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Moderating Effect of Personality on the Relationship Between Neuro-Linguistic Programming (NLP) and Critical Thinking in ESL Learners

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Abstract

The present study aimed to explore the impact of Neuro-linguistic Programming (NLP) on critical thinking among English as a Second Language (ESL) learners. Further, it explored the moderating impact of personality traits in the relationship between NLP and critical thinking. A convenience sampling method was employed to collect the data of 300 ESL learners. Moderation analysis revealed that all five personality traits—extroversion, agreeableness, conscientiousness, emotional stability, and openness to experience—moderated the association between NLP and critical thinking among ESL learners. Results suggested a direct correlation between NLP and critical thinking, with NLP also demonstrating positive effects on ESL learners' personality traits. These findings suggest that NLP interventions can enhance critical thinking skills in ESL learners, potentially through promoting positive personality development. The study offers

valuable insights for educators and students alike, informing classroom learning strategies and emphasising the importance of individual differences. The study contributes significantly to the field of linguistics, particularly in the context of ESL education.

Keywords: Neuro-Linguistics Programming, NLP, personality traits, critical thinking, ESL learners

Introduction

Existing literature has shown that personality traits have a great impact on the critical thinking of ESL (English as a Second Language) learners. Every learner is different from other learners due to various psychological traits like feelings, thinking, emotions, intellect, beliefs, aptitude, and interests. However, the personality traits of the learners are observable and repairable. Personality traits can be measured by considering thinking style (Alwan, 2012). NLP reflects on the learning styles of the learners as a significant and noteworthy source to get desired differences in the behaviour of the learners. Furthermore, allows teachers, instructors, or trainers to adopt and adapt multiple methods and techniques for effective teaching. Hence, ESL has a predictable influence on the behaviour of the learners and the teachers in language learning. Learners can be taught on a single method of teaching with the techniques of NLP that have a major focus on individual differences and individual success based on desired results. Instructor-learner relationships can be established in the classroom through establishing rapport, empathetic communication, and facilitation during the learning process. Neuro-Linguistics Programming (NLP), an important concept in neuro-linguistics and psycho-linguistics, explains how to communicate through subjective experiences, described as an “Art of Communication” (Tosey et al., 2005).

Literature Review

NLP - Neuro-Linguistic Programming

NLP has roots in the neurological processes to rule human behaviour and actions, as well as the conscious and unconscious experiences through senses (Bovbjerg, 2010). Although, the neurological processes happen under the threshold of human consciousness (Gow et al., 2006). Yet, the transformational relationship between both conscious and subconscious experiences is based on the change in human perception and this kind of transformation is possible with language. NLP is credited as a supplemental instrument in ESL (English as a Second Language) and SLL (Second Language Learning) to instruct learners of language to achieve higher results while performing. NLP is a strategic perspective, as many courses are directed for ESL learners and teachers to learn and teach English as a second language with more excellence. These courses revolve around effective communication, goal settings, rapport building, learning styles, information gathering, and better effectiveness (Winch, 2005).

Techniques in NLP

In the field of NLP, there are different techniques proponents use to train, mentor, or educate people. Several techniques are applicable in language learning. To measure the NLP role, Millrood (2004a) has propounded the methods of NLP in the field of education.

Modelling. In NLP, modelling is a technique to observe and map the behaviours and strengths of successful people. In language learning, this technique examines the proficiency of instructors and their method of teaching; such as how they are using different and new techniques to make

pupils learn. Modelling is considered as accelerating learning in language teaching (Millrood, 2004b).

Reframing. As Reiff (2004) put this most simply, reframing is a change of perception of the realities in one's behaviour. Reframing is a union of decisions which are utilized to reprogram or reinterpret the learning disabilities in a more positive way to get a grip over the disabilities defined by Reiff (2004).

Anchoring. According to Millrood (2004a), anchoring is a process in which a stimulus, internal or external, triggers a response. In another way, anchoring is a process in which an internal response gets associated with an external trigger to affect how to retrieve the response more quickly (just like classical conditioning), or sometimes covertly (Labouchere, 2004). There are three ways to use anchoring as a technique. First is visual anchoring in which some specific hand gestures are used, second is auditory anchoring in which some specific voice tone or sometimes words are used, and third is kinaesthetic anchoring in which touching a hand or shoulder.

Elicitation. It is designed to induce someone's state by their behaviour (Millrood, 2004b). Here the instructor uses the Meta Model to understand the non-verbal behaviours with meta-questions.

Individual Differences. The procedure that the instructor creates by engaging learners in conversation equally. By this technique, instructors can distinguish between learners individually and learn about their views and ideas (Millrood, 2004b).

Leading. In NLP, leading is used to examine the instructor's leadership skills and how they guide learners in learning something. This can be possible by switching to the next behaviour that suit learners to understand things more easily.

Establishing Rapport. By building rapport, instructors can establish negotiation skills for how they interact with students. This method builds relationships between instructor-learners and increases the level of trust and understanding between both (Millrood, 2004a).

Pacing. Another NLP technique is used to build rapport to meet some aspects of learner's behaviour with a person being communicated (Dilts & DeLozier, 2000). In other words, the pacing is giving feedback through personal observation that an individual has observed after interacting with another person.

Emotional and Cognitive Boosters. This method is used to examine the instructor's efficiency in building an emotional atmosphere in the language class and to engage students in conversation. Further, to analyse teaching methods used to encourage, motivate, and empower learners for learning (Millrood, 2004a).

Metaphors. Metaphors are also one of the techniques of NLP that can be defined as a phrase, sentence, or a word that links one idea to another to shape in a way that people think about the world and the way they behave (Revell & Norman, 1999). Telling stories, analogies, and examples related to the topic are types of extended metaphors in the language class. This technique can enable learners to get more sense of what they are learning. Metaphors are a more creative and effective way of language learning.

Critical Thinking

Critical thinking is not a new concept. Early ancestors may have used critical power to find sources to get food or shelter. The Centre of Critical Thinking stated that the cognitive roots of critical thinking are old like its etymology that goes directly into the time, 2500 years back,

Socrates' vision and teaching practices (Robert & Petersen, 2013). Similar to the claims cited above, critical thinking is highly involved in SLL (Second Language Learning) and the development of second language learning skills. It supports the higher order of thinking skills, planning, observing, and assessing learners to manage and control the thinking process. Developing and enhancing critical thinking in ESL learners can improve these skills and facilitate their learning and make their knowledge production possible. Language learners are forced to think in a critical way to analyse the content, find out the major issues, think about different perspectives and features on those issues, use personal experiences for clear understanding, and develop more refined reason-based opinions before concluding. According to Başarır (2017), critical thinkers play the role of “signposted” to evaluate the argument based on the given data.

Personality Traits

The framework of Big-Five personality traits has come out as a parsimonious and strong model to understand the relationship between academic behaviour and personality (Poropat, 2009). Poropat (2009) defined personality as the internal factors like interpersonal strategies and temperaments which may explain behaviour of individuals and stability of emotions, thoughts, and individual behaviour expressed by them. Robbins et al. (2010) have stated that Galton proposed the BFFM at first. The five-factor model can easily be understood as the taxonomic descriptive theory of personality traits that comprises five independent features to obtain extensively reliable investigations. Emotional stability, extraversion, openness to experience, conscientiousness, and agreeableness all are five main dimensions of personality (Nosratinia & Sarabchian, 2013). The concept of language use and personality traits has its foundations in the

late 1880s by Galton (Rushton & Irwing, 2011), who believed that human languages are encoded in distinctions of individual personalities in which they are used. The continuous outcomes of personality on thinking style are notable because academic achievements with excellent performance are considered to have a growing effect on learners (Caspi et al., 2005).

NLP, Critical Thinking, and Personality Traits

The ESL milieu demands high requirements to build the strong communicative abilities of learners. This is the reason behind various techniques and methods to apply in ESL classes to make learners' learning more effective. In this relation, Tosey and Mathison (2003) recommend NLP techniques and argued that NLP has the potential to apply as a philosophical theory in education; whereas Thornbury (2001) claims that NLP helps learners to achieve excellence while performing in an ESL environment by improving communication, attitude, motivation, improve self-esteem, personal growth, intellect, and change in attitude towards life. Another previous research has been conducted on critical thinking abilities and personality traits by Orluwene and Okoye (2020) embraced the relationship between critical thinking and personality traits. Further argued that the need for critical thinking is rapidly increasing yet an unanswered question has been left: how can learners' personality traits and thinking towards the real world make them think critically. However, Tosey and Mathison (2003) recommended NLP as a whole learning method that encourages intrapersonal and interpersonal communicative skills of the people but also a cooperative as well as a goal-oriented method. To apply NLP in ESL, Richards and Rodgers (2014) are the pioneer scholars who thought to apply NLP in the language learning milieu. Both followed Bandler and Grinder's concepts and looked at NLP in a way how learners can influence others as well as how effective behaviour of other learners could be modelled

(Richards & Rodgers, 2014). The study by Orluwene and Okoye (2020) predicts a significant relationship between critical thinking and personality dimensions in undergraduate students. The results of the study report 65% variation of critical thinking skills in extraversion, 76% in openness to experience, 54% in agreeableness, 61% neuroticism, and 65% in conscientiousness. Further suggested that students should indulge in activities that may enhance students' critical thinking abilities; also teaching styles and curriculum will also help them to increase critical thinking power. In this regard, NLP techniques and training help learners and teachers to get excellence.

Conceptual Framework

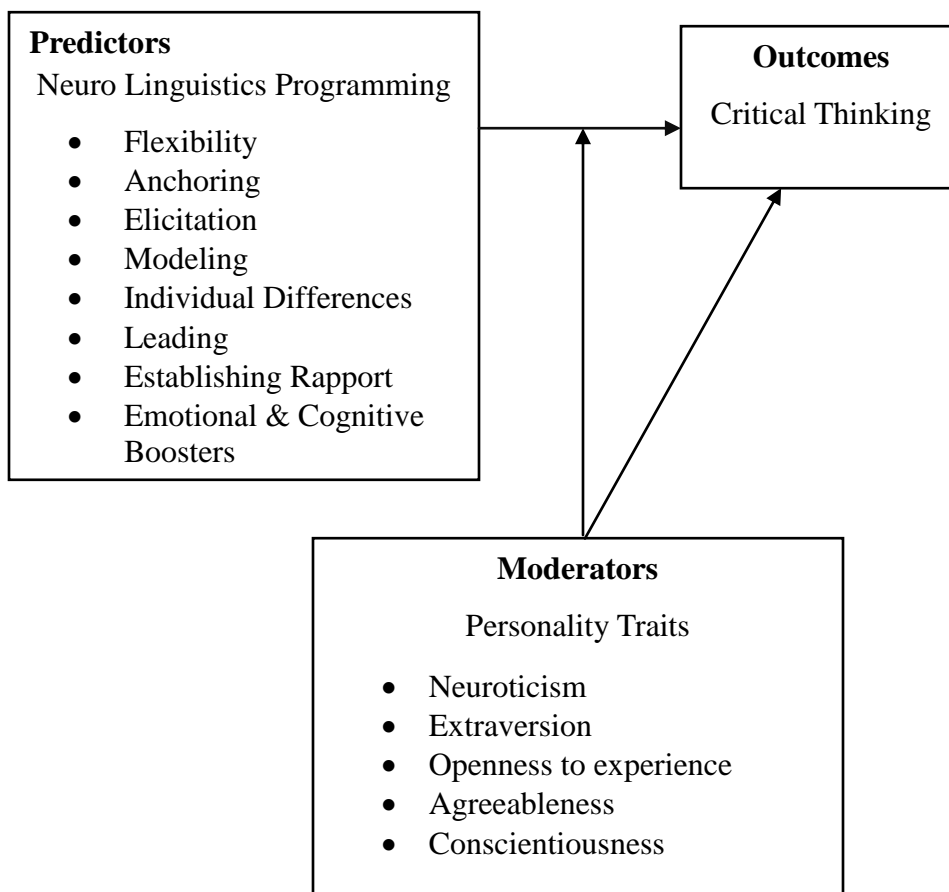


Figure 1. Moderating Role of Personality Traits between NLP and Critical Thinking

Methodology

The present study aimed to investigate the impact of NLP on critical thinking among ESL learners. Further, it explored the moderating impact of personality traits in the relationship between NLP and critical thinking among ESL learners. Methodology consists of the methods and procedures that were used to conduct the study.

Objectives

1. To examine the relationship between NLP and critical thinking in ESL learners.
2. To explore the moderating impact of personality traits in the relationship between NLP and critical thinking in ESL learners.

Hypothesis

1. NLP will positively predict critical thinking in ESL learners.
2. Personality traits will moderate the relationship between NLP and critical thinking in ESL learners.
 - i. Extroversion will negatively moderate the relationship between NLP and critical thinking in ESL learners.
 - ii. Agreeableness will moderate the relationship between NLP and critical thinking in ESL learners.
 - iii. Conscientiousness will positively moderate the relationship between NLP and critical thinking in ESL learners.
 - iv. Emotional stability will negatively moderate the relationship between NLP and critical thinking in ESL learners.

- v. Openness to experience will positively moderate the relationship between NLP and critical thinking in ESL learners.

Participants

The research design of the present study centred around correlational design. The sample consisted of ESL learners (N = 300) with the age range 18-27 years ($M = 1.56$, $SD = .74$). Data was collected from ESL learners by using a google form questionnaire due to the COVID-19 lockdown. The convenience sampling technique was used for data collection.

Sample

The sample for the present study was based on ESL learners. The undergraduates and graduates were selected randomly from universities for the present research. The results of the frequency and percentage of ESL learners were based on demographics (e.g., Demographic Sheet) gender, age, qualification, family system, and residential area. Boys and girls were having the same frequency ($f = 150$, 50.0%). The ESL learners from age group 18- 20 years ($f = 1175$, 58.3%) were higher as compared to those ESL learners from age group 21-23 ($f = 80$, 26.7%) and 24-27 ($f = 45$, 15.0%). Undergraduate ESL learners ($f = 151$, 50.3%) scored high as compared to graduates ($f = 149$, 49.7%). ESL learners belonging to the joint family system ($f = 164$, 54.7%) scored high as compared to nuclear ($f = 136$, 45.3%). ESL learners belonging to urban areas ($f = 191$, 63.7%) were higher as compared to those ESL learners belonging to rural areas ($f = 109$, 36.3%).

Analysis

The present study was proposed to investigate the moderating impact of personality traits in the relationship between NLP and critical thinking among ESL learners. To explore the objectives of the study the data collected from ESL learners were statistically analysed. SPSS- 25 version was used to analyse the collected data. Descriptive statistics, alpha coefficients, and normality analysis were applied across different variables. For the exploration of the relationship among all study variables, Pearson Correlation was carried out. Linear regression analyse was computed to find out the impact of personality traits on the relationship between NLP and critical thinking among ESL learners. Independent t-test explained mean differences among the study variables across demographic variables.

Table 1

Psychometric Properties of Study Variables and Pearson Correlation among Study Variables (N = 300)

Variables	M	SD	α	Range		Skewness	Kurtosis	1	2	3	4	5	6	7	8
				Potential	Actual										
NLP	145.45	19.32	.87	38-190	41-190	-1.06	5.24	-	.70**	.51**	.05	.12*	.08	.05	.09
Critical Thinking	78.59	10.67	.92	21-105	21-105	-1.06	6.01		-	.66**	.08	.15**	.08	.08	.13*
Personality Traits	36.22	5.21	.79	10-50	10-50	-.65	3.51			-	-.05	-.01	-.05	-.02	-.09
Extroversion	5.93	1.05	.34	2-10	3-10	.42	3.10				-	.04	-.08	.05	.16**
Agreeableness	6.17	1.07	.41	2-10	3-10	.53	2.47					-	.00	.14*	.16**
Conscientiousness	6.20	1.24	.20	2-10	2-10	.83	2.70						-	-.04	.27**
Emotional Stability	6.06	1.04	.41	2-10	2-10	.20	3.67							-	-.12*
Openness to Experience	6.28	1.25	.20	2-10	3-10	1.2	1.99								-

Table 1 shows the psychometric properties of the variables. The reliability analysis revealed that the alpha coefficient of the Neuro-Linguistics Programming Scale (NLPS) was .87, which indicated high internal consistency. The alpha coefficient of the CriTT was .92, which also indicated high internal consistency. The alpha coefficients of the subscales of the Big Five Inventory (BFI) ranged from .20 to .41, which indicated satisfactory internal consistency. The reliability analysis indicates that all scales are reliable to use in the present study to make inferences. The values of skewness for all scales and subscales ranged from .01 to -.38 ($< +1 / -1$) indicated that the data is symmetrical and not skewed. Similarly, the values of kurtosis for all scales and subscales ranged from -.16 to -.90 ($< +1 / -1$) indicated that the data is not Kurtic. Thus, the normality analysis confirmed that data is normally distributed on all scales which is an essential requirement of the analysis administered for hypothesis testing in the present study. Further, correlation reveals that NLP has significant positive correlation with critical thinking ($r = .77, p < .01$), personality traits ($r = .56, p < .01$), and agreeableness ($r = .12, p < .05$) and non-significant positive correlation with extroversion ($r = .05, p > .05$), conscientiousness ($r = .05, p > .05$), emotional stability ($r = .09, p > .05$), and openness to experience ($r = .05, p > .05$). Critical thinking has significant positive correlation with personality traits ($r = .66, p < .01$), agreeableness ($r = .15, p < .01$), and openness to experience ($r = .13, p < .05$) and non-significant positive correlation with extroversion ($r = .08, p > .05$), conscientiousness ($r = .08, p > .05$), and emotional stability ($r = .08, p > .05$). Personality traits has non-significant negative correlation with extroversion ($r = -.5, p > .05$), agreeableness ($r = -.01, p < .05$), conscientiousness ($r = .05, p > .05$), emotional stability ($r = .02, p > .05$) and openness to experience ($r = -.09, p > .05$). Extroversion has significant positive correlation with openness to experience ($r = .13, p < .01$) and non-significant correlation with agreeableness ($r = .04, p < .05$), conscientiousness ($r = -.08,$

$p > .05$), and emotional stability ($r = .05, p > .05$). Agreeableness has significant positive correlation with emotional stability ($r = .05, p > .05$), and openness to experience ($r = .15, p < .01$) and non-significant positive correlation with conscientiousness ($r = .00, p > .05$). Conscientiousness has significant positive correlation with emotional stability ($r = .27, p > .01$) and non-significant negative correlation with openness to experience ($r = -.04, p > .05$). Emotional stability has significant negative correlation with openness to experience ($r = -.12, p > .05$).

Table 2

Linear Regression Analysis Showing the Effect of Neuro-linguistics Programming on ESL learners' Critical thinking (N = 300)

Predictors	Model <i>B</i>	Outcome: Critical Thinking	
		95%CI	
		<i>LL, UL</i>	
(Constant)	16.43***	[10.56, 22.30]	
NLP	.43***	[.39, .47]	
R^2		.60	
F		442.02***	

Table 2 shows the results of linear regression analysis with NLP as the predictor and critical thinking as the outcome. The R^2 value of .60 indicates that NLP explained 60% variance in critical thinking with $F(1, 298) = 16.43, p < .001$. The findings of linear regression analysis depicted that NLP positively predicted critical thinking ($\beta = .43, p < .001$).

Table 3

Moderation of Extroversion in the Relationship between Neuro-linguistics Programming on ESL Learners' Critical thinking (N = 300)

Predictors	Model <i>B</i>	Outcome: Critical Thinking
		95% CI <i>LL, UL</i>
(constant)	73.73**	[20.19, 127.27]
Neuro-linguistics programming	.02	[-.37, .40]
Extroversion	-11.23*	[-19.87, -2.260]
Neuro-linguistics programming x extroversion	.09**	[.02, .14]
R^2	.50	
F	100.10****	
ΔR^2		.01
ΔF		7.17**

* $p < .05$. ** $p < .01$. *** $p < .001$. **** $p < .0001$.

Table 3 shows the moderating effect of extroversion in the relationship between Neuro-linguistics Programming on ESL learners' critical thinking. The value of R^2 was .50, which indicates that the predictors explained 50% variance in the outcome variable with $F(3, 296) = 100.10, p < .001$. The value of ΔR^2 revealed 1% change in variance with $\Delta F(1, 296) = 3.15, p < .01$. The findings of the analysis revealed that extroversion negatively predicted critical thinking ($B = -11.23, p < .01$) whereas neuro-linguistics programming ($B = .02, p > .05$) and neuro-linguistics programming x extroversion ($B = .09, p < .01$) has significant effect on critical thinking. The findings depicted that extroversion moderated the association of Neuro-linguistics Programming with critical thinking in ESL learners.

Table 4

Moderation of Agreeableness in the Relationship between Neuro-linguistics Programming on ESL Learners' Critical thinking (N = 300)

Predictors	Model B	Outcome: Critical Thinking
		95% CI LL, UL
(constant)	-37.40*	[-75.40, .22]
Neuro-linguistics programming	.82***	[.45, 1.09]
Agreeableness	7.19*	[1.01, 13.37]
Neuro-linguistics programming x agreeableness	-.05*	[-.09, -.00]
R^2	.50	
F	99.31***	
ΔR^2		.01
ΔF		4.34*

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4 shows the moderating effect of agreeableness in the relationship between Neuro-linguistics Programming on ESL learners' critical thinking. The value of R^2 was .50 which indicates that the predictors explained 50% variance in the outcome variable with $F(3, 296) = 99.31, p < .001$. The value of ΔR^2 revealed 1% change in variance with $\Delta F(1, 296) = 4.34, p < .05$. The findings revealed that agreeableness positively predicted critical thinking ($B = 7.19, p < .05$). Critical thinking positively predicted neuro-linguistics programming ($B = .82, p > .001$) and neuro-linguistics programming x agreeableness ($B = .09, p < .05$) has the negative significant effect on critical thinking. The findings depicted that agreeableness moderated the association of Neuro-linguistics Programming with critical thinking in ESL learners.

Table 5

Moderation of Conscientiousness in the Relationship between Neuro-linguistics Programming on ESL Learners' Critical thinking (N = 300)

Predictors	Model <i>B</i>	Outcome: Critical Thinking
		95% CI <i>LL, UL</i>
(constant)	26.64	[-15.82, 69.11]
Neuro-linguistics programming	.37*	[.06, .68]
Conscientiousness	-3.37	[-9.75, 3.37]
Neuro-linguistics programming x conscientiousness	-.02*	[-.02, -.07]
R^2	.49	
F	95.32***	
ΔR^2		.00
ΔF		1.10

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5 shows the moderating effect of conscientiousness in the relationship neuro-linguistics programming on ESL learners' critical thinking. The value of R^2 was .49 which indicates that the predictors explained 49% variance in the outcome variable with $F(3, 296) = 95.32, p < .001$. The value of ΔR^2 was which revealed 0% change in variance with $\Delta F(1, 296) = 1.10, p > .05$. The findings revealed that conscientiousness negatively predicted critical thinking ($B = 3.37, p > .05$). Critical thinking positively predicted neuro-linguistics programming ($B = .82, p > .05$) and neuro-linguistics programming x conscientiousness ($B = -.02, p > .05$) has the negative non-significant effect on critical thinking. The findings depicted that conscientiousness moderated the association of neuro-linguistics programming with critical thinking in ESL learners.

Table 6

Moderation of Emotional Stability in the Relationship between Neuro-linguistics Programming on ESL Learners' Critical thinking (N = 300)

Predictors	Model B	Outcome: Critical Thinking
		95% CI LL, UL
(constant)	-43.89*	[-80.84, -6.94]
Neuro-linguistics programming	.89***	[.61, 1.16]
Emotional stability	7.95**	[2.08, 13.82]
Neuro-linguistics programming x emotional stability	-.06*	[-.10, -.01]
R^2	.50	
F	99.58***	
ΔR^2		.01
ΔF		6.43*

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 6 shows the moderating effect of emotional stability in the relationship between Neuro-linguistics Programming on ESL learners' critical thinking. The value of R^2 was .50 which indicates that the predictors explained 50% variance in the outcome variable with $F(3, 296) = 99.58, p < .001$. The value of ΔR^2 revealed 1% change in variance with $\Delta F(1, 296) = 6.43, p < .05$. The findings revealed that emotional stability positively predicted critical thinking ($B = 7.95, p < .01$). Critical thinking positively predicted neuro-linguistics programming ($B = .89, p < .001$) and neuro-linguistics programming x emotional stability ($B = -.06, p < .05$) has the negative significant effect on critical thinking. The findings depicted that emotional stability moderated the association of Neuro-linguistics Programming with critical thinking in ESL learners.

Table 7

Moderation of Openness to Experience in the Relationship between Neuro-linguistics Programming on ESL Learners' Critical thinking (N = 300)

Predictors	Model B	Outcome: Critical Thinking
		95% CI LL, UL
(constant)	69.70**	[28.58, 110.83]
Neuro-linguistics programming	.05	[-.25, .34]
Openness to Experience	-10.29**	[-16.72, -3.85]
Neuro-linguistics programming x openness to experience	.08**	[.03, .12]
R^2	.51	
F	102.78***	
ΔR^2		.02
ΔF		10.91**

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 7 shows the moderating effect of openness to experience in the relationship between Neuro-linguistics Programming on ESL learners' critical thinking. The value of R^2 was .51 which explained that the predictors have a 51% variance in the outcome variable with $F(3, 296) = 102.7, p < .001$. The value of ΔR^2 revealed 2% change in variance with $\Delta F(1, 296) = 10.91, p < .05$. The findings revealed that openness to experience negatively predicted critical thinking ($B = -10.29, p < .01$). Critical thinking positively predicted neuro-linguistics programming ($B = .05, p > .05$) and neuro-linguistics programming x openness to experience ($B = -.08, p < .01$) has the positive significant effect on critical thinking. The findings depicted that openness to experience moderated the association of Neuro-linguistics Programming with critical thinking in ESL learners.

OutcomeModel

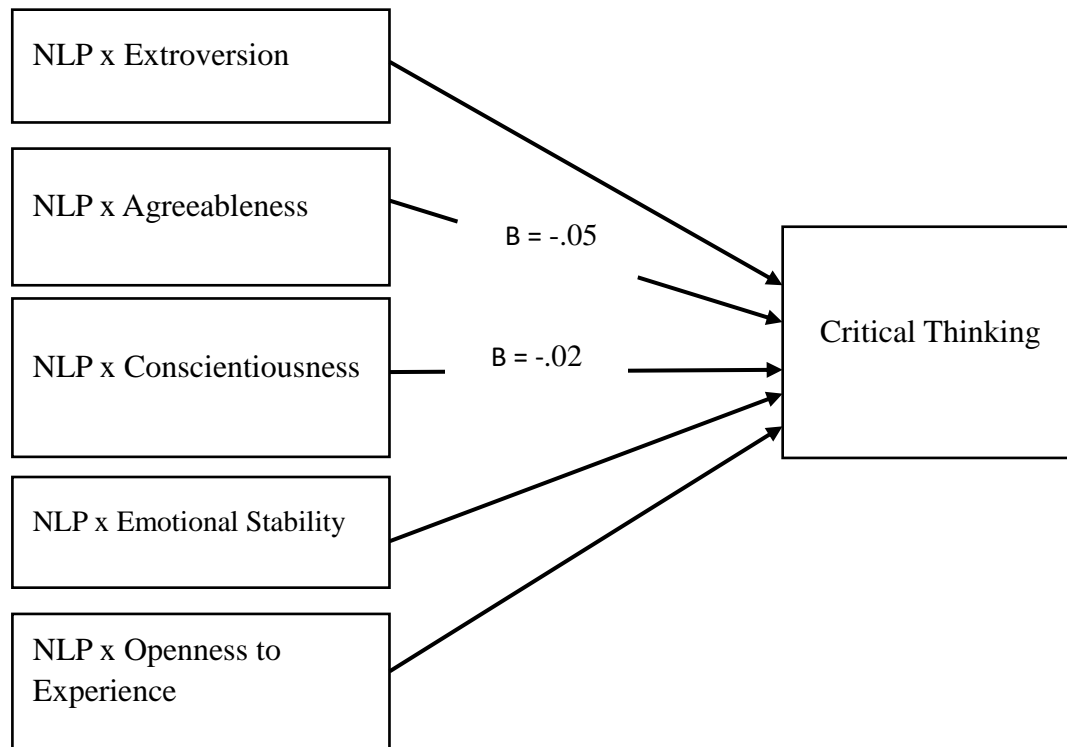


Figure 2. Outcome Model on the Moderating Role of Personality Traits between NLP and Critical Thinking among ESL Learners

———— Significant Moderation

Discussion

This chapter presents the discussion, limitations, suggestions, implications, summary of findings, and conclusion of the present study. The analysis of the present study showed that the correlations among all variables were theoretically consistent. NLP was directly correlated with critical thinking. The correlation among all the domains of the personality traits including extroversion, agreeableness, conscientiousness, emotional stability, and openness to experience was significant which confirmed the construct validity. After ensuring the preliminary requirements to test the moderation models that data were normally distributed, scales were reliable and valid, moderation analysis was carried out to test the hypotheses.

The first hypothesis that NLP will positively predict critical thinking in ESL learners was supported by the statistical data. NLP is the heart of each classroom to develop effective languages and communication. Research demonstrated that NLP is a helpful tool that is considered for the development of critical thinking in a classroom environment (Alm & Hedges, 2021). However, critical thinking has been perceived as the way to develop thinking by instructors that would be helpful for learners to enjoy the learning environment in the classroom (Choy & Cheah, 2009). Thus, the implementation of the NLP tools in developing critical thinking in classroom settings has been seen as a successful tool that stimulates the critical thinking of the students. It also helps to perform better in learning to bring positive outcomes. Critical thinking is perceived as the ability to think critically, abstractly, and practically. On the other hand, NLP is the ability to understand this thinking and generate ideas to explain them in their own words. Literature demonstrated that NLP has a significant impact on changing the learning process and teaching methods consequently enhancing the motivation level of ESL

learners and providing the way to achieve ultimate goals (Lashkarian & Sayadian, 2015).

Conclusively, NLP has positively predicted critical thinking in ESL learners. Thus, NLP is an effective tool to use in a classroom setting to develop critical thinking and produce positive learning outcomes in ESL learners.

It is anticipated that “extroversion will negatively moderate the relationship between NLP and critical thinking in ESL Learners as supported by the data. Extroverts are the ongoing personalities that give them the edge to learn openly. Extraversion trait is adaptable and adventurous which supports them in learning innovatively. Extroverted ESL learners take part in group discussions and instructors help them to learn more effectively because of the quality of their asking questions. Instructors use the NLP techniques like individual difference, anchoring, and established credibility which have an active impact on ESL learners’ critical thinking. The use of NLP approaches in classroom settings is found helpful for learners to develop abstract thinking power and also effective to solve the problems faced during language learning. Literature depicts that extrovert ESL learners' personality traits have the potential to learn with innovative techniques and apply them in life (Farahani, 2018). NLP is a supporting tool in language learning to examine the learners and their thinking process, critical thinking. With these techniques, learners can change their thoughts and actions while learning a language and can achieve successful outcomes. Conclusively, extroverted ESL learners are open to the environment and adaptable to learning in the NLP practicing atmosphere that helped them to develop critical thinking and build successful outcomes.

It was hypothesized that agreeableness will moderate the relationship between NLP and critical thinking in ESL learners. This was supported by the data. ESL learners with

agreeableness traits are more altruistic, readily helpful, sympathetic, and give respect and value to others' conventions and beliefs. Agreeableness ESL learners are more cooperative and have a great understanding of the learning differences (Song & Shi, 2017). NLP instructors apply the different tools for agreeable personalities to make them learn in a classroom setting. Instructors help ESL learners by using the tool metaphors, flexibility, and cognitive development. Agreeable ESL learners are altruistic which allows them to build an understanding of their surroundings (Hakimi et al., 2011). The straightforwardness tendency is the strength of the agreeable ESL learners to learn the techniques that are helpful for them in any learning setting. Findings depicted that NLP is moderated in ESL learners with agreeableness traits. Conclusively, NLP tools can be applied to agreeable ESL learners and instructors can help them to learn the modified rules for better learning comprehension.

Its hypothesis that conscientiousness will positively moderate the relationship between NLP and critical thinking in ESL learners was accepted by the statistical data. ESL learners with conscientiousness traits are more purposeful, responsible, honest, trustworthy, and strong-willed. According to Bratko et al. (2006) conscientiousness shows accountability in learners, resistance in academics, and the ability to arrange information in order. NLP helps the learners to improve their strengths and weaknesses. NLP gives the power to learn purposefully and think critically. Instructors who use the NLP approaches to develop soft and hard skills including reliability, teamwork, problem-solving, and good communication are more beneficial for ESL learners with conscientiousness traits. NLP approaches like credibility, metaphor, and individual difference are more helpful for instructors to teach better and develop critical thinking. Conclusively, it has been proven that NLP tools have the power to develop critical thinking in ESL learners with different personality types.

It was hypothesized that “openness to experience will positively moderate the relationship between NLP and critical thinking in ESL learners.” The statistical data accepted this. ESL learners are more independent in judgements, a variety of references, active imaginations, and open-mindedness (Costa & McCrae, 2011). The learning behaviour of these ESL learners is open and ready. Instructors apply NLP tools to learners and can help them develop critical thinking. Cooperative behaviour of openness to experienced learners is the edge for instructors to teach them more effectively. NLP is the best practicing tool that is best suitable for every person and personality type. The right practice of each tool is important to develop critical thinking. Therefore, the findings of the present study show that NLP helps develop critical thinking in learners with openness to experience traits.

It was anticipated that “emotional stability will negatively moderate the relationship between NLP and critical thinking in ESL learners” was supported. ESL learners with emotional stability show stability in individuals with high scores. They are emotionally stable individuals who have more positive behaviour, self-esteem, and strong beliefs. Individuals with high neuroticism use to experience negative thoughts, insatiable emotions, guilt, too many limiting beliefs and self-doubts, embarrassment, low self-esteem, and pessimism. NLP tools are very helpful for this kind of learner. It is the most significant side to compare personality to measure the individual differences in one’s temperament towards feeling and perceiving the reality of problematic situations. Instructors use metaphor, rapport building, and emotional and cognitive boosters for emotionally stable learners and successfully develop critical thinking power (Gran, 2021). The results of the study showed that emotionally stable learners can learn better when NLP approaches are applied and it is equally helpful in developing critical thinking. To sum up,

NLP approaches are a powerful tool for learners with different personality traits to learn in different atmospheres.

Limitation and Suggestions

The finding of the study drawn from the data analysis made certain limitations and suggestions. The present study was conducted online due to COVID-19 lockdown and participants were not monitored in a physical atmosphere so there might be inappropriate responses. Accuracy and comprehensiveness of the results and findings in research is a key. Hence, it is suggested that future researchers conduct the study in a physical atmosphere for more comprehensive and accurate responses to get comprehensive results. Secondly, the current research is only based on the responses of the ESL learners; it may lack the instructor-learner relationship. In any learning environment, the instructor-learner relationship is a backbone of learning to get desired academic performance of the learners. Thus, future researchers are suggested to conduct studies on instructors' use of NLP in the classroom or instructor-learner relationships as well.

Implications

The goal of the study was to investigate the impact of NLP on the critical thinking of ESL learners. Further, it enhanced the findings by moderating relationships of personality traits variables on critical thinking and NLP. The results showed that NLP has a positive relationship with the critical thinking of ESL learners and all personality trait variables have a moderating impact on NLP and critical thinking. NLP is the heart of each classroom to learn languages and communicate effectively. The findings of the present study give the vital implication that

provides knowledge to teachers and students regarding classroom learning strategies and individual differences. Considering individual differences is a major factor in the instructor and learner relationship. Most classroom settings do not consider individual differences positively. Instructors are suggested to give attention to the personality traits of the learners in the classroom and this would be easier by using NLP techniques in a learning environment.

Summary of Findings

This present study aimed to investigate the impact of NLP on critical thinking among ESL learners. Further, it explored the moderating impact of personality traits in the relationship between NLP and critical thinking among ESL learners. The first hypothesis that NLP and critical thinking in ESL learners will predict a positive relationship was supported by the statistical data. NLP is a helpful tool that is considered for the development of critical thinking in a classroom. However, critical thinking has been perceived as the way to develop thinking by instructors that would be helpful for learners to enjoy language learning. Thus, the implementation of the NLP tools in enhancing the critical thinking of learners has been seen as a successful tool to stimulate the thinking ability more abstractly. Next, the findings revealed that all personality trait variables were moderated in the relationship between NLP and critical thinking among ESL learners. NLP is a balanced approach to dealing with the personality traits of the learners in a classroom setting. It gives immense stress on individual differences of people when a point comes to make the desired change in behaviour. Furthermore, the findings revealed that extraversion was moderated in the relationship between NLP and critical thinking. Extraversion trait is adaptable and adventurous which supports them in learning innovatively. NLP techniques, extroverted learners can change their thoughts and actions while learning a

language and can achieve successful outcomes. Next, agreeableness is also moderated in the relationship between NLP and critical thinking because learners are more altruistic, helpful, sympathetic, and give respect to others' conventions and beliefs. So, NLP instructors apply different tools for agreeable personalities to make them learn more easily. Conscientiousness is also moderated between NLP and critical thinking because they are more purposeful, responsible, honest, and strong-willed. NLP helps the learners to improve their strengths and weaknesses. The findings revealed that emotional stability was moderated in the relationship between NLP and critical thinking. Emotionally stable individuals are more positive behaviour, self-esteem, and strong beliefs. On the other hand, neurotic individuals are used to experiencing negative thoughts, insatiable emotions, too many limiting beliefs, and pessimism. Hence, NLP tools are very helpful for both kinds of learners. Lastly, openness to experience was moderated in the relationship between NLP and critical thinking. Openness to experience learners is more independent in judgements, active imaginations, and open-mindedness. Instructors apply NLP tools to learners and can help them develop critical thinking. Cooperative behaviours of openness to experienced learners is the edge for instructors to teach them more effectively. Conclusively, NLP is the best practicing tool for every personality type. The right practice of each tool is important to develop critical thinking. Therefore, the findings of the present study show that NLP helps instructors to develop critical thinking in learners by considering their personality traits.

Conclusion

The present study examined the moderating role of personality traits in the relationship between NLP and critical thinking. NLP develops a positive impact on ESL learners' personalities that leads to maintaining critical thinking skills. NLP techniques are a powerful tool

that is helpful for instructors to develop critical thinking in ESL learners. NLP is credited as a supplemental instrument in ESL learning to achieve higher results while performing in the classroom. The formulation of NLP is purposive to connect the neural networks indicated in learners with the mind, language use, and how these connections affect their behaviour. It focuses on what is working and how it works instead of what is wrong and why. Thus, NLP has positively predicted critical thinking in ESL learners and is an effective tool to use in a classroom setting to develop critical thinking and produce positive learning outcomes in ESL learners. NLP leaves a positive impact on personality traits including extroversion, agreeableness, conscientiousness, openness to experience, and emotional stability. The present study is applicable in the classroom environment to make the language learning process for ESL learners easier and more enjoyable with the techniques and methods of NLP.

Disclosure Statement

No financial interest or benefit has arisen from the direct applications of the research.

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