



## Article

## A Case Study on the English Language Assessment Experiences of the Filipino Learners with Tourette Syndrome

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### Abstract

The neurological condition known as Tourette syndrome (TS) is characterized by tics. It is argued that the cognitive capacities of people with Tourette syndrome are significantly impacted by these involuntary movements or tics affecting the brain's basal ganglia region. Studies show that the academic achievement of individuals with tics is correlated with the intensity of their tics. Comprehensive studies examining the effects of tics on the language abilities of those who suffer from this illness are, nevertheless, lacking. Using the Neale Analysis of Reading Ability (NARA-II), the Fable Interpretation Test, and the Speed of Capacity of Language Processing, my investigation seeks to fill this gap by examining the experiences of six people with Tourette Syndrome. These assessments were designed to evaluate speaking, listening, oral reading, silent reading and writing, and macro abilities. They were then interviewed one-on-one to discuss their experiences taking the several tests. To find the obvious tics that appeared during the evaluations, impression analysis was also carried out. According to the participants' performances, those with TS reported that oral reading presented more difficulties for them than silent reading and writing. Additionally, the results indicate that they performed poorer in the former than in the latter. During the oral reading evaluation, it was also found that visible tics appeared more frequently. This supports the findings of previous researchers in this field that tics have an impact on phonological working memory. In addition, this study aims to offer important insights into hybrid language instruction and evaluation that will benefit instructors and students from specific populations other than those with Tourette Syndrome. In addition to adding to the population's current normative data, this study aims to provide insight into the experiences of those who have Tourette Syndrome, especially in a hybrid classroom.

### Keywords

Tourette Syndrome, Language Assessment, Hybrid Teaching

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## Introduction

### *Background of the Study*

Tourette Syndrome (or TS) is characterized by the occurrence of two or more simple or complex vocal or motor tics (DSM-5; American Psychiatric Association, 2013). Isaacs and Riordan (2020) also described with a significant criterion being the presence of daily tics for a duration of one year or more. These tics are categorized into motor and vocal types. Jung et al. (2013) described that motor tics are marked by repetitive movements that may involve coordinated actions. Examples of simple tics include blinking, cheek twitching, and knee jerking (Lavoie & O'Connor, 2012). As stated by Lavoie and O'Connor, complex tics are identifiable by self-inflicted repetitive movements, such as nail biting, head slapping, teeth grinding, hair pulling, or hand clenching in response to stress. Meanwhile, vocal tics are the tics observed in the mouth through uncontrolled utterances such as palilalia (involuntary repetition of words) and coprolalia (involuntary utterance of expletives (Jung et al., 2013).

Numerous scholars like Cutler et al., (2009) reported that tics significantly impact individuals, particularly due to their tendency to attract attention, thereby influencing overall quality of life. Other scholars posited that the impact reaches into linguistic and cognitive capacities (Leckman & Cohen, 1998). In relation to this, studies also reported that TS involves specific neurological anomalies. For instance, TS may impact the prefrontal cortex and the basal ganglia (Lavoie & O'Connor, 2013; Dye et al., 2016). Other studies were able to establish that the tics may also result in issues on the short-term memory and retrieval of phonological inputs (e.g., Smith et al., as cited in Strand, 2008). Wen et al. (2017) and Jung et al. (2013) proposed that TS results from a malfunction in the corticostriatal-thalamocortical circuitry, which is also implicated in language learning. Additional brain regions affected by tics include those responsible for social cognitive functions (Eddy, 2018) and possibly indirect language processing (Legg et al., 2005). These cognitive functions, as De Nil et al. (2005) suggested may result in deficits in language skills and learning impairments.

Various research on TS related to cognitive tasks described those different, more active parts of the brain among the individuals with TS contrasted to the healthy control group that represents the population without any known neurological conditions (Eddy et al., 2016; Eichele et al., 2016; Jackson et al., 2011; Jung et al., 2013; Thibault et al., 2008; Wen et al., 2017). However, it seems that there are no known study that explores the experience of the individuals with TS in terms of the specific language abilities such as oral and silent reading assessments to shed light in terms of their experience and perceptions in this area of language. Investigations like this is important not only to the people with TS but also to the parents, teachers, and schools to provide help that this group of learners need.

### Research Questions

Based on this, the current study aims to explore the experiences of the individuals in language assessment. Thus, this investigation aims to answer the following questions:

1. How do the individuals with TS perform in the following language assessment areas:
  - a. listening?
  - b. oral reading?
  - c. silent reading?

- d. silent writing?
- e. vocabulary?
2. Which areas triggered more tics among the individuals with TS?
3. What are the various experiences of the individuals with TS on the given linguistic areas?
  - a. Which area/s do they perceive to be easy?
  - b. Which area/s do they perceive to be challenging?

## **Theoretical Framework**

This study leverages on Larsen-Freeman's Complexity Theory modified by Köpke (2017). Köpke says bilingual or multilingual speakers with any neurological condition are more unstable. She noted that language-processing brain networks may explain the atypical populations' linguistic aptitude, making exact description difficult; thus, it is challenging to create one solid hypothesis in relation to their linguistic capabilities. Therefore, any cognitive phenomenon such as linguistic dysfluency (syntactic, semantic, or phonological) is always "complex" (Köpke, 2017), especially in bilingual or multilingual speakers. Köpke asserted that even if the brain can adapt to any stimulus, certain factors such as fatigue, stress, cognitive overload, and others may interfere with linguistic performance. In addition, work and speech community may also affect language attrition (p. 195). Therefore, several elements can make investigating such events unpredictable. These two conditions favor language attrition over acquisition, and their relationship is clear. This may suggest that studies may not aim to generalize, but rather to explore the experiences of the chosen case to investigate.

## **Methods**

### *Research Design*

This study utilized a case study approach. Case studies elucidate intricate dimensions of language-related and social interactions by analyzing instances of a phenomenon within an appropriate theoretical framework and research methodology, as observed by Duff (2020). A case study illustrates the lifestyles and diverse systems and processes that shape individuals' language experiences over time (Duff, 2020). This research analyzes the experiences of four individuals with Tourette Syndrome (TS): two children and two adolescents.

### *Data Sources*

The data for the study were derived from standardized assessment tools, interview results from individuals with TS, and observable motor and/or vocal tics of the participants. This study concentrated on individuals with TS aged 9 to 14. The participants, accompanied by their parents or designated guardians (caregivers), reported differing levels of tic severity and various types of tics. All participants indicated the presence of motor and vocal tics. The oral assessment, which will be detailed in the following section, was video recorded to document the vocal tics accurately. This constituted the data for the impression analysis, in which the tics exhibited during the test-taking process were quantified.

### *Instrument/s*

The research project employed both written and oral standardized assessments. The following is a description of the specified tools:

### *The Speed Capacity of Language-Processing Test (SCOLP)*

SCOLP is a standardized assessment designed to distinguish between slow language processing and language impairment due to neurological or other stressors (Baddeley et al., 1992). Building on the 1969 framework established by Collins and Quillian, Baddeley et al. (1992) enhanced this model to assess verbal intelligence and investigate whether delayed functioning is due to insufficient verbal skills or possible brain abnormalities. This examination evaluates language comprehension efficiency through two components: comprehension speed and word recognition.

SCOLP comprises two components: the Speed of Comprehension Test and the Spot-the-Word Test. The former constitutes a written evaluation of learners' verbal competencies. It assesses vocabulary comprehension and pronunciation accuracy. The cross-cultural adaptation of this instrument follows the methodologies established by Borsa et al. (2012). This test serves as a standardized evaluation instrument to determine if slow verbal information processing is characteristic or uncharacteristic. At the same time, the latter assesses students' capacity to determine whether a sequence of letters forms a word (Baddeley et al., 1996). This assessment tool is crucial for the present study as it measures the vocabulary richness of participants, reflecting their crystallized verbal knowledge (Baddeley et al., 1992).

The instrument was procured online from Pearson International to secure a copy of the tests. I received authorization from Alan Baddeley, the copyright holder for this instrument. The authorization was required because of the online administration of the instrument and the alterations implemented. As a result, I received authorization to modify the instrument and administer it online with adjustments.

### *Neale Analysis of Reading Ability – II*

The Neale Analysis of Reading Ability – II (NARA-II) serves as the second written assessment utilized in this study. This standardized assessment tool is primarily designed for pupils aged 6 to 12 (Hill et al., 2005, p.3); however, extensive pilot testing has confirmed its suitability for the study. Consequently, the instrument initially intended before NARA-II was not selected and was substituted by it.

This standardized assessment evaluates oral reading ability in terms of reading rate, accuracy, and comprehension (p.3). The study included two reading areas: oral reading and silent reading accompanied by silent writing. The initial oral assessment employed in this study was based on NARA-II. No modifications were made to this assessment tool. I utilized the complete tool that I acquired.

### *The Fable Interpretation Test*

Another oral reading assessment used in the study is Legg et al.'s (2005) Fable Interpretation Task, which was adopted from Wiig and Secord's (1985) instrument. The narrative includes the story "Farmer and Sons." This assessment consists of the following sections: 1) Read the narrative, 2) retell it, 3) summarize it, 4) justify the main character, 5) extract the moral. As a result, the research participant provided the following:

1. Presenting the fable verbally: The phonological representation of vowels and consonants is a critical aspect of linguistic analysis.
2. Narration of the fable: The fable is provided in full, with all details included.
3. A concise summary of the fable: Text processing entails removing non-essential information while incorporating and paraphrasing relevant data (Ulatowska et al., as cited in Legg et al., 2005).

4. Identification and justification of the primary character in the fable: The selection of the protagonist and the rationale behind this choice.
5. Articulating the moral of the fable: Identifying the lesson conveyed by the fable and deriving both the extra-textual and broadly applicable didactic themes. Legg et al. (2005)

This test is essential in the study as it assesses various oral communication skills, including information comprehension, simplification, higher-order processes, strategic competence, adherence to oral instructions, and discourse competence (Legg et al., 2005). This test assesses oral comprehension.

The updated version suitable for the current study adheres to the cross-cultural adaptation and translation method established by Borsa et al. (2012), which was employed in the cross-cultural adaptation of this instrument.

## Research Procedure

### *Pre-data Gathering*

After obtaining research ethics clearance, I contacted an organization that advocates for individuals with Tourette Syndrome to seek formal endorsement. I explained my study and its goals to the president of the organization. Following the approval and endorsement of the organization's president, a formal invitation was distributed among the parents in the group chat to which I was granted access. The interested parents received a formal letter from the researcher inviting them and the individual with TS. Initial screening was performed via Facebook Video call, Zoom, or Google Meet to assess potential hearing issues and significant mental comorbidity in individuals. The informed consent form is elucidated to both the parent and the participant at this stage.

### *Actual Data Gathering*

The data collection process extended over two days due to difficulties in acquiring all necessary information within a single day (See Table 1). The initial data collection occurred online in November 2021, followed by a second data collection in March 2022. The initial data collection involved administering the Fable Interpretation test and SCOLP, subsequently followed by an interview. Moreover, the data gathering was quite difficult to conduct on 2021 due to the stricter quarantine protocols in the Philippines, which resulted in conducted the second part on the next year.

**Table 1**

### *Instruments During the Actual Data Gathering Days*

Day 1	Speed of Comprehension Test (4 minutes)
	Spot-the-Word Test (max. 10 minutes)
	Fable Interpretation Test (max. 10 minutes)
	Short interview (10 minutes)
Day 2	NARA-II (max. 30 minutes)
	Short interview (10 minutes)

The initial session, conducted online, was recorded. Prior to the recording, participants had the option to disable their Zoom cameras and were requested to submit their pseudonyms. The participants were referred to by their chosen pseudonym during the recording. This ensures that the recording safeguards the privacy of the participants. Feedback from parents or caregivers regarding the test-taking experience of TS participants was also collected. This is particularly evident when the TS participants are unaware of their tics during certain assessment sections. Participants must first obtain parental consent to proceed. Participants were permitted to discontinue the assessment for any reasons they deemed necessary.

The second data collection occurred in a face-to-face environment. The study was carried out in a psychologist's laboratory or quiet office to minimize distractions for the participants. The NARA-II was conducted on that day. During the assessment, participants were asked for their consent to participate and whether they preferred to take the test with their caregivers or independently. When caregivers were permitted to remain in the room, they were positioned in a manner that minimized distractions for the test taker. Outside, they were allowed to observe the video displayed on the laptop screen. After the test, a brief interview was conducted to gather insights regarding their assessment experiences. The test was recorded on video; however, the researcher has been granted permission that prohibits public viewing of the footage. Therefore, it is intended solely for the researcher's use.

## Data Analysis

Based on Table 2, to answer research question 1, I used three sets of data from all the three instruments and through my field notes. Below are the methods of analyses conducted:

Table 2  
*Data Matrix for the Research Questions*

Research Question	Data
1. How do the individuals with TS perform in the following language assessment areas: <ol style="list-style-type: none"> <li>a. listening?</li> <li>b. oral reading?</li> <li>c. silent reading?</li> <li>d. silent writing?</li> <li>e. vocabulary?</li> </ol>	Impression analysis through the field notes Fable Interpretation Test; NARA-II NARA-II; NARA-II; SCOLP; Fable Interpretation Test; NARA-II
2. Which areas triggered more tics among the individuals with TS?	Impression analysis through the field notes
3. What are the various experiences of the individuals with TS on the given linguistic areas? <ol style="list-style-type: none"> <li>a. Which area/s do they perceive to be easy?</li> <li>b. Which area/s do they perceive to be challenging?</li> </ol>	Impression analysis through the feedback of the participants and their caregivers

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### *Fable Interpretation Test*

The complete test was recorded, and two raters convened to produce a final transcription of the session. This analysis follows the framework established by Legg et al. (2005). The raters achieved 100% inter-rater reliability due to their discussions and consensus-building efforts.

**Story Reading.** Two raters recorded the response to this section of the test. The two raters utilized IPA symbols to identify the mispronounced utterances. The researchers identified the mispronounced phoneme and categorized the error, including vowel-consonant replacement, absence of vowels or consonants, substitution, and other characteristics noted by the rater. This analysis adopted the study by Walensky et al. (2005).

A secondary analysis was performed for story reading. The two raters convened to review the oral reading videos of the participants, employing the error analysis framework established by Van Borsel et al. (2004). During the observation, they identified the presence of the following dysfluencies:

1. between-word dysfluencies
2. interjections
3. repetition
  - syllables (part-word)
  - words (whole word)
  - phrases
4. stuttering
5. broken words

The loudness was also characterized by the inconsistency of volume during oral reading. Van Borsel et al. (2004) assert that this cannot be applied to other oral tasks, as non-prepared speeches or talks may not accurately represent the dysfluency of the speaker's conclusion. This analysis was limited to oral reading.

**Story Retell.** The two raters convened online to analyze this segment by identifying: 1) the inclusion of all details from the original version; 2) adherence to the sequential order; and 3) the sentence structure, including completeness of thought, verb tense, and discourse markers.

### *The Speed of Comprehension Test*

The marking was conducted in alignment with the scoring form included in the test kit. The total number of phrases completed within two minutes was documented in the Excel file. Consequently, it summarized the responses instead of adhering to the original directive, which was to record them on the score sheet. The assessment was conducted online.

Baddeley et al. (1992) suggest that a typical subject is unlikely to make more than one or two errors. When the mistake rate is below 10%, the scoring methods outlined in Tables 7 and 8 are employed to derive either a scaled score or a percentile score, contingent upon the number of phrases completed within a two-minute timeframe. However, if there are more than one or two errors, it is necessary to investigate further if the error rate exceeds 10%. This may be attributed to reading difficulties such as dyslexia (Baddeley et al., 1992).

### *Neale Analysis of Reading Comprehension (NARA-II)*

Accuracy was assessed for oral reading. This assessed the accuracy of the words read. The subsequent area addressed was comprehension. This was determined by the correctly answered questions. The foundation for this was the primary response given in the NARA-II Teacher's Manual. Finally, the oral reading rate was assessed. It consisted of the "Words Read," "Cumulated Number of Words," "Total Time in Seconds," "Total Words Read," and "Rate" or words per minute. The number of words read was quantified, and the duration was measured to determine the rate. An Error Count was conducted, identifying the types of errors committed.

Impression analysis of the field notes was performed by identifying the salient observations recorded in the data source.

The same approach was employed using the field notes to address research questions 2 and 3. The field notes also incorporated observations from the research participants and their caregivers.

## **Results**

This section outlines the study's findings, organized in accordance with the previously stated research questions of the investigation.

### **1. Linguistic Performances Based on the Standardized Assessment Tools**

#### *Listening*

The observed performances of individuals with TS indicated that all participants effectively listened to the instructions and texts provided. This is derived from the responses of individuals during the assessments. Furthermore, active listening was evidenced by their responses to the test administrator during the assessment, which included clarifying questions and repetition.

#### *Oral Reading*

The individuals with TS achieved an average score of 46.83 according to the NARA-II results. The participants demonstrated challenges in recalling specific details from the short passages they read. However, it is not statistically significant to state that the respondents' performance falls below the expected average.

The assessment produced noteworthy findings. The individuals with TS exhibited a limited number of errors during oral reading, totaling 148. The analysis of Words Read per minute (WRpM) indicates a strong correlation solely between Words Read and Comprehension.

The Fable Interpretation Test similarly exhibited challenges in the recall of specific details from the short fable. It is important to note that, despite participants generally not encountering unfamiliar words from the fable, they all experienced difficulty in retelling it. The oral assessment, which involved summarizing the main points of the story, revealed that respondents generally encountered difficulties with the task. For instance, three individuals were unable to summarize the story effectively; two omitted essential details, while one conveyed the metaphorical meaning instead of the main idea, resulting in a correct summary with minor omissions. Furthermore, they exhibited dysfluencies in higher-order thinking skills during the oral reading assessment. Their challenge lay in identifying the story's moral.

*Silent Reading and Silent Writing*

The results from NARA-II indicate that participants did not encounter difficulties in recalling details during the silent reading and writing assessment. The summary provided by the participants encompassed nearly all details from the passage presented. The story rewriting successfully incorporated all details in a sequence closely aligned with the original passage. Only one participant was noted to have difficulty rewriting the story, specifically the participant with a comorbidity of ADHD (TS+ADHD). The participant in question was noted for achieving the lowest score on the NARA-II assessment.

*Vocabulary*

All participants exhibited no difficulties in the speed of their linguistic processing, as demonstrated by the SCOLP Test results. Therefore, the scores obtained do not exhibit significantly low statistical values. The performances in NARA-II and the Fable Interpretation Test further corroborated this, as participants generally reported no difficulties with the vocabulary section of the test. They encountered few, if any, unfamiliar words among the provided passages.

**2. Linguistic Areas that Triggered More Tics**

Participants generally reported a higher frequency of tics during the oral reading test, with minimal to no tics observed in the other assessments. The caregivers also noted this observation. As an observer with limited familiarity compared to their caregivers, I noted that individuals reporting mild tics did not exhibit any motor or vocal tics. Participant B demonstrated proficiency in reading the story during the story reading test. No motor tics were observed during the task. During the brief interview, he indicated that he perceived the occurrence of tics while reading the story aloud.

Table 3 summarizes the evaluations of oral reading performances. It indicates that, although some instances of oral reading dysfluency were noted according to the criteria established by Van Borsel and Vanryckeghem (2000), these instances are not classified as oral reading dysfluency, as they also occur with similar frequency among atypical learners.

**Table 3***Oral Reading Issues Observed*

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
Observed Issues	Self-correction	Whole word repetition	Very long tics	Word Repetition
	Stuttering			
	Word repetition			
Assessors' Impression	Not considered as dysfluency	Not considered as dysfluency	No dysfluency observed	Not considered as dysfluency

It seems that the tics experienced by individuals with TS may not necessarily be classified as dysfluency, as even typical learners exhibit normal oral communication patterns. Self-correction, whole word repetition, stuttering, and certain sudden movements or tics are not classified as dysfluency.

When inquired about their efforts to control tics during oral reading, many participants indicated that they were indeed attempting to do so. Many participants reported that they concentrated more on monitoring their tics during oral reading, leading to a significant number forgetting the details of the stories read. This indicates that during oral tests, whether reading or otherwise, individuals with Tourette Syndrome experience significant pressure to manage multiple factors, including their tics, speech delivery, content of their presentation, and the audience's attention. Consequently, they may exhibit subpar performance owing to insufficient concentration during the assessment.

### **3. Various Experiences on The Given Linguistic Areas**

#### *Areas They Perceive to be Easy*

All participants indicated that silent reading and writing were the least challenging among the assessments, as verbal communication was not required. All participants concurred that the silent reading and writing component of NARA-II was perceived as easier for several reasons. Initially, it was reported that there were minimal to no tics observed during this assessment. Furthermore, there was no one to concern themselves with, as the focus was directed towards silent reading and responding. The participants perceived that the examiner did not engage with them during this segment. Consequently, they focused on analyzing their responses.

Similarly, participants found the vocabulary to be easy. For instance, Participant B indicated that he found the vocabulary section to be entirely manageable. Participant C indicated that he did not encounter any unfamiliar words. Participant D's feedback aligned with that of other respondents, indicating that he did not perceive the task as difficult. Furthermore, he encountered no unfamiliar words. There was only one report that since SCOLP was answered online, it was a bit challenging since he is more comfortable answering assessments through pen and paper.

The participants generally perceived the oral reading task as "not quite difficult," although a few encountered challenges due to infrequent use of English at home. Additionally, several caregivers of the participants noted that the oral reading task was straightforward, as few to no challenges were observed. During the NARA-II test, Participant A's caregiver reported no instances of whining or negative behavior, attributed to the test's shorter duration compared to others. Furthermore, the printed format facilitated greater concentration compared to the online tests. Despite the prolonged and laborious tics exhibited by Participant C, he did not perceive the oral reading task as challenging. To gain a comprehensive understanding of oral reading performance, the subsequent sub-section will address additional aspects of this phenomenon.

#### *Assessment Area/s They Perceive to be Challenging*

The oral reading task of the Table Interpretation Test was considered challenging for the research participants, in contrast to the oral reading test of NARA-II, which benefited from the availability of a physical copy of the story. Table 3 summarizes the oral comprehension performance of the participants, indicating that they generally found the oral tasks in the Fable Interpretation Test to be challenging. Moreover, it is noteworthy that the test sequence commencing with the oral reading of the material seemed to contribute to the diminished retention of story details as the oral assessment advanced.

**Table 3**  
*Fable Interpretation Test Performance*

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
Story Retelling	Provided general idea with inaccurate details	Provided two details related to the story but forgot the gist of the story	Failed to retell the story	Failed to retell the story
Story Summary	Missing: Attempt at achieving the goal	Missing: direct consequence marking attainment or non-attainment of the goal was missing	lacked the attempt to achieve the goal and a direct consequence marking attainment or non-attainment of the goal	Partially correct summary
Identifying the main characters	explicit explanation inappropriate	explicit and intratextual justification	explicit and intratextual	explicit and intratextual but no reason given
Identification of the Moral	No moral given	No clear literal discussion		Abstract but irrelevant
Observed behavior	Poor attention / lack of focus  Poor inferencing	Distracted because of the barking of dogs	Severe tics	Not distracted; in a quiet environment

This is evidenced by the omission or syntactical and grammatical inaccuracies present in the unconnected phrases, a pattern of declining scores throughout the test, restarts, and impulsive responses, all of which were apparent in A's performance. Participant B encountered significant difficulty with the oral reading task due to challenges in pronouncing certain words, which he was unfamiliar with. The individual was inquired whether there were any unfamiliar terms in the fable. He stated that it was "buried" and expressed uncertainty regarding its meaning. However, it was the one term he was unfamiliar with in the narrative.

The results indicate that tic severity does not appear to correlate with linguistic performance, as some participants reported experiencing no tics during the test. However, the desire to monitor it while performing a linguistic assessment to conform with the normative performance on oral communication results in the attenuation of the oral reading performance.

Nearly all participants concur that as their tics intensify, communication becomes increasingly challenging. Anxiety presents a barrier to effective communication among younger participants, as increased anxiety correlates with a greater manifestation of tics. Consequently, communication presents a challenge. The challenges are clearly associated with tics, which hinder successful articulation or speech. Another aspect pertains to relationships, including family members, classmates, and other individuals. Another obstacle

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pertains to the individual's internal or physiological capacity.

## Discussion

The linguistic assessment of individuals with TS in this study indicates that listening, vocabulary, and silent reading and writing are perceived as easy by the participants, a view corroborated by their caregivers and the investigator's observations. The oral reading task, as indicated by the two assessments, yielded divergent results. The respondents generally perceived the oral reading task as not difficult. The Fable Interpretation Test presented a significant challenge, particularly for two respondents who do not use English in their home or usual environments, resulting in difficulties with the task. Some participants indicated that during the oral reading task, their focus on achieving phonological accuracy led to a lack of attention to the ideas presented in the paragraph. Consequently, they faced difficulties in remembering the specifics of the narratives encountered.

Based on the assessments conducted, the common dysfluencies observed, including word repetition and stuttering, are not deemed anomalous. Raters considered these to be minimal issues that can also occur in individuals without Tourette Syndrome. Therefore, these are not classified as dysfluencies. This corroborates the findings of Van Borsel et al. (2004) and De Nil et al. (2005) that individuals with TS do not exhibit dysfluencies during oral reading tasks. The Speed Capacity of Language Processing Test indicated that respondents achieved scores suggesting minimal to no difficulties in processing verbal inputs rapidly. This indicates that the challenges in recalling and processing story details, as well as the decline in oral assessment performance, cannot be attributed to low language processing, as evidenced by the SCOLP test results. Thus, the potential cause is identified by Legg et al. (2005) as the rapid decay of phonological working memory inputs. Thus, the retention of details in short-term and working memory may explain the observed regression in the oral assessment. This reflects the individuals with TS's desire for phonological accuracy, leading to a focus on the phonological aspects of words rather than their meanings.

A contributing factor to the decline in performance may be the challenges associated with cognitive multitasking, as indicated by the acknowledgment that focusing on phonological articulation compromised comprehension of the included details (Eddy et al., 2009). While it can be contended that typical learners may exhibit similar behaviors, individuals with TS are more motivated to attain phonological accuracy as a means of seeking acceptance and conforming to societal norms (Rivera-Navarro, 2009), facilitating their ability to "blend in" (Wadman et al., 2012). Therefore, it may also be regarded as a compensatory strategy to facilitate integration. However, as noted by Wadman et al. (2012), there are significant underlying consequences associated with the pursuit of normalized activity. In this instance, it may involve focusing on the details of the narrative while concentrating on the words "right."

The findings regarding individuals with comorbidities support the assertions of Eddy et al. (2009) that the presence of co-occurring conditions may influence performance due to the distinct characteristics associated with these comorbidities. The results support the assertions of Openneer et al. (2020) that individuals with TS+ADHD exhibit poorer performance compared to other research participants, as indicated by their distractibility (Legg et al., 2005).

The participants found the oral tasks in the Fable Interpretation Test more challenging than those in the oral reading assessment of NARA-II. It is noteworthy that the test sequence beginning with the oral reading of the material seemed to contribute to the diminished retention of story details as the oral assessment continued. This may potentially confirm the findings of Legg et al. (2005) that poor performance in an oral test, such as the Fable Interpretation Test, may indicate impairment of working memory. The performance of A is characterized by "omission or syntactical/grammatical incorrectness reflected in the unconnected phrases...a pattern of declining scores with the progression of the test, restarts, and impulsive responses" (p. 24). Further investigation is necessary to validate this, as the data from the current study is considered inconclusive.

## **Implications and Conclusion**

Individuals with Tourette Syndrome, as atypical language learners, are often integrated into mainstream classes, notwithstanding the presence of tics. The current study indicates that participants face challenges in oral assessments primarily due to their awareness that tics impact their oral communication. The desire to conform to normative communication leads to cognitive multitasking, as individuals must simultaneously monitor their tics, speech patterns, and other factors. There is evidence of difficulties in executing oral reading tasks, particularly in addressing higher-order thinking skills. The existing studies in this area yield inconclusive findings regarding the impact of tics on critical thinking. This study indicates that the researcher participants exhibit challenges in responding to critical thinking questions. They attribute this to their desire to communicate similarly to other learners who do not have Tourette Syndrome. Consequently, there was a lack of attention to the specifics of the orally presented narrative. This led to their inability to respond to critical thinking or recall questions.

These challenges may have significant implications for language teaching and learning. The teachers' role in directing students to concentrate on the critical elements of the oral assessment is essential. This indicates that it is important to remind students with insecurities regarding their oral communication skills that oral assessments do not solely reflect phonological accuracy. Second, given that certain learner's experience limitations in short-term memory, it is essential to meticulously plan the oral assessment to ensure it does not serve as a test of endurance. This may contradict the goals why the linguistic assessment has to be conducted. Third, creating a classroom environment that values learner diversity is crucial for enabling students with linguistic deficiencies or challenges to understand that these obstacles do not have to impede their learning. Instead, recognizing their own potential can empower them to leverage their strengths in language acquisition. The teacher and student from the atypical population may examine their current linguistic performance to cultivate a positive classroom environment that supports these learners.

To conclude, this investigation challenges every language teachers' view on how assessment is conducted and how some learners may exhibit difficulties in performing the linguistic tasks. Their "challenges" may not be automatically viewed as their poor grasp of the concept, but rather a possible indicator of more serious challenges that are deemed invisible to the typical eyes of language teachers. As more students demonstrate "invisible disabilities," it is high time to investigate performances in a more critical and sensitive lens.

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**Bionote**

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