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RESEARCH ARTICLE

ESL Students' Perception Towards Their Level of Critical Thinking Skills

Syafiqah Johan Amir Johan[1], Onaliza Satimin[2], Khairunnisa Mohd Daud[3] Zulaikha Khairuddin[4], Nadia Anuar[5], Salina Sabri[6] Fairuz Husna Mohd Yusof[7*]

[1]Academy of Language Studies, Universiti Teknologi MARA Shah Alam, 40450 Shah Alam, Selangor, Malaysia.
Email: syafiqah@uitm.edu.my
[2]Academy of Language Studies, Universiti Teknologi MARA Shah Alam, 40450 Shah Alam, Selangor, Malaysia.
Email: onaliza@uitm.edu.my
[3]Academy of Language Studies, Universiti Teknologi MARA Shah Alam, 40450 Shah Alam, Selangor, Malaysia.
Email: khair330@uitm.edu.my
[4]Academy of Language Studies, Universiti Teknologi MARA Shah Alam, 40450 Shah Alam, Selangor, Malaysia.
Email: zulaikha5497@uitm.edu.my
[5]Academy of Language Studies, Universiti Teknologi MARA Shah Alam, 40450 Shah Alam, Selangor, Malaysia.
Email: nadiaanuar@uitm.edu.my
[6]Academy of Language Studies, Universiti Teknologi MARA Shah Alam, 40450 Shah Alam, Selangor, Malaysia.
Email: salin619@uitm.edu.my
[7]Academy of Language Studies, Universiti Teknologi MARA Shah Alam, 40450 Shah Alam, Selangor, Malaysia.
Email: fairu305@uitm.edu.my

CORRESPONDING AUTHOR (*):
Fairuz Husna Mohd Yusof
(fairu305@uitm.edu.my)

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ABSTRACT

The ability to think critically is an important skill to be acquired, especially at tertiary level. Nonetheless, it has been found that tertiary students' level of critical thinking (CT) skills to be at the moderate level. An effective level of CT skills has been proven to be beneficial in navigating real-world challenges. Thus, this study is an attempt to answer these research questions: i) What is the perceived level of CT skill among ESL students?, ii) Is there any significant mean difference in the level of CT skills between male and female students?, iii) Is there a significant mean difference in the level of CT skills between LG240 and LG243 programmes?, and iv) Is there any significant mean difference in the level of CT skills among students with different grades?. This study employed a fully quantitative approach and cross-sectional study as its research design. A questionnaire was distributed for approximately three (3) weeks, and 107 responses were received. The data obtained showed that the students perceived their level of CT skills to be at a high level and they had positive views towards their level of CT skills. Moreover, there was no significant difference between genders and programmes,

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but there were significant differences between grades. Hence, it is important for educators to know their students' level of CT skills as to prepare suitable lesson plans and materials to develop and enhance this set of skills. For future research, this study would suggest focusing on the development of materials that would assist both educators and tertiary students in developing a good set of CT skills.

Contribution/Originality: This research deepens the literature by documenting that ESL students expressed positive views on critical thinking yet were reported to struggle in defining abstract concepts. Significant grade-based differences were observed in interpretation and evaluation skills. Thus, this study provides insights for educators in tailoring teaching approaches to cultivate critical thinking.

1. Introduction

The ability to think critically is an important skill to be acquired, especially by tertiary level students. Having a good set of well-developed critical thinking (CT) skills would enable students with the ability to face real-world challenges more confidently and effectively, be it in the workplace environment, and/or their social environment (Solovyeva et al., 2023). Additionally, acquiring CT skills would help students understand themselves better as they would be more objective, less emotional, and more open-minded towards others' (potentially) different opinions and perspectives (Lenin, 2019). Students, especially fresh graduates entering the workplace, could also benefit from having CT skills by effectively contributing ideas during decision-making situations and demonstrating competent problem-solving skills (Abdul Hamid, 2021).

CT is a set of skills that can be developed through students' learning processes and experiences in classrooms (i.e., in a school or a university environment). There are suggested methodologies to help students strengthen their CT skills, and these include: i) oral and written reflection and argumentation, ii) collaborative and cooperative learning, iii) questioning, and iv) assessment (Bezanilla et al., 2019). Educators should incorporate CT tasks or activities that are related to real-life situations which can enhance their students' CT skills (Ahmed & Ibrahim, 2023; Yau et al, 2023). To incorporate CT activities in the classroom, and thus encouraging students to be more critical, educators could make use of suitable approaches such as the technology approach, game-based approach, and problem-based approach (Febliza et al., 2023; Puspita & Aloysius, 2019; Tan et al., 2023; Usra et al., 2023). A collaboration between students and educators using the collaborative guided inquiry learning design could improve students' CT skills such as reasoning, self- and group-monitoring, consensus building, questioning and monitoring, flexible thinking, and critical analysis (Kirk et al., 2023). Hence, it can be said that collaborative learning can help students further develop their CT skills. In addition to collaborative learning, visual-based mapping has also been found to improve students' self-regulation, evaluative reasoning skills, and problem-solving skills (Teo et al., 2023). In other words, educators should incorporate CT skills in their students' learning tasks and activities. Therefore, an awareness of their students' CT ability would be highly beneficial when conducting lessons as this would suit their students' level of CT skills.

Nonetheless, it has been found that tertiary level students have difficulties acquiring and learning CT skills. This is especially true for English as a Second Language (ESL)

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students, as language proficiency can interfere with students' ability to engage their CT skills. According to Velayati et al. (2017), students having difficulties to portray their CT skills is because of their low level of language proficiency, background knowledge and lack of practice. This means educators need to address these issues in helping students to enhance their CT skills. Other than that, students' involvement and engagement in classroom activities is important because educators face difficulties in obtaining responses to higher-order questions, which could stem from the students' fear of making mistakes (Zainudin et al., 2019), resulting in the educators asking lower-order questions. It can be said that the cooperation between students and teachers are necessary to ensure the success of enhancing students' CT skills.

Based on the explanations above, it can be suggested that if students lack CT, there is a possibility that it will affect their survival in the real world, especially in tasks requiring them to apply their CT. Thus, this study would like to look into ESL students' level of CT as suggested by Zhang (2022) because CT could help and prepare students to face challenges in their life in the future (Asmara et al., 2023). ESL students refer to those students who learn content subjects in English (Rethinasamy et al., 2012) and the respondents of this research would be among ESL students that matched the definition by Rethinasamy et al. (2012). There are three (3) research questions that this research will answer and they are:

i. What is the perceived level of critical thinking skill among ESL students?
ii. Is there any significant mean difference in the level of critical thinking skills between male and female students?
iii. Is there a significant mean difference in the level of critical thinking skills between LG240 and LG243 courses?
iv. Is there any significant mean difference in the level of critical thinking skills among students with different grades?

1.1. Research Objectives

The objectives of this study are:

i. To identify the ESL students' perceptions on their level of critical thinking.
ii. To investigate if there is any significant mean difference in the level of critical thinking skills between male and female students.
iii. To investigate if there is any significant mean difference in the level of critical thinking skills between LG240 and LG243 courses.
iv. To investigate if there is any significant mean difference in the level of critical thinking skills among students with different grades.

2. Literature Review

Many philosophers and scholars have offered definitions of CT. While each definition carries its own nuance, most of them converge around the idea of how to gather information effectively and then process it reflectively (Dewey, 1909; Ennis, 1989; Lipman, 1988; Kuhn, 1991; Facione, 2020). In essence, CT entails both the disposition and the capacity for it, as an individual has to be both willing and able to engage in the exercise (McPeck, 2016; Liang & Fung, 2020). For instance, an individual who is capable of analysing the inherent biases or dangers of certain issues or situations may choose to be wilfully ignorant about them. Thus, while some philosophers focus on the moral and ethical aspects of CT (e.g. Lipman, 1988; Facione, 2020), others focus on the practical

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aspect of how to develop CT skills (e.g. Kuhn, 1991; McPeck, 2016). Before an individual can choose whether to utilise their CT skills, they must first be equipped with the skills.

As CT involves the use of higher order thinking skills (HOTS), which entails analysis, synthesis, and evaluation as defined by Bloom's taxonomy (Carter, 2020), many education systems attempt to develop CT skills among learners by designing curriculum that incorporates HOTS (e.g. Singh & Marappan, 2020; Lee & Coniam, 2013; Liang & Fung, 2020). This move may prove challenging to ESL learners because, although language proficiency is no indicator of an individual's intelligence or capacity for CT, the cognitive aspect of CT entails understanding of language (Liang & Fung, 2020). In their checklist for reasoning, Paul and Elder (2007) suggest that CT is based on data, information, and evidence; if an individual struggles to understand the data, information, and evidence due to their limited language, they would be unable to properly process the problems, assumptions, inferences, and interpretations of the issue. Thus, this indicates that ESL students may face challenges in acquiring CT skills which leads to the need of knowing their level of critical thinking skills.

2.1 Perceptions towards Students' Level of Critical Thinking Skills

CT would help students to be better problem-solvers. According to Schreglmann and Ozturk (2018), students who are able to think critically welcome innovation in class and they could go deeper in understanding a problem before identifying possible solutions using various reliable sources. They also added that these students are able to accept and consider varying viewpoints and opinions, and elaborate more on their ideas based on scientific facts. This means students could be more open-minded in accepting different perspectives by providing credible evidence. Besides, Tosuncuoglu (2018) said that critical thinkers among students can control not only what and when to think but also how to think critically. This is because CT does not only involve the output of the thinking but the whole process of asking questions, collecting data, and drawing conclusions from related data (Elder & Paul, 2003, as cited in Tosuncuoglu, 2018). Thus, it could be said that it is important for students to acquire CT skills through education in the classroom.

There are many elements that can be discussed when it comes to students' level of CT skills. Tosuncuoglu (2018) found that most students agree that metacognition, flexibility, systematicity, perseverance and patience, and open-mindedness are involved in applying CT skills. One of the elements that was highlighted was perseverance-patience as it was found that senior-year students had a higher level of perseverance-patience compared to junior-year students. Studies by Lee (1989) and Kazancı (1989) also highlighted that CT promotes one to be conscious and systematic, flexible, patient, open-meaning and receptive to metacognition, reconstruction, motivation, and discussion. Moreover, students' perceived applying CTS in learning and practising English speaking skills to be challenging, especially in presenting a clear argument and relevant evidence (Tai, 2022). Goodwin and Sommervold (2012), as cited in Tai (2022) argue that CTS are only appropriate for higher-order-thinkers who can analyse, synthesise, and evaluate information and are therefore difficult for lower-order-thinkers. In addition, students were aware that discussions in the classroom (learning process) allowed them to be more confident, helped in building their thinking ability and understanding questions better. Thus, CT skills would enable students to be more holistic individuals in discussing critical and argumentative topics.

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Furthermore, CT skills have been found to positively correlate with academic performance. Research done by Ren et al. (2020) found that higher CT skill levels can predict better academic performance as long as the students had positive dispositions towards CT. On top of that, D'Alession et al. (2019) found that students with higher CT skills consistently perform better academically across four (4) MBA subspecialities, namely Operations, Finance, Marketing, and Strategy & Leadership. A study conducted by Rivas et al. (2023) suggested that students' academic performance benefited from direct instructions on CT skills. This means that teaching CT skills to students may improve their CT skills as well as their academic performance. Thus, understanding students' perceptions towards their level of CT skills would help educators in developing students' CT skills.

2.2 ESL Critical Thinking Skills in Malaysia

CT skills are one of the elements that the Ministry of Education (MOE) highlight in the Malaysia Education Blueprint 2015-2025 (Higher Education) (MEB 2015) (MOE, 2015). In its documentation, the MEB 2015 lists CT as a component of cognitive skills that all students should aspire to acquire through their education (MOE, 2015). The MEB notes that "the system has historically fallen short" as students struggle to apply their cognitive skills "outside familiar academic contexts" (MOE, 2015, p.E-10). In part, this shortcoming can be attributed to an overemphasis on rote learning (Othman et al., 2008) and exam-oriented excellence, a situation that is echoed in other Asian education systems such as Hong Kong (Lee & Coniam, 2013), Oman (Al-Kindi & Al-Mekhlafi, 2017), and Bangladesh (Akhter, 2019). Moreover, Akhter (2019) argues that the situation is exacerbated by cultural traditions that encourage conformity and adherence to collective wisdom, leading to CT being practised less. In Malaysia, the MEB 2015 seeks to address the low display of CT by revamping examinations and assessments to increase focus on higher order thinking skills (MOE, 2015).

The MEB illustrates the importance that governments, for instance Malaysia, place on CT skills. Teaching CT is important to governments because besides benefiting individual students, it ultimately leads to public good. McDougall's (2019) findings in an ethnographic research highlights the link between CT and the role of education since it is imperative for education systems to equip students with tools to critically navigate the current world. Having members of society who practise CT can help avoid "economic weakness, public health problems, crime, and avoidable poverty" (Facione, 2020, p.1). The recent Covid-19 pandemic illustrated this point well, with low CT skills of the populace identified as one of the reasons for the debates and moral panic surrounding masking, getting vaccinated, and believing in fake news (Li, 2021; Armitage, 2021). Moreover, on the other side of the spectrum, Goniewicz et al. (2020) highlighted the need for "outside the box critical thinking" among those in charge of the populace in order to navigate and manage global crises and occurrences like the Covid-19 successfully.

A majority of Malaysian students fall under the category of ESL learners, and many of them feel the disadvantage of having to function in a second language while practising HOTS. Rodzalan and Mohamed Saat (2015) ran a survey on 2000 Malaysian students across six public universities and found that students believe that they are capable of CT except when they are faced with time limitations and difficult problems while working with unfamiliar people. Due to its importance and multi-layered components, CT can be approached from multiple angles. One angle is looking at differences in CT ability across

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gender. Rodzalan and Mohamed Saat (2015) survey on 2000 Malaysian students across six public universities suggest that male students are better at CT and more competent at problem solving. Similarly, in a quasi-experimental study on 80 seventh grade students in Indonesia run by Ramdani et al. (2021), male students in both the experimental and control groups displayed higher CT skills than their female counterparts. In contrast, Mahmood and Othman's (2020) survey on 341 students from 14 form six colleges in urban and rural parts in Malaysia found no significant difference between the different gender's CT ability. Interestingly, they also found no significant difference between urban and rural students' ability to think critically (Mahmood & Othman, 2020).

Another angle to consider would be the subject matter, especially since theorists such as McPeck (2015) argues that CT requires reflectiveness of specific fields. For instance, to be a critical thinker about history one needs the skills of a historian; to practise reflective scepticism in mathematics one needs to have at least a basic understanding of mathematics (McPeck, 2015). Indeed, Nielsen et al. (2022) found that students' prior knowledge may influence their likelihood of engaging in CT. In their study on whether first-year psychology students would develop CT around statistics-related content of their course, students who perceived that they had solid mathematical background were more likely to display higher levels of CT at the end of the two-semester-course study (Nielsen et al., 2022). Moreover, students who believe that they would need to apply statistical knowledge in the future also exhibited higher performance in terms of statistics-related CT (Nielsen et al., 2022). Thus, their findings suggest that the motivation to develop CT skills can be influenced by students' knowledge and field of study, both by what they already know and whether they think they will need to apply the knowledge in the future. In some cases, students' perception of the cultural expectations placed upon them may influence their CT abilities. In a previously mentioned study, Rodzalan and Mohamed Saat (2015) found that social science students outperformed their engineering and science students in their CT capabilities. They argue that this gap may be due to engineering and science students' propensity for rote learning the materials instead of reflecting on them, a situation caused by the exam-oriented situation of their course (Rodzalan & Mohamed Saat, 2015).

3. Research Methods

This research utilised a quantitative research approach by employing a survey as research design. Quantitative research approach is suitable for research that investigates variables such as gender, age, attitudes, behaviours and perceptions (Creswell, 2014). This research also used multistage sampling. In the first stage, the researchers utilised purposive sampling. Purposive sampling technique was used to specify the population group because there are specific characteristics in choosing the population (Creswell, 2014). After that, the researchers employed simple random sampling techniques in selecting respondents to allow each individual the same chance of being selected as respondents (Creswell & Creswell, 2023; West, 2016). The respondents of this research would be students from two programmes, namely LG240 and LG243. These students are from one of the public universities in Klang Valley, henceforth known as University X. The respondents were from Semester 2, 3, 4, 5 and 6 for Programme A and Semester 3, 4, 5 and 6 for Programme B. This selection was based on the fact that they respectively had taken a course on CT in the first semester mentioned. Since the population size of the respondents was 700, the sample size of this research should be 248 based on the sample table by Krejcie and Morgan (1970).

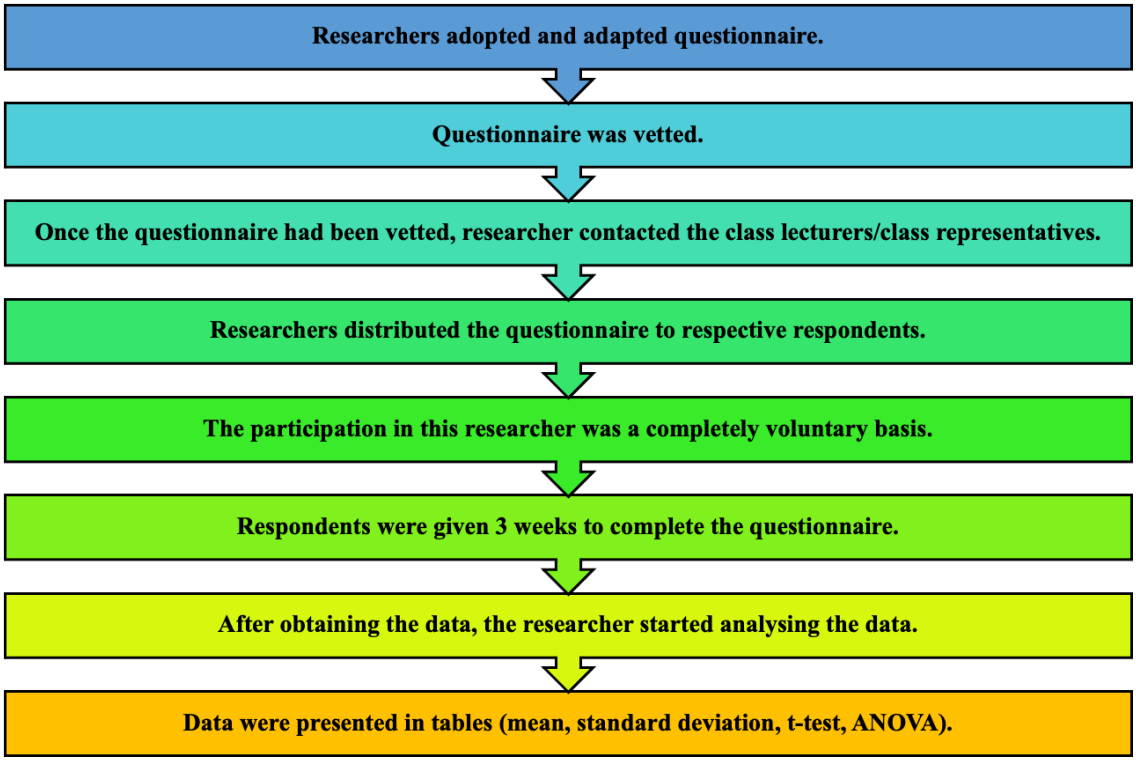
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Participation in this research was on a completely voluntary basis. Hence, respondents were allowed to withdraw from this research at any time and with no consequences and repercussions to respondents and their data would not be used. In order to collect the data, this research utilised a set of questionnaires that was adopted and adapted from Facione (1990). There were seven (7) sections in the questionnaire which were:

i. Section 1 - Demographic details
ii. Section 2 - Critical Thinking Skill (Interpretation) - 12 items
iii. Section 2 - Critical Thinking Skill (Analysis) - 8 items
iv. Section 2 - Critical Thinking Skill (Evaluation) - 7 items
v. Section 2 - Critical Thinking Skill (Inference) - 12 items
vi. Section 2 - Critical Thinking Skill (Explanation) - 10 items

In total, there were 57 items in the questionnaire. Once the questionnaire had been vetted, the researchers contacted class lecturers and class representatives for each programme to help the researchers distribute the questionnaire to the target respondents. After the distribution of the questionnaire, the respondents were given 3-5 days to complete it. However, after distributing the questionnaire 3 times, there were only 107 responses received. Hence, the results of this research cannot be generalised. Once the researchers obtained the data, the data were analysed using a software which is Statistical Package for Social Sciences version 28 (SPSS v28). The results later were presented in descriptive and inferential analysis (mean, standard deviation, t-test, ANOVA) and in tables. Figure 1 demonstrates the flowchart of research methodology.

Figure 1: Flowchart of Research Methodology



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4. Results

4.1. Research Question 1: What is the perceived level of critical thinking skill among ESL students?

The first research question aims to investigate the perceived level of CT skill among ESL students. CT skill is determined by five different skills which are interpretation, analysis, evaluation, inference and explanation (Facione, 1990). A descriptive analysis was conducted to answer this research question.

Table 1 illustrates the perception of ESL students towards CT skill in the context of interpretation. The highest mean score is 4.16 (SD= 0.742) which shows that the students appreciate the significance of facial expressions or gestures used in social situations. The second highest mean score is 4.11 (SD= 0.678) which indicates that the students understand the intention/purpose of others' questions (e.g. to get clarification, as sarcasm, etc.). Lastly, the lowest mean score is 3.63 (SD= 0.680) as the students can classify data, findings or opinions using CT elements (e.g: interpretation, analysis, evaluation, inference, explanations, self-regulation). The overall mean score reported in Table 1 is 3.86 (SD= 0.498)

Table 1: Critical Thinking (Interpretation)

No	Items	Mean	Std. Deviation
1	I can recognise a problem objectively	3.87	.715
2	I can describe issues discussed objectively	3.76	.642
3	I can categorise the information systematically (e.g: from articles, videos, audios)	3.93	.704
4	I can report interpretation of issues discussed in a clear and concise manner.	3.71	.614
5	I can classify data, findings or opinions using critical thinking elements (e.g: interpretation, analysis, evaluation, inference, explanations, self-regulation)	3.63	.680
6	I understand the intention/purpose of others' questions (e.g. to get clarification, as sarcasm, etc.)	4.11	.678
7	I can appreciate the significance of facial expressions or gestures used in social situations	4.16	.742
8	I can recognise the use of irony or rhetorical questions in arguments	3.87	.766
9	I can interpret the data displayed or presented using a particular form of instrumentation. (e.g: tables and charts)	3.85	.698
10	I can paraphrase a person's statement effectively.	3.76	.698
11	I can find an example which helps explain something to someone.	3.93	.710
12	I can develop an understanding towards a concept and distinguish the ambiguity surrounding it.	3.73	.708
13	Critical Thinking (Interpretation)	3.86	.498

Table 2 presents ESL students' perceived CT skill, specifically their analysis skill. The highest mean score is 3.95 (SD= 0.678) indicating that students are able to identify when a phrase might trigger a sympathetic emotional response that can cause an audience to agree with an opinion. Next, the second highest mean score is 3.81 (SD= 0.661) as the students responded positively that they are able to determine whether the author included a phrase to support or oppose a given claim or opinion. Meanwhile, the lowest

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mean score is 3.44 (SD= 0.632) as the students find that they can define an abstract concept. The overall mean score, representing analysis skill, 3.72 with a standard deviation of 0.491.

Table 2: Critical Thinking (Analysis)

No	Items	Mean	Std. Deviation
1	I can identify when a phrase might trigger a sympathetic emotional response that can cause an audience to agree with an opinion.	3.95	.678
2	I can determine the similarities and differences of closely related proposals based on a given problem.	3.69	.636
3	I can simplify the task into smaller and manageable units.	3.79	.687
4	I can define an abstract concept	3.44	.632
5	I can determine how a paragraph is typically understood based on the context of how and where it is published.	3.76	.698
6	I can determine whether the author included a phrase to support or oppose a given claim or opinion	3.81	.661
7	I can identify any complex claims along with the reasons presented in their support.	3.63	.759
8	I can present the data using graphics by providing suitable reasonings.	3.71	.701
9	Critical Thinking (Analysis)	3.72	.491

Table 3 shows ESL students' perceived CT skill in the context of evaluation. The highest mean value is 3.85 (SD= 0.670). This means that the students can recognise the factors which make a person a credible authority on a given topic. Next, the second highest mean score is 3.84 (SD= 0.716) which shows that the students have the ability to judge if an argument is relevant/applicable/has implications for a situation. Finally, the students demonstrate a recognition of both formal and informal fallacies in arguments, as indicated by the lowest mean score of 3.62 (SD= 0.785). The overall mean score in Table 3, which reflects the students' CT (evaluation) skill, is 3.75, accompanied by a standard deviation of 0.531.

Table 3: Critical Thinking (Evaluation)

No	Items	Mean	Std. Deviation
1	I can recognise the factors which make a person a credible authority on a given topic.	3.85	.670
2	I can determine whether a set of principles/rules is applicable to deciding what to do in a given situation.	3.69	.621
3	I can determine the true/false claims based on reasonings provided by the author/speaker.	3.69	.636
4	I can recognise any formal and informal fallacies used in arguments.	3.62	.785
5	I can judge the logical strength of arguments based on the reasoning provided.	3.80	.665
6	I can judge if an argument is relevant/applicable/has implications for a situation.	3.84	.716
7	I can determine if the additional information presented/provided might lead logically to the further confirmation of a given opinion.	3.78	.731
8	Critical Thinking (Evaluation)	3.75	.531

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Table 4 presents ESL students' perceived CT skill, specifically their inferencing skill. The highest mean score, indicative of the students' ability to gather relevant information to be used in a discussion, is 3.96 (SD= 0.643). The second highest mean score is 3.94 (SD= 0.750), which shows the students' ability to consider various opposing views when discussing a topic/task. Moreover, the students are capable of expressing their opinions on a discussed issue (mean score= 3.86; SD= 0.693). Lastly, the lowest mean score is 3.67 (SD= 0.737) on the students' ability to develop plans to find answers even when information to the question/issue is not readily available. The overall mean score for students' inference skill is 3.80, with a standard deviation of 0.487.

Table 4: Critical Thinking (Inference)

No	Items	Mean	Std. Deviation
1	I can develop a persuasive argument to support an opinion.	3.83	.720
2	I can judge which background information would be useful to have when making an inference.	3.79	.683
3	I can develop plans to find answers even when information to the question/issue is not readily available.	3.67	.737
4	I can plan a search which will reveal if that information is available.	3.70	.690
5	I can develop a set of options for addressing and resolving a problem.	3.77	.592
6	I can project the difficulties and the benefits which are likely to result if certain priorities are adopted in making a decision.	3.72	.611
7	I can prove a statement based on the information and/or evidence that I have at hand.	3.76	.588
8	I can determine which possible conclusions are supported by evidence and which should be rejected.	3.82	.698
9	I can examine informed opinions during a discussion/in a written work.	3.76	.649
10	I can consider various opposing views when discussing a topic/task.	3.94	.750
11	I can gather relevant information to be used in a discussion.	3.96	.643
12	I can formulate an opinion regarding an issue discussed.	3.86	.693
13	Critical Thinking (Inference)	3.80	.487

Based on Table 5, the highest mean score for ESL students' perceived explanation skill is 3.83 with a standard deviation of 0.680, which means that the students feel strongly about their ability to state a person's reasonings towards the ideas written/presented. A majority of the students mentioned that they can write down their current understanding of a concept for the benefit of their future use, with a mean score of 3.76 (SD= 0.725). Following that, the mean score ranking third is 3.76, accompanied by a standard deviation of 0.718. This suggests that students can articulate suggested solutions or recommendations from individuals when confronted with critical situations. Finally, the lowest mean score is 3.56 (SD= 0.729) for the students' ability to explain a person's level of understanding towards a key concept where further clarifications are crucially needed on the issue discussed. The students exhibit an overall mean score of 3.68 with a standard deviation of 0.544 for CT skill (explanation).

Table 6 displays the mean score for the perceived level of CT skills, registering at 3.76, with a standard deviation of 0.457. The students' perceived CT skills include five specific skills which are interpretation, analysis, evaluation, inference, and explanation skills.

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Table 5: Critical Thinking (Explanation)

No	Items	Mean	Std. Deviation
1	I can state a person's reasonings towards the ideas written/presented.	3.83	.680
2	I can write down my current understanding of a concept for the benefit of my future use.	3.76	.725
3	I can convey the analysis and judgement made by a person on the topic discussed (e.g: art, social, economy, religion)	3.65	.688
4	I can state a person's suggestions/solutions to problems that are proposed during a critical situation.	3.76	.718
5	I can state the criteria that are used to evaluate a written product (e.g: journal article, newspapers, reports).	3.61	.724
6	I can explain a person's level of understanding towards a key concept where further clarifications are crucially needed on the issue discussed.	3.56	.729
7	I can describe the strategies used in making a reasonable decision.	3.64	.704
8	I can create a diagram/figure in order to explain the evidence as supporting details.	3.60	.799
9	I can respond to constructive criticisms when having different views/perspectives on sensitive topics discussed.	3.72	.711
10	I can identify the evidence and counter-evidence when there are two conflicting opinions that might be true on a matter of deep personal concern.	3.64	.717
11	Critical Thinking (Explanation)	3.68	.544

Table 6: Perceived Level of Critical Thinking Skills

No	Variable	Mean	Std. Deviation
1	Critical Thinking Skills	3.76	.457

4.2. Research Question 2: Is there any significant mean difference in the level of critical thinking skills between male and female students? and Research Question 3: Is there a significant mean difference in the level of critical thinking skills between LG240 and LG243 courses?

This section reports the results of the second and third research questions of this study. The second research question of this study aims to determine if there is any significant mean difference in the level of CT skills between male and female students. Subsequently, this study intends to identify if there is any significant difference in the level of CT skills between LG240 professional communication students and LG243 intercultural communication students. Thus, an independent sample t-test was conducted to answer these questions and the results are presented in Table 7.

Table 7 demonstrates that there was no statistically significant difference, $t(107)=0.154$, $p>0.05$, in the level of CT skills between male ($M=3.745$, $SD=0.543$) and female students ($M=3.764$, $SD=0.443$). This result is unexpected as it contradicts a majority of the CT literature, specifically in the Asian region. For instance, Kawuryan et al. (2022) stated that there are statistically significant differences in the average CT skills between male and female school students. Correspondingly, Supriyati (2021), Mustika et al. (2022) and Nur Hayati and Nindha Ayu Berlianti (2020) have reported that female students

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demonstrate higher CT skills, implying a difference in CT skills based on gender. However, this research finding is consistent with results from studies such as Lestari and Setyarsih (2021), Amiruddin (2013) and Zetriuslita et al. (2016) as these scholars conclude that there is no difference in the level of CT between male and female students. Table 7 also illustrates that there was no statistically significant difference, t(107)=0.001, p>0.05, in the level of CT skills between LG240 professional communication students (M=3.760, SD=0.458) and LG243 intercultural communication students (M=3.760, SD=0.461). Alkhrisheh et al. (2021) evidenced that language students have displayed higher CT competence. Although Lin (2014) has pointed out that science students tend to demonstrate significantly more advanced patterns of CT in comparison to social science students, Yavari and Gholami (2015) expressed that language learning positively impacts CT while Egitim et al. (2022) have revealed that intercultural competence facilitates CT. Collectively, these studies evidenced that the constant use of the English language and knowledge of intercultural communication may explain the non-significant difference in CT skills between LG240 professional communication and LG243 intercultural communication students.

Table 7: Independent sample t-test results

		Levene's test for Equality of Variances		**t-test for Equality of Means**	
		F	**Sig.**	**t**	**Sig (2-tailed)**
Gender	Equal variances assumed	1.404	0.239	-0.154	0.878
	Equal variances not assumed			-0.133	0.895
Programme	Equal variances assumed	0.007	0.935	0.001	0.999
	Equal variances not assumed			0.001	0.999

4.3. Research Question 4: Is there any significant mean difference in the level of critical thinking skills among students with different grades?

The fourth research question aims to investigate if there are significant mean differences in CT among students based on their CT competence. In this study, their CT competence was measured by their performance and is quantified by means of academic grades. Therefore, one-way analysis of variance (ANOVA) was conducted to analyse the differences in the level of CT among students with different academic grades.

Table 8 shows the descriptive results of the grades obtained by the respondents in this study. The results shows 'A' attained the highest mean score which is 4.043 with a standard deviation of 0.407. This is followed by 'A-' grade which was obtained by 17 students (M=3.985, SD=0.340). The lowest mean is obtained by students who have achieved the 'C+' grade (M=3.518, SD=0.349). The overall mean score reported in Table 8 is 3.761 (SD=0.457).

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Table 8: Descriptive results of grades

					95% Confidence Interval for Mean			
	N	Mean	Std Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
A	9	4.043	0.407	0.136	3.730	4.356	3.50	4.87
A-	17	3.985	0.340	0.082	3.810	4.160	3.45	4.62
B+	42	3.756	0.467	0.072	3.610	3.901	2.50	4.69
B	31	3.607	0.434	0.077	3.447	3.766	2.88	4.76
B-	6	3.632	0.584	0.238	3.018	4.244	3.00	4.48
C+	2	3.518	0.349	0.247	0.377	6.659	3.27	3.77
Total	107	3.761	0.457	0.044	3.674	3.849	2.50	4.87

The results in Table 9 present that there is a statistically significant mean difference at the $p<0.05$ level in CT scores. The one-way ANOVA result presents that $F(5,101) = 2.468$, $p<0.05$. The actual difference in mean scores between groups was indicated by the effect size and was calculated using eta squared. The effect size was 0.11, translating a quite large effect size (Cohen, 1988). A post-hoc comparison using the Tukey HSD was conducted for each CT construct (interpretation, analysis, evaluation, inference, and explanation) to further analyse the differences within the groups.

Table 9: One-way analysis of variance (ANOVA) results

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	2.531	5	0.506	2.648	0.029
Within Groups	19.601	101	0.194		
Total	22.132	106			

Table 10 illustrates that there is a significant mean difference among the grades in the first-level CT skill; interpretation (M=3.858, SD=0.498) between 'A-' and 'B' (MD=0.497, $p<0.05$). Correspondingly, in the third-level skill of evaluation (M=3.753, SD=0.531), a statistically significant difference was reported between grades 'A' and 'B' (MD=0.589, $p<0.05$) as depicted in Table 11. In contrast, the Tukey HSD test revealed that there was no significant difference among the grades in the second-tier CT skill which is analysis (M=3.722, SD=0.491). The results also demonstrated that no significant difference in grades were reported in the fourth-level inference skill (M=3.796, SD=0.486) and fifth-level explanation skill (M=3.400, SD=0.565).

Table 10: Tukey post-hoc results for interpretation

Interpretation skill	(I) Grade	(J) Grade	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
	A	A-	0.101	0.196	0.995	0.673	0.469
		B+	0.209	0.175	0.838	0.299	0.719

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		B	0.395	0.180	0.252	0.129	0.920
		B-	0.301	0.251	0.838	0.4299	1.031
		C+	0.481	0.373	0.790	0.602	1.565
	A-	B+	0.311	0.137	0.216	0.087	0.710
		B	0.497*	0.144	0.010	0.078	0.915
		B-	0.402	0.226	0.485	0.255	1.061
		C+	0.583	0.356	0.578	0.453	1.619
	B+	B	0.185	0.113	0.572	0.142	0.514
		B-	0.091	0.208	0.998	0.513	0.696
		C+	0.271	0.345	0.969	0.731	1.275
	B	B-	0.094	0.212	0.998	0.523	0.713
		C+	0.086	0.348	1.000	0.925	1.097
	B-	C+	0.180	0.389	0.997	0.951	1.312

Table 11: Tukey post-hoc results for evaluation

Evaluation skill	**(I) Grade**	**(J) Grade**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
						Lower Bound	**Upper Bound**
	A	A-	0.208	0.210	0.920	0.040	0.819
		B+	0.446	0.187	0.173	0.098	0.991
		B	0.589*	0.193	0.034	0.027	1.151
		B-	0.650	0.269	0.160	1.310	1.432
		C+	0.317	0.399	0.968	0.842	1.477
	A-	B+	0.238	0.146	0.584	0.187	0.664
		B	0.381	0.154	0.142	0.066	0.828
		B-	0.442	0.242	0.454	0.261	1.147
		C+	0.109	0.381	1.000	0.999	1.218
	B+	B	0.142	0.120	0.845	0.208	0.493
		B-	0.204	0.222	0.942	0.443	0.851
		C+	0.129	0.369	0.999	1.202	0.944

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	B	B-	0.061	0.227	1.000	0.600	0.723
		C+	0.271	0.372	0.978	1.354	0.810
	B-	C+	0.333	0.416	0.967	1.544	0.877

5. Discussion

This study found that ESL students have a positive view on the level of their CT skill which encompasses skills of interpretation, analysis, evaluation, inference and explanation. The obtained results revealed that students have a high perception towards their interpretation skill in particular understanding intentions, expressions and gestures of others, as well as categorising information and providing examples to others. Interpretation skill is considered as the core aspect of CT skill where people must have the ability to interpret before so that they can analyse, compare information, and construct arguments (Atabaki, 2015). The results also showed a high perception towards analysis skill particularly in identifying intentional sympathetic phrases and the purpose of these phrases in supporting claims by others. However, the students have a low perception of their ability in defining abstract concepts. This could be due to students' inability in understanding between the lines and thinking from others perspective as mentioned in the study conducted by Velayati (2017). Therefore, it is important for educators to incorporate real-life situations as part of students' activities in the classroom. Students can then be able to relate to the situations and thus be able to practise their CT skill to solve the problem (Quraishah at al., 2022).

The students are also found to have the capacity to recognise the credibility factors of authoritative figures and judge the relevance and implications of arguments which reflects a sophisticated level of CT within the context of evaluation. The students, however, indicated that they have the most difficulty in developing and finding answers when there are no available resources or information when it comes to inferencing. This is consistent with the findings by Arini et al. (2023) where they found that students cannot solve the problem on their own without assistance. Hence, when presented with authentic situations during learning activities, students can improve their CT skills as they are trying to solve a real and happening problem (Suparman & Tamur, 2021). The results also indicated the students' proficiency in clarifying reasoning, combined with a proactive strategy for recording their comprehension and a capability for suggesting solutions, highlights a comprehensive skill set in both expressing and applying knowledge. Demir (2015) highlighted the importance of developing CT skills to enable individuals to view, think about, research, question, and scientifically address events, which requires possessing domain-specific knowledge so they can develop independent, well-supported perspectives or opinions (Perdani et al., 2023).

This study identified that there was no significant difference in the level of CT between male and female students. This finding is in line with evidence outlined by Zetriuslita et al. (2016) and Verawati et al. (2010) as they highlighted that gender is a neutral aspect in influencing students' CT skills. This conclusion is further corroborated by Tous and Hagighi (2016) and Marzban and Barati (2016) who unanimously stipulated that there is no significant difference in CT levels between male and female students. However, this finding opposes various research which suggests that female students possess more complex thought processes, translating to higher CT competence (Bataineh & Zghoul, 2006). Therefore, this discrepancy in the result can potentially be attributed to the

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geographical setting of the study as a bulk of studies that reported non-significant differences are constrained in the Asian region.

This study identified that there is no significant difference in the level of CT skills between professional communication (LG240) students and intercultural communication (LG243) students. This result is in alignment with McPeck (2015) who mentions that CT requires reflectiveness of specific fields. McPeck's (2015) argument is reflected in the non-significant difference results since participants of this study are from similar language programmes. Thus, these results shed light on the essentiality of teaching CT skills in developing practical professionals for English major students to think critically during their decision-making process in real-life situations which can facilitate effective interactions (Van et al., 2020).

Finally, this study also determined that there was a significant difference among students with different grades (A, A-, B+, B, B-, C+). The Tukey post-hoc comparison test further revealed that there was a significant difference in the interpretation (between A- and B) and evaluation skills (between A and B). In a quantitative study by Anuar and Gurnam (2019), they outlined that students experienced difficulties in the evaluation skills, specifically evaluating the relevancy of a main idea in a text. A plausible contributor for students' struggles with both interpretation and evaluation skills is the use and how materials (textual factors) are presented to students (Akbiyik & Akbiyik, 2010; Bråten & Braasch, 2017). The difference in these skills may also be linked to the formative evaluation received by the students which involves clearly articulated feedback and learning outcomes (Shirbagi & Kord, 2008). Moeti et al. (2017) further extend this by highlighting that course content and teaching technique of CT impact students' ability to acquire CT which explains the differences in the mastery of evaluation and interpretation skills. More research needs to be undertaken to further illuminate the factors that affect students' CT skills, specifically in the Malaysian classroom context.

6. Implications

The implication of the study will enable educators to come up with a comprehensive syllabus and curriculum by incorporating critical thinking skills and elements such as authentic materials, real life problem-based learning and case studies. The result of the study also benefits tertiary level students in adopting critical thinking skills in all subjects at the university.

7. Conclusion

In conclusion, CT ability is one of the most important skills that should be acquired, especially by university students. The results of this present study have shown that regardless of gender and programmes, students who are at the intermediate to upper independent level of English proficiency would have good language learning strategies and would therefore possess a stronger comprehension of an interaction. For this reason, the students involved in this study perceived that they did possess the capability to think critically and this confidence would be an advantage to them to face challenges in their life in the future. Utilisation of this set of skills can help the modern society to enhance effective interaction which will have a positive consequence on their survival when facing real-world challenges.

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It is suggested that educators in Malaysian higher educational learning institutions compile materials that invoke CT based on the local standards and education setting. This study would also like to recommend further research on the development of these materials that could be applied to suit other countries and cultures, as to provide local students with the exposure to applying their CT skills in more culturally-challenging situations. While this skill may seem difficult at first, it is one that can be honed through practice and reflection, and significantly benefit an individual's professional, and even personal, life.

Ethics Approval and Consent to Participate

This research had been approved by Research Ethic Committee (REC) of UiTM (REC/09/2023 (SR/MR/224)). In addition, the respondents who participated in this study had given their consent in using the responses for data analysis.

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Conflict of Interest

The authors reported no conflicts of interest for this work and declare that there is no potential conflict of interest with respect to the research, authorship, or publication of this article.

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