



Difficulties in Translating English Sign Language

“A Case Study at the Deaf and Hard Hearings Center of Al-Jabal Al-Akhdar”

Ms. Safa Emhamad

Department of Translation, The Libyan Academy for Postgraduate
Studies al-Jabal al-Akhdar Campus, AL Bayda, Libya
Safaelabid96@gmail.com

Dr. Machalla Megaiab

Department of English
Faculty of Arts, Tobruk University
machalla.abdullah@tu.edu.ly

Received :18/11/2025

Accepted: 03/01/2026

Published: 02/03/2026

Abstract

Looking into how Deaf and Hard of Hearing learners manage English sign language at Al-Jabal Al-Akhdar reveals several hurdles they meet head-on. Skills assessment becomes tricky when tools are scarce or ill-suited. Teaching methods often miss the mark due to limited resources. Accessing a globally recognized curriculum? Not always possible here. Information flows in from both pupils and instructors at the center on Al-Jebel Al-Akhdar. Mixing numbers with personal insights shapes the way findings emerge. Pupils fill out organized forms sharing past exposure, thoughts, and what they know about English sign language. Each response adds texture to the bigger picture forming slowly through combined ways of looking.

Keywords

Sign Language, Translation, Deaf , Hard Hearings.



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صعوبات في ترجمة لغة الإشارة الإنجليزية

دراسة حالة مركز الصم وضعاف السمع بالجبل الأخضر

د. ماشاء الله امغيب

قسم اللغة الإنجليزية، كلية الآداب، جامعة طبرق.

السيدة / صفاء امحمد

قسم اللغة الإنجليزية، أكاديمية الدراسات العليا- فرع الجبل الأخضر .

تاريخ الاستلام: 2025/11/18 ؛ تاريخ القبول: 2026/01/03 ؛ تاريخ النشر: 2026/03/02

الكلمات المفتاحية:

لغة الإشارة، الترجمة، الصم، ضعاف السمع.

المستخلص

يقدم هذا البحث نظرة عامة على التحديات التي يواجهها الطلاب الصم وضعاف السمع في مركز الجبل الأخضر أثناء تعلمهم لغة الإشارة الإنجليزية، إضافة إلى تقييم مهاراتهم وأساليب تعلم لغة الإشارة الإنجليزية، ومدى وصولهم إلى منهج دولي مناسب. تتضمن منهجية البحث جمع بيانات من عينة من الطلاب والمعلمين في مركز الصم وضعاف السمع بالجبل الأخضر. وستوظف الدراسة منهجاً مختلطاً يشمل أساليب جمع البيانات الكمية والنوعية معاً. حيث تم تقديم استبانة منظم للطلاب لجمع معلومات حول خلفيتهم في لغة الإشارة الإنجليزية، وكذلك تصوراتهم ومستوى وعيهم بها؛ وباعتبار أن مجتمع الصم يحتاج إلى اللغة الإنجليزية كما نحتاجها نحن، فإن هناك حاجة ماسة إلى إجراء بحوث معمقة حول المنهج الذي يدرسه الطلاب لكلٍ من اللغة الإنجليزية ولغة الإشارة، بالإضافة إلى التحديات التي يواجهونها عند محاولة فهم اللغة الإنجليزية من خلال لغة الإشارة.

INTRODUCTION

This study focuses on the difficulties involved in translating and teaching English Sign Language at the Al-Jabal Al-Akhdar Center. A central problem appears in the way English Sign Language is introduced to Deaf students. Although the program claims to teach English Sign Language, the actual signs used in classrooms come from Arabic Sign Language. Teachers present English written words or letters while signing Arabic concepts. This practice creates a serious linguistic mismatch. Students receive English through writing, yet they receive meaning through Arabic based signs. This separation weakens the learning process and prevents students from forming a clear link between English vocabulary and its correct signs.

The main thing for this study depends strongly on the curriculum design. The curriculum does not Teach English Sign Language as an independent English language, it doesn't show to the students that English Sign Language is a completely different sign language with its own vocabulary structure and cultural background different from Arabic Sign Language. According to this problem, teaching and curriculum does not give the right procedures and signs for the language therefore, students think that its only different in writing not in the sign language itself.

Teaching practices at the center also contribute to the issue. Many instructors lack formal training in English Sign Language and are unfamiliar with the linguistic differences between sign languages. This lack of knowledge leads teachers to assume that one signs language fits all spoken languages. As a result, Arabic Sign Language becomes the default medium even when teaching English content. Students learn to spell English words, recognize letters, and copy written forms, yet they do not learn the appropriate signs used by English Sign Language users. This limits their expressive and receptive skills and affects their ability to translate accurately.

Literature Review

Previous Studies

Turning English into sign language trips up in real ways. Not just words get in the way - how sentences build themselves does too. One thing leads to another when dialects shift across regions, throwing off consistency. Picture this: knowing rules isn't enough if you miss how people actually live and communicate. Though silent hands shape words, their grammar puzzles tech minds more than speech ever did. Visual space bends rules - unlike sound, it flows sideways, up, down, not just left to right like print on paper.

Meaning lives in motion: palms twist, brows lift, shoulders shift - all at once, none optional. A machine named Zardoz tries catching that rhythm by turning sentences into moving sequences mimicking real signing. Instead of copying phrases directly, it breaks thoughts apart first using shared abstract codes, then rebuilds them through gesture logic shaped by context and region. Boards inside coordinate each step so timing feels smooth, almost human. Old study details how layers stack to mimic fluency without voice (Veale, Conway, & Collins, 1998, pp. 81–106).

Visual gestures form the core of sign language, a full language system embraced by people who are deaf or hard of hearing from birth or later in life. Handshapes, where fingers point, how they move - all these matters deeply. So do shifts in body stance, motion of arms, where eyes look, even subtle changes in mouth shape and face signals play roles. Structure does not follow speech line by line; instead, its rules unfold through space and flow.

Because of this diversity, better translation tools could open up daily life in real ways. Progress here might mean clearer conversations between signing and non-signing groups. Learning opportunities may grow when understanding improves. Inclusion often follows when communication does too. Getting translations right - rooted in cultural context - is not just useful; it matters deeply (Liang, Li, & Chai, 2023).

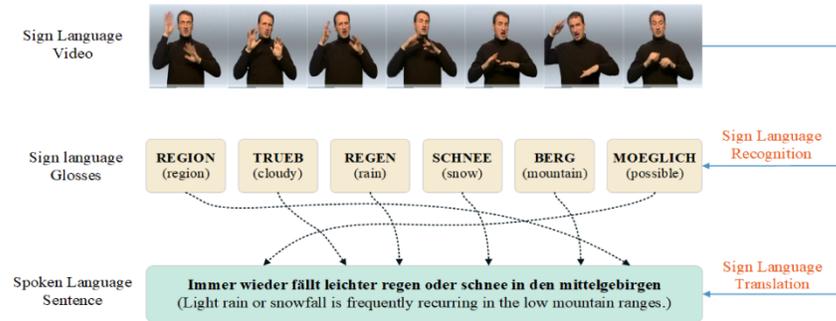


Figure 1. Sign Language Translation Pipeline

Overview of sign language translation pipeline (adapted from Liang et al., 2023).

Difference between English Sign Language and Arabic Sign Language



Figure 2. Arabic Letters Sign Language

Illustration adapted from Abdel-Fattah (2005).

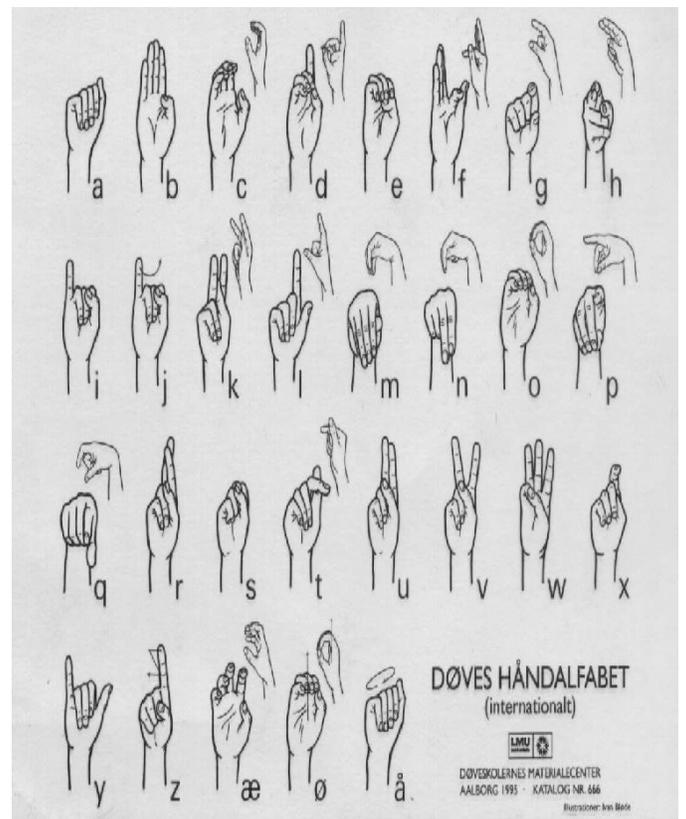


Figure 3. English Letters Sign Language

Adapted from Birk et al. (1997)

Second Language Acquisition (SLA) Theory

This piece looks at how kids pick up second languages - something not explored as much as adults learning languages, even though their paths differ. Studies come into view from many angles: theories, classrooms, methods. Age steps forward as a central theme, drawing lines between younger and older students. Teaching that targets grammar shows up alongside activities built around real tasks. In the end, new directions take shape for how science might study young learners going forward (Oliver & Azkarai, 2017).

Starting in the late 1960s, Second Language Acquisition began to take shape. By the close of the twentieth century, it stood as its own distinct area of study. Growth came fast once the field started gaining attention. It pulls ideas from many directions - teaching methods, linguistic structures, how children pick up speech, mental processes behind learning. More lately, insights arrive from studies on living with two languages, thinking patterns, classroom practices, human cultures, social systems. Different angles like these add depth when exploring how people master new tongues later in life. First language development during young years sets the stage for that process (Ortega, 2014).

Translation Studies Theory

When people move across the world - some freely, others because they must - the need to carry meaning between languages grows. Words shifted from one tongue to another gain weight in stories and daily life. This book opens that work gently, showing how deeply translation lives inside both books and human connection (Bassnett, 2013).

Cognitive Load Theory in Translation

Writing without switching back to your first tongue frees up mental space. That shift means less juggling between languages, leaving room to handle grammar and word choice better. Staying in the new language keeps thoughts flowing smoothly. Memory works harder when translation gets involved. Skipping the native layer lets attention stay where it's needed most. Less interference often leads to clearer expression in schoolwork. Evidence shows this approach supports stronger results on paper.

Technology and Tools in Sign Language Translation

Expressive by nature, sign languages hold official status in various nations. Moving beyond speech, these visual systems bridge communication gaps between deaf individuals and broader society through specialized translation tools. Their design demands careful handling of hand motions, face expressions, grammar patterns, plus local differences - no small task for machines. Rooted deeply in lived experience, deaf culture shapes how such technologies emerge and improve. Established sign languages come with structured rules, recorded examples, and data collections, enabling realistic testing. Progress hinges on shared efforts: researchers in computing, language experts, teachers, and deaf participants work side by side (Naranjo-Zeledón, Peral, Ferrández, & Chacón-Rivas, 2019).

MATERIALS AND METHODS

Starting with close observation, the study began by watching classes and talking informally with teachers at the Deaf and Hard of Hearing Centre. Instead of jumping into numbers straight away, it looked closely at lesson plans and teaching tools used during real sessions. Because understanding context mattered early on, the researcher sat in on several English lessons delivered via sign language. This helped see how learners responded, what held their attention, and how instruction unfolded day to day. After gathering these initial insights, a second stage rolled out using structured surveys for broader data. While the beginning focused on depth, later efforts aimed for wider patterns across more participants. Each step built quietly on what came before without rushing conclusions.

A sibling's place in the Deaf world opened doors. Work done earlier at the school gave extra insight into how pupils used language and what class felt like. Pupils treated English Sign Language like a mirror image of Arabic Sign Language - the one they knew best. So their grasp of ESL stayed weak, sometimes nearly absent. To check these patterns closely, lessons were observed. Real classroom efforts got recorded. The instructor's skill level in ESL also came under review. That mattered, since guidance during lessons shaped every student's contact with the target language.

Besides gathering personal viewpoints, the researcher used numbered surveys handed out to learners and instructors involved in ESL classes at the Centre. These answers offered clear numbers showing what obstacles individuals encountered, bringing sharper detail to how learning problems showed up. A close look followed at the course material, checking if its structure matched accepted rules for treating English Sign Language as a second signed language. Once every piece of information was gathered, studied, then contrasted, key hurdles came into view - along with possible ways forward meant to strengthen how ESL is taught and absorbed across the Centre.

RESULTS

Research Questions

This study is based on the research problem concerning the difficulties faced by deaf and hard-of-hearing students in learning English Sign Language (ESL). The following research questions and hypotheses have been formulated to guide the statistical analysis process:

Research Questions:

The study will focus on answering:

1. What are the problems students face in learning English Sign Language?
2. What are the strategies used for their curriculum and the techniques?
3. What are the solutions for the problems they are facing?

Hypotheses

1. For Research Question 1:

- *Hypothesis 1:* Students face significant challenges in learning English Sign Language due to limited exposure, lack of qualified instructors, and insufficient learning materials.

2. For Research Question 2:

- *Hypothesis 2:* The curriculum and teaching techniques currently used for English Sign Language rely primarily on visual and repetitive learning strategies, which may not fully address diverse learning styles and student needs.

3. For Research Question 3:

- *Hypothesis 3:* Providing interactive learning tools, increased practice opportunities, and teacher training in inclusive pedagogical methods will improve students' proficiency and motivation in learning English Sign Language.

Methodological and Statistical Framework

Overview of the Analysis Procedures and Sample Features

To evaluate the study's hypotheses and provide answers to its research questions, statistical analysis was carried out using the Statistical Package for the Social Sciences (SPSS). The study was based on data obtained from two questionnaires: the student questionnaire and the teacher questionnaire.

- Number of student respondents: 25 male and female students.
- Number of teacher respondents: 16 male and female teachers.

The analysis processes included the following: reliability testing (Cronbach's Alpha), normality testing, descriptive statistics (means and standard deviations), and inferential statistical tests (one-sample t-test and Pearson correlation coefficient).

Likert Five-Point Scale Coding Table

The study relied on the five-point Likert scale to measure respondents' answers, and the values were coded as follows:

Table 1. Likert Five-Point Scale Coding Table

Numeric Coding	Value
Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

To make it more coherent, agree/disagree implications were remixed so that means above 3 were interpreted as strongly agree, means equal to 3 as neutral, and mean scores below 3 were heavily disagree, as opposed to neutral disagreement. 3.00, also considered as neutral, was the mean value for the scale.

Second: Reliability Analysis (Cronbach's Alpha)

Table Introduction

To verify that our tool demonstrates an acceptable level of reliability and internal consistency, Cronbach's Alpha coefficient was calculated for each questionnaire.

Table 2. Cronbach's Alpha Results for Internal Consistency

Questionnaire	Number of Statements	Cronbach's Alpha Value	Level of Internal Consistency
Student Questionnaire	26	0.838	Very good
Teacher Questionnaire	21	0.545	Good

The reliability analysis showed opposing results for the two questionnaires. Students' questionnaire responses had a Cronbach's Alpha of 0.838 which is considered to be in the very good range (above the 0.70 threshold) indicating there is a good amount of internal consistency across the items on the survey. The results for teachers' questionnaires had a Cronbach's Alpha of 0.545 which is acceptable though a little under the range of 0.60.

First: Demographic Variables (Sample Characteristics)

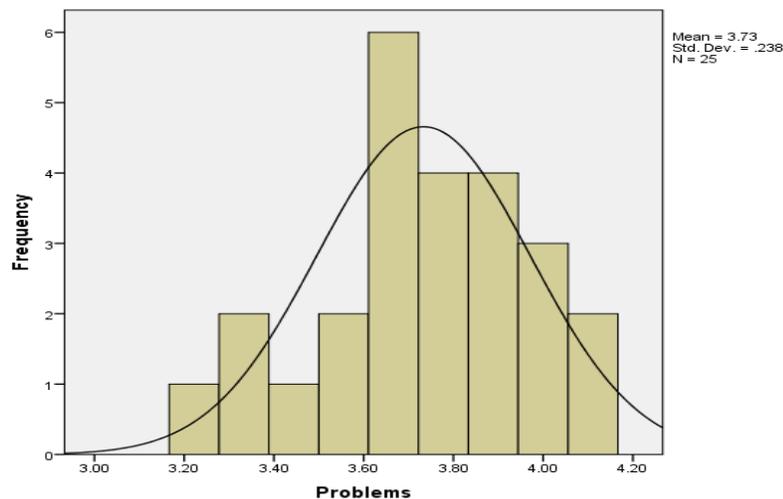
This section aims to describe the characteristics of the study sample of students and teachers in terms of the main demographic variables (gender, age, educational level) using frequencies and percentages.

Table 3. Relative Distribution of the Study Sample of Students and Teachers

Variable	Category	Frequency (N)	Percentage (%)
Students' Gender (N=25)	Male	11	44.0%
	Female	14	56.0%
Students' Proficiency Level (N=25)	Beginner	13	52.0%
	Advanced	11	44.0%
	Intermediate	1	4.0%

The study sample consisted of 25 students and 16 teachers. Regarding the students, the proportion of females was higher, accounting for 56.0% compared to 44.0% for males. It is also noted that the majority of students were classified as beginners (52.0%) in English Sign Language. As for the teachers, the gender distribution was equal, with 50.0% for each gender. Additionally, a high educational level was observed among the teachers, with 50.0% holding a master's degree, indicating that the sample possesses a high level of academic qualifications.

The following figures illustrate the demographic distribution of the study dimensions:

**Figure 4 .Graph of the Normal Distribution for the "Problems" Dimension**

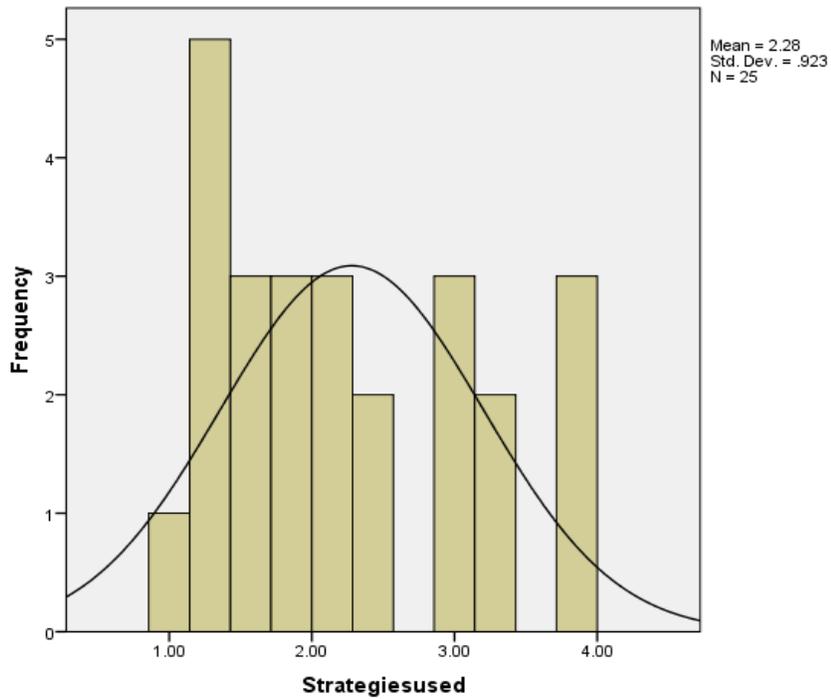


Figure 5. Graph of the Normal Distribution for the "Strategies Used" Dimension

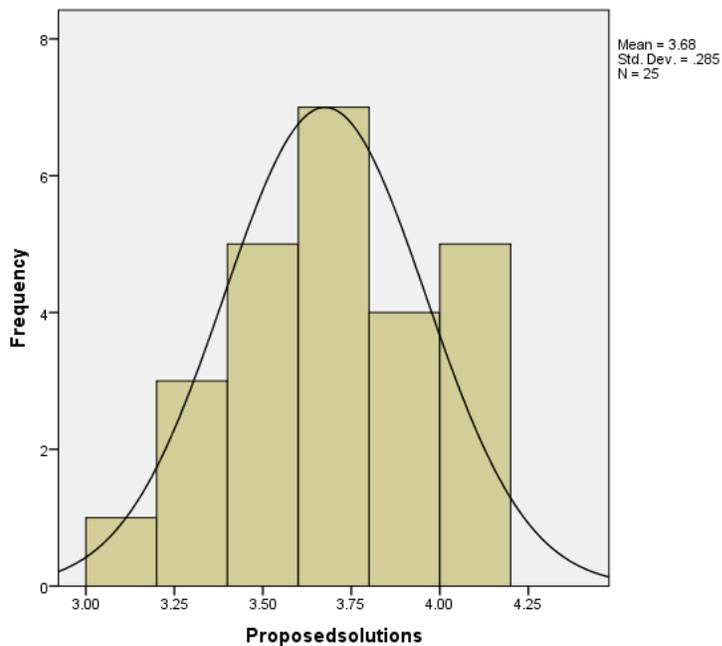


Figure 6 Graph of the Normal Distribution for the "Proposed Solutions" Dimension

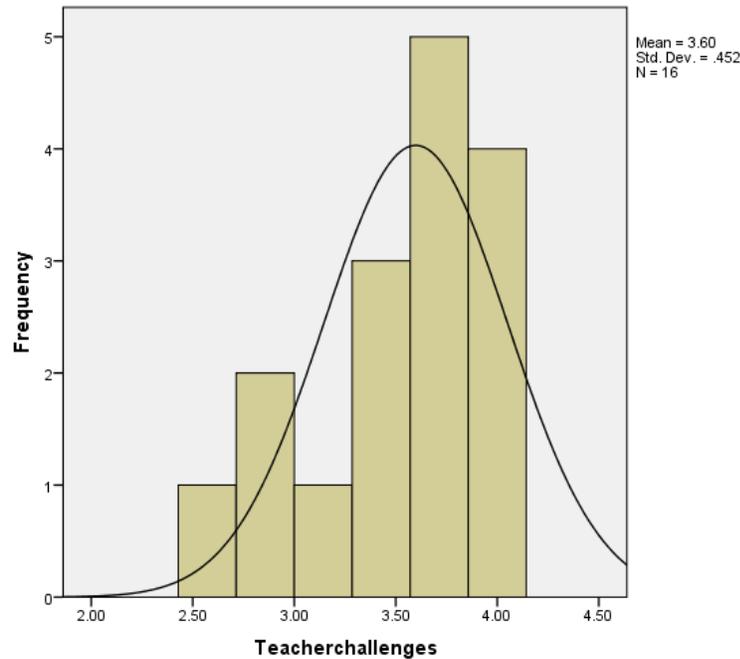


Figure 7. Graph of the Normal Distribution for the "Teacher Challenges" Dimension

Second: Descriptive Statistics for Study Dimensions

This section aims to describe the level of each study dimension (Problems, Strategies, Proposed Solutions, Teacher Challenges) by calculating the means and standard deviations, in order to determine the degree of agreement or prominence in each dimension.

Table 4. Means and Standard Deviations for the Study Dimensions

Dimension	N	Mean	Standard Deviation
Problems	25	3.7333	0.23787
Strategies Used	25	2.2800	0.92258
Proposed Solutions	25	3.6756	0.28494
Teacher Challenges	16	3.5982	0.45241

The results of the descriptive statistics showed that three of the study dimensions were high (above the theoretical mean of 3.00), while one dimension was low.

1. **High Dimensions:** The highest mean was for the "Problems" dimension, which reached 3.7333, followed by the "Proposed Solutions" dimension with a mean of 3.6756, and then the "Teacher Challenges" dimension with a mean of 3.5982. These means indicate that the respondents strongly agree on the existence of problems, the importance of solutions, and the challenges faced by teachers.
2. **Low Dimension:** The "Strategies Used" dimension had the lowest mean at 2.2800, which is below the theoretical mean (3.00), indicating that respondents do not agree on the adequacy or effectiveness of the strategies currently employed in teaching English Sign Language.

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Third: Descriptive Statistics and One-Sample T-Test

Table Introduction

Descriptive statistics (means and standard deviations) were used to describe the level of each study dimension. Additionally, a one-sample T-test was conducted to compare the mean of each dimension with the theoretical mean of the scale (3.00), in order to determine whether the dimension level is significantly high or low.

Table 5: Descriptive Statistics and One-Sample T-Test Results for the Study Dimensions

Dimension	N	Mean	Standard Deviation	t-value	Degrees of Freedom (df)	Significance (Sig.)
Problems	25	3.7333	0.23787	15.414	24	0.000
Strategies Used	25	2.2800	0.92258	-3.902	24	0.001

Dimension	N	Mean	Standard Deviation	t-value	Degrees of Freedom (df)	Significance (Sig.)
Proposed Solutions	25	3.6756	0.28494	11.854	24	0.000
Teacher Challenges	16	3.5982	0.45241	5.289	15	0.000

The results showed that all study dimensions were statistically significant at the 0.05 level, as the significance values (Sig.) for all tests were 0.001 or 0.000, which are below the significance threshold.

1. Problems, Proposed Solutions, and Teacher Challenges:

- The mean for the "Problems" dimension was high, reaching 3.7333, with a t-value of 15.414, indicating that students strongly agree on the existence of problems.
- The mean for the "Proposed Solutions" dimension was high, reaching 3.6756, with a t-value of 11.854, indicating that students strongly agree on the importance of the proposed solutions.
- The mean for the "Teacher Challenges" dimension was high, reaching 3.5982, with a t-value of 5.289, indicating that teachers agree on the presence of challenges they face in the teaching process.

2. Strategies Used:

- The mean for the "Strategies Used" dimension was low, reaching 2.2800, with a negative t-value of -3.902, indicating that students do not agree on the adequacy or effectiveness of the strategies currently employed in teaching.

Answering the Study Questions

Based on the results of the statistical analysis (Tables 2 and 3), the study questions are answered as follows:

Question 1: What problems do students face in learning English Sign Language?

Answer: Students face a high level of problems in learning English Sign Language, with the mean for the "Problems" dimension reaching 3.7333, which is above the theoretical mean (3.00) and statistically significant (Sig. = 0.000). These problems are also strongly positively correlated with teacher challenges ($r = 0.647$, Sig. = 0.003).

Question 2: What strategies are currently used in the curriculum and techniques?

Answer: Students believe that the strategies currently in use are inadequate or ineffective, as the mean for the "Strategies Used" dimension is 2.2800, which is below the theoretical mean (3.00) and statistically significant (Sig. = 0.001). This indicates an urgent need to develop the strategies and techniques used in teaching English Sign Language.

Question 3: What are the solutions to the problems they face?

Answer: Students strongly agree on the importance of the proposed solutions, with the mean for the "Proposed Solutions" dimension reaching 3.6756, which is above the theoretical mean (3.00) and statistically significant (Sig. = 0.000). This confirms that the solutions proposed in the questionnaire represent an acceptable and desirable approach for both students and teachers to address the existing problems.

Final Conclusion and Recommendations**Final Conclusion**

The study concluded that students face a high level of problems in learning English Sign Language, and these problems are closely related to the challenges faced by teachers in the teaching process. The results also showed that the current strategies are ineffective, highlighting the need to adopt the proposed solutions, which received high approval from respondents.

Recommendations

Based on the results, the study recommends the following:

1. **Developing Teacher Competence:** It is necessary to provide specialized and intensive training programs for teachers in English Sign Language (ESL) to reduce the challenges they face, given the strong relationship between teacher challenges and student problems ($r = 0.647$).
2. **Reviewing Educational Strategies:** The center should review the current strategies and techniques, as the results showed that students do not agree on their effectiveness (mean = 2.2800).
3. **Adopting the Proposed Solutions:** Implement the proposed solutions, which received high approval from students (mean = 3.6756), including the use of modern teaching techniques and advanced educational resources.
4. **Conducting Future Studies:** Conduct experimental studies to directly test the effectiveness of the proposed strategies and solutions on student performance.

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