Artículos científicos

Medición y análisis de la disposición al pensamiento crítico en el aprendizaje del Inglés del estudiantado de secundaria

Measurement and analysis of critical thinking disposition towards English language learning among secondary school students

Medição e análise da disposição para o pensamento crítico em relação à aprendizagem da língua inglesa entre estudantes de ensino médio

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Resumen: : El presente estudio analiza la disposición hacia el pensamiento crítico de 205 estudiantes chilenos de colegios secundarios públicos en torno al aprendizaje del inglés. Una escala Likert de 6 puntos fue aplicada a los participantes para la colección de datos usando la Escala de Disposición hacia el Pensamiento Crítico que consistió en 26 preguntas; además de esto, las características sociodemográficas de los participantes fueron recopiladas. La Escala de Disposición hacia el Pensamiento Crítico contenía siete dimensiones: búsqueda de la verdad, amplitud mental, capacidad de análisis, sistematicidad, confianza en el razonamiento, curiosidad y por último madurez cognitiva. El primer método de análisis de datos fue la estadística descriptiva, este análisis abordó la media y desviación estándar de los datos, seguido por un análisis de correlación de Spearman para encontrar relaciones entre el conjunto de datos, que mostró correlaciones entre las siete dimensiones, pero no entre las dimensiones y la información sociodemográfica. Finalmente, un análisis clúster jerárquico fue efectuado para dividir los datos y encuestados en cuatro grupos similares, de acuerdo con sus respuestas. Los resultados muestran que los estudiantes secundarios no presentan una fuerte ni débil disposición hacia el pensamiento crítico; su disposición es más bien indefinida.

Palabras clave: Pensamiento crítico, Inglés, Aprendizaje de lenguas, Escuela secundaria, Enseñanza pública.

Abstract: : The present study analyzes the critical thinking disposition of 205 students from public high schools regarding English language learning. A 6-point-Likert scale was applied to the participants to collect data using the Critical Thinking Disposition Scale, which consisted of 26 questions; moreover, participants' sociodemographic characteristics were gathered. The Critical Thinking Disposition Scale comprised seven dimensions: Truthseeking, Open-mindedness, Analyticity, Systematicity, Self-confidence Critical Thinking, Inquisitiveness, and Cognitive Maturity. The first method of data analysis was descriptive statistics, this analysis

addressed the data's mean score and standard deviation, followed by a Spearman correlation analysis to find relationships among the dataset, which showed correlations among the seven dimensions but not between the dimensions and the sociodemographic information. Finally, a hierarchical cluster analysis was conducted to divide the data and respondents into four similar groups, according to their answers. The findings show that high school students present neither a strong nor weak disposition to critical thinking; their disposition is rather undefined.

Keywords: Critical thinking, English, Language learning, Public high schools, Public education.

Resumo: : O presente estudo analisa a disposição para pensamento crítico de 205 estudantes de escolas públicas de ensino médio em relação à aprendizagem da língua inglesa. Uma escala Likert de 6 pontos foi aplicada aos participantes para coleta de dados por meio da Escala de Disposição de Pensamento Crítico que consistia em 26 questões. Além do mais, foram coletadas características sociodemográficas dos participantes. A Escala de Disposição para o Pensamento Crítico compreendia sete dimensões: busca da verdade, mente aberta, analiticidade, sistematicidade, autoconfiança, pensamento crítico, curiosidade e maturidade cognitiva. O primeiro método de análise dos dados foi a estatística descritiva, esta análise abordou a pontuação média e o desvio padrão dos dados, seguida de uma análise de correlação de Spearman para encontrar relações entre o conjunto de dados, que mostrou correlações entre as sete dimensões, mas não entre as dimensões e as informações sociodemográficas. Finalmente, uma análise hierárquica de cluster foi realizada para dividir os dados e os respondentes em quatro grupos semelhantes, de acordo com suas respostas. Os resultados mostram que os estudantes de ensino médio não apresentam uma disposição forte nem fraca para o pensamento crítico; sua disposição é bastante indefinida.

Palavras-chave: Pensamento crítico, Inglês, Aprendizagem de línguas, Escolas públicas de ensino médio.

INTRODUCTION

For decades, academics and thinkers such as Socrates (Platón, 1988) and Dewey (1910) have defined critical thinking and its importance in people's lives. The way we think affects not only ourselves but also our surroundings. The continuing questioning, initiative, and enthusiasm to acquire knowledge in different aspects and confidence in our decisions help to build people's autonomy, think independently, and use reasoning instead of just accepting and following ideas, people, or paradigms. Therefore, critical thinking has been discussed and defined from different perspectives, which are more related to the features and attitudes of a thinker (Lai, 2011, as cited in Uribe Enciso et al., 2017). However, its beginnings are connected with Socrates questioning (Fahim & Bagheri, 2012), in which people are expected to question and think about something before accepting it as reasonable and as their own belief (Paul et al., 1997). Many years later, Descartes' (1987) book Rules for the Direction of the Mind presented the Methodical Doubt, in which he stated the following:

Since I wanted to devote myself solely to the search for the truth, I was of the opinion that I had to do the opposite and reject as absolutely false everything in which I could imagine the slightest doubt, in order to see if, after having this, there would be nothing left in my belief that was entirely indubitable (pp. 24-25).

According to Facione (2000), the "general consensus is that critical thinking (CT) per se is judging in a reflective way what to do or what to believe" (p. 61). Bailin (2002) argued that a conception of critical thinking must be "focused on adherence to criteria and standards" (p. 368). However, the definitions may change regarding the approach. The cognitive approach defines CT by actions or behaviors of critical thinkers instead of criteria or standards (Lai, 2009). Nowadays, critical thinking is still a matter of discussion. Ruggiero (2012, as cited in Murawski, 2014) even called it "the art of thinking about thinking" (p. 30), which is a very poetic way to express his vision of it. For him, critical thinking was more related to the process of facing a problem and finding the best solution, analyzing it, and making decisions (Ruggiero, 2012, as cited in Murawski, 2014). Similarly, some scholars defined critical thinking as the process by which we test claims and arguments and determine which have merit and which do not. In other words, "critical thinking is a search for answers, a quest" (Ruggiero, 2012, p. 19). Also, critical thinking can be defined by experts' consensus "to be purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based" (Facione, 1989, p. 1).

Paul and Elder (2020) claimed "critical thinking is, in short, self-directed, self-disciplined, self-monitored, and self-corrective thinking. It presupposes assent to rigorous standards of excellence and mindful command of their use. It entails effective communication and problem-solving abilities" (p. 35). Moore (2013, p. 19) found at least seven elements of the definition of critical thinking by interviewing several experts: "i) as judgement; ii) as skepticism; iii) as a simple originality; iv) as sensitive readings; v) as rationality; vi) as an activist 20 engagement with knowledge; and vii) as self-reflexivity".

Likewise, when defining the concept of critical thinking, Dewey (1933) and Facione (2000), included the concept of "disposition" towards critical thinking. What is a disposition, and how does it relate to critical thinking? A disposition is described as personal attributes (Dewey, 1933). This word generally describes an attitudinal tendency over something, such as critical thinking. According to Facione (2000), the word disposition is applied to humans to refer to the characterological features of individuals. A human disposition is a person's consistent internal motivation to do and act toward or respond to events, situations, persons, or other circumstances. In some situations, we have the disposition but not the necessary skills to achieve a goal. In other words, the disposition to critical thinking is the motivation and willingness to apply the various skills necessary to carry out tasks that require this level of reasoning.

By the same token, it is necessary to understand how CT is linked to education and its importance. When discussing the main task of schools, universities, and educational centers in general, regular people say that the main objective is to educate and deliver knowledge in different areas. As Nickerson (1988) mentions, although knowledge is crucial for developing thinking, it does not guarantee the development of critical thinking. According to Jones and Idol (1990, as cited in López, 2013), the central mission of the school is not only to teach and deliver information but, above all, to learn how to learn and, this way, to ensure that pupils acquire intellectual autonomy and adopt an evaluative and analytical attitude toward their performance while learning. To teach how to learn, students must be exposed to the continuous and gradual development of different higher-order skills, such as those related to critical thinking.

Historically Dewey (1910) was the first person to introduce critical thinking in education in 1910, and he called it reflective thinking (Hitchcock, 2022). Dewey was a teacher, and his idea of thought had a strict relationship with education; he emphasized the relevance of teaching people to think critically to reach personal development to become good citizens (Graham Sumner, 2008). Nonetheless, how do we teach critical thinking? CT should be taught directly while allowing students to practice evaluating and testing

ideas (Murawski, 2014). It is important to teach critical thinking effectively; learners can use it in different areas of their lives, not just in English classes or other subjects, but in everyday life tasks.

On balance, teachers need to seek a methodology to teach and improve their pupils' critical thinking, so they can be active thinkers and apply it in their learning and every aspect of their lives. In this regard, critical thinking plays a key role in English as a Foreign Language (EFL) teaching and learning since language is conceived as the action of putting words together and thinking critically about their usages as well as the context where production occurs. (Tosuncuoglu, 2018). This idea of thought in EFL takes relevance since learning happens within a social and cultural setting, which is relevant to the learning process (Arriaga, Branda & Sancho, 2022; Yang & Gamble, 2013). Therefore, it is necessary to teach and measure critical thinking considering the different skills of the target language to improve learning. On the one hand, Alnofaie (2013) holds that critical thinking hones stress and anxiety management among learners in L2 speaking; that is, individuals who can hardly control their thinking process rationally and reflectively may fail to overcome such unfavorable emotions. As a result, learners may produce poor, improper, and ill-organized spoken output (Idem).

Regarding reading skills, Anderson (2003) considers comprehension as the ultimate goal of reading. In other words, critical thinking is necessary to understand what is being read, to analyze and reflect to comprehend a text using different strategies. As for the listening ability, a study done in Iran with students majoring in English showed that students "who thought more critically developed better listening comprehension ability" (Nour Mohammadi & Zare, 2014, p. 54). Moreover, "learners with a higher level of critical thinking ability had better listening comprehension ability" (Nour Mohammadi & Zare, 2014, p. 57). CT is also concerned with writing skills; in fact, a study conducted in Iran concluded that argumentative writing tasks require that EFL/ESL learners showcase their critical thinking ability (Fahim & Mirzaii, 2014). It is important to acknowledge that the production of written texts encompasses the display of individuals' thinking abilities. In this view, it is mandatory to teach and develop CT among students to better support foreign language acquisition.

Since critical thinking and a critical thinking disposition are recognized as necessary skills to be developed and taught in teaching, it is essential to identify these skills in the Chilean public education system, particularly in EFL teaching and learning, which is the object of study in this paper. Furthermore, to see the relevance of critical thinking reflected in Chilean classrooms, it is crucial to analyze its presence in the Chilean curriculum. Regarding this, there is not a specific focus on critical thinking skills; however, there are characteristics of a critical thinker in the attitudes expected from the students to learn. For example, the language curriculum states that learners should demonstrate interest in continuous and independent learning as part of a personal project and to contribute to society; thus, the willingness to seek knowledge in a given setting and intellectual curiosity can be recognized. Also, pupils must work responsibly in a proactive and collaborative manner with a common goal demonstrating respect for the interests and ideas of others, hence, the curriculum reflects the ability to be open-minded, which is vital in a critical thinker.

Some instruments to measure critical thinking have been designed over the years, for example, the Critical Thinking Disposition Scale by Sosu (2013) and the California Critical Thinking Disposition Inventory (Facione et al., 1994) are two instruments used for this purpose. Besides, several studies (Iman, 2017) have been conducted to investigate the critical thinking disposition in students, but insufficient research has been done in the field of EFL learning in Chile and Latin America.

There needs to be more research on this specific topic, particularly among EFL students from public secondary schools, which is why this research is so significant and necessary. This study is relevant to explore the Chilean reality of public high school students' disposition towards their critical thinking in EFL. Its contribution to English language teaching would help educators what areas of critical thinking need improvement in secondary school education, which goes from 9th to 12th grades in Chile. Chile has got an educational system that identifies public, semi-public, and private schools. This study focuses on students

from public schools because the national English curriculum shows references to critical thinking that have never been explored before. Then this research aims to: 1. Identify participants' disposition towards critical thinking in the English class

2. Correlate participants' sociodemographic characteristics with their critical thinking regarding their English learning

3. Characterize participants' profile regarding their disposition towards critical thinking while learning English.

MATERIALS AND METHODS

This is a quantitative investigation that has got a descriptive, non-experimental, and cross-sectional design to investigate the critical thinking dispositions of secondary school students who volunteered to take part in this study and answered the critical thinking scale. The population of the study were secondary school students from the city of Concepción in Chile. A non-probability and purposive sample method was used because the sample was chosen on the basis of the convenience of the investigator and the willingness to participate in the study of the respondents. The participants selected for this study were 205 Chilean secondary school students from public high schools. Most of the students were in tenth grade (43%, N = 89) and twelfth grade (43%, N = 89), while the rest were in eleventh grade (13%, N = 27).

As for the gender variable, most respondents were male (49%, N = 101), followed by females (48%, N = 99). Meanwhile, two participants preferred not to answer, two identified themselves as gender fluid (0,98%) and one identified themselves as non-binary (0,98%). Concerning the age of participants, the range was between 14 and 20. Most participants were 17 (31%, N = 64) and 15 (23%, N = 48) years old. Then, the most common ages were 16 (19%, N = 39) and 18 (19%, N=39). Finally, the least common ages were 19 (5%, N = 11), 20 (1%, N = 3) and 14 (0,49%, N = 1). Regarding the selection of participants, all of them were public high school students because these were the ones who freely accepted to participate in the study.

Furthermore, the questionnaire was a 6-point Likert scale that had two sections. The first section collected sociodemographic data from the participants: age, gender, study year, and interest in the English language. There was a consent form in which participants agreed to freely participate in the study as long as the data was kept anonymous. The second section was the 6-point Likert scale translated and adapted from the California Critical Thinking Dispositions Inventory (CCTDI) developed by Facione et al. (1994). This version was later adapted by Boonsathirakul and Kerdsomboon (2021) and then translated into Spanish by the researchers of this investigation.

The original adapted instrument consisted of seven dimensions and twenty-four items, but it was modified after a panel of 10 Chilean educational experts evaluated it. All these experts were university teachers who held a doctoral degree. For the expert evaluation, a letter explaining the research and its purpose, and a consent form were shared among the experts. Then, from the experts' comments and feedback, two more questions were added for the final version of the questionnaire in dimension 6, totaling 26 items. The seven dimensions of the instruments were as follows: dimension 1: Truth-seeking (3 items), dimension 2: Open-mindedness (4 items), dimension 3: Analyticity (3 items), dimension 4: Systematicity (4 items), dimension 5: Self-confidence Critical Thinking (4 items), dimension 6: Inquisitiveness (5 items), dimension 7: Cognitive Maturity (3 items). To analyze the reliability of the instrument, the Cronbach's Alpha coefficient was applied to measure its internal consistency, which was .82. Table 1 shows the description of the seven dimensions of the instrument:

TABLE 1
Description of each dimension

Table 1

Description of each dimension

Dimension 1: Truth-seeking	Number of items: 3
According to Facione and Delphi (1990), the **Truth-seeking** dimension focuses on the attribute of being open and willing to seek the best knowledge in a given setting, being fearless in formulating questions and being honest and objective in pursuing research, despite results that do not align with one's concerns or opinions.	
Dimension 2: Open-mindedness	Number of items: 4
In line with Facione and Delphi (1990), the dimension of **Open-mindedness** refers to being open to different points of view with openness to the possibility of one's own biases.	
Dimension 3: Analyticity	Number of items: 3
According to Facione and Delphi (1990), the **Analytical** dimension focuses on assessing the implementation of analysis and the use of evidence to solve problems, foreseeing possible conceptual or practical challenges, and being permanently alert to the need to act.	
Dimension 4: Systematicity	Number of items: 4
In agreement with Facione and Delphi (1990), the **Systematicity** dimension assesses the fact of being systematic, orderly, focused, and conscientious in research.	
Dimension 5: Self-confidence Critical Thinking	Number of items: 4
According to Facione and Delphi (1990), the critical thinking dimension of **Self-Confidence** aims to assess one's confidence in one's decision-making processes. CT self-confidence permits one to trust the strength of one's own opinions and to guide others in problem-solving.	
Dimension 6: Inquisitiveness	Number of items: 5
In accordance with Facione and Delphi (1990), the **Inquisitiveness** dimension assesses intellectual curiosity and the willingness to learn, especially when the application of knowledge is not evident.	
Dimension 7: Cognitive Maturity	Number of items: 3
According to Facione and Delphi (1990), the **Cognitive Maturity** dimension focuses on the faculty of being judicious in making decisions. The cognitively mature individual can be described as someone who deals with problems, research, and decision-making by considering that some problems are necessarily ill-structured, that some scenarios allow for more than one plausible choice, and that many times judgments have to be made according to norms, settings, and evidence that preclude certainty.	

The data collected from participants was analyzed through different phases:

• Descriptive statistics: the global scores for the seven dimensions of the 6-point Likert scale were calculated, specifically, the mean score (M) to calculate the average and the standard deviation to estimate the dispersion in the dataset. The same values were calculated per dimension and per item.

• Correlational analysis: after the descriptive statistics, the Kolmogorov-Smirnov Normality Test was employed to determine whether the distribution was normal. It was shown that data was not normally distributed. Therefore, the Spearman's correlation coefficient test was used to measure the correlation between the global scores and the sociodemographic data (gender, age, study year, and interest in the English language). Also, the relationship among the seven scale dimensions was calculated.

• Hierarchical Cluster analysis: a cluster analysis was conducted using the software SPSS and the "Ward Method" to obtain more evenly sized clusters. After that, a dendrogram was obtained, showing that the suitable number of clusters to divide the 205 cases was four. The dendrogram showed which cases corresponded to each group.

DISCUSSION OF RESULTS

This section will be approached by each research objective:

Research objective 1: to identify participants' disposition towards critical thinking in the English class.

Regarding the first objective, which seeks to identify participants' disposition towards critical thinking in the English language class, a descriptive statistics analysis was carried out; this analysis addressed the data's mean score and standard deviation. First, 205 students answered the questionnaire, and the responses went from Strongly disagree to Strongly agree. Therefore, they were represented in numbers 1 to 6, as shown in table 2 below.

TABLE 2
Likert scale and performance levels

Strongly disagree	Disagree	Partially disagree	Partially agree	Agree	Strongly agree
1	2	3	4	5	6

A descriptive statistics analysis was carried out, the general mean score (MS) was 3.67, and the standard deviation (SD) was 1.61, which indicated that there was not a strong dispersion of the 69 data. In a more specific note, a descriptive statistics analysis per dimension was conducted and dimension 3, Analyticity, presented the highest mean score of 4,34. Open-mindedness had the lowest mean score of 2,40. Regarding the standard deviation dimension 7, Cognitive Maturity, had the highest standard deviation of 1,57, and Analyticity had the lowest, 1,36. Table 3.

TABLE 3
Descriptive statistics per dimension

Dimension	N	Mean	Max	Min	SD
Truth-seeking	205	4.11	6	1	1.48
Open-mindedness	205	2.40	6	1	1.47
Analyticity	205	4.34	6	1	1.36
Systematicity	205	3.73	6	1	1.52
Self-confidence	205	3.50	6	1	1.52
Critical Thinking					
Inquisitiveness	205	4.17	6	1	1.46
Cognitive Maturity	205	3.57	6	1	1.57
Global scores	205	3.67	6	1	1.61

After these initial findings, an analysis per item of each dimension is presented below.

Dimension one: Truth-seeking

Truth-seeking had its highest mean score in question 1 (Cuando aprendo inglés, me gusta trabajar en las actividades sin hacer mayor esfuerzo) having a mean score of 4.84, meanwhile, its lowest mean score was 3.52 in question 3 (Cuando aprendo inglés, estoy constantemente investigando nuevas ideas para aprender). However, the highest standard deviation was in question 3, scoring 1.40, while the lowest SD score was

1.36 in question 2 (Prefiero tener un rol pasivo, en vez de activo cuando aprendo inglés). On balance, it was found that participants prefer passive learning, and they opt for making less effort in activities. Mohd Zin and Bee Eng (2014) conducted a similar study in Malaysia, which sought to investigate the relationship between critical thinking disposition and critical reading skills of Malaysian ESL learners between 17 and 19 years old. Same as this current study, these authors found out that students showed high resistance towards seeking the truth in anything they encountered, the participants were reluctant to ask relevant questions, evaluate new information and be objective about their beliefs.

Dimension two: Open-mindedness

Open-mindedness showed its highest mean score in question 7 (Cuando aprendo inglés, no se debería aceptar a compañero/as que constantemente cometen errores), having a score of 2.65, and its lowest mean score was 1.94 in question 5 (Cuando aprendo inglés, no me gusta escuchar las opiniones de otro/as). This dimension had its highest standard deviation score in question 4 (Cuando aprendo inglés, si a algún/a compañero/a, no le gustan mis ideas y opiniones, no continuó participando) and 7 (Cuando aprendo inglés, no se debería aceptar a compañero/as que constantemente cometen errores), both questions scored 1.51. In contrast, the lowest SD score was 1.29 in question 5. In this light, participants showed great openmindedness and willingness to listen to the ideas and opinions of others. These findings differ greatly from those obtained in the study conducted by Mohd Zin and Bee Eng (2014), which demonstrated that students' attitude was closed-minded, implying that the participants had a low tolerance for the opinions of others and a great lack of consideration for other alternatives suggested by their peers.

Dimension three: Analyticity

Regarding the third dimension Analyticity, its highest mean score was in question 10 (Cuando aprendo inglés, todo en lo que creo debe ser racional y confiable), having a mean score of 4.44, whereas the lowest mean score in the same dimension corresponded to question 8 (Cuando aprendo inglés, si existe un conflicto, tomo partido por los compañeros/as que son más racionales) and 9 (Cuando aprendo inglés, siempre evalúo el argumento de los demás para verificar si es que tienen razones suficientes), having a mean score of 4.29 each of them. On the other side, considering the SD in Analyticity, its highest score was in question 8 with 1.49, in comparison to its lowest one, which was question 10 with 1.28. By and large, multiple participants agreed with the idea that if there were a conflict, they would choose to take sides with the most rational people. Continuing with the same idea, more than three-quarters of participants evaluated the arguments of others; and whether there were sufficient reasons. Moreover, most of them supported the thought that everything they believe must be rational and trustworthy. Ultimately, it can be said that respondents tended to value reasoning and arguments beyond opinions and information. The results obtained in the study conducted by Mohd Zin and Bee Eng (2014) showed that in the Analyticity dimension, a positive disposition was displayed (mean = 4.34), being the answer "partially agree" as the average response, which is akin to the current research.

Dimension four: Systematicity

The fourth dimension, Systematicity, showed the highest mean score (4.05) in question 12 (Cuando aprendo inglés, suelo organizar mi forma de pensar paso a paso), and the lowest mean score in question 13 (Cuando aprendo inglés, me describen como alguien que tiene un procedimiento ordenado y sistemático para resolver problemas complejos) scored 3.28. In consideration of the standard deviation of this dimension, the highest score focused in question 14 (Cuando aprendo inglés, puedo planificar paso a paso a cómo resolver problemas complejos) and question 11 (Cuando aprendo inglés, planifico antes de hacer cualquier trabajo), being 1.54; in contrast to the lowest one (1.41), which was in question 12. Overall, less than half of the respondents planned well before doing any work, and more than half of them usually organized their thinking system in a step-by-step manner. Regarding their external perceptions, most respondents did not think they are described as having an orderly and systematic procedure towards complex problems. However, a major part of the answers demonstrated that they do believe that they can plan step by step to solve complex problems. Lastly, it could be said that participants tended to demonstrate step-by-step planning skills, yet respondents did not believe that others see them as orderly and organized thinkers. Thus, this study results showed that learners consider having a structured way of thinking, whereas the research conducted by Mohd Zin and Bee Eng (2014) demonstrated the opposite, suggesting that participants are less organized in how they deal with problems and situations in general.

Dimension five: Self-confidence Critical Thinking

In the fifth dimension, Self-confidence Critical Thinking, the highest mean score was 4.34 in question 17 (Cuando aprendo inglés, me siento orgulloso/a de mí mismo/a por ser capaz de encontrar diferentes

alternativas para resolver un problema), and the lowest mean score was 3.03 in question 16 (Cuando aprendo inglés, mis compañero/as admiran mis ganas de conocer y aprender). While the highest standard deviation score was 1.48 in question 18 (Cuando aprendo inglés, mis compañero/as esperan que ofrezca nuevas formas de enfrentar tareas complejas y complicadas), the lowest standard deviation score was 1.36 in question 17. In this regard, less than half of the respondents agreed with the statement that their friends always make them decide on the situation because their friends think that they judge justice. Similarly, more than half of the students thought their classmates did not admire their desire for knowledge and learning. In contrast to that, three-quarters of the students felt proud of themselves because they could find alternative ways to solve a problem when they were learning English. However, concerning external appreciation, more than half of the students did not believe their friends expected them to offer new approaches to use in complex and complicated tasks while learning English. Thus, it can be deduced that students were confident with their abilities, but despite that, they did not believe their classmates appreciated their abilities the same way they did. To put it differently, there is a positive disposition from participants concerning this dimension. Both studies have in common that answers indicated that "they confidently trust their judgment and reasoning when making their decision" (Mohd Zin & Bee Eng, 2014, p. 50). However, in this case, secondary school students expressed that they thought their classmates did not believe in their critical thinking ability.

Dimension six: Inquisitiveness

Dimension six, Inquisitiveness, showed its highest mean score in question 19 (Cuando aprendo inglés, ansío aprender temas de mi interés), having a score of 4.70, although the lowest mean score was 3.62 in question 21 (Cuando aprendo inglés, disfruto resolver problemas complejos). The highest standard deviation score was 1.53 in question 21, and the lowest SD score was 1.32 in question 19. On balance, most participants were eager to learn what they were interested in and were happy to learn everything around them. Nevertheless, approximately half of them did not enjoy solving complex problems; moreover, a large fraction of the answers submitted agreed that they were fond of listening to other classmates' opinions. Apart from that, most of them attempted to solve all their questions during the English class. Lastly, from the answers, it can be stated that pupils were curious about aspects of their interests and new to them, along with the opinions of others. In this current research, only a positive disposition is found since the average response was "partially agree" (mean = 4.17), whereas the study conducted by Mohd Zin and Bee Eng (2014) demonstrated that Inquisitiveness presented a strong critical disposition.

Dimension seven: Cognitive Maturity

Regarding the last dimension, Cognitive maturity, its highest mean was in question 26 (Cuando aprendo inglés, a veces siento que no sé cómo decidir sobre algo), scoring 3.87, and the lowest mean score of this dimension was in question 25 (Cuando aprendo inglés, me siento incómodo/a al tomar una decisión), being 3.28. Lastly, considering the SD, the highest score was present in question 26, being 1.58, but its lowest one was in question 24 (En las clases de inglés, si pudiera elegir, elegiría no tener la responsabilidad de tener que tomar decisiones) and 25, being 1.54 in both of them. In other words, almost half of students answered that they did not agree with the idea that, if they could choose, they would opt not to have the responsibility of choosing to make any decisions; likewise, most respondents claimed that they did not feel uneasy whenever they had to choose something. Ultimately, participants showed a tendency, since a great number sometimes did not know how to decide. It can be stated that students face problems when they have the responsibility to make decisions during class and feel insecure about their abilities in the same subject. These findings vary greatly from the ones obtained in the study conducted by Mohd Zin and Bee Eng (2014), in which participants appeared to be judgmental and reckless in making their own decisions.

The results previously mentioned are illustrated in Table 4 below.

TABLE 4
Descriptive analysis per item of each dimension

Dimension	Descriptive statistics per item dimension Items	N	Mean	SD
Truth-seeking	Item 1: Cuando aprendo inglés, me gusta trabajar en las actividades sin hacer mayor esfuerzo.	205	4.84	1.38
	Item 2: Prefiero tener un rol pasivo, en vez de activo cuando aprendo inglés.	205	4.01	1.36
	Item 3: Cuando aprendo inglés, estoy constantemente investigando nuevas ideas para aprender.	205	3.52	1.40
Open-mindedness	Item 4: Cuando aprendo inglés, si a algún/a compañero/a, no le gustan mis ideas y opiniones, no continuó participando.	205	2.59	1.51
	Item 5: Cuando aprendo inglés, no me gusta escuchar las opiniones de otro/as.	205	1.94	1.29
	Item 6: Cuando aprendo inglés, uno de los errores que cometo al tomar una decisión, es que no escucho las ideas de otro/as.	205	2.43	1.48
	Item 7: Cuando aprendo inglés, no se debería aceptar a compañero/as que constantemente cometen errores.	205	2.65	1.51
Analyticity	Item 8: Cuando aprendo inglés, si existe un conflicto, tomo partido por los compañero/as que son más racionales.	205	4.29	1.49
	Item 9: Cuando aprendo inglés, siempre evalúo el argumento de los demás para verificar si es que tienen razones suficientes.	205	4.29	1.31
	Item 10: Cuando aprendo inglés, todo en lo que creo debe ser racional y confiable.	205	4.44	1.28
Systematicity	Item 11: Cuando aprendo inglés, planificó antes de hacer cualquier trabajo.	205	3.92	1.54
	Item 12: Cuando aprendo inglés, suelo organizar mi forma de pensar paso a paso.	205	4.05	1.41
Dimension	Descriptive statistics per item dimension Items	N	Mean	SD
Systematicity	Item 13: Cuando aprendo inglés, me describen como alguien que tiene un procedimiento ordenado y sistemático para resolver problemas complejos.	205	3.28	1.50
	Item 14: Cuando aprendo inglés, puedo planificar paso a paso cómo resolver problemas complejos.	205	3.68	1.54
Self-confidence Critical Thinking	Item 15: Cuando aprendo inglés, mis compañero/as me hacen tomar decisiones porque consideran que mi juicio es justo.	205	3.37	1.46
	Item 16: Cuando aprendo inglés, mis compañero/as admiran mis ganas de conocer y aprender.	205	3.03	1.44
	Item 17: Cuando aprendo inglés, me siento orgulloso/a de mi mismo/a por ser capaz de encontrar diferentes alternativas para resolver un problema.	205	4.34	1.36
	Item 18: Cuando aprendo inglés, mis compañero/as esperan que ofrezca nuevas formas de enfrentar tareas complejas y complicadas.	205	3.24	1.48
Inquisitiveness	Item 19: Cuando aprendo inglés, ansío aprender temas de mi interés.	205	4.70	1.32
	Item 20: Cuando aprendo inglés, estoy feliz de aprender sobre todo lo que me rodea.	205	4.24	1.46
	Item 21: Cuando aprendo inglés, disfruto resolver problemas complejos.	205	3.62	1.53
	Item 22: Cuando aprendo inglés, disfruto escuchar las diferentes opiniones de mis compañeros.	205	4.28	1.33
	Item 23: Cuando aprendo inglés, procuro resolver todas mis dudas durante la clase.	205	4.00	1.46
Cognitive Maturity	Item 24: En las clases de inglés, si pudiera elegir, elegiría no tener la responsabilidad de tener que tomar decisiones.	205	3.56	1.54
	Item 25: Cuando aprendo inglés, me siento incómodo/a al tomar una decisión.	205	3.28	1.54
	Item 26: Cuando aprendo inglés, a veces siento que no sé cómo decidir sobre algo.	205	3.87	1.58

Note. SD stands for standard deviation.

Research objective 2: to correlate participants' sociodemographic characteristics with their critical thinking regarding their English language learning

Even though in this study gender was not correlated with the participants' disposition towards critical thinking, research objective three below will show that sex had a role to play when clustering the participants. Despite the abovementioned, significant correlations were found among the dimensions of the scale.

Table 5 shows that dimension 4, Systematicity, and dimension 1, Truth-seeking, presented a weak positive correlation (rs=.307** p= .000). Similarly, the analysis between dimension 4, Systematicity, and dimension 3, Analyticity, had a weak positive correlation (rs=.398** p=.000), meaning that both variables are directly proportional.

Regarding dimension 5, Self-confidence Critical Thinking, and dimension 1, Truth-seeking, both had a weak positive correlation (rs=.265** p=.000); likewise, dimension 5, Self-confidence Critical Thinking, and dimension 3, Analyticity, had a weak positive correlation as well (rs=.353** p=.000). Dimension 4, Inquisitiveness, had a moderate positive correlation (rs=585** p=.000).

Dimension 6, Inquisitiveness, and dimension 1, Truth-seeking, showed a weak positive correlation (rs=.299** r=.000); a similar phenomenon happens with dimension 6, Inquisitiveness, and dimension 2, Open-mindedness, (rs=- .306** p=.000), also with dimension 6 and dimension 3, Analyticity (rs=.349** p=.000). However, dimension 6, Inquisitiveness, and dimension 4, Systematicity, demonstrated a moderate positive correlation (rs=.571** p=.000). In contrast, dimension 6, Inquisitiveness and dimension 5, Self-confidence Critical Thinking, displayed a strong positive correlation (rs=.623** p=.000).

Dimension 7, Cognitive maturity, and dimension 2, Open-mindedness, presented a weak positive correlation (rs=.255** p=.000), while dimension 7, Cognitive Maturity, and dimension 4, Systematicity, showed a moderate positive correlation (rs=.47 p=.503). Table 5.

TABLE 5
Means, SDs and Spearman correlations among the seven dimensions

Dimension	M (SD)	1	2	3	4	5	6
Dimension 1: Truth-seeking	4,11 1,48	-					
Dimension 2: Open-mindedness	2,40 1,47	rs=.025 p=.725					
Dimension 3: Analyticity	4,34 1,36	rs=.182** p=.009	rs=-.085 p=.224				
Dimension 4: Systematicity	3,73 1,52	rs=.307** P=.000	rs=-.076** p=.208	rs=.398** p=.000			
Dimension 5: Self-confidence Critical Thinking	3,50 1,52	rs=.265** p=.000	rs=-.037 p=.596	rs=.353** p=.000	rs=.585** P=.000		
Dimension 6: Inquisitiveness	4,17 1,46	rs=.299** p=.000	rs=-.306** p=.000	rs=.349** p=.000	rs=.571** p=.000	rs=.623** p=.000	
Dimension 7: Cognitive Maturity	3,57 1,57	rs=.186** p=.008	rs=.255** p=.000	rs=.036 p=.608	rs=.47 p=.503	rs=.072 p=.302	rs=.011 p=.879

Research objective 3: to characterize participants' profiles regarding their disposition towards critical thinking while learning English as a foreign language

The last analysis was a hierarchical cluster analysis applied to identify and analyze cases with similar characteristics. The program SPSS was used to obtain and recognize the clusters; therefore, the Ward method was applied with the program's assistance. The variables were calculated with the Euclidean distance to the

square. As a result, a dendrogram was obtained, where the 205 cases were divided into different groups, with four clusters as the best option to analyze the homogenous groups. The cases were divided according to their responses in each variable of the 6-point Likert scale, their gender, age, study year, and interest in the English language. The four different groups did not present any significant difference regarding their answers. However, they had differences in their socio-demographic characteristics. Therefore, they were named according to their most distinctive characteristic. Table 6 shows the characteristics of the four clusters.

TABLE 6
Characteristics of the four clusters

Cluster	N° cases	Gender	Age	Interest in English	Grade	Mean score among the seven dimensions
1: Mostly women	52	Male Female	15-18	22 yes 24 somehow 6 no	10th-11th	4,1
2: The least interested	53	Male Female	14-20	15 yes 8 somehow 30 no	10th-12th	3,0
3: Mostly men	58	Male Female	15-20	10 yes 10 no 3 somehow	10th-12th	3,7
4: The ambivalent	42	Male Female Prefer not to answer Gender fluid Gender non-fluid	15-19	33 yes 9 somehow	10th-12th	3,9

The task of separating and profiling participants' disposition towards critical thinking in English language learning was a challenging one. The Ward method divided the cases into evenly sized groups; however, the differences were mostly in their answers. Since no studies have addressed dispositions toward critical thinking in English language learning, participants' profiles can be described regarding their disposition towards critical thinking while learning English by comparing literature and the responses obtained in the different dimensions.

Participants in the current study are reluctant to act or have the willingness to engage and solve challenging problems in their lives, which differs from what has been suggested by Boisvert (2004) and Silverman and Smith (2003); in other words, individuals labeled as critical thinkers should act and solve challenges in problematic scenarios. Likewise, Paul and Elder (2003) acknowledge that critical thinkers must be intellectually autonomous and play an active learning role; in stark contrast, in the current research sample, students manifested that they did not like to have an active role in their English learning process. On the other hand, Facione and Delphi (1990), Bezanilla-Albisua et al. (2018) and Boisvert (2004) contend that open-mindedness, analyticity, systematicity, self-confidence, and decision-making are core elements in CT, which are also detectable among this study's participants due to their willingness to consider different viewpoints, their ability to seek sufficient arguments and reasons to reflect on a given matter, their organization within challenging circumstances, their positive self-concept as critical thinkers, and their responsibility to make decisions.

CONCLUSIONS

This study allows us to better understand the critical thinking disposition of public high school students in Chile. It provides essential information on the areas of critical thinking disposition that are more developed than others and their association with sociodemographic factors such as gender, age, study year, and interest in the English language.

Regarding the first research objective, which aimed to identify participants' disposition towards critical thinking in the English language class, participants demonstrated significant differences among the seven dimensions that constitute critical thinking in this instrument. In the Truth-seeking dimension, the participants indicated a preference for a passive form of learning. In Open-mindedness, most participants were open to listening to different opinions, even if they were wrong. On the other hand, in Analyticity, students were shown to value reasoning and arguments before taking sides in an opinion. Concerning the fourth dimension, Systematicity, the students perceived themselves as organized in system thinking, but their peers could not notice this. Such findings are in accordance with the study conducted by Mohd Zin and Bee Eng (2014), which sought to research the relationship between critical thinking dispositions and critical reading skills of Malaysian ESL learners, in terms of the truth-seeking dimension due to participants' passive learning and low-effort task preferences. Likewise, the results obtained in the study conducted by Mohd Zin and Bee Eng (2014) showed that in the Analyticity dimension, a positive disposition was displayed (mean = 4.34), being the answer "partially agree" as the average response, which is akin to the current research.

As for the Self-confidence critical thinking dimension, participants responded that they were confident in their critical thinking abilities, but their peers could not notice this trait, which provides insights that are similar to the research conducted by Mohd Zin and Bee Eng (2014) given that both studies indicated that "they confidently trust their judgment and reasoning when making their decision" (Mohd Zin & Bee Eng, 2014, p. 50). However, in this case, high school students expressed that they thought their classmates did not believe in their critical thinking ability. Then, on the dimension of Inquisitiveness, respondents answered that they were eager to learn about topics that would interest them and their peers. In this dimension, only a positive disposition is found since the average response was "partially agree" (mean = 4.17), whereas the study conducted by Mohd Zin and Bee Eng (2014) demonstrated that Inquisitiveness presented a strong critical disposition. Finally, in the seventh and last dimension, Cognitive maturity, the participants preferred making decisions themselves. They said they did not feel nervous about making decisions but often did not know how to decide. These findings vary greatly from the ones obtained in the study conducted by Mohd Zin and Bee Eng (2014), in which participants appeared to be judgmental and reckless in making their own decisions.

From this, the students demonstrate a critical thinking disposition towards learning English in most dimensions as suggested by Facione and Delphi (1990). We can see in the participants the different characteristics that were described as part of critical thinking. However, we can also identify clear weaknesses in the students, such as a preference for passive learning. We believe this may be due to the type of interaction in the classroom, since in the Chilean reality in public high schools, the approach is teacher-centered, and students are used to not taking responsibility for their education, so they choose to have a passive role in the classroom. Lastly, a second weakness we could notice during this process is that students tend to have a positive self-opinion, which is opposite to their peers' idea about them and their capabilities.

Concerning the second objective, which sought to correlate participants' sociodemographic characteristics with their critical thinking regarding their English language learning, the global data did not affect gender, grade, age, or study year, which is akin to the results obtained from previous research conducted by Bećirović et al. (2019) and Ghorbandordinejad and Heydari (2012) in terms of gender; by Moafian and Ghanizadeh (2011) concerning age; and by Par and Thant (2020) regarding grade. Lastly, interest in the English language showed no correlation or significant influence in any of the seven dimensions

of critical thinking; in stark contrast, a study conducted by Manshaee et al. (2014) with high school students, demonstrated that "students interested in learning a second language have higher levels of critical thinking than students uninterested" (Manshaee et al., 2014, p. 792). Despite this, correlations were found among the seven dimensions of the scale. For example, Self-confidence, Critical Thinking, and Systematicity had a moderately positive correlation. In the same way, Systematicity and Inquisitiveness also presented a moderately positive correlation. Inquisitiveness with Self-confidence and Critical Thinking had a strongly positive correlation. These positive correlations mean that their values increase simultaneously; for instance, if the participants demonstrated a high level of Inquisitiveness, they would have a high level of Self-confidence and Critical Thinking too.

Regarding the third objective, which aimed to characterize the participants' critical thinking profile in the seven dimensions assessed in the critical thinking disposition inventory, the participants were students who preferred to be passive learners and preferred to be given easy tasks, which differs from what Paul and Elder (2003) suggest since they acknowledge that critical thinkers should play an active learning role. Also, pupils were open to listening to other people's ideas even if they were mistaken and did not evaluate other people's opinions to discern if their views were reasonable. Moreover, the participants had an organized thinking process and were confident in their critical thinking ability but did not think others could perceive this; on this account, these findings are in accordance with Facione and Delphi (1990), Bezanilla-Albisua et al. (2018) and Boisvert (2004) due to participants' willingness to consider different viewpoints, ability to seek sufficient arguments and reasons to reflect on a given matter, organization within challenging circumstances, positive self-concept as critical thinkers, and responsibility to make decisions. Finally, current research participants were only interested in topics they liked and felt undecided about making decisions while learning, as opposed to what Facione and Delphi (1990) contend since critical thinkers manifest curiosity and interest in a wide variety of topics.

One key limitation of this study was the lack of representation from the LGBTIQ+ community within the student body. With more representation of this minority, we might have presented a more noticeable differentiation of the results obtained since we have a significant and similar number of men and women. Moreover, in many studies, gender has been a topic of extensive study, it was not the case in this current study; perhaps presenting a more significant number of participants from this community would have provided a new perspective on gender as we know it and how this group is disposed toward this particular topic. One last major limitation in conducting this study is the small number of studies and instruments applied in Chile and Latin America. If we had had a more extensive database to compare and guide our results, we might have had a more generalizable investigation.

In the future, this research and instrument could be applied to other students, such as younger and university students to obtain more varied results in this field of research. Another aspect that could be investigated is how the Chilean curriculum affects the students' disposition towards critical thinking in English at school. Also, further research could be done on the relationship between the socioeconomic factor and students' critical thinking disposition.

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