participant 5)
“Facebook can be used as an online learning tool for online learners” (participant 10)
“I find it all so useful and fun!” (participant 6)
“I was more active in paying attention and participating in questions being asked by my classmates. I believe it is useful because it is more like asking questions face-to-face” (participant 11)

ii) Collaborating with Peers

The findings showed that, the participants were positive in using SNSs as they learned from one another. Participant 1 shared:

“What I learned from doing Facebook and Instagram with my classmates is that it is a great tool to share ideas and information with one another” (participant 1).

“I loved using Facebook and Instagram because I think it helped to bring some of us together by facilitating discussions about the specialised vocabulary” (participant 14).

The social media platforms provided a collaborative learning environment in which participants were able to share information with each other but also connect with others globally.

“I can find information on specialised vocabulary and how the parts are used from engineers across the world” indicated one learner (participant 3).

Utilising group activities for the assignments facilitated communication and contributed to a better comparison of understanding the specialised vocabulary as evidenced by one participant’s comment:

“Having a group to work helped me learn more” (participant 4).

Referring to their first experience with Facebook and Instagram profiles, some participants illustrated the collaborative nature of these social media platforms:

“I never realized that this network can be used for learning. Once I was logged in and started looking up for specialised vocabulary, I found several aircraft engineers helped me to understand the term. This is really fantastic, especially since aircraft maintenance term is difficult to understand”. (participant 6)

“Having a group to work with helped me learn more and get ideas off each other” (participant 1)

“I enjoyed the group interaction with my classmates on Facebook. It was very helpful to be able to see and communicate with others” (participant 9)

“It should not be an individual assignment because you cannot do it alone” (participant 4)

“I love working together on Instagram using the chat box... it is a wonderful learning tool and think it should be used more often in online classes” (participant 3)

iii) Enriching Personal Experience

Participants demonstrated through the observations as well as the interviews that the course activities using the SNSs added meaning to their learning which was valuable to obtain knowledge. Using the SNSs also enriched their personal experience.

“There are so much specialised vocabulary that I did not understand prior to using Facebook and Instagram” (Participant 8).

“I actually found it to be a time-saver, and incredibly useful, especially for learning the aircraft parts” (participant 9).

“It helped me greatly with ideas to complete the assignment got me using Facebook and Instagram personally as a way to use it for my future courses” (participant 12).

“The assignments made me think more deeply” (participant 8)

“Students are able to get ‘hands on’ experience without ever being in real danger. They are able to learn a safe environment” (participant 14)

“I used a lot of the images to help with my understanding, so it was really helpful” (participant 7)

“Good way of learning” (participant 12)

One participant remarked about his experience with Instagram during an activity in the online class:

“I was able to ask question to an engineer, a total stranger about the meaning of landing gear and he explained clearly to me using the message box. Instagram or Facebook may become more prevalent...lecturers can save time by using SNSs rather than the conventional methods of physically entering the hangar and providing explanations” (participant 13).

Figures 1, 2, 3 and 4 shows the participant’s connection with the learning process as well as the potential of using Facebook and Instagram for future specialised vocabulary acquisition activities.

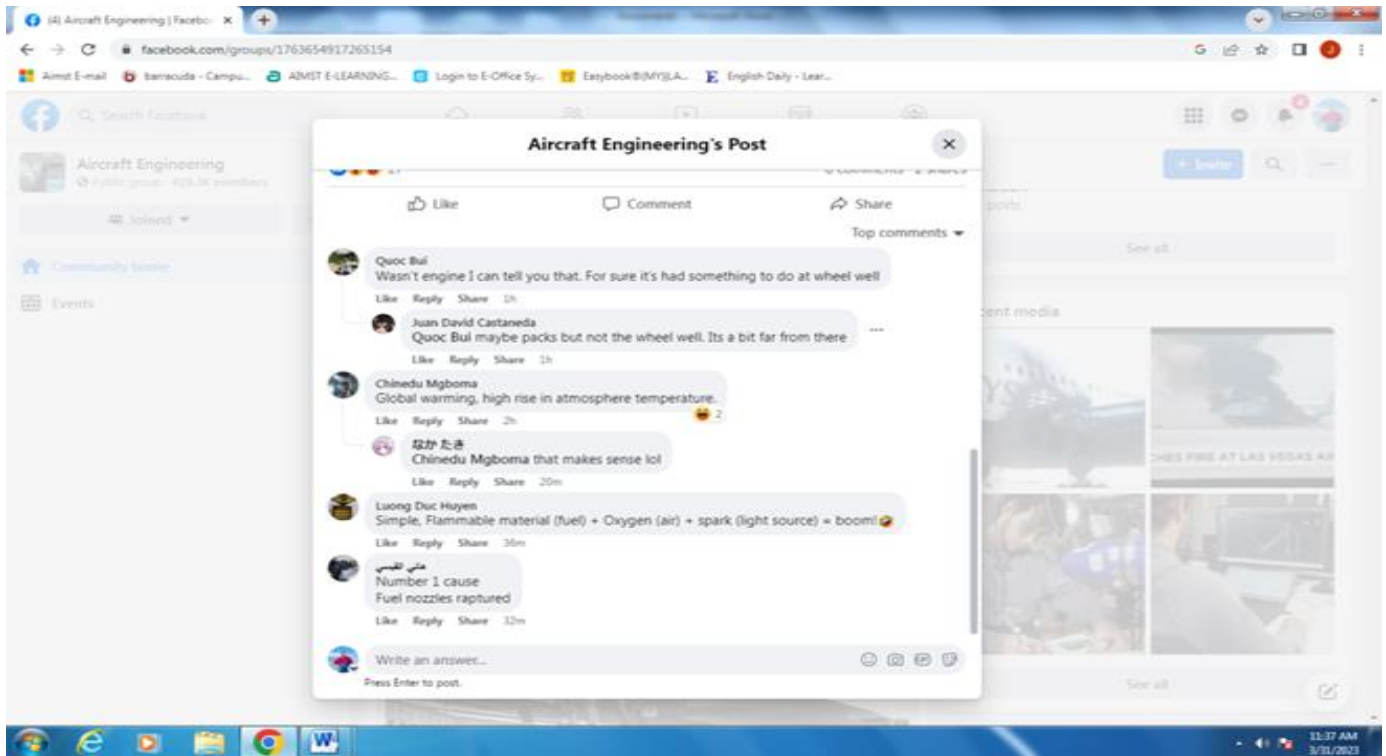


Figure 1: Screenshot of participants using Facebook to discuss an issue regarding the aircraft engine

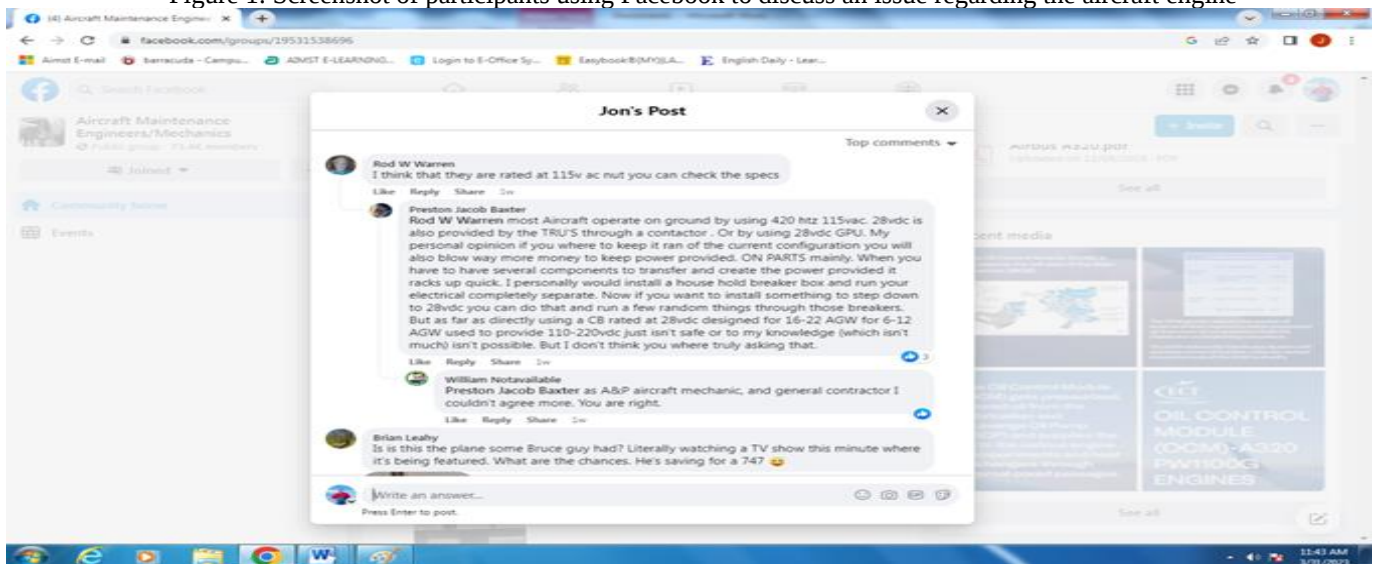


Figure 2: Instructor explains on the Amp ratings in a flight on Facebook page group

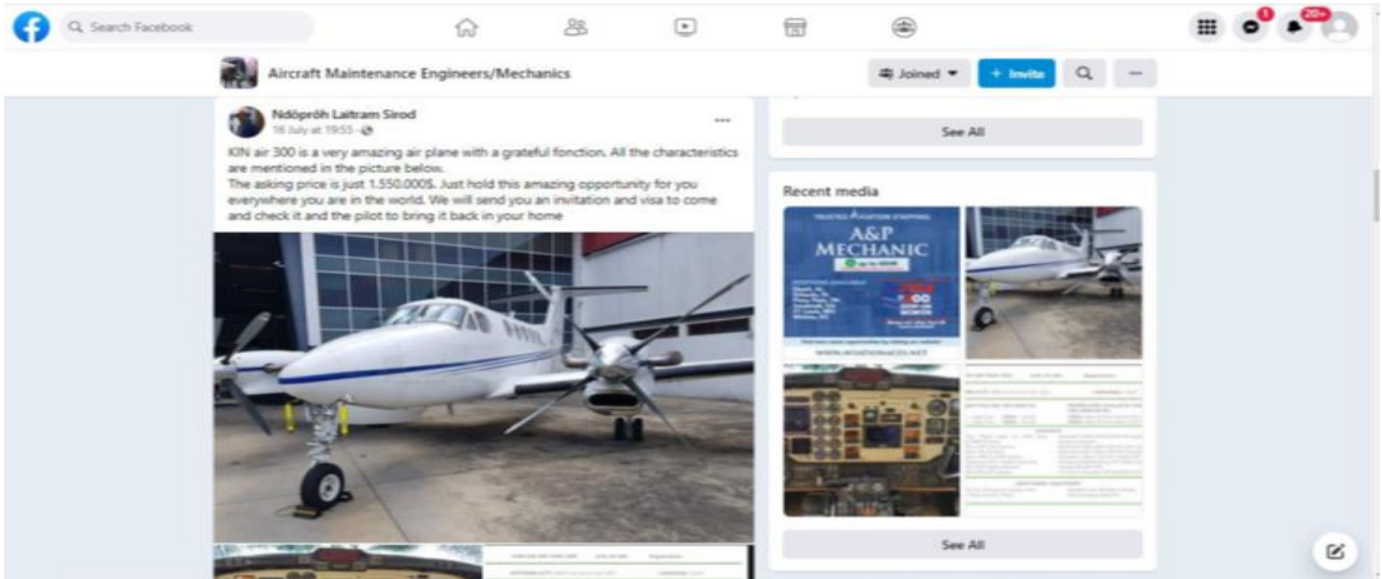


Figure 3: Aircraft maintenance Engineers/Mechanics Group on Facebook



Figure 4: Topic on A330 Aircraft Wing Anti-Ice Protection (Instagram)

All 14 participants stated that the SNSs increased their experience in utilising the social media and all of them agreed that the assignment increased their knowledge of using SNSs to acquire specialised vocabulary. They engaged, shared, and learned using suitable multimedia elements posted by experts in the area.

Figures 1, 2, 3, and 4 demonstrated how the participants used SNSs to collaborate and ask their classmates regarding the specialised vocabulary. Thus, the online observations support the interview findings which observed the acquisition of specialised vocabulary using the SNSs. The participants relied on discussion boards and videos posted by the course instructor which were available on Facebook as well as on Instagram. Furthermore, it can be indicated that the instructor

tied in to or previewed the next in-class meeting or video lesson, or directed the participants on how they can prepare for the next in-class meeting using Facebook and Instagram. Most notably, the researcher concurred that the instructor provided communications (instructions and explanations) that were clear, consistent, and matched the learners' level of understanding using the SNSs. The findings showed that when engaging in SNSs, most of the participants highlighted their weakness in English language and indicated that they surf on Facebook and Instagram daily to follow the materials posted by the instructor for them to improve their technical term knowledge. However, it can be mentioned that some of the participants followed their classmates' posts and watched videos on specialised vocabulary. In this way, it can be argued



that Facebook and Instagram assist the participants and improved their technical term acquisition process. This corroborates the findings of previous studies, such as the ones done by [73] and [74], which highlight the positive effects of Facebook use on students' concentration and their academic careers.

The findings also revealed that the use of SNSs allowed collaboration among learners in the online setting. It was characterised by interaction and varied communication and collaboration options between participants by using Facebook, and Instagram. This increased the participants' creativity and involved them in knowledge construction in personally meaningful ways and assist in the technical term acquisition. In addition, collaboration with peers during the course enabled them to learn from the varied references, get new ideas, contribute from their experience and their knowledge, and comprehend the perspective of the instructor and the learners. This increased the learners' responsibility for the outputs they submitted as well as for choosing the activities they undertook with others in the course. Another significant finding that emerged from this study was that the majority of the participants are using SNSs for research, entertainment, and obtaining other explanatory materials related to their courses. However, when asked with whom they communicate the most when using social networking sites, all the participants mentioned that it was with friends. This might be because SNSs are known for being useful communication tools; however, participants also mentioned that they occasionally used them to communicate with other students and current aircraft maintenance engineers in the industry as well as subject-matter experts and this enriched their personal experience in acquiring specialised vocabulary. Also, all the 14 participants agreed that the use of SNSs had motivated them to improve their English writing skills because the majority of the group's members are senior aircraft maintenance engineers who are currently employed in the field. These senior engineers in the industry would frequently offer guidance and tips to help the participants become more knowledgeable about aviation maintenance if they had any inquiries about the upkeep and repair of an aircraft.

Moreover, most participants thought that using English properly on social networking sites inspired them to do continue it on a regular basis. Since the majority of people using social media are English speakers, all of the participants think they are utilising the language more frequently in regular activities. The participants also claimed that because so many writings and posts on Facebook and Instagram are in English, using these SNSs platforms has encouraged them to utilise the language more frequently. Consequently, the participants understood that social media was a fun way to practise their English, and they are also aware that social networking sites had sparked an interest in them to learn more aircraft technical phrases.

Learning occurs within a social context, and that collaboration between learners and their peers is a significant part of the

learning process [75]. The Zone of Proximal Development (ZPD) is defined as the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers. The SNS in this study serves as a zone where the learners utilise the posting and online discussion efficiently. It also serves as a zone for the learners to practise their language proficiency and acquire language input as well as content knowledge. Another benefit is that they contribute or post correct information in terms of content during the lessons. Hence, the language acquisition process is not limited within the physical classroom setting but may continue in an online setting. With the advancement of Information Communication and Technology (ICT), the ZPD for learners can even be extended and explored further during the learning process. Therefore, if SNS is integrated appropriately in the course, learners may be able to go beyond the prescribed learning zone.

V. CONCLUSION

The present research suggests that SNSs have played a significant role in specialised vocabulary acquisition among aircraft maintenance learners. It can be said that learners engaging in SNSs to acquire specialised vocabulary has been beneficial for them. Furthermore, using SNSs to collaborate with learners about course material is undoubtedly, a suitable technique for the instructors. SNSs offer a wide range of tools that enable the learners to enrich their learning experience, such as sharing information, including text and image-based aircraft maintenance contents. As a result, the learners agreed that instructors should use SNSs to enhance the conventional ways of teaching and learning. It is worthy to note that SNSs has many benefits, is mobile, and is accessible via cellphones, making it ideal for ongoing specialised vocabulary acquisition. Additionally, SNSs provides the learners with the option to contribute images or videos that contextualise visual data and aid in the acquisition of the specialised vocabulary, while also encouraging users to join in an online learning community. The use of SNSs offers an alternative way of content delivery during the online lessons. However, course instructors should blend relevant and useful multimedia contents in their instruction to make learning more stimulating, motivating, and exciting. Needless to say, with the advancement of new technologies, it is critical for instructors to understand how learners use SNSs as a tool for interactive learning. Instructors may encourage learners to utilise SNSs more frequently in order to acquire specialised vocabulary with their peers and encourage them to participate actively in the learning environment.

To its limitations, this study focuses only on emphasising how aircraft maintenance learners acquire specialised vocabulary using the SNS specifically Facebook and Instagram. It is suggested that future research should examine problems in



learning and implementing specialised vocabulary-learning using other types of SNS such as Snapchat, Twitter, TikTok and LinkedIn for other professional courses in view of the demand for Technical and Vocational Education Training (TVET) in Malaysia. Also, future studies may investigate instructors' perspectives on instructional methods they use inside the online classrooms and the problems they face in teaching specialised vocabulary to students.

VI. REFERENCE

- [1] Vikneswaran, Thulasi & Krish, Pramela. (2015). Utilising social networking sites to improve writing: A case study with Chinese students in Malaysia. *Technology, Pedagogy and Education*. 25. 1-14. 10.1080/1475939X.2015.1030441.
- [1] Abbasova, M. (2016). The impact of social networks on the students' English Language in Azerbaijan. *International Multidisciplinary Scientific Conferences on Social Sciences and Arts*, 3. https://www.researchgate.net/publication/307967123_The_Impact_of_Social
- [2] Dhanya, G. (2016). Influence of social media on English language learning. *Journal of English Language and Literature (JOELL)*, 3(1), 105-110.
- [3] Networks_on_the_Students'_English_Language_in_Azerbaijan [14 June 2019].
- [4] R. Mehul, "Discrete Wavelet Transform Based Multiple Watermarking Scheme", in *Proceedings of the 2003 IEEE TENCON*, pp. 935-938, 2003.
- [5] Dhanya, G. (2016). Influence of social media on English language learning. *Journal of English Language and Literature (JOELL)*, 3(1), 105-110.
- [6] Akinoglu, O. and Eren, C.D. (2013) Effect of Problem-Based Learning (PBL) on Critical Thinking Disposition in Science Education. *JEPE*, 14, 1353.
- [7] Mohd Nordin, Nur Rasyidah & Stapa, Siti & Darus, Saadiyah. (2013). Developing a Specialized Vocabulary Word List in a Composition Culinary Course through Lecture Notes. *Advances in Language and Literary Studies*. 4. 78-88. 10.7575/aiac.all.v.4n.1p.78.
- [8] Alqahtani, M. (2015). The Importance of Vocabulary in Language Learning and How to be taught. *International Journal of Teaching and Education*, 21- 34.
- [9] Khan, I. U., Ayaz, M., & Faheem, M. (2016). The role of social media in development of English language vocabulary at university level. *International Journal of Academic Research in Business and Social Sciences*, 6(12), 590–604. DOI: 10.6007/IJARBS/v6- i11/2444.
- [10] Schmitt, N. (2000). *Vocabulary in language teaching*. Stuttgart, Germany: Ernst Klett Sprachen.
- [11] Bravo, Marco A., and Gina A. Cervetti, (2008). "Teaching vocabulary through text and experience in content areas" in Alan E. Farstrup and S. Jay Samuels (eds.): *What research has to say about vocabulary instruction*, Newark, NJ: International Reading Association, 141-152.
- [12] Nation, I. S. P. (1990). *Teaching and Learning Vocabulary (Teaching Methods)*. Boston, MA: Cengage Learning, Inc.
- [13] Carter; McCarthy, M. (1988). *Vocabulary & Language Teaching*, London: Longman.
- [14] Edward, E. I., Kamlun, K., Din, W. A., Pudim, C. S. J. (2021). Reading Difficulties Among Malaysian Undergraduate ESL Learners: A Preliminary Study. *International Journal of Education, Psychology and Counseling*, 6 (43), 62-70.
- [15] White CE, Kim JS. (2009). Putting the pieces of puzzle together: How systematic vocabulary instruction and expanded learning time can address the literacy gap. Washington, DC: Center for American Progress.
- [16] Toyoda, E. & Harrison, R. (2002). Categorization of Text Chat Communication between Learners and Native Speakers of Japanese. *Language Learning & Technology*, 6(1), 82-99. Retrieved March 14, 2024 from <https://www.learntechlib.org/p/93222/>.
- [17] Hamzah, H and Wong Fook Fei (2018). Miscommunication in Pilot-controller Interaction. *3L: The Southeast Asian Journal of English Language Studies – Vol 24(4): 199 – 213* <http://doi.org/10.17576/3L-2018-2404-15>
- [18] Hamzah, H., Krish, P., & Hamat, A. (2023). Aviation communication challenges and language training development: Perspectives from pilots and air traffic controllers. *Training, Language and Culture*, 7(1), 86-100.
- [19] Firdaus, N.S., Yassi, A.H., & Sukmawati. (2020). The importance of understanding technical terminology in coordination between ATC and the engineer. *IOP Conference Series: Earth and Environmental Science* 575(2020): 1-6.
- [20] Firdaus, N.S., Yassi, A.H., & Sukmawati. (2020). The importance of understanding technical terminology in coordination between ATC and the engineer. *IOP Conference Series: Earth and Environmental Science* 575(2020): 1-6.
- [21] Lin, C.H., Warschauer, M., & Blake, R. (2016). Language learning through social networks. *Language Learning and Technology*, 20(1), 124-147. Retrieved 18 June 2017 from https://scholarspace.manoa.hawaii.edu/bitstream/10125/44449/1/20_01_linwarschauerblake.pdf
- [22] Balakrishnan, V., & Lay, G. (2016). Student's learning style and their effects on the use of social media technology for learning. *Telematics and Informatics*, 33, 808-821. DOI:10.1016/j.tele.2015.12.004
- [23] Lin, C.H., Warschauer, M., & Blake, R. (2016). Language learning through social networks. *Language Learning and Technology*, 20(1), 124-147. Retrieved 18



- June 2017 from
https://scholarspace.manoa.hawaii.edu/bitstream/10125/44449/1/20_01_linwarschauerblake.pdf
- [24] Everson, Michelle & Gundlach, Ellen & Miller, Jacqueline. (2013). Social media and the introductory statistics course. *Computers in Human Behavior*. 29. A69–A81. 10.1016/j.chb.2012.12.033.
- [25] Balakrishnan, V., & Lay, G. (2016). Student's learning style and their effects on the use of social media technology for learning. *Telematics and Informatics*, 33, 808-821. DOI:10.1016/j.tele.2015.12.004
- [26] Nation, Paul. (2001). *Learning vocabulary in another language*, Cambridge: CUP [<http://dx.doi.org/10.1017/CBO9781139524759>].
- [27] Schmitt, N. (2000). *Vocabulary in language teaching*. Stuttgart, Germany: Ernst Klett Sprachen.
- [28] Takac, V. P. (2008). *Vocabulary learning strategies and foreign language acquisition*. Clevedon, Buffalo, Toronto: Multilingual Matters Ltd.
- [29] Al-Tamimi, M. F., Al-Khawaldeh, A. H., Natsheh, H. I. M. A., & Harazneh, A. A. (2018). The effect of using Facebook on improving English language writing skills and vocabulary enrichment among University of Jordan sophomore students. *Journal of Social Sciences (COES&RJ-JSS)*, 7, 187–214.
- [30] Al Mubarak, A. A. (2017). Sudanese Students' Perceptions of Using Facebook for Vocabulary Learning at University Level. *Journal of Nusantara Studies (JONUS)*, 2(1), 170–176.
- [31] Indari, A., & Putri, M. M. C. (2018). The effect of using social media on the students' vocabulary achievement at tenth grade students of SMA Swasta Persiapan Stabat Academic Year 2017/2018. *Jurnal Tarbiyah*, 25(1), 185–201.
- [32] Blattner, Geraldine & Anderson, Lara. (2012). Facebook-ing and the Social Generation: A New Era of Language Learning. *Alsic*. 10.4000/alsic.2413.
- [33] Ventura, P., & Martín-Monje, E. (2016). Learning specialized vocabulary through Facebook in a massive open online course. In A. Pareja-Lora, C. Calle-Martínez, & P. RodríguezArancón (Eds.), *New perspectives on teaching and working with languages in the digital era* (pp. 117–128). Dublin, Ireland; Voillans, France: Research-publishing.net.
- [34] Zourou, K. (2012). On the attractiveness of social media for language learning: A look at the state of the art. *Alsic. Apprentissage des Langues et Systèmes d'Information et de Communication*, 15(1), 2-15.
- [35] Ventura, P., & Martín-Monje, E. (2016). Learning specialized vocabulary through Facebook in a massive open online course. In A. Pareja-Lora, C. Calle-Martínez, & P. RodríguezArancón (Eds.), *New perspectives on teaching and working with languages in the digital era* (pp. 117–128). Dublin, Ireland; Voillans, France: Research-publishing.net.
- [36] Kabilan, M. K., & Zahar, T. Z. M. E. (2016). Enhancing students' vocabulary knowledge using the Facebook environment. *Indonesian Journal of Applied Linguistics*, 5(2), 217–230. DOI: 10.17509/ijal.v5i2.1346
- [37] Tran, P. (2016). Training learners to use Quizlet vocabulary activities on mobile phones in Vietnam with Facebook. *JALT CALL Journal*, 12(1), 43–56. <https://doi.org/10.29140/jaltcall.v12n1.201>
- [38] Guvendir, E., & Gezgin, D. M. (2015). The effect of a Facebook game that requires English vocabulary knowledge on students' English vocabulary development. *Journal of Educational Sciences Research*, 5(1), 41–55.
- [39] Indari, A., & Putri, M. M. C. (2018). The effect of using social media on the students' vocabulary achievement at tenth grade students of SMA Swasta Persiapan Stabat Academic Year 2017/2018. *Jurnal Tarbiyah*, 25(1), 185–201.
- [40] Tran, P. (2016). Training learners to use Quizlet vocabulary activities on mobile phones in Vietnam with Facebook. *JALT CALL Journal*, 12(1), 43–56. <https://doi.org/10.29140/jaltcall.v12n1.201>
- [41] Faizi, Rdouan & El Afia, Abdellatif & Chiheb, Raddouane. (2013). Exploring the Potential Benefits of Using Social Media in Education. *International Journal of Emerging Technologies in Learning*. 3. 50-53. 10.3991/ijep.v3i4.2836.
- [42] Kitchakarn, O. (2016). How Students Perceived Social Media as a Learning Tool in Enhancing their Language Learning Performance. *The Turkish Online Journal of Educational Technology*.
- [43] Abdulahi, A., Samadi, B., & Gharlegghi, B. (2014). A Study on the Negative Effects of Social Networking Sites such as Facebook among Asia Pacific University Scholars in Malaysia. *International Journal of Business and Social Science*, 5(10).
- [44] Khan, I. U., Ayaz, M., & Faheem, M. (2016). The role of social media in development of English language vocabulary at university level. *International Journal of Academic Research in Business and Social Sciences*, 6(12), 590–604. DOI: 10.6007/IJARBS/v6- i11/2444
- [45] Knight, S. (1994). Dictionary use while reading: The effects on comprehension and vocabulary acquisition for students of different verbal abilities. *The Modern Language Journal*, 78(3), 285-299.
- [46] Chun, D. M., & Plass, J. L. (1996). Effects of multimedia annotations on vocabulary acquisition. *The Modern Language Journal*, 80(2), 183-198.
- [47] Akbulut, Yavuz. (2007). Effects of multimedia annotations on incidental vocabulary learning and reading comprehension of advanced learners of



- english as a foreign language. *Instructional Science*. 35. 499-517. 10.1007/s11251-007-9016-7.
- [48] Shahrokni, Seyed Abdollah. (2009). Second Language Incidental Vocabulary Learning: The Effect of Online Textual, Pictorial, and Textual Pictorial Glosses.
- [49] Lin, Kuan-Yu & Lu, Hsi-Peng. (2011). Why People Use Social Networking Sites: An Empirical Study Integrating Network Externalities and Motivation Theory. *Computers in Human Behavior*. 27. 1152-1161. 10.1016/j.chb.2010.12.009.
- [50] Vygotsky, L.S. (1978). *Mind in Society*. Cambridge: Harvard University Press.
- [51] Vygotsky, L.S. (1978). *Mind in Society*. Cambridge: Harvard University Press.
- [52] Vygotsky, L.S. (1978). *Mind in Society*. Cambridge: Harvard University Press.
- [53] McLeod, S. (2014). Lev Vygotsky. *Simply Psychology*. Retrieved from <https://www.simplypsychology.org/vygotsky.html>.
- [54] Robin, S. J., & Aziz, A. (2022). The Use of Digital Tools to Improve Vocabulary Acquisition. *International Journal of Academic Research in Business and Social Sciences*, 12(1), 2472–2492.
- [55] Hutchison, A., & Colwell, J. (2015). *Bridging technology and literacy: Developing digital reading and writing*. London: Rowman and Littlefield Publishers.
- [56] Kelly, J. (2012) Learning theories. Retrieved from <http://thepeakperformancecenter.com/educational-learning/learning/theories/>
- [57] Ana, A., Minghat, A. D., Purnawarman, P., Saripudin, S., Muktiarni, M., Dwiyantri, V., & Mustakim, S. S. (2020). Students' perceptions of the twists and turns of e- learning in the midst of the covid 19 outbreak. *Revista Romaneasca pentru Educatie Multidimensionala*, 12 (1Sup2), 15-26.
- [58] Duke, B., Harper, G., & Johnston, M. (2013). Connectivism as a Digital Age Learning Theory. *The International HETL Review*, Special Issue, 4–13. Retrieved from <https://www.hetl.org/wp-content/uploads/2013/09/HETLReview2013SpecialIssue.pdf#page=10>.
- [59] Johnston, Kim A. & Lane, Anne (2021) Communication with intent: A typology of communicative interaction in engagement. *Public Relations Review*, 47(1), Article number: 101925.
- [60] Kapur, R. (2018). The Significance of Social Constructivism in Education. <https://www.researchgate.net/publication/323825342>. The Significance of Social Constructivism in Education/citation/download
- [61] Varma, S. B., Adam, S., Anyau, E., Jah, N. binti A., Ghani, M. H. @ M., & Rahmat, N. H. (2023). A Study of Social Constructivism in Online Learning. *International Journal of Academic Research in Business and Social Sciences*, 13(4), 1559 – 1577.
- [62] Xu, D., & Jaggars, S. (2013). Adaptability to online learning: Differences across types of students and academic subject areas (CCRC Working Paper). New York, NY: Teachers College, Columbia University. Retrieved from <http://ccrc.tc.columbia.edu/publications/adaptability-to-online-learning.html>.
- [63] Jegede, S. A. (2010). Nigerian students perception of technical words in senior secondary school chemistry curriculum. *Pakistan Journal of Social Sciences* 7(2), 109–111. <https://doi.org/10.3923/pjssci.2010.109.111>
- [64] Omwirhiren, E. M. (2015). Enhancing academic achievement and retention in senior secondary school chemistry through discussion and lecture methods: a case study of some selected secondary schools in Gboko, Benue State, Nigeria. *Journal of Education and Practice*, 6(21), 155-161. Westwood, P. What teachers need to know about teaching methods? Camberwell, Vic: ACER Press.
- [65] Axmedova, T. B., & Kenjayeva, N. D. (2021). Advantages and disadvantages of online learning. *Eurasian Journal of Humanities and Social Sciences*, 3, 48-50. <https://geniusjournals.org/index.php/ejhss/article/view/240>
- Beech, J. (1998). *Thank you for flying with us*. London: Prentice Hall International.
- [66] Riazi, A.M. (2016) Innovative Mixed-Methods Research: Moving beyond Design Technicalities to Epistemological and Methodological Realizations. *Applied Linguistics*, 37, 33-49. <https://doi.org/10.1093/applin/amv064>
- [67] Ary, D., Jacob, L. & Sorensen, C. (2010). *Introduction to Research in Education*. 8th edition. Belmont: Thomson Wadsworth.
- [68] Joppe, M. (2000). *The Research Process*. Retrieved December 16, 2006, from <http://www.ryerson.ca/~mjoppe/rp.htm>
- [69] Patton, M. (2002). *Qualitative research and evaluation methods* (3rd ed.). London: Sage
- [70] Gay, L. R., Mills, G. E., & Airasian, P. (2009). *Educational research: Competencies for analysis and applications*. New Jersey: Pearson.
- [71] Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation* (2nd ed.). San Francisco: Jossey-Bass.
- [72] Gay, L. R., Mills, G. E., & Airasian, P. (2009). *Educational research: Competencies for analysis and applications*. New Jersey: Pearson.
- [73] Tariq, W., Mehboob, M., Khan, M. A., & Ullah, F. (2012). The Impact of social media and social networks on education and students of Pakistan. *International Journal of Computer Science Issues*, 9, 4(3), 407- 411.



- Retrieved 18 June 2017 from
<https://www.ijcsi.org/papers/IJCSI-9-4-3-407-411.pdf>
- [74] Ketari, L., & Khanum, M. (2013). Impact of Facebook usage on the academic grades: A case study. *Journal of Computing*, 5(1), 44-48. Retrieved 18 June 2017 from <https://www.scribd.com/document/213252998/Impact-of-Facebook-Usage-on-Academic-Grades-ACase-Study>.
- [75] Vygotsky, L.S. (1978). *Mind in Society*. Cambridge: Harvard University Press.

APPENDIX

Student Interview Question

1. In your opinion, do you think you have been exposed to a lot of specialised vocabulary in the aircraft maintenance course?
2. Was it difficult to learn specialised vocabulary using the SNS? Why or why not?
3. Are these new terms, normal or specific for the aircraft maintenance course?
4. Do you think it is important to know the specialised vocabulary in aircraft maintenance? Why or why not?
5. What did you like the most about acquiring the technical terms using the SNS?
6. What did you like the least about SNS?
7. In your opinion, is learning through SNS the best way to understand specialised vocabulary?
8. Do you think your instructor plays a role in influencing your learning of specialised vocabulary in the SNS?
9. Do you think your friends influence your learning of specialised vocabulary in the SNS?
10. What problems have you encountered when using the SNS in the course?
11. Explain how SNSs helped to improve your specialised vocabulary proficiency when writing the report?
12. How did you know that you are using the correct terms in the assignment?
13. Did the discussion/group activities in the SNS help you in understanding the specialised vocabulary?
14. Do you think there is improvement in specialised vocabulary usage after using the SNS?

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