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Research article

Education

**COMPLETELY RANDOMIZED BLOCK DESIGN FOR ASSESSMENT OF
THE GENDER AND PERSONALITY EFFECT ON READING
COMPREHENSION ABILITY****評估閱讀能力的性別和人格效應的完全隨機塊設計**Ujang Suparman ^a, Hasan Hariri ^b, Een Y.Haenila ^c, Mustofa Usman ^d^a Department of Language and Arts Education, Faculty of Teacher Training and Education, Universitas Lampung, Indonesia, ujang.suparman@fkip.unila.ac.id^b Department of Education Administration, Faculty of Teacher Training and Education, Universitas Lampung, Indonesia^c Department of Education, Faculty of Teacher Training and Education, Universitas Lampung, Indonesia^d Department of Mathematics, Faculty of Mathematics and Natural Science, Universitas Lampung, Indonesia*Received: April 20, 2020 ▪ Review: June 10, 2020 ▪ Accepted: July 7, 2020**This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>)***Abstract**

The objectives of the current study were to analyze the following problems: First, to determine if there was any significant difference between male and female engineering students' reading comprehension; and second, whether there was any significant difference in engineering students' reading comprehension ability among different types of personalities. The participants comprised 190 engineering students at Sumatra Institute of Technology, South Lampung Indonesia, taking English for Specific Purposes. The data were collected through an experiment, where the design experiment used in this study was Completely Randomized Block Design, in which the departments were considered blocks. The data were analyzed by using analysis of variance and the results showed there was no difference in students' RC ability between genders; but there were significant differences in their RC ability across different types of personalities.

Keywords: Completely Randomized Block Design, Reading Comprehension, English for Specific Purposes, Gender, Personality

摘要 本研究的目的是分析以下問題：首先，確定男女工科學生的閱讀理解是否存在顯著差異；其次，工科學生在不同類型的人格之間的閱讀理解能力是否存在顯著差異。參加者包括印度尼西亞南楠榜蘇門答臘理工學院的 190 名工程專業學生，他們將學習專用英語。數據是通過實驗收集的，該研究中使用的設計實驗是“完全隨機區組設計”，其中部門被視為區組。通過方差分析對數據進行分析，結果表明性別之間學生的 RC 能力沒有差異。但不同類型的人在 RC 能力上存在

顯著差異

关键词: 完全隨機的模塊設計, 閱讀理解, 特殊目的英語, 性別, 個性

I. INTRODUCTION

This research was inspired by the large number of students in Sumatra Institute of Technology (ITERA) Indonesia. Each class comprised 90 students, male and female [1], from 13 departments and having different types of personalities. The focus of the English curriculum was on academic reading comprehension because the students were expected to be able to critically comprehend texts written in English, and to write simple scientific writing in English logically; in addition, they were also encouraged to be able to present ideas they had read, summarized and synthesized in English presentation as preparation for becoming professional or at least semi-professional engineers whose goal was to develop Sumatra in particular and Indonesia in general. For that reason, they were expected to have high ability in academic comprehension, academic writing and academic presentation.

However, it was not an easy task to teach English for Specific Purposes (ESP) [2], [3], [4], [5], [6], [7], that is, English for engineering students from various departments. They needed materials which were suitable for all students coming from different departments, as well as activities that could be used to encourage them to learn very happily, easily, and successfully.

For the first step, since the students came from various departments, the researcher was interested in investigating the effect of students' departments on their reading ability. He was also interested in identifying the effect of gender and personalities on students' reading ability. To this end, the researcher formulated the following research questions: Does students' gender have any effect on their reading comprehension ability? Do students' personalities have any effect on their reading comprehension ability?

Then the researcher identified the students' departments and gender based on the student list from the academic division before they started to learn English. Their personality types were identified by using personality questionnaires.

Concerning reading comprehension, especially in an ESP class, there have been several researches carried out to improve students' reading ability [8], [9]. Vo et al. [9] found that there has been a gap between what the graduates need and what they received in their university. Consequently, their English abilities did not meet the needs of

their workplace. The authors suggested that the university reconsider the design of teaching materials and the professional development of the teachers so that the graduates could participate in their workplace effectively.

Reading comprehension involves critical thinking. There is no reading comprehension without using critical thinking. Meanwhile, critical thinking itself has been defined in many ways. For example, Paul [10] defined critical thinking as learning how to ask and answer with analysis, synthesis, and evaluation. Critical thinking happens when readers intend to analyze, evaluate, interpret, or synthesize information and apply creative ways of thinking to provide an argument, overcome a problem, or draw a conclusion [11]. Buphate and Esteban [12] emphasized the importance of students' learning English and practicing more critical thinking tasks and approaches in the classroom for them to be competitive in the real world. Similar to the critical thinking concept, other authors used creative thinking or creative practice terms [13], [14], [15], [16], [17], [18], [19], [20], [21], [22], [23]. Although the authors define critical thinking, creative thinking, or creative practice in different ways, the essence is relatively the same, that is, they emphasize the importance of improving students' abilities and competencies to analyze, synthesize, interpret and create meaning based on observable and/or perceived data. They agree that such abilities and competencies should be applied to improve students' mastery in all four language skills – listening, speaking, reading and writing.

Reading comprehension is the process of making meaning through two major activities - communication and involvement with written text [24]. This process of making meaning becomes a responsibility of not only the reader and the text but also situations that occur within a wider community [25]. Similarly, Duke [26] defined comprehension as the series of activities where readers create meaning by communicating with the text by means of three variables: (a) a mixture of prior knowledge and experience, (b) facts in the text, and (c) the opinions of readers about the text. In other words, Duke [26] underlined the importance of a mixture of prior knowledge and experience in order to comprehend ideas conveyed in a text. Other authors consider reading comprehension as a series of activities to produce

meaning based on a text [27], [28]. According to them, the purpose of reading is not to get meaning from single words or sentences, but to get an understanding of the text instead. Psychologically, the product of reading is the mental description of a text meaning that is integrated and unified with the readers' existing knowledge. This psychological mental description is known as a mental model [29] or a situation model [27].

In the Indonesian context, many studies on ESP have been carried out but on relatively more general issues. Very little attention has been paid to the effect of students' gender and personalities on their achievement in English. For example, Poedjiastutie and Oliver [30] carried out a study on the pedagogical difficulties in ESP courses in an Indonesian English as a Foreign Language (EFL) atmosphere. They discovered that common English in ESP classroom contexts still has control over the amount of a particular substance of ESP itself. Another example is the research by Indrasari [31], emphasizing the pre-service training for ESP teachers. She used a project-based activity as an effort to deal with the necessities of successful ESP teaching for the nonprofessional teachers. Similar research carried out by Askar [32] focused on problems that people are talking and thinking about pertaining to ESP teaching and the future possibility of ESP which includes the development of professional ESP-teachers. His findings dealt with the future of ESP teaching in Indonesia. However, none of the studies above paid attention on the impacts of students' gender and personalities on their achievement. This might be caused by the belief that such variables were not related to the students' success in ESP in particular and EFL in general.

Lecturers in universities should find ways to make reading activities and ESP classes more, motivating, challenging and encouraging for students. The current study used authentic materials relevant to each department which were browsed by the students themselves, from international journals [33], [34], [35], [36], [37]. In addition, it also used student-centered learning where students were more active than the lecturers [38], [39], [40], [41]. Student activities were assessed using authentic assessment so that it can reflect the students' real ability [39], [42], [43]. Weda [44] carried out an investigation on demotivating teaching using regular activities in EFL classroom especially in Indonesian context based on four major demotivating factors – English teachers, materials, classroom management and methods that teachers use. Out of the four factors, the author identified top 10 items that make classroom activities demotivating; among these are

the following: the teachers do not support students to take part in the classroom activity; the teachers do not encourage students to share information in English; the teachers do not behave in a pleasing manner; the teachers tend to educate them without taking into consideration the students' personalities and the learning outcomes; the teachers are not enthusiastic; the teachers use teacher-centered approach or learning; and teaching materials are not suitable for students' interests. To response to these demotivating classroom practices the current study used authentic materials browsed by the students themselves that were relevant and based on their own departments and interest; student active learning, and authentic assessment.

A. Gender

Gender refers to a wide range of attributes such as economy, society, politics, and culture and chances pertaining to becoming females and males [45]. However, the definition of gender varies among cultures and has potential to change over time. Jhpiego [45] further defines gender as a sociocultural expression of certain characteristics and positions relating to particular groups of men, women and children with reference to their sex and sexuality. Another author defines gender as an individual idea of oneself as male or female (or rarely, both or neither) [46]. This idea is closely associated with the idea of gender position, which is usually considered as the superficial appearance of personality that shows the gender indicator. According to Ghosh [46] gender indicator, in almost all situations, is self-identified, as a result of a mixture of inherent and extrinsic or environmental domains.

By contrast, gender position refers to appearance within a community of overt facts such as behavior and appearance. For instance, if an individual considers himself a male and is most pleasing referring to his personal gender in male terms, then his gender identity is male. However, his gender position is male only if he shows typical male characteristics in behavior, dress, and/or mannerisms. Another similar definition of gender is that it refers to five components: a set of positions, duties, rights, expectations and obligations that are related to being male or female culturally or socially [47]. In addition, it also includes the control relations between and among females and males, and girls and boys. It is based on commonly accepted beliefs and expected behavior within a society or culture about male and female noticeable qualities and positions. In short, it can be summarized that gender is an attribute that someone has that can be a combination of internal and external or environmental factors

which determine whether someone belongs to male or female. Some researchers, like Seifoori [48] have carried out studies on the effect of gender on students' language performance. The author has found that there were some differences in the use of metacognitive strategies among the participants with different departments but he did not find differences in the use of metacognitive strategies between males and females except in the use of self-evaluation strategy that females less often use. As an implication, the author recommends that ESP students should be prepared more on the use of metacognitive strategies.

B. Personality

Encyclopaedia Britannica [49] defines personality as one's way of thinking, feeling, and behaving which includes moods, attitudes, and opinions. Personality is most clearly expressed in communications within society. Personality includes behavioral features, both existing naturally and/or learned, that distinguishes one individual from another and can be observed in people's interaction with their surroundings and social groups. Encyclopaedia Britannica [49] states that there are many ways to define personality; but in psychology, personality has two primary meanings that have gradually developed. Firstly, it refers to the unchanging differences between people: in this sense, personality research concentrates on categorizing and describing firmly fixed human psychological features. The second meaning underlines those qualities that make all people similar and that differentiate human beings, psychologically, from other creatures. Another aspect of personality leads experts to discover these patterns among all human beings that define our essence, as well as the factors that influence human development. Cherry [50] defines personality from a psychological perspective as the typical patterns of thoughts, feelings, and behavior that make one person different from another. Although the personality has been defined in many ways, the essence is similar; the noticeable qualities of a person that determine their ways of thinking, behaving, interacting with others, and learning that makes an individual unique.

In the current study, there were four personality types identified: choleric, sanguine, melancholic and phlegmatic [51]. Each of the four personality types has its own characteristics; strong points and weak points. A choleric person is considered as an individual whose testosterone is dominant. A choleric person has a strong will; is busy, energetic and happy; and easily gets angry and annoyed [51], [52]. In addition, a choleric person is also identified as independent; practical; confident and

decisive; visionary; having a lot of ideas; a designer; focused; very physically and mentally dynamic; strong and healthy; and rarely panics under pressure. Since a choleric person is very attentive to the larger view of things, he/she often tends to ignore details and not analyze, which may cause him/her to make decisions too quickly.

The second type of personality defined is sanguine. A sanguine person tends to be lively, sociable, carefree, talkative, and pleasure-seeking [51], [53]. They can also be kind and loving as well as hopeful. It is easy for them to be comfortable around new people because of their sociable nature, as well as their being original, clever, and skilful; this also allows them to form many opinions. A person with a sanguine personality tends to be less responsible and more likely to change activities, jobs, and lovers. Because of this, a person of this type may have trouble in doing the tasks assigned to him/her and may at times be continuously late or forgetful. A sanguine person is socially extroverted. Apart from being attractively energetic, enthusiastic, and talkative, they are also frankly emotional. But sanguine people have weaknesses, such as they easily get bored and tend to talk more than listen to others. The next type of personality is melancholic. A melancholic person [51], [54] can be easily identified by the following characteristics: he/she is a reflective and deep thinker, not humorous, serious, not interested in superficial things, talented, creative and artistic, introverted, not comfortable being in a large crowd, well organized, and has high standards. Melancholic people have some weaknesses, such as being pessimistic, having a low self-image, tending to remember unpleasant events more often than happy ones, setting hardly reachable goals for their family and children, and not be willing to take on new responsibilities and projects. The last type of personality is phlegmatic. A phlegmatic person [51], [55] is known for having the following characteristics: introverted, quiet, gentle, not willing to argue or state his/her opinions in a forceful way, submissive, avoids conflict, wants peace, ready to tell others that he/she is wrong just to avoid an escalation in any unfriendliness, tends to blame themselves a lot, extremely trustworthy, tends to postpone decisions with others when possible, and prefers to spend time alone.

II. METHODS/MATERIALS

This research study uses a completely randomized block design, with a factorial treatment structure. Gender and personality are considered as factors and department as the block, i.e., an external variable that cannot be controlled

by the study. It is one of the simplest experimental designs from the standpoint of assigning treatment levels to different subjects or experimental units and data analysis [56], [57]. According to the authors [56], [57], one of the advantages of the completely randomized block design is that the experimental units available for use are as homogeneous as possible in each block. In other words, there is no source of variation that can be recognized among the experimental units under any grouping or arrangement. Furthermore, there are three other advantages of using the completely randomized block design: flexibility, as it allows the use of any number of treatments and replications; simplicity, as it is simple despite unequal replication and is not complicated even when some information is missing; and maximum degree of freedom. Of course, the design also has disadvantages, and its low level of precision, if the experimental units are different in any way, is the biggest disadvantage. In order to overcome this disadvantage, the units can be grouped into blocks of homogeneous units resulting in heightened level of precision [56]. It is not always easy in statistical practice to obtain completely homogeneous experimental units. Usually, experimental units are grouped based on a stratification factor (clinical population categorized based on patient's age, degree of disease, and others). An increase in efficiency, compared to the completely randomized experiment, is possible by grouping the experimental units into blocks, provided that we have this prior information. In such a case, the experimental units are classified together in homogeneous groups (blocks), and then the treatments are randomly applied to the experimental units within each block. Consequently, the block effect, that is, differences between the blocks, can now be sorted out from the experimental error. This makes precision higher. The strategy of building blocks will make variability within each block as small as possible and variability among blocks as high as possible [58].

To determine whether there was an effect of gender, personality, and interaction of gender and personality with departments as a block, the model is as follows:

$$RC_{ijkl} = \mu + D_i + G_j + P_k + GP_{jk} + \varepsilon_{ijkl} \quad (1)$$

where RC is reading comprehension; μ , grand mean; D_i , the effect of i^{th} level of department; G_j , the effect of j^{th} level of gender; P_k , the effect of k^{th} level of personality; and GP_{jk} , the interaction of j^{th} level of gender and k^{th} level of personality; ε_{ijk} , the error term.

C. The Experimental Plan

Each treatment, in a completely randomized block design, is to be randomly assigned to several experimental units within each block. The block is the departments where the students studied. There were four departments involved in this study: Geometric Engineering, Civil Engineering, Urban Planning Engineering, and Informatics Engineering. There are several ways to do this. In this study, the randomization used random number, namely each treatment combination are assigned to each block. The current study underpins the student at four departments (as stated above); student gender, two (male and female); and student personality, four (choleric, sanguine, melancholic, and phlegmatic). This study was conducted in Sumatra Institute of Technology (ITERA), South Lampung Indonesia. The participants comprised 190 engineering students taking ESP in the second semester - (2 times 100 minutes per session in every week). The students came from various regions throughout Indonesia. They had science majors when they were studying at senior high schools. ITERA only recruits new students from science majors in the secondary schools. To conduct the research with four departments, two genders and four types of personalities, this experiment required 32 experimental units which were numbered from 1 to 32.

III. RESULTS AND DISCUSSION

This study was intended to investigate the effect of departments, gender and personality on engineering students' English reading comprehension. The research questions whose answers were sought comprised the following: first whether there was a difference in student reading comprehension ability among different departments; secondly whether there was a difference in student reading comprehension ability between genders; and finally whether there was a difference in student reading comprehension ability among students with different personality types. The results of the data analysis for each question are described in detail in the following section.

Table 1.
Analysis of variance for testing the model

Source	DF	Sum of squares	Mean square	F-test	p-value
Model	10	4704.45	470.44	26.94	<.0001
Error	179	3126.27	17.46		
Corrected total	189	7830.72			

$$R^2 = 0.6008$$

First of all, to determine whether the model can be used to explain RC, the null hypothesis is that the model is not significant.

From Table 1 above, the test statistics is that F-test - 26.94 with p-value <0.0001; therefore, the null hypothesis is rejected and we could conclude that the model is very significant. R^2 - 0.6008 means that 60.08% of the variation of RC can be explained by the model.

A. The Effect of Students' Gender on Their Reading Comprehension Ability

The first research question was put forward to investigate whether there was an effect of student gender on their reading comprehension ability. The null hypothesis is that there is no difference between genders.

Table 1 shows that, the analysis of variance for testing the model, the F-test is 26.94 with the p-value is <0.0001, and conclude that the model is very significant. With R-squares is 0.6008, this means that 60.08% of the variation of reading comprehension can be explained by the model. And in line with the results, it can be inferred that the model can be used for further analysis. The following table shows the effect of gender on student RC ability.

Table 2.
Analysis of variance

Source	D F	Sum of squares	Mean square	F-test	p- value
Dept	3	35.146	11.715	0.67	0.5710
Gender	1	50.574	50.574	2.90	0.0906
Pers	3	4556.584	1518.862	86.97	<.0001
Gender*Pers	3	62.1431	20.714	1.19	0.3165

Table 2 shows that the departments as a block is not significant different with F-test = 0.67 with p-value is 0.5710 > 0.05. The test for the effect of Gender shows that the F-test is 2.90 with p-value is 0.0906 > 0.05 and consequently there is no significant different between male and female student in RC, this result also in line with distribution of RC across gender (Figure 1). The test for the effect of Personality shows that the F-test is 86.97 with p-value is < 0.0001 and consequently there is significant different among personalities in RC, this result also in line with distribution of RC across personalities (Figure 2). The test for the effect of interaction between Gender and personalities shows that the F-test is 1.19 with p-value is 0.3165 >0.05 and consequently there is no significant interaction between Gender and Personality in RC, this result also in line with distribution of RC across gender and personalities (Figures 3 and 4). Each student

in each gender had the same or similar possibility to be successful or unsuccessful readers.

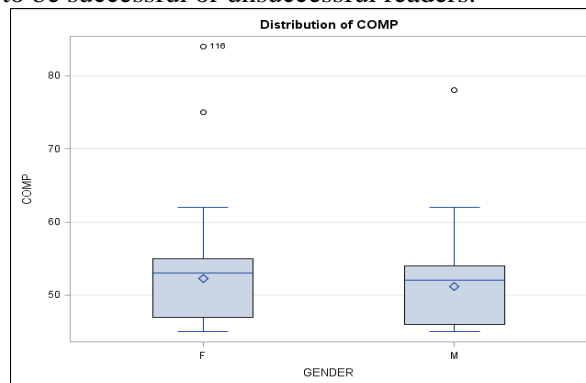


Figure 1. Box plot of the distribution of RC based on gender

The results of F-test above also appeared in Figure 2, Box Plot, where the effect was relatively the same. In other words, gender did not affect the students' reading comprehension ability. Both male and female students had the same opportunity to be successful or unsuccessful in reading comprehension. This can be seen from the lowest scores and highest scores in both genders which were similar. Although there were some scores which were very high, they were considered outliers. Based on these findings, it can be interpreted that equality between men and women involves the concept that all mankind not only men but also women have the same freedom to develop their personal abilities and to freely choose without any restrictions predetermined by stereotypes, rigid gender roles and unreasonable opinions or feelings [59].

These findings were also similar to the previous research [60], [61] investigated whether learners' gender could differentiate their reading comprehension and use of reading strategies in descriptive and narrative macro-genres. The researcher found that there was no statistically significant difference between male and female students' reading comprehension in these macro-genres. It was also shown that there was no significant difference observed between male and female learners in the overall use and employment of reading strategies in the descriptive and narrative macro-genres. Likewise, Deveci and Nunn [61] conducted research on the development of students' emotional intelligence in project-based course. They found no statistically significant difference between male and female in their emotional development.

By contrast, Adel and Enayat, [62] and Arellano [63] found different results. Adel and Enayat [62], who investigated gender representation and stereotyping in ESP textbooks in Iran, found that male students were more active and competent in technology and tourism. Further,

men were more frequently presented in workplaces and shown as breadwinners in commerce, nursing, and technology. This might have been caused by sociocultural aspects which might be different from those in the Indonesian context. Similarly, Arellano [63], who investigated male and female students' reading ability, found that female students got better global results than their males counterparts. Female students also got better scores in the specific objectives: identifying specific information, emphasizing general information, understanding the structure of text, and inferring contextual meaning.

B. The Effect of Personality on Engineering Students' Reading Comprehension

The final research question was whether there was a difference in engineering students' reading comprehension ability among the types of student personality. The null hypothesis is that there was no difference among personalities in students' reading comprehension. The results of F-test for personality are shown in Table 3 below.

Table 3.

The results of Tukey's studentized range (HSD) test for reading comprehension

Personality comparison	Differences between mean	Simultaneous 95% confidence	
		Lower limits	Upper limits
Ch- M	5.96*	3.79	8.14
Ch- S	11.23*	9.14	13.33
Ch - Ph	12.21*	9.87	14.56
M - S	5.27*	3.11	7.43
M - Ph	6.25*	3.85	8.65
S - Ph	0.98 ^{ns}	-1.35	3.31

Note: * means very significant

The results of the data analysis, as set out in Table 3, show that there were significant differences between the different types of personalities. The six categories of comparison—between choleric and melancholic; choleric and sanguine; choleric and phlegmatic; melancholic and sanguine; melancholic and phlegmatic; and, finally, sanguine and melancholic people — showed a significant difference.

The results of the F-test are reflected in Figure 3. As Figure 3 demonstrates, all the pairs of personalities showed significant differences in the students' reading comprehension ability. Choleric students showed the highest ability to read authentic materials taken from international journals that were relevant to their disciplines. By contrast, phlegmatic students showed the lowest ability. These differences may be related to the nature of their personalities — choleric people

display firm intention, high self-confidence, and fast problem-solving skills and are brave to taking risks, whereas phlegmatic people tend to have less firm intention, low self-confidence, and low problem-solving skills and are reluctant to take risks.

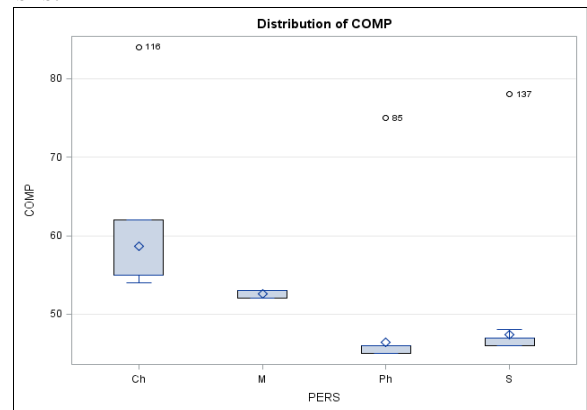


Figure 2. Box plot of the distribution of RC based on personality

Another interpretation of these findings is that personality plays an important role in education because it may lead to differences in knowledge, comprehending ideas, recalling facts (lower-order thinking skills) from Bloom's Taxonomy [64], and in application, analysis, synthesis, and evaluation (higher-order thinking skills) [65]. By considering the effects of students' personalities, lecturers may help students to be more successful in comprehending, analyzing, synthesizing, and creating new ideas based on the texts they are reading, or, in other words, in developing higher-order thinking skills to improve their success in learning. Unfortunately, based on informal interviews with the lecturers, almost all of them never pay attention to their students' personalities.

C. The Interaction of Gender and Personality

With regard to the interaction of gender and personality on the students' reading comprehension ability, it was found that, although there were significant differences between the different types of personalities and the students' reading comprehension ability, there was no interaction between gender and personality. This finding is shown in the following figure.

Figure 3 shows that the students' comprehension ability significantly differed between the various types of personalities (choleric, melancholic, sanguine, and phlegmatic). As the figure shows, choleric students achieved the highest scores on reading comprehension ability of choleric students was significantly different from that of melancholic. The reading comprehension ability of melancholic students was significantly different from that of phlegmatic, whereas the

reading comprehension ability of phlegmatic students tended to be similar to that of sanguine students. When the spread of the scores was analyzed, it was found that the reading comprehension ability scores of choleric students were more widely spread than those of the melancholic, sanguine, and phlegmatic students. In contrast, the reading comprehension ability of melancholic, sanguine, and phlegmatic students tended to be similar, with their scores gathered together in a small plot.

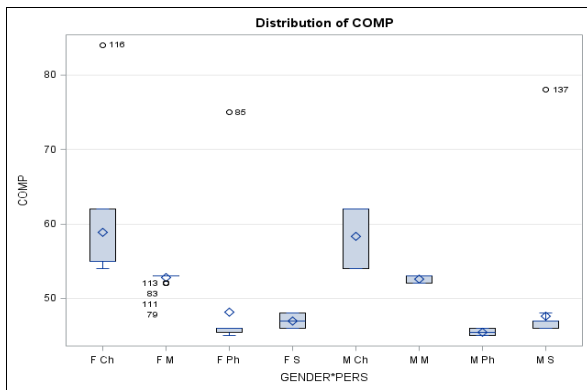


Figure 3. Box plot of the interaction of gender by personality

The interaction between gender and personality is shown in Figure 4. Figure 4 shows that the differences between gender (male and female) on reading comprehension ability are small, with the lines showing the scores of male and female students almost attached to each other. This suggests that the opportunity of both male and female students to obtain higher scores on reading comprehension ability, using authentic materials, is similar. They have the same right and opportunity to be successful in reading comprehension ability.

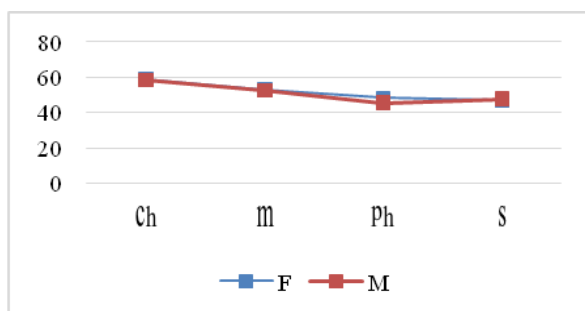


Figure 4. Interaction between gender and personality

IV. CONCLUSION

Based on the results of the data analysis, the following conclusions on students' reading comprehension ability can be drawn: neither the students' departments nor their gender have an effect on their reading comprehension ability.

Some limitations of the current research have been found. The number of male and female participants was not balanced. This was due to the

fact that almost all the departments at ITERA are dominated by male students, which might be a result of the nature of its departments—many are engineering. Engineering tends to be a male-dominated field. At least in Indonesian context, majority (if not all) of all engineering institutions are male dominated. Consequently, engineering positions in companies are also male dominated. The second limitation is that the time allocation for ESP courses is limited to a two-hour session each week for one semester. Although this course was found to be effective in improving students' English ability, especially reading comprehension, unfortunately, their academic writing and academic presentation ability as well as the sustainability of these skills is still relatively low

The following recommendations are proposed: First, future researchers should try to balance the number of male and female participants so that the effect on students' reading comprehension ability can be convincingly established. Second, given that English plays an important role in higher education, particularly at ITERA, it is recommended that the ITERA authority allocate more time for ESP so that students can be more adequately served in all English language skills (listening, speaking (presentation), reading, and writing). Finally, and above all, it is recommended that all lecturers pay attention to students' personalities so that they can more optimally serve their students. Decision makers at ITERA should also design the ESP curriculum taking different student variables into consideration, particularly their personalities.

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