

**THE INFLUENCE OF PERSONALITY AND LANGUAGE PROFICIENCY
ON ESL LEARNERS' WORD CONTRIBUTIONS
IN FACE-TO-FACE AND SYNCHRONOUS ONLINE FORUMS**

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Received: 11.03.2020

Accepted: 05.10.2020

ABSTRACT

Background and Purpose: Recent technological advancements and Covid-19 pandemic have prompted more opportunities for online learning. However, there is a dearth of empirical research that is focused on high school students. Therefore, this study aims to obtain a more comprehensive view of ESL learners' involvement or word contributions in a 'normal' face-to-face situation and in a synchronous online text-based environment by relating it to their personality and language proficiency.

Methodology: In this study, a quasi-experiment was carried out over four weeks. It involved eight sessions of face-to-face and online discussions with 48 Malaysian high school students who were divided into two matched-sample groups. The participants' feedback was used to support and provide insights on the findings. The quantitative data were analysed using using IBM SPSS statistics 26 software while the participants' responses to the online feedback session were analysed using open coding and axial coding strategies.

Findings: Statistically significant difference was found in learners' word contributions during face-to-face and online discussions. Apart from the extroverts with high-intermediate language proficiency, the other groups of learners who are either introverts or having lower level language proficiency were found to produce significantly more words in synchronous online text-based discussions. The non-face-to-face context of online forums might have lowered the learners' level of anxiety and increased their confidence to interact with their peers.

Contributions: Learners' personalities and language proficiency levels should be considered when choosing a discussion setting and when facilitating discussion activities. More support should be provided for the less proficient or introverted learners to express themselves in a face-to-face discussion.

Keywords: Personality, Language proficiency, Computer-mediated communication, Synchronous text-based online discussions, Word contributions

Cite as: Chew, S. Y., & Ng, L. L. (2021). The influence of personality and language proficiency on ESL learners' word contributions in face-to-face and synchronous online forums. *Journal of Nusantara Studies*, 6(1), 199-221. <http://dx.doi.org/10.24200/jonus.vol6iss1pp199-221>

1.0 INTRODUCTION

The integration of technological tools and the Internet in the classroom has been widely researched since the early 1990s (Howard & Mozejko, 2015). Research has found that learners strongly believe in the capability of technology to provide them with enriched learning experiences (Bower, 2017). Thus, one can observe the paradigm shift from traditional face-to-face classrooms to online learning communities whereby participants from any location could easily discuss an issue at any time (Bower, 2017; Clark, Strudler, & Grove, 2015).

There are two types of online discussions – asynchronous and synchronous discussions. Asynchronous discussions refer to discussions which learners can participate at any time while synchronous discussions refer to discussions which require the participants to meet at the same time to communicate by reading, typing and sending messages (Lapadat, 2002; Yates, 2001).

Synchronous online discussions are often compared to face-to-face discussions as they are both instantaneous and spontaneous. Moreover, both types of discussions usually consist of short single-lines messages and share similar discourse and conversational style (Lapadat, 2002; Nunan, 1999; Yates, 2001).

Despite the similarities, face-to-face discussions are usually limited by turn-taking and the available time to speak. Pragmatic language skills are also considered a premium and they may be challenging for learners who have not mastered the classroom discourse or those who are shy and of different cultures (Schallert, Reed, Dodson, Benton, & Boardman, 2001). On the contrary, online communication which involves typing allows participants to freely express their thoughts at any time. The participants also have more time to think about the previous posts and their own drafts before sending them online (Lever-Duffy & McDonald, 2011; Sotillo, 2009; Yates, 2001). This is beneficial for the ESL learners as they could use the target

language to respond to more posts at their own pace and without the need to wait for their turns (Lapadat, 2002).

In terms of participation, language learners are found to be more collaborative and show more balanced participation in synchronous online discussions (Chew & Ng, 2016; Fitze, 2006; Sean & Xing, 2016; Warschauer, 1996). The learners also generally feel more comfortable to express themselves in the online environment (Chew & Ng, 2016; Freiermuth, 2010; Roed, 2010; Warschauer, 1996). This suggests that the online discussion setting can benefit different types of learners, including those who are shy, hesitant, introverted or reticent. Learners who have language difficulties or dislike speaking in front of other learners may also be more active in online discussions because they have the chance to be heard when communicating in this setting (Freiermuth, 2010). As a certain discussion setting may be favourable to a certain group of learners but not for the others, it is important for language instructors to cater to the learners' needs for a more effective teaching and learning process. The individual differences that are focused on in this study are the personality and language proficiency of the learners. Specifically, the personality refers to the extroversion and introversion of the learners while language proficiency refers to the more proficient and less proficient learners.

Personality and language proficiency can affect a learner's thinking, choices, actions and behaviour. For instance, an extrovert who is more outspoken and sociable may learn a language more easily since they are more willing to use the target language to socialise with the others and are less afraid to make mistakes. Likewise, the more proficient language learners may be more confident and motivated to use the target language compared to the less proficient learners. Thus, if the personality and language proficiency of the learners are not considered during the teaching and learning process, the less proficient introverted learners may be at a disadvantage especially since their language learning strategies are limited. In other words, it is crucial to understand the particular affordances of face-to-face communication and synchronous online discussions in supporting different types of language learners in using the target language.

Moreover, recent technological advancements and widespread pandemic have prompted more opportunities for online learning. However, there is a dearth of empirical research that is focused on Malaysian high school learners' involvement in the online environment. Therefore, through the use of carefully selected experimental groups, this study aims to investigate the potential of online medium in language classes by comparing the word contributions of different ESL high school learners in face-to-face and online discussions. In

this study, word contributions refer to the words produced for group discussions in face-to-face setting or words posted in synchronous online forums for a given topic.

Investigation of ESL learners' word contributions enables the determination of learners' level of involvement with learning (Lambert, Philp, & Nakamura, 2017). Learners are considered to be engaged in a task when they are active contributors of the task discussions, not just passive recipients (Lambert et al., 2017; Reeve, 2012; Svalberg, 2009). Assessing learners' word counts is one of the typical assessment of learners' behavioural engagement; related to learners' degree and quality of participation (Bygate & Samuda, 2009; Dörnyei & Kormos, 2000). As such, learners' word contributions in discussions is measured in this study to indicate learners' involvement in using the target language. In line with Swain's (1995) comprehensible output hypothesis, a learner's word contributions in discussions indicates the learners' opportunities to improve their language by noticing their linguistic gap, testing their hypothesis of the language and modifying or automatizing certain language features.

To care for the differences among learners (Chew & Ng, 2016), the influence of ESL learners' personality and language proficiency on their word contribution in different discussion platforms also needs to be investigated. The type of personality focused on in this study is the extroversion and introversion of learners because previous studies have found introverts to be better in channelling their ideas online (Hamat, 2008; Jonassen, 1994; Kamhi-Stein, 2000; Schallert et al., 2001). Apart from that, learners' language proficiency has also been found to impact on their language production in online discussions (Arslanyilmaz, 2012). Therefore, this research aims to study the impact of the learners' personality and language proficiency on their production of words in face-to-face and synchronous online forums. The results may inform language instructors of the use of different discussion platforms in facilitating more word production, or more active participation when catering to the learning requirements of ESL learners. The research questions of this study are as follows:

1. Is there a significant difference in the word contributions of ESL learners with different personalities (introverts and extroverts) in face-to-face and synchronous online forums?
2. Is there a significant difference in the word contributions of ESL learners with different proficiency levels in face to face and synchronous online forums?
3. Is there a significant difference in the word contributions of ESL learners with different personalities and language proficiency levels in face to face and synchronous online forums?

The null hypotheses for this study are:

1. There is no significant difference in the word contributions of ESL learners with different personalities (introverts and extroverts) in face-to-face and synchronous online forums.
2. There is no significant difference in the word contributions of ESL learners with different proficiency levels in face to face and synchronous online forums.
3. There is no significant difference in the word contributions of ESL learners with different personalities and language proficiency levels in face to face and synchronous online forums.

2.0 RELEVANT PAST STUDIES

The effects of discussion environments on language learners' discourse and participation style were investigated by Fitze (2006) who adapted Warschauer's (1996) study. In his study, Fitze (2006) conducted four weeks of observation on the discussions in both types of discussion environments. In face-to-face discussions, the researcher together with all the learners discussed a topic in a class. Similar whole-class discussion with 12 to 13 students was held in the online setting with the difference of students being seated in front of the computer in a computer lab and typing words to be read by other classmates. During the discussions, the university students had 20 minutes to discuss the issues. In Fitze's (2006) study, statistically significant difference was not found in the total number of words contributed by the ESL learners in the two different discussion settings though there was an increase in the percentage of student participation in the online setting. This pointed to a need for future studies to investigate the variables like language proficiency, shyness and introversion that could mediate learners' participation styles in face-to-face and online discussions.

The relationship between learners' language proficiency and their word contributions was explored by Arslanyilmaz (2012). In his study, fourteen groups worked collaboratively in four communicative tasks on an online chat tool called WebCT-Vista. Seven of the groups were at the intermediate level while the other seven were at advanced-level language proficiency. The more proficient learners were found to produce more words and more lexically complex language. The finding is in accordance with other research which has found that lower language proficiency learners suffer significantly higher level of language anxiety while the more proficient learners are more motivated and unembarrassed to use the target language (Macintyre, 1995; Satar & Özdener, 2008). This suggests that the level of learners' language proficiency can impact their performance and learning process in a discussion. Thus, investigations on the way language proficiency may affect the quality and quantity of communication among learners is crucial in the design of a conducive ESL learning environment (Iwashita, 2001)

The qualitative research of Whitworth (2009) also postulated that learners who were timid can try out new linguistics forms better when they were online since the consequences of face-threatening acts usually would not exist or were drastically reduced in an online environment. This is also supported by Jonassen (1994) who found that the introverted learners produced more words in online discussions as they could take their time to respond. However, the studies conducted by Jonassen (1994), Whitworth (2009), and Arslanyilmaz (2012) only analysed the learners' productions in discussion forums without making comparisons to face-to-face discussions

Different learners may prefer different methods of communication and this could influence their language output in different discussion settings (Ellis, Goodyear, Calvo, & Prosser, 2008; Sharpe & Benfield, 2005). Even though learners' individual differences such as personality and language proficiency have been explored (Jonassen, 1994; Tam, 2009; Whitworth, 2009), these variables have not been looked into as a whole in order to investigate learners' involvement in face-to-face and computer-mediated interactions. Previous studies were also mainly done at qualitative level and they were rarely conducted with controlled experimental groups in a classroom setting for a more reliable findings (Tam, Kan, & Ng, 2010).

3.0 METHODOLOGY

This study gathered data from a quasi-experiment which involved 48 high school students participating in both face-to-face and online discussions. The participants' reflective comments

towards the different discussions were also analysed to support and provide insights on the quantitative findings.

3.1 Participants

The participants of this study were selected from the school where the researcher worked at. It was an urban elite school in Malaysia. These students were familiar with the use of computers and the Internet as they had access to them at home and were trained to use them for schoolwork. In this study, the key variables (the personality and language proficiency of the participants) were controlled.

To determine learners' personality, a questionnaire was administered to 200 students. The questionnaire items were from the 20 items in *Activity 2: How I deal with other people of Style Analysis Survey (SAS): Assessing Your Own Learning and Working Styles*, developed by Oxford (1993). It gave an indication of students' personality; whether they were extroverts or introverts. The students were required to circle the immediate answers that best represent their attitudes and preferences. After that, they added up their scores for items 1–10 which measured extroversion and items 11–20 which measured introversion. If their scores for items 1–10 were higher than items 11–20 then they would be placed in the extroverts group and vice versa. However, if the difference in scores for items 1–10 and 11–20 were less than two points, the respondents were characterised as balanced type. In this case, the extroverted learners were defined as learners who were more sociable and preferred social interactive tasks while the introverts were learners who tend to withdraw from social contacts and preferred more independent tasks and enjoy working with someone they knew well (Oxford, 1993). The students with the most extreme extroversion or introversion scores were selected as participants because some may have both extroversion and introversion dominating them. The selection of participants was also matched with teacher's observation of the students for the past six months before the experimentation was carried out. For example, Participant 1 (Group A) was selected because her score for extroversion and introversion in the SAS survey was 22–7. She was considered as an extreme extrovert and the teacher also found that she was very active and sociable in the class. In contrast, when a learner scored 13–11 with the scores for extroversion being 2 points higher than her introversion, she was not selected as she was considered balanced and her performance in class was also more reserved than Participant 1 (Group A).

Style Analysis Survey (SAS) survey was used in this study because it was user-friendly (Dörnyei, 2005) and more focused on language learning than other instruments (Cohen & Dörnyei, 2002). In addition, the survey was considered as a reliable survey with a Cronbach

reliability of .87 when it was tested with 468 language learners at a university in the United States (Akbalut, 2007). The dimension which assessed extroversion and introversion was also found to be significant and reliable with 0.70 criterion for Cronbach's alpha (Cesur & Fer, 2009; Psaltou-Joycey & Kantaridou, 2011). Moreover, it has also been used to assess learners' personality in many studies (e.g. Akbalut, 2007; Cesur & Fer, 2009; Psaltou-Joycey & Kantaridou, 2011).

The learners' performances for the mid-year examination and school-based oral assessment were used to determine their levels of language proficiency. From the combined scores, the top 20% results were categorized as high-intermediate while the bottom 20% were categorized as low-intermediate. The learners with high-intermediate language proficiency were considered more proficient in English language as they had been placed in the *Excellent* band in their oral tests and also achieved a *B+* or *A-* in their mid-year examination. On the other hand, the low-intermediate language proficiency learners had been placed in the lower bands in the school-based oral assessment (*Good* band) and mid-year examination (*C+* or *C*).

From the performances of over 200 students who were 16 years old, 48 high-intermediate and low-intermediate learners with the most extreme extroversion or introversion scores were selected to take part in the quasi-experiment. Since the participants were chosen from an all-girls school where the researcher was working, only female students were involved.

The selected 16-year-old female participants were randomly placed in either Group A or Group B. Two matched-samples groups were created in this study to increase the sample size and to control the topic effect. Since Group A and Group B had the same discussion topic in different discussion settings at the same week, the effect of the discussion topics on learners' word contributions were controlled and the discussion environment remained as the only independent variable of interest. Both Group A and Group B were balanced in the number of learners with different personality (12 introverts and 12 extroverts) and language proficiency (12 high-intermediate and 12 low-intermediate). Details of the participants are in Appendix 1.

Each Group A and Group B consists of twenty-four participants. This number fit into the recommended number for active online discussions and did not exceed the number of members that can lead to subgroups and greater anonymity among members in large group discussions (Jacques & Salmon, 2006; Rovai, 2007). According to Rovai (2007), online discussions would be optimum with 20 to 30 members. Jacques and Salmon (2006) also stated that large group discussions with more than 25 members whether in a face-to-face or an online setting could be problematic (Jacques & Salmon, 2006). For instance, in face-to-face discussion, the room or the seats may not be enough while in online discussions, the messages

may be too much and some had to be ignored (Jacques & Salmon, 2006). Since this study investigated whole-class or large group discussions with learners who had different personalities and language proficiency, the number of participants had to be higher to produce more reliable findings for the different groups of learners. As Jacques and Salmon (2006) did not recommend discussions with more than 25 members, this study has selected 24 participants for each group.

3.2 Teacher cum Researcher

In order to maintain consistency in the instructor's facilitating style when implementing the quasi-experiment, the researcher was the only ESL teacher involved in the facilitation of the face-to-face and synchronous online forums. This ensured internal validity (Fitze, 2006; Fitze & McGarrell, 2008).

During the face-to-face discussions, the teacher cum researcher read out the topic and related question(s) for the participants. She then moved aside to allow student-student interactions and only came back into the discussion to summarise and end it. No novel suggestions, thoughts or instances related to the discussion topic was given by the teacher/researcher. This was done to maintain the researcher's role in face-to-face and online discussions which was to read the discussion questions, observe learners' interaction and signalled the end of a discussion when the time was up. Since the focus of this study is the students, the teacher/researcher mainly stood aside as an observer and the students took the central role in the discussions.

In online discussions, the teacher cum researcher started the discussion by posting the topic and questions on a new discussion page. Similar to face-to-face discussions, she allowed students to respond freely and only summarised and ended the discussion after 20 minutes. The time limit set was similar to Fitze's (2006), Warschauer's (1997) and Yanguas's (2010) study in which 15–20 minutes were allocated to both face-to-face and online discussions. A trial run of the face-to-face and online discussions with a group of seventeen-year-old ESL students who were not involved in this study also found that 20 minutes were sufficient for the learners to finish discussing a topic.

3.3 Procedure

Before the experiment, the participants attended an introductory session to familiarise themselves with the *Learning English in an Interactive Way* website (created for free using forumotion.com for the purpose of this study) and procedures for face-to-face and

synchronous online forums. Each participant was placed in one of the matched-sample groups: Group A or Group B. Each group experienced four discussion forums; alternating weekly from face-to-face to synchronous online discussions. In this study, Group A started with synchronous online forums and they had face-to-face discussions in the following week, while Group B started with face-to-face discussions followed by online forums.

Four discussion topics were chosen for the quasi-experiment. The chosen topics were consistent with the themes found in the national high school curriculum specification for Form 4 or high school year 4 English Language (Ministry of Education, Malaysia, 2003). All discussions lasted 20 minutes.

The synchronous online forums were held at a computer laboratory while face-to-face discussions were held at a meeting room. The meeting room rather than the classroom was used because the circular seating arrangement in the meeting room enabled all participants to see each other easily (Falout, 2014). The synchronous online forums were conducted online at the website *Learning English in an Interactive Way*: a web-based discussion board forum.

During the experiment, the face-to-face discussions were recorded with two video cameras while the typed messages in the online discussions were auto saved on the website.

After the discussions, the videotaped face-to-face discussions were transcribed by the researcher and cross-checked by two selected participants. The number of words produced by the learners was retrieved using the Word Count tool found in Microsoft Word.

For the online discussions, all the exchanges including the senders' information and the order of the sent messages were stored in a word-processing file. Abbreviations were considered as words but expressions like "hehehe" and "hahaha" were not considered as words since they were not considered as words in face-to-face discussions. The Word Count tool was utilised to determine the participants' production of words.

After the experiment, an online feedback session was created for the participants to express their views of the discussion settings and provide suggestions for improvement. The questions asked were:

- If you have experienced discussion through F2F and online, what is your comment on the two different discussion settings?
- Which one do you prefer and why?
- Any suggestions to improve?

To find out if learners who have different personalities and levels of language proficiency show differences on their word contribution in face-to-face and synchronous online forums, the data from the quasi-experiment were analysed using IBM SPSS statistics 26 software. Since the sample of this study was selected and they were not normally distributed, non-parametric statistics were used. Using the software, Wilcoxon Signed Rank Test was run on the total number of words produced in different discussion condition (online and face-to-face). After that, Mann-Whitney U Test was run on the groups with different personalities (introverts, extroverts) and then again on the groups with different levels of language proficiency (high-intermediate, low intermediate). Lastly, Kruskal-Wallis Test was run on the groups with different personalities and proficiency level (introverts with high-intermediate language proficiency, introverts with low-intermediate language proficiency, extroverts with high-intermediate language proficiency, extroverts with low-intermediate language proficiency).

To analyse participants' responses to the online feedback session, open coding and axial coding strategies were used.

4.0 FINDINGS

The word counts of the participants from the matched-sample groups (A & B) for the group discussions were analysed in four ways. First, a general analysis on the comparison of total words across discussion settings was carried out (Table 1). After that, to answer research question 1, the influence of the ESL learners' personality was investigated through a comparison of total words for the extroverts and introverts across discussion settings (Table 2). In answering research question 2 which focused on the influence of the learners' language proficiency, a comparison of total words for high-intermediate and low-intermediate ESL learners across discussion settings (Table 3) was made. Lastly, the influence of both the learners' personality and language proficiency on their word contributions was investigated to answer research question 3 (Table 4).

Table 1: Comparison of total words across discussion settings

Discussion	Number of Words	
	Online	Face-to-face
1	1733 (Group A)	1692 (Group B)
2	1801 (Group B)	1466 (Group A)
3	1600 (Group A)	1728 (Group B)
4	2903 (Group B)	1999 (Group A)
Median	147.5	2.5

As shown in Table 1, the total number of words contributed by the participants was found to be higher in three out of four online discussions (discussions 1, 2 and 4). A Wilcoxon signed rank test showed a statistically significant difference between the number of words produced by learners in face-to-face and online discussions ($z = 2.533, p < 0.05$) with a medium effect size ($r = .37$). The median score for learners' word contributions in online setting was 147.5 compared to 2.5 for face-to-face discussions. This result is different from Fitze's (2006) which found no statistically significant differences between the two discussion environments.

The possibility of variables such as personality and language proficiency influencing the learners' contribution of words in different discussion settings is discussed in the following parts.

4.1 The Influence of Learners' Personality

Table 2: Comparison of total words for the extroverts and introverts across discussion settings

Discussion	Number of Words			
	Online		Face-to-face	
	<i>Introverts</i>	<i>Extroverts</i>	<i>Introverts</i>	<i>Extroverts</i>
1	877 (A)	856 (A)	508 (B)	1184 (B)
2	834 (B)	967 (B)	55 (A)	1411 (A)
3	462 (A)	1138 (A)	254 (B)	1474 (B)
4	1070 (B)	1833 (B)	42 (A)	1957 (A)
Median	116.5	180.5	0	25.0

In relation to the first research question, the word contributions of the ESL learners with different personalities (introverts and extroverts) in face-to-face and synchronous online forums were investigated. Based on Table 2, the extroverts produced significantly more words than the introverts in face-to-face setting, $U = 169.5, p < 0.05$ with a medium effect size ($r = .37$). In other words, the introverts produced significantly lesser words in face-to-face condition ($Md = 0, n = 24$) compared to the extroverts ($Md = 25, n = 24$). This could be due to the shorter waiting time in face-to-face condition which has created more anxiety and resulted in higher affective filter for the introverts (Hamat, 2008; Jonassen, 1994). According to Krashen (1985), the feeling of anxiety could prevent learners' reception of comprehensible input and affect the learning process. Thus, the introverts were found to contribute significantly more words in synchronous online forums ($Md = 116.5, n = 24$) than in face-to-face discussions ($Md = 0, n =$

24), $z = 3.171$, $p < 0.05$, $r = .46$. In other words, the non-face-to-face context of synchronous online forums might have lowered the level of anxiety experienced by the introverts and hence they participated more actively in the online setting. The following response from an introvert with low-intermediate language proficiency exemplifies her concerns about speaking in front of people:

I prefer synchronous online text-based discussions because I can communicate with strangers without worrying about their objection as they are not in front of me.

(Participant 21, Group A)

4.2 The Influence of Learners' Language Proficiency

Table 2: Comparison of total words for high-intermediate and low-intermediate ESL learners across discussion settings

Discussion	Number of Words			
	Online		Face-to-face	
	High-intermediate	Low-intermediate	High-intermediate	Low-intermediate
1	1091 (A)	642 (A)	999 (B)	693 (B)
2	1176 (B)	625 (B)	1464 (A)	2 (A)
3	959 (A)	641 (A)	1363 (B)	365 (B)
4	1935 (B)	968 (B)	1980 (A)	19 (A)
Median	185	113	18	0

In relation to research question 2 which looks at the effects of learners' language proficiency on their word contributions in different discussion settings, the findings from Table 3 showed that the high-intermediate ESL learners contributed more than their peers who had lower language proficiency regardless of the discussion environments they were in. This may be due to the lower affective filter amongst the more proficient ESL learners and greater language anxiety amongst the less proficient ones (Krashen, 1981). Similar findings are also found in studies by Arslanyilmaz (2012) and Tam et al. (2010). Their findings revealed that the more proficient learners contributed more words than the less proficient ones even though no significant differences were found statistically.

In face-to-face setting, no significant difference was found between the word contributions of high-intermediate and low-intermediate learners. This suggest that personality

has a bigger influence than language proficiency in learners' contribution of words in face-to-face discussions. On the other hand, language proficiency seems to be more influential than personality in affecting learners' word contributions in online discussions. This is because high-intermediate students were found to produce significantly more words ($Md = 185, n = 24$) than the low-intermediate students ($Md = 113, n = 24$) in the online setting, $U = 223, p < 0.05$.

While the more proficient language learners did not show significant differences in their contribution of words in online ($Md = 185, n = 24$) and face-to-face settings ($Md = 18, n = 24$), $z = 0.714, p > 0.05$, the less proficient ESL learners produced significantly more words in synchronous online forums ($Md = 113, n = 24$) than in face-to-face discussions ($Md = 0, n = 24$), $z = 2.886, p < 0.05$ with a medium effect size ($r = .42$). This may indicate that the online discussion environment is more conducive for the less proficient ESL learners to practise using the language. Without the need to respond immediately, the learners may have felt more confident and motivated to interact with their peers.

The following part attempts to give a more detailed analysis of the interactions between personality and language proficiency in the different discussion environments.

4.3 The Inter-Relationship of Learners' Personality and Language Proficiency

Table 4: Comparison of Total Words across Discussion Settings for ESL Learners with Different Personalities and Language Proficiency Levels

Discussion	Number of Words							
	Online				Face-to-face			
	Introverts		Extroverts		Introverts		Extroverts	
	High	Low	High	Low	High	Low	High	Low
1	539 (A)	338 (A)	552 (A)	304 (A)	34 (B)	474 (B)	965 (B)	219 (B)
2	546 (B)	288 (B)	630 (B)	337 (B)	53 (A)	2 (A)	1411 (A)	0 (A)
3	316 (A)	146 (A)	643 (A)	495 (A)	104 (B)	150 (B)	1259 (B)	215 (B)
4	670 (B)	400 (B)	1265 (B)	568 (B)	42 (A)	0 (A)	1938 (A)	19 (A)
Median	160.0	87.0	234.0	138.5	0.0	0.0	201.5	10.5

Note: Due to space constraints, the categories for high-intermediate and low-intermediate ESL learners are shortened to 'high' and 'low' respectively

A Kruskal-Wallis Test revealed a statistically significant difference in the word contributions of learners who have different personality types and language proficiency levels in both face-to-face discussions, $\chi^2 (3, n = 48) = 10.31, p < 0.05$ and online discussions, $\chi^2 (3, n = 48) = 10.35, p < 0.05$. Based on Table 4 which relates to research question number 3, the extroverts with high-intermediate language proficiency recorded a higher median score than the other groups in both face-to-face ($Md = 201.5, n = 12$) and online ($Md = 234, n = 12$) settings. As explained by Schallert et al. (2001), the more proficient and extroverted learners can perform better in face-to-face discussions than the shy and less proficient learners because they are equipped with the language skills and confidence to speak with others face-to-face.

In contrast to the extroverts with high-intermediate language proficiency, the extroverts with low-intermediate language proficiency produced more words in online discussions ($Md = 138.5, n = 12$) than in face-to-face discussions ($Md = 10.5, n = 12$), $z = 2.432, p < 0.05, r = .35$. The response below by Participant 15 (Group B) provided the possible reasons for their differences in word contributions when they were in different discussion settings:

“Well. Because I have low self-confidence so I think online discussion works better for me... when its f2f I just don't know what to say and I'll just stay silent and I'm a fast-typist so it is easier..

(Participant 15, Group B)

Similar to the extroverts with low-intermediate language proficiency, the introverts with high-intermediate language proficiency also contributed more words in online discussions ($Md = 160, n = 12$) than in face-to-face discussions ($Md = 0, n = 12$), $z = 2.667, p < 0.05, r = .38$. Surprisingly, the introverts with high-intermediate language proficiency have considerably good command of English language even though they hardly spoke during face-to-face discussions and their production of words in face-to-face discussions was the least when compared to the other groups. This suggests that their introverted personality has inhibited their desire to speak in face-to-face discussions although they have good command of the English language.

The introverted ESL learners with low-intermediate language proficiency have produced more words in online discussions ($Md = 87, n = 12$) than in face-to-face discussions ($Md = 0, n = 12$). However, there was no significant differences in their contribution of words across discussion settings, $z = 1.65, p > 0.05$. It is noteworthy though that there is a unique discrepancy in the findings due to Participant No.24 from Group B. Unlike the rest of the

introverted learners with low-intermediate language proficiency, she spoke the most in face-to-face discussions. She has contributed the most number of words among the group of low-intermediate introverted learners (73% in discussion 1 and 89% in discussion 3) in face-to-face discussions. Her considerably active participation and higher contribution of words have affected the data in Table 4, whereby the number shows that the introverted low-intermediate learners seemed to produce more words compared to the extroverted low-intermediate and introverted high-intermediate learners. This phenomenon was mainly due to her high motivation in using the English language. Unlike the other introverts, this participant was much more motivated to speak in English as she knew its importance globally. An excerpt from the online feedback session shed more light about her attitude:

Actually I was like (Participant 8, Group B) too...but then I think how if we meet traveller or travel to other country? We need to learn way to speak in English smoothly..so the best way is by f2f discussion

(Participant 24, Group B)

Generally, this study found that the introverts and the less proficient ESL learners made significantly more word contributions in synchronous online forums than in face-to-face discussions.

5.0 CONCLUSION

Overall, this study found a statistically significant difference in the word contributions of learners who have different personality types and language proficiency levels in both face-to-face and online discussions. Apart from the extroverts with high-intermediate language proficiency, the other groups of learners who are either introverts or having lower level language proficiency were found to produce significantly more words in synchronous online discussions. The non-face-to-face context of synchronous online forums might have lowered the level of anxiety experienced by the introverts and the low-intermediate language learners. Hence they may have felt more confident and motivated to interact with their peers in the online setting. In consistent with Swain's (1995) comprehensible output hypothesis, the interaction process in discussions could help learners to improve in their language by increasing their opportunities to notice linguistic gap, test their hypothesis of the language, obtain feedback and reflect on their language use. Thus, language practitioners are encouraged to utilize the online platform to increase learners' production of the target language in language lessons.

Consideration to the influence of learners' personality and language proficiency is crucial when a teacher intends to utilise discussion as a learning activity. In a face-to-face discussion setting, a learner's personality would need to be taken note of since findings showed that a learner's personality played a greater role than his/her language proficiency during a face-to-face discussion. This means that language instructors or facilitators would need to provide more support for the introverts to express themselves in a face-to-face discussion. On the other hand, online discussion was found to benefit learners especially those who are less proficient. This may be due to the language support offered by online resources such as Google translate or online dictionary.

Although online discussions were found to elicit more production of words by the ESL learners, face-to-face discussions still need to be given a focus due to its practical use in the real world. Since large group face-to-face discussions are usually more daunting to the less proficient and introverted language learners, language instructors need to facilitate such discussions more prudently. For instance, online discussions can be created for these learners before face-to-face discussions since they find the online setting to be less threatening as they can ponder for some time before responding and can contribute freely without interruption (Warschauer, 1996).

In general, this study suggests that the use of synchronous online forums in an ESL classroom should be promoted as it can help learners to use the target language more actively without leaving out the normally side-lined introverts and the less proficient ESL learners. Since this research only involves 48 female participants, future research could further enlighten the language learners' word production in different discussion settings by including more participants with the involvement of male students. This is because females and males were found to process their feelings and experiences differently (Mahfuzah, Nur, Halimatussaadiah, Nurhazlin, & Athirah, 2014). Besides, there are also other individual differences that could be investigated, for example, the role of auditory or visual learners.

ACKNOWLEDGEMENT

This research project is funded by Impact Oriented Interdisciplinary Research Grant (IIRG), Grant No.: IIRG011C-19SAH

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APPENDIX 1

Details of the participants of Group A:

Participants	Personality	Language Proficiency	Oral Test (/30)	Mid-Year Exam
1	Extroverts	High-intermediate	28	71 (A-)
2	Extroverts	High-intermediate	28	69 (B+)
3	Extroverts	High-intermediate	28	71 (A-)
4	Extroverts	High-intermediate	28	69 (B+)
5	Extroverts	High-intermediate	28	74 (A-)
6	Extroverts	High-intermediate	28	75 (A-)
7	Introverts	High-intermediate	28	77 (A-)
8	Introverts	High-intermediate	27	68 (B+)
9	Introverts	High-intermediate	28	68 (B+)
10	Introverts	High-intermediate	27	70 (A-)
11	Introverts	High-intermediate	27	67 (B+)
12	Introverts	High-intermediate	28	66 (B+)
13	Extroverts	Low-intermediate	24	55 (C+)
14	Extroverts	Low-intermediate	24	57 (C+)
15	Extroverts	Low-intermediate	24	53 (C)
16	Extroverts	Low-intermediate	25	52 (C)
17	Extroverts	Low-intermediate	23	50 (C)
18	Extroverts	Low-intermediate	25	52 (C)
19	Introverts	Low-intermediate	25	58 (C+)
20	Introverts	Low-intermediate	25	57(C+)
21	Introverts	Low-intermediate	26	57 (C+)
22	Introverts	Low-intermediate	25	57 (C+)
23	Introverts	Low-intermediate	25	56 (C+)
24	Introverts	Low-intermediate	23	53 (C)

APPENDIX 2

Details of the participants of Group B:

Participants	Personality	Language Proficiency	Oral Test (/30)	Mid-Year Exam
1	Extroverts	High-intermediate	28	73 (A-)
2	Extroverts	High-intermediate	27	75 (A-)
3	Extroverts	High-intermediate	28	79 (A-)
4	Extroverts	High-intermediate	28	73 (A-)
5	Extroverts	High-intermediate	27	69 (B+)
6	Extroverts	High-intermediate	27	74 (A-)
7	Introverts	High-intermediate	28	78 (A-)
8	Introverts	High-intermediate	27	74 (A-)
9	Introverts	High-intermediate	28	68 (B+)
10	Introverts	High-intermediate	27	68 (B+)
11	Introverts	High-intermediate	28	68 (B+)
12	Introverts	High-intermediate	27	69 (B+)
13	Extroverts	Low-intermediate	25	59 (C+)
14	Extroverts	Low-intermediate	25	59 (C+)
15	Extroverts	Low-intermediate	24	59 (C+)
16	Extroverts	Low-intermediate	24	52 (C)
17	Extroverts	Low-intermediate	24	55 (C+)
18	Extroverts	Low-intermediate	23	51 (C)
19	Introverts	Low-intermediate	25	59 (C+)
20	Introverts	Low-intermediate	23	59 (C+)
21	Introverts	Low-intermediate	24	59 (C+)
22	Introverts	Low-intermediate	25	59 (C+)
23	Introverts	Low-intermediate	24	56 (C+)
24	Introverts	Low-intermediate	25	57 (C+)