

Investigating the Nexus between EFL University Students' Listening Proficiency and Metacognitive Awareness: A Correlational Study

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Abstract: There has been growing interest in the intersection of language learning and metacognition. A considerable body of research now indicates that understanding one's own language abilities and knowing effective learning strategies is crucial for language learning success. In fact, metacognitive awareness of EFL learning strategies enables learners to monitor, control, and enhance their learning processes. Conversely, a lack of such awareness poses significant obstacles to the learning process. To address this gap, this study strives to explore the nexus between EFL university students' listening proficiency in English and their metacognitive awareness of listening strategies. Data was gathered from 94 third-year university students majoring in English studies at a school of Arts and Humanities in Meknes. Analysis of the data involved Pearson product-moment correlation and Simple Linear Regression techniques. The results revealed that there is no correlation between students' English listening comprehension and their listening metacognitive awareness. This was reflected in the fact that the r -value equaled -0.04 , which is very close to zero. These findings contribute significantly to both theoretical understanding and practical application in the field of metacognition and language learning. They also offer valuable insights and recommendations for language educators, curriculum developers, English studies departments in higher education, and future research directions.

Keywords: Language Learning, Metacognition, Listening, and Metacognitive Awareness of Listening Strategies.

1. Introduction

Language acquisition is a complex and complicated process that involves various cognitive mechanisms (Ellis, 2005; Baddeley, 2000; Lenneberg, 1967, Cook, 2003; Cummins, 1979; Bachman and Palmer, 2010). The ability to learn and master a new language is influenced by a range of cognitive factors, which shape learners' capacity to understand, produce, and manipulate linguistic structures. These cognitive factors have been the subject of extensive research within the fields of linguistics, psychology, and education. In fact, one of the fundamental cognitive factors that significantly affect language learning is working memory (Baddeley, 2000). The latter defines working memory as the cognitive system responsible for temporarily holding and manipulating information during cognitive tasks. With reference to language learning, learners must rely on their working memory to retain and manipulate linguistic information while engaging in conversations or

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comprehension activities. Research has shown that learners with larger working memory capacities tend to perform better in language tasks that require the simultaneous processing of information, such as listening comprehension and sentence parsing (Baddeley, 2000).

Moreover, the process of language learning necessitates sustained attention and selective processing (Posner & Petersen, 1990). Language learners must focus on relevant linguistic cues while filtering out distractions. Posner and Petersen (1990) propose the concept of attention networks, highlighting three distinct attentional networks: alerting, orienting, and executive control. These networks contribute to various aspects of language learning, from discerning phonetic nuances to comprehending complex syntax. Learners with efficient attentional systems are better equipped to allocate cognitive resources to language-related tasks, facilitating more accurate and efficient learning.

In fact, Metacognition, a term originally coined by the American psychologist Flavell in 1976, refers to one's awareness and understanding of their cognitive processes and products. This concept has gained considerable attention and theoretical elaboration in recent decades within cognitive research, marking a significant advancement in the field (Martinez, 2006). Understanding metacognition involves conscious recognition of the cognitive processes involved in knowledge acquisition and processing. Anderson (2012) emphasizes that such awareness leads to critical reflection and evaluation of one's thinking, often resulting in adjustments to learning approaches and behaviors for improvement.

Importantly, metacognition has found widespread application in second language education, serving as a theoretical framework for studying learning and teaching processes. Described as learners' cognition about cognition (Flavell, 1979), metacognition in language learning encompasses awareness and knowledge of the cognitive processes involved in language acquisition. Ridley et al. (1992) highlight the pivotal role of metacognitive knowledge in language learning, facilitating learners' ability to monitor, regulate, and optimize their learning strategies based on self-assessment and understanding of their learning preferences. Conversely, students lacking metacognitive awareness may struggle to recognize their difficulties or progress. O'Malley et al. (1985) assert that such students lack direction and opportunities for reviewing their learning progress and future directions. Without metacognitive approaches, learners may experience a lack of motivation and direction, as they are unable to identify their strengths and weaknesses effectively.

Furthermore, metamemory and metacomprehension are essential components of metacognition, exerting a significant influence on language learning processes (Martinez, 2006). The efficacy of comprehension, whether achieved through reading or listening, depends substantially on both the degree of comprehension attained and the learner's conscious awareness of the adequacy of this comprehension (Martinez, 2006). It is imperative to acknowledge that learners frequently misestimate their understanding, potentially leading to severe educational errors. Martinez (2006) highlights that a particularly serious mistake arises when learners erroneously believe they have grasped content or when they neglect to assess their understanding, resorting instead to passive learning methods like mechanical note-taking or superficial reading (p.697). Within Moroccan higher education, a considerable number of students hold inaccurate views of their linguistic abilities, thereby impeding language skill development (El Madani & Larouz, 2020). This misperception regarding their proficiency in English and effective language learning strategies presents substantial obstacles, which this study aims to investigate further.

This study concerns itself with measuring the relationship between students' metacognitive awareness of listening strategies and their English listening proficiency. It is theoretically established that listeners with metacognitive skills of listening explicitly express their self-perceptions, understanding of listening demands, cognitive objectives, task approach, and employed strategies. In fact, language learners possess varying degrees of understanding about the listening process, and this knowledge correlates with their listening proficiency (Vandergrift, Goh, Mareschal, & Tafaghodtari, 2006).

2. Review of the literature

2.1. Listening as a Metacognitive Process

There is a noticeable consensus in the literature that listening is a complex process to study and understand in the sense that it is a receptive activity, and then not highly visible. In this regard, Rost (2013) contends that listening is a very complicated process because it "is essentially a transient and invisible process that cannot be observed directly, we need indirect descriptions, analogies, and metaphors to describe it" (p.2). although its components remain the same, the complexity of the listening process has brought about different descriptions of listening process in the literature, and many scholars have depicted it from various aspects and on different foundations. As a matter of fact, myriad are the activities that listeners undergo in the process of listening to an input. They decode the incoming information, understand the message relying on their prior knowledge, make comparisons, draw deductions, and try to create visual representations to comprehend the message and interpret it (Field, 2008). With this in mind, there are several models that depict the process of listening, marking the beginning and the achieving point from each model's perspective. This section reviews three models that have been proved to be convincing and recognized in the literature namely, "the bottom-up process", "the top-down process" and "the interactive process".

The bottom-up processing model of listening has been defined as the capability to recognize and comprehend contextual information by dividing and analyzing the message itself without any reference to the listener's prior knowledge. (Field, 1999). According to this model, the process of listening is dependent upon the listener linguistic knowledge in order to achieve effective comprehension of the message as a whole. For Rubin (1975), bottom-up model of listening is about the process of decoding sounds "in a linear fashion, from the smallest meaningful units (or phonemes) to complete texts. In other words, the listeners make use of "his knowledge of words, syntax, and grammar to work on form" (p.20). Vandergrift (2003) states that once listeners receive the incoming pieces information, they tend to go from the smallest details starting from phonemes to discourse features for the sake of arriving at the whole obvious meaning of the received message. Subsequently, bottom-up processing model describes the listening to make use of the piece-by-piece processing technique. Listeners tend to manage the message part by part until it is assembled and understood; it mainly implies going from the pieces to the whole in the process of listening (Field, 2003). Simply put, listeners use bottom-up processing system when they make use of their linguistic knowledge to understand the meaning of the message. They technically construct meaning from phonemes to lower-level sounds to words to grammatical to lexical relationships in order to arrive at the final meaning of the message (Vandergrift, 2003). According to Nunan (1998), bottom-up process is "the text-based process. The listeners try to make sense of what they hear by focusing on the different parts: the vocabulary, the grammar or functional phrases, sounds..." (p.6). In short, bottom-up processing model is one of the most recognized models in the literature that has been

widely used to describe the listening process. It has extensively been seen as an exact and accurate depiction of successful listening (Lynch & Mendelsohn, 2013).

Opposite to the bottom-up processing model is the top-down model which happens to describe the listening process in a completely converse way. It has been defined as the process through which the message being listened to is approached holistically from the whole to the part, and the focus here is on interpreting the information rather than only recognizing sounds and words (Lynch & Mendelsohn, 2013). In fact, top-down processing mode of listening concerns itself with the process in which listeners resort to their own background knowledge to understand what they are listening to. Such knowledge can be emerging from life experiences, prior learning, or any sort of situation (Rubin, 1975).

Moreover, Lynch & Mendelsohn (2013) highlight that when listeners adopt the top-down processing model, they “actively formulate hypotheses as to the speaker’s meaning, and confirm or modify them where necessary” (p.184). It implies that listeners make use of their own knowledge to anticipate what the message is about while listening. Following the anticipation pattern, listeners using the top-down processing model tend to employ parts of the message that are clear to them in order to make inferences about the rest (Lynch & Mendelsohn, 2013). With this in mind, inferencing has also been said to form one of the most important activities of listening as far as the top-down processing model is concerned.

Additionally, Field (1998) puts an emphasis on the fact that top-down processing insists on the use of listener’s cognitive knowledge of the world to form expectations about the topic before listening. Such premise is coupled with the claim reported by Stanovich (1980), and which states that listeners sometimes rely on top-down processing to deal with some external deficits. The latter could be any external aspects that may cause interruption while listening e.g. noisy background, and for which listeners resort to their schema related to the message in order to compensate for the deformed linguistic input. Within the same vein, Flower and Miller (2005) discuss the top-down processing and add that since listeners find it daunting to recognize sounds in isolation, they tend to apply contextual knowledge to comprehend utterances. They cognitively resort to their knowledge of ‘discourse structure’ and ‘patterns of information’ which is usually stored in the long-term memory. Such pre-establish knowledge is often referred to as schema, frame, script, and scenario (Ross, 1975; Tannen, 1993).

The last model in this section is the interactive processing model which is considered as a combination of the bottom-up and top-down processing models. This model was developed by Rumelhart (1975) for reading, but he claims that it is congruent with listening (cited in Flower & Miller, 2005). In fact, the interactive processing model proclaims that the human brain processes language at various levels. While listening, listeners employ their phonological, syntactic, semantic, and pragmatic knowledge in order to decode and comprehend the message (Flower & Miller, 2005). Overall, one of the pros of the interactive processing model is that it conforms to different learning styles and individual preferences and needs. This flexibility is due to the fact that this model is a synthesis of the bottom-up model and the top-down model, and learners thus can choose the suitable model for their language processing.

2.2. Listening and Metacognition

Listening as a metacognitive process has extensively been discussed in the literature and many scholars have emphasized the complexity of understanding such a process (e.g., Vandergrift, Goh, Mareschal, & Tafaghodtari, 2006; Goh & Vandergrift, 2011). In fact, metacognitive awareness of listening has been defined as learners' metacognitive knowledge and their cognitive judgment of their attitudes towards themselves, their awareness of listening demands, their cognitive objectives, and the strategies used to approach a listening task (Vandergrift et al., 2006). With reference to the cognitive processes that operate during the process of listening comprehension, Goh and Vandergrift (2011) have discussed four major cognitive processes namely, top-down and bottom-up processing; controlled and automatic processing; perception, parsing, and utilization; and metacognition. These processes delineate the actions undertaken by listeners while engaged in the act of listening, their ability to carry them out proficiently, and the means by which they regulate these processes. The intricate connections between the diverse cognitive processes involved in rapid and automatic listening comprehension are visually represented in the following figure:

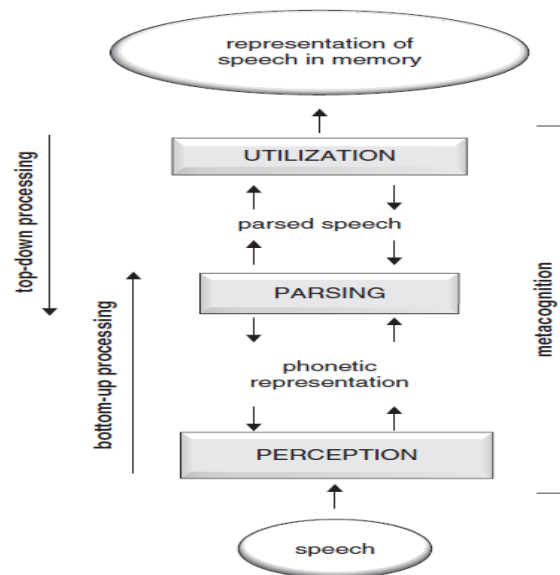


Figure 1. Cognitive processes in L2 Listening and their Interrelationships
(Adopted from Goh and Vandergrift, 2011)

The first processing system includes top-down and bottom-up processes. According to Goh and Vandergrift (2011), the differentiation between bottom-up and top-down processing, the specific knowledge that each process employs in shaping the evolving interpretation of a message, and the interplay between these processes are central to a comprehensive understanding of cognitive processes of listening. On one hand, bottom-up processing entails the systematic segmentation of the auditory input, where listeners discern meaningful units within the sound stream to comprehend the intended message (Goh & Vandergrift, 2011). This process is characterized by its mechanical nature, wherein listeners execute the sequential parsing of the sound stream and subsequently construct meaning through gradual accumulation. This accumulation process is underpinned by the listeners' knowledge of both segments, which refer to individual sounds or phonemes in the target language, and suprasegmentals, which pertain to language intonation patterns like stress, tone, and rhythm (Goh & Vandergrift, 2011). Throughout this process, listeners progressively assemble meaning, starting from the level of phonemes and progressing to words and subsequently expanding to encompass larger units of significance, such as complete sentences and more extensive segments of discourse. In fact, listeners

systematically synthesize information from smaller to larger linguistic units in order to effectively decode and understand the intended content in the context of the target language (Goh & Vandergrift, 2011).

On the other hand, top-down processing primarily relies on the utilization of context and pre-existing knowledge to derive meaning from the message (Goh & Vandergrift, 2011). When approaching a comprehension task from a top-down perspective, listeners draw upon their contextual understanding of the listening event or the subject matter of the listening material. This process involves activating a conceptual framework that facilitates the interpretation of the message. Moreover, listeners employ various types of knowledge during top-down processing, including prior knowledge, pragmatic knowledge, cultural knowledge, and discourse knowledge (Goh & Vandergrift, 2011). These diverse knowledge sources are stored in the listener's long-term memory in the form of schemata, which are complex mental structures that group all relevant knowledge related to a particular concept. As a matter of fact, integrating top-down processing enables listeners to successfully leverage their accumulated knowledge and contextual insights to enhance the comprehension process (Goh & Vandergrift, 2011). This approach allows them to make inferences, anticipate information, and fill in gaps, thereby fostering a more holistic and informed understanding of the communication at hand.

The second process discussed in relation to listening is the controlled and automatic processing. Goh and Vandergrift (2011) acknowledge that in the context of L1 listening, cognitive processing occurs with remarkable speed, flawlessly transitioning between top-down and bottom-up processes as needed to achieve comprehension. L1 listeners fluently engage in this dynamic interplay, particularly relying on automatic bottom-up processing, wherein individual words receive little conscious attention due to their high level of language proficiency. In contrast, successful second language (L2) listening heavily relies on the listeners' ability to efficiently coordinate these cognitive processes. L2 listeners often possess limited language knowledge, which hinders their capacity for automatic processing of the incoming information. Consequently, depending on their level of L2 proficiency or familiarity with the subject matter, L2 listeners may need to consciously focus on specific aspects of the input or develop the skill to selectively attend to fundamental elements of meaning, such as salient content words (Goh & Vandergrift, 2011).

Provided they have sufficient time to allocate for comprehension, any information that L2 listeners cannot process automatically is subjected to controlled processing. Controlled processing involves deliberate and effortful cognitive effort to analyze and understand the linguistic input (Goh & Vandergrift, 2011). Consequently, L2 listeners' comprehension in real-life situations may vary depending on their language proficiency and the complexity of the listening task. In fact, controlled processing, as opposed to automatic processing, entails the intentional and conscious allocation of attention and cognitive resources to analyze specific elements within the speech stream. When a cognitive skill, such as listening, is in the controlled processing stage, individuals actively engage their cognitive faculties to interpret and comprehend the information they are receiving (Goh & Vandergrift, 2011). With practice and experience, cognitive skills can transition from controlled to automatic processing (Johnson, 1994). As learners repeatedly encounter and engage in listening activities, their cognitive system becomes more proficient at processing the auditory input, gradually requiring less conscious effort and attention. This enhanced automaticity facilitates more efficient and effortless comprehension during listening tasks.

The third perspective on listening cognitive process was first discussed by Anderson (1995) in which he highlighted that listening comprehension takes place through three linked phases namely, perceptual processing, parsing, and utilization (Cited in Goh & Vandergrift, 2011). During the

perception phase, the recognition of phonemes of the language, as well as pauses and acoustic emphases, occurs through the implementation of bottom-up processing by listeners, who then retain this information in memory (Goh & Vandergrift, 2011). Subsequently, incoming speech is decoded through a multi-step process: first, listeners focus their attention solely on the speech, disregarding other environmental sounds; second, they discern pertinent similarities, pauses, and acoustic emphases that are relevant to a specific language; and finally, they group the identified elements based on the language's respective categories (Goh & Vandergrift, 2011). A phonetic representation of the retained information is subsequently forwarded for parsing.

When it comes to the parsing phase, Goh and Vandergrift (2011) claim that “listeners parse the phonetic representation of what was retained in memory and begin to activate potential word candidates” (p.22). Following the parsing of speech, listeners employ cues such as word onset, perceptual salience, and phonotactic conventions to retrieve potential word candidates from their long-term memory. Utilizing one or more of these cues, listeners generate propositions, abstract representations of ideas, with the aim of establishing a meaning-based understanding of these words in their working memory as they continue to process new input (Goh & Vandergrift, 2011). Significantly, meaning often serves as the primary indicator for segmentation. With the development of language proficiency, listeners become more adept at swiftly activating successful word candidates relevant to the context or topic at hand and are capable of holding meaning within progressively larger chunks of propositional content (Goh & Vandergrift, 2011).

The final phase of Aderson’s (1995) listening cognitive processing system is utilization. During this phase, listeners establish connections between the meaningful units obtained and the information stored in their long-term memory, thereby interpreting the intended or implied meanings (Goh & Vandergrift, 2011). This phase is predominantly characterized by top-down processing of the parsed speech. A significant aspect of this stage is that listeners draw upon information from external sources beyond the linguistic input to decipher the content they have retained (the parsed speech). For Goh and Vandergrift (2011), listeners during this phase “generate a conceptual framework against which to match their emerging interpretation of the text or conversation and to go beyond the literal meaning of the input, when warranted” (p.22). Fluent listeners demonstrate the ability to effortlessly integrate linguistic input with their vast reservoir of prior knowledge to facilitate the determination of meaning. However, in instances where automatic processing encounters difficulties due to comprehension challenges, listening transforms into a problem-solving endeavor (Goh & Vandergrift, 2011). In fact, Challenges encountered during this phase involve situations where listeners comprehend the individual words but struggle to grasp the overall message, or they may experience confusion arising from apparent inconsistencies within the message (Goh, 2000).

The last process that pertains to listening comprehension is metacognition. According to Goh and Vandergrift (2011), Proficient listeners possess the capability to exert control and regulation over their cognitive processes by leveraging their metacognitive knowledge. That is, metacognition encompasses listeners’ awareness of the cognitive mechanisms involved in comprehension, as well as the capacity to supervise, regulate, and direct these processes (Goh, 2008). It goes beyond mere reflection on these processes and extends to understanding the various factors related to the task, the individual, and the strategies employed during any cognitive activity (Flavell, 1979; as cited in Goh & Vandergrift, 2011). The control aspect of metacognition entails the application of cognitive processes such as planning, monitoring, problem-solving, and evaluating, which enables listeners to effectively regulate their listening comprehension. It has been brought to consensus that the application of metacognitive knowledge represents a cognitive attribute commonly observed in skillful learners (Goh

& Vandergrift, 2011). In a study conducted by Vandergrift, Goh, Mareschal, and Tafaghodtari (2006), it was revealed that approximately 13 percent of the variance in listening achievement could be attributed to metacognition. In essence, listeners who adeptly utilize metacognitive knowledge of listening during the cognitive processes of comprehension possess superior abilities to regulate these processes and effectively access pertinent knowledge sources, an act that results in approaching text comprehension efficiently.

3. The Present Study

3.1. Research Design

The present study aims at investigating the relationship between metacognition and listening skills. Measuring these concepts, as the verb suggests, necessitates the use of tests whose rubrics would provide scores as numerical data. Therefore, this research is purely quantitative in nature. With this in mind, since there are various research designs that go under quantitative research, adopting one of them requires taking into consideration some key elements including the nature of variables and the methodological objectives set to analyze the data collected. Correspondently, the present study is seeking to confirm or disprove the relationship between metacognition and English listening ability. In addition, the study's intent is to measure, at one time, listening proficiency of learners in English and their metacognitive awareness of listening strategies; measuring these requires the use of tests and inventories that would eventually yield scores as numerical dataset. Hence, all these practical considerations suggest that the present study adopts a Quantitative Cross-sectional Correlational design as its utility is thought to best suit the process of realizing the aforementioned objectives and procedures.

3.2. Participants

In this study, the target population consisted of third-year university students enrolled in the English departments at both the School of Arts and Humanities in Meknes and the Higher School of Training and Education in Kenitra. The selection of this population aligns with the objective of measuring students' metacognitive awareness of listening, as these senior students have previously undergone study skills courses introducing them to fundamental listening strategies. Due to the impracticality of testing all third-year university students, a decision regarding sample size was necessary. Non-random sampling was employed due to its practicality and suitability. Within non-random sampling, various methods exist, each requiring justification for selection. Considering these factors, non-random convenience sampling was deemed most appropriate for this study. This choice was predicated on two key factors: the availability of respondents and the accessibility of the required sample size. Ultimately, the sample for this study comprised a total of ninety-four third-year university students, consisting of thirty males and fifty females. It is worth noting that while the researchers initially intended to include 130 students, tests were administered to 119 students, with only 94 students participating in all sessions and completing all six tests.

3.3. Research Instruments

The English listening comprehension test was retrieved and adapted from the British Council 'Learn English' website. The latter had various listening tests and the researchers randomly chose one entitled 'How false information spreads. The listening script was kept as it is and the whole audio was used. However, the exercises and questions were modified and some tasks were added. Moreover,

some professors of English proofread the test and suggested major modifications and provided feedback on the general form of the test. They suggested that the listening script be divided into two parts, and each part should have its questions in order to assure that students focus on each part on its own. The researchers ensured the constancy of the listening comprehension assessment through the uniformity of its rubric components. Consequently, the criteria and rubric elements designed to measure students' listening proficiency incorporate the following dimensions: true or false questions, sentence completion, gaps filling questions, and paraphrasing. These evaluative benchmarks were meticulously formulated to guarantee a consistent level of difficulty as well.

The Metacognitive Awareness of Listening Questionnaire (MALQ) was adopted from Vandergrift, L., Goh, C. C., Mareschal, C. J., & Tafaghodtari, M. H. (2006): "The metacognitive awareness listening questionnaire: Development and validation. *Language learning*". Comprising a total of 21 items, the questionnaire is designed to evaluate the awareness and perceived utilization of listening strategies among language learners. Each individual item is rated on a six-point Likert scale, ranging from 1 (indicating strong disagreement) to 6 (indicating strong agreement). Importantly, a neutral point is intentionally omitted to prevent respondents from providing ambiguous responses. The MALQ (Metacognitive Awareness of Listening Questionnaire) encompasses five distinct factors, namely problem-solving (consisting of 6 items), planning and evaluation (comprising 5 items), mental translation (comprising 3 items), person knowledge (comprising 3 items), and directed attention (comprising 4 items). To examine the underlying factor structure of the questionnaire, the developers employed a combination of exploratory and confirmatory analyses, involving various foreign language learners, including individuals from the Iranian context. In terms of the internal consistency of the subscales, the reliability coefficients, as assessed by Cronbach's alpha, were found to be as follows: 0.74 for problem-solving, 0.75 for planning and evaluation, 0.78 for mental translation, 0.74 for person knowledge, and 0.68 for directed attention, respectively.

3.4. Data Analysis process

Following data collection, this paper extends its practical objectives to include data analysis. The analysis process involves a series of procedures and statistical steps aimed at a comprehensive examination of the results. Aligned with the research question and hypotheses addressed in this study, both descriptive and inferential statistics were employed, utilizing the Statistical Package for the Social Sciences (SPSS). Descriptive statistics serve to quantitatively portray the examined sample and essential attributes of the dataset, presenting mean values and standard deviations. Its primary purpose is the detailed analysis and coherent presentation of data. Equally, inferential statistics involve statistical analyses on the collected data, focusing on hypothesis formulation and scrutiny of congruity between data and hypotheses.

The present study investigates the correlation between listening and metacognition, employing the Pearson product-moment correlation and simple linear regression analysis. The Pearson correlation coefficient (r) measures the strength and direction of a linear association between two quantitative variables. This coefficient ranges from -1.0 to +1.0, indicating opposite to perfect correlation. The interpretation of ' r ' follows Salkind's delineations, ranging from no correlation to very strong correlation. Regression analysis, akin to correlation, explores the interaction between continuous variables, highlighting changes in one variable based on changes in another predicting variable.

4. Results

4.1. Descriptive Statistics

This subsection has the intent to shed the light on the correlation for the relationship between students' English listening comprehension performance and their listening metacognitive awareness. It also aims at answering the research question and confirming or refuting the corresponding hypothesis. The following are the research question and the directional hypothesis:

RQ: Is there a relationship between students' English listening comprehension performance and their listening metacognitive awareness?

DH: There is a relationship between students' English listening comprehension performance and their listening metacognitive awareness.

The objective of this subsection is to scrutinize the correlation between two quantitative variables, namely English listening comprehension performance and listening metacognitive awareness. These variables are measured numerically through tests assessing listening ability. It is important to note that while English listening ability is the variable being affected (dependent variable), listening metacognitive awareness is the independent variable (affecting variable). To describe the direction and strength of the relationship, Pearson product-moment correlation was used, along with a scatterplot. In this subsection, the results will be presented, interpreted, and discussed. Additionally, regression analysis was conducted and discussed to determine the strength of the relationship between the dependent and independent variables, as well as the role of the independent variable in predicting the dependent variable.

The null hypothesis that this analysis is meant to examine is the following:

NH: there is no relationship between students' English listening comprehension performance and their listening metacognitive awareness.

This subsection is then dedicated to accounting for and checking the linearity and homoscedasticity via the scrutiny of a scatter plot of the relationship between English listening comprehension performance and listening metacognitive awareness. The following figure is a scatter plot of the correlation between listening comprehension (LC) and listening metacognitive awareness (LMA) tests:

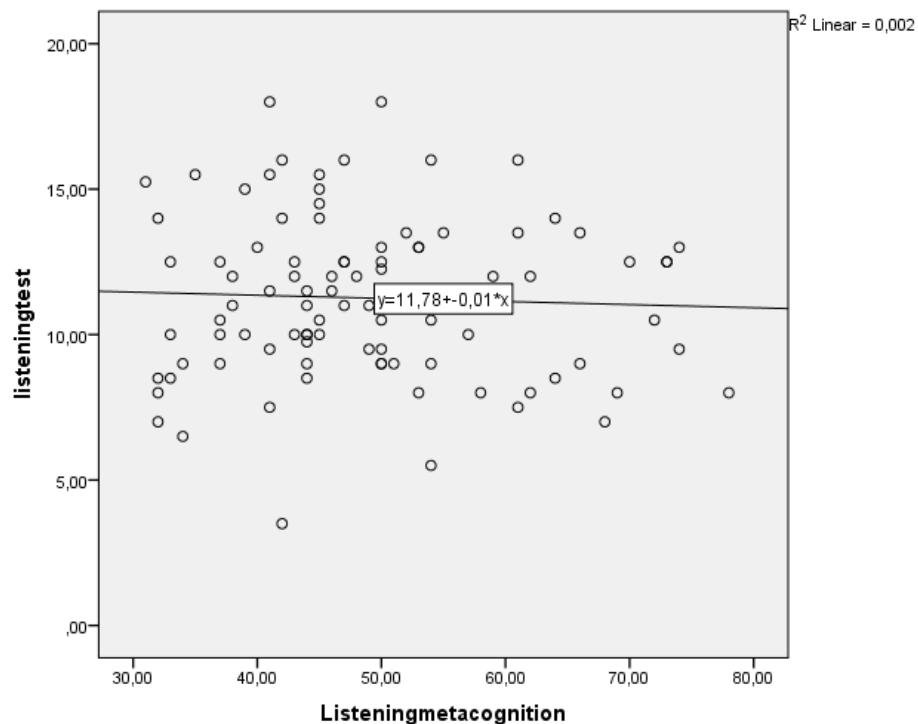


Figure 2. The Scatterplot of the Correlation between LC and LMA Tests

The investigation of the scatter plot provides vital insights and assumptions on the nature and the linearity of the relationship between listening comprehension and listening metacognitive awareness. That is, the scatter plot of the previously mentioned quantitative variables is demonstrated in figure 2. Given the apparent fact that the data dots are scattered all over the place and do not follow any straight line neither upward nor downward, the relationship between participants' scores in listening comprehension and listening metacognitive awareness tests is represented to lack any form of linearity. Alongside, this very absent linear relationship is also reflected in R^2 linear as it equals 0.002. The figure also shows that there is no unified and similar space between the dots. In fact, it is also displayed that the space between dots from the line is impartially unlike, which implies the absence of a visual linearity of the relationship. Having explored the visual inspection of the nature and the linearity of the relationship between the two variables, a Pearson product-moment correlation test was run to reveal the degree of this relationship.

Table 1. Correlation between LC and LMA Tests

		listening test	Listening metacognitio n
listeningtest	Pearson Correlation	1	-,044
	Sig. (2-tailed)		,674
	N	94	94
Listeningmetacog nition	Pearson Correlation	-,044	1
	Sig. (2-tailed)	,674	

N	94	94
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The correlation between participants' grades in English listening comprehension test and the LMA inventory is represented in table 1. It shows the Pearson r correlation value between the two quantitative variables (ELC and LMA). As shown in the table, the r value is -0.4. In fact, such a value indicates that there is no correlation between students' scores in English listening comprehension and their scores in listening metacognitive awareness. Hence, the findings from the Pearson product-moment correlation confirm that there is no relationship between students' listening comprehension ability and their listening metacognitive awareness. To examine the predictive connection between listening comprehension performance (dependent variable) and metacognitive awareness of listening strategies (independent variable), a bivariate simple linear regression analysis was performed.

Table 2. Model Summary for LC and LMA

Model	R	R Square	Std. Error of the Estimate
1	-.044 ^a	.002	2,79274

It can be seen that table 2 displays the calculated values for R and R square. The R value, which implies the simple correlation, is determined to be -0.04. The latter value indicates that there is no relationship between the two scrutinized quantitative variables. In addition, the R square value represents the proportion of the total variance in listening comprehension performance (the dependent variable) that can be explained by listening metacognitive awareness (the independent variable). The value displayed in the table indicates that only 0.002% of the dependent variable can be accounted for by the independent variable, which is blatantly a very weak variation. This suggests that listening metacognitive awareness could not explain any variance in listening comprehension performance. Therefore, based on table 2, it can be stated that there is no predictive relationship between listening metacognitive awareness and listening comprehension ability. Such a findings trigger the scrutiny of the statistical significance of the regression model.

Table 3. ANOVA for Listening Comprehension and Listening Metacognition

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1,389	1	1,389	,178	,674 ^b
Residual	717,542	92	7,799		
Total	718,932	93			

a. Dependent Variable: listeningtest

b. Predictors: (Constant), Listeningmetacognition

Table 3 represents the ANOVA test for listening comprehension ability and listening metacognitive awareness. It also shows the regression model and equation and how they suited and predicted the dependent variable. In fact, the sig value is seen to equal 0.6 ($0.01 < p$), which indicates that the regression model did not predict listening comprehension ability at all. This entails that that

the relationship between listening comprehension ability and listening metacognitive awareness is due to chance and is still practically vague.

Overall, the relationship between English listening comprehension performance among students and their metacognitive awareness of listening has been systematically investigated in various ways within a statistical framework. Firstly, an examination of the nature and linearity of the relationship between listening comprehension ability and metacognitive awareness of listening strategies has been accomplished through the utilization of a scatterplot. The observation that the data points did not follow any straight line neither upward nor downward suggested an absence of a linear connection between the two variables. Secondly, the strength of the relationship between the two quantitative variables was assessed using a Pearson product-moment correlation analysis. The findings indicated the absence of a correlation between students' scores in English listening comprehension and their scores in listening metacognitive awareness, with a p -value of -0.4 . The latter signified that there is no relationship between participants' listening comprehension performance and their metacognitive awareness of listening strategies. Lastly, a bivariate simple linear regression analysis was employed to explore the predictive nature of the relationship between the aforementioned variables. The findings revealed that only 0.002% of the variance in students' listening comprehension ability could be accounted for by their listening metacognitive awareness. This implies that there is no predictive relationship between listening comprehension ability and listening metacognitive awareness. With the correlation and regression analyses described, the subsequent subsection will focus on discussing these findings in details.

4.2. Discussion of the Results

The results indicate the absence of a correlation between participants' scores in English listening comprehension and metacognitive awareness of listening strategies tests. In relation to the hypothesis formulated earlier, the sig value and the scatterplot indicate the absence of a relationship between the English listening comprehension and metacognitive awareness of listening strategies tests. In this vein, this very weak correlation contributes to the acceptance of the null hypothesis which postulates that there is no relationship between students' English listening comprehension performance and their listening metacognitive awareness, and the rejection of the alternative research hypothesis which guestimates that there is a relationship between students' English listening comprehension performance and their listening metacognitive awareness. Therefore, students' listening metacognitive awareness can not actually predict their listening ability in English, and any achievement or failure in English listening development is not to be linked to listening metacognitive awareness solely.

The findings to this hypothesis are incompatible with the majority of empirical studies conducted on the same regard (e.g., Flavell, 1979; Chen, 2010; Vandergrift & Tafaghodtari, 2010; Vandergrift & Goh, 2012). In fact, Vandergrift and Goh (2012) found out that listening metacognitive awareness enables learners to consciously monitor and regulate their listening comprehension, allowing them to employ effective strategies and adjust their cognitive resources according to the listening task demands. This awareness helps learners identify and rectify comprehension breakdowns, self-monitor their understanding, and apply appropriate strategies to enhance comprehension. In the same vein, Flavell (1979) acknowledges that Metacognitive awareness facilitates the use of effective listening strategies, such as making predictions, self-questioning, and summarizing, which enhance comprehension. Moreover, Vandergrift and Tafaghodtari (2010) conducted a study in which learners received metacognitive strategy instruction. They figured out that learners who received explicit training in

metacognitive strategies outperformed those who did not. They also highlighted the positive impact of metacognitive strategy instruction on listening comprehension. Overall, multiple studies have confirmed a positive correlation between metacognitive awareness and listening comprehension ability. They ascertain that learners with higher metacognitive awareness of listening strategies are more likely to perform better in listening tasks (Goh, 2000; Vandergrift & Tafaghodtari, 2010). However, the findings of the second research question challenge this conventional understanding.

Upon visual inspection of the scatterplot, it was observed that the data points did not conform to a straight line either in an upward or downward trajectory. This absence of a linear relationship between listening comprehension ability and listening metacognitive awareness suggests that these two variables are not closely tied in a linear manner. The absence of a linear connection is possibly due to the fact that the relationship between listening comprehension ability and listening metacognitive awareness is more complex and multifaceted. It implies that listening metacognitive awareness does not solely determine one's listening comprehension ability, nor does listening comprehension ability solely dictate the level of metacognitive awareness during listening tasks. Other factors such as cognitive processing, prior knowledge, and individual differences may play significant roles in influencing the relationship between these variables.

Several studies have supported this notion by highlighting the multifaceted nature of listening comprehension and the various cognitive processes involved in successful listening (Goh & Taib, 2006; Vandergrift & Goh, 2012). For instance, metacognitive awareness involves the ability to monitor and regulate one's listening processes, whereas listening comprehension ability encompasses the understanding of spoken language, vocabulary knowledge, syntactic parsing, and discourse comprehension. These multiple factors interact in a complex manner, making it unlikely for a linear relationship to emerge, at least within the context of this study. In fact, the non-linear pattern observed in the scatterplot might suggest the presence of a threshold effect or a curvilinear relationship. A threshold effect indicates that beyond a certain point, an increase in one variable does not lead to a corresponding increase in the other variable. In the context of listening comprehension and metacognitive awareness, it could imply that there is a threshold level of metacognitive awareness required to achieve a certain level of listening comprehension ability.

After conducting the Pearson product-moment correlation analysis, the findings revealed that there is no relationship between students' listening comprehension ability and their listening metacognitive awareness. This implies that the two variables do not vary together in a predictable manner. The correlation coefficient obtained was close to zero, suggesting a weak or negligible association between the variables. According to previous studies, several factors could contribute to the lack of a relationship between students' listening comprehension ability and their listening metacognitive awareness (Brown, 2000; Vandergrift, 2004; Zhang & Goh, 2006). It is possible that metacognitive awareness may not have a direct impact on listening comprehension. Other cognitive and linguistic factors, such as vocabulary knowledge, syntactic understanding, and decoding skills, might be more influential in determining listening comprehension ability (Vandergrift, 2004). Furthermore, individual differences and contextual factors could also play a role. Students' listening strategies and metacognitive awareness may vary depending on their learning styles, motivation, cultural background (Brown, 2001).

Part of the findings of the research question is also the absence of a predictive relationship between students' listening comprehension ability and their listening metacognitive awareness. As alluded to earlier, this finding is not compatible with most of the existing literature. In fact, copious studies have

been conducted exploring the nexus between listening comprehension and metacognitive awareness of listening (Goh, 2000; Vandergrift & Tafaghodtari, 2010). Most of them have found a positive correlation between metacognitive awareness and listening comprehension, signifying that students with higher metacognitive awareness tend to be better listeners.

However, the absence of such a theoretically established predictive relationship between the securitized variables in this study could be explained in the lights that metacognitive awareness may not directly influence all aspects of listening comprehension, leading to a limited predictive relationship. That is, listening comprehension ability can be influenced by various factors, including prior knowledge, cognitive abilities, vocabulary size, and familiarity with the topic. These factors may overshadow the impact of metacognitive awareness on listening comprehension. There are also other external factors such as the listening environment, the quality of audio materials, and test anxiety, that can affect performance of listeners.

Taken together, the findings of the research question indicate that there is no relationship between students' listening comprehension and their listening metacognitive awareness. First, the visual inspection of the scatterplot data points to an absence of a linear connection between listening comprehension ability and listening metacognitive awareness. This finding implies that the relationship between these two variables is complex and multi-dimensional, involving various cognitive processes, individual differences, and potentially a threshold effect. Understanding the intricacies of this relationship can have important implications for language educators and researchers in designing effective listening instruction and assessment strategies.

Second, the findings from the Pearson product-moment correlation analysis suggest that there is no significant relationship between students' listening comprehension ability and their listening metacognitive awareness. This has triggered the discussion on listening comprehension and metacognitive processes by highlighting the complex nature of the relationship between these variables. The last finding implies a limited predictive relationship between the two constructs. The discussion of the absence of a predictive relationship highlighted potential reasons for this limited relationship, including the multifaceted nature of listening comprehension and the influence of other factors on performance.

The fine line drawn from the findings is that listening skill has arguably received the least attention and research among the four language skills in educational settings (Field, 2008; Nation & Newton, 2009; Vandergrift, 2007). In many language curricula, listening is treated as a mysterious "black box" that is often improved solely through repetitive practice (Rost, 2001). Paradoxically, listening holds the distinction of being the most frequently utilized skill in the classroom environment (Morley, 1991; Vogely, 1995) and is acknowledged as the "primary means of L2 acquisition" (Rost, 2002).

The undervaluation of the listening skill can be attributed to various factors, one of which is the inherent difficulty in teaching a skill that is intangible and not easily observable (Field, 2008). In fact, Flowerdew and Miller (2005) assert that early language teaching methods did not even consider the necessity of teaching listening. Nevertheless, there has been a shift in the approach to L2 listening instruction, moving away from a sole emphasis on the end product of listening to encompass a deeper focus on the process itself (Vandergrift, 2004). Similarly, there is a growing attention in research on listening comprehension towards learners' self-reports and training related to their understanding and awareness of the processes integral to L2 listening (e.g., Hinkel, 2006; Kurita, 2012; Vandergrift, Goh, Mareschal, & Tafaghodtari, 2006). This instructional approach for teaching listening has become

known as metacognitive instruction or the metacognitive approach (Vandergrift & Goh, 2012; Goh & Taib, 2006).

All in all, although this section did not happen to find a correlation between the investigated variables, various scholars stress the fact that metacognitive awareness plays a crucial role in facilitating effective listening comprehension by enabling learners to monitor their understanding, employ comprehension strategies, and regulate cognitive resources. Understanding the implications of this relationship can inform language educators and assessment practitioners in designing effective instructional strategies and assessment practices that go beyond metacognitive awareness to foster successful listening comprehension skills.

5. Conclusion

The present correlational study was concerned with exploring the relationship between metacognition and language proficiency in Morocco through investigating and measuring listening proficiency and their metacognitive awareness. In this investigation, the aim was to measure students' metacognitive awareness of listening strategies in order to explore its impact on English listening proficiency. In fact, the paucity of empirical studies conducted on the topic at stake acted as a catalyst for the conduction of this study in the Moroccan context where English is recognized as an official foreign language.

The major finding of the study was that students' metacognitive awareness of listening strategies did not in fact correlate with their metacognitive awareness of listening strategies. Significantly, the absence of such a relationship challenged the already established role metacognitive knowledge plays in the process of English listening development. With reference to the existing literature, the absence of a linear connection is possibly due to the fact that the relationship between listening comprehension ability and listening metacognitive awareness is more complex and multifaceted. This finding indicated that listening metacognitive awareness does not solely determine one's listening comprehension ability, nor does listening comprehension ability solely dictate the level of metacognitive awareness during listening tasks. Additionally, the results showed that there is no predictive relationship between listening metacognitive awareness and listening comprehension ability. Although this finding is not compatible with most of the existing literature, the absence of such a theoretically established relationship could be explained in the lights that metacognitive awareness may not directly influence all aspects of listening comprehension. That is, listening comprehension ability could be influenced by various factors, including prior knowledge, cognitive abilities, vocabulary size, and familiarity with the topic.

These findings have made a noteworthy and substantial contribution to both the theoretical keystones and the practical applications within the existing body of literature. Firstly, this finding challenged the conventional assumption that higher listening proficiency is directly linked to a higher level of metacognitive awareness of listening strategies. However, the absence of such a correlation provided ideas into the nuanced understanding of language learning. It brought to attention that language learning is a complex process influenced by various factors beyond a simple linear relationship between proficiency and metacognition.

Secondly, the results of the linkage between listening and metacognition prompted scholars to reevaluate the role of metacognitive awareness in language learning. It indicated that learners may achieve proficient listening skills without being consciously aware of the strategies they are using. This could lead to a broader exploration of the interplay between unconscious and conscious language learning processes. In the same vein, the idea that learners can develop proficient listening skills without explicit metacognitive awareness challenges the prevailing belief that conscious strategy use

is necessary for effective language learning. This discovery could trigger researchers to investigate how learners intuitively absorb and process language input, even in the absence of conscious planning or monitoring. Considering these unconscious processes could reshape the understanding of how language learning naturally unfolds.

Lastly, this finding has also provided practice-based contributions to the community of education. In fact, language teachers can recognize that learners can develop strong listening skills even if they do not explicitly understand or articulate the strategies they use. This calls for a diverse range of teaching methods that accommodate learners with varying levels of metacognitive awareness. Furthermore, while metacognitive awareness might not be directly linked to listening proficiency, the current study did not necessarily diminish the importance of metacognition. Teachers can still teach metacognitive skills as a means to help learners understand and regulate their learning process, even if the effects on proficiency are not sometimes straightforward. Hence, this makes a call for the need for personalized instruction. Teachers could assess learners' metacognitive awareness and proficiency levels separately, tailoring instruction to address individual needs, be it developing metacognitive skills or refining listening proficiency.

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