

INTRODUCTION

An extensive survey of the literature, speech therapy texts, and published /s/ therapy programs revealed that tongue-tip up position was the manner in which the /s/ sound was produced. Most of these references suggested the following treatment strategy for children with frontal or inter-dental lips on a school-based caseload: Instruct the individual to “Close the teeth, put the tongue-tip on the magic spot (alveolar ridge) and say /s/.” Therefore, speech-language pathologists have historically been encouraged to teach the tongue-tip up position to address lisps.

HYPOTHESES

The following hypotheses were made and evaluated:

1. There is variability of tongue-tip placement (up, down, midline) for the acoustically standard production of /s/ unrelated to age.
2. There is variability of tongue-tip placement (up, down, midline) for the acoustically standard production of /s/ cross-culturally.
3. The acoustically standard production of /s/ is based upon a) tongue blade retraction with b) lateral margin elevation, c) tension in the tongue-tip and d) variability of tongue-tip position.

METHOD

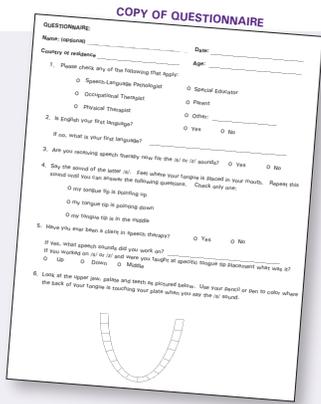
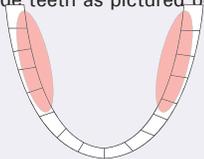
Over the past 7 years, a survey was conducted with 785 children and adults between the ages of 10 and 78 years, who presented with standard acoustic production of /s/ on English words and conversational levels. The Questionnaire was completed by speech-language pathologists, occupational therapists, physical therapists, special educators, parents, children, and others who attended a variety of conferences (within the United States and internationally). All participants spoke and read English.

PHASE I - No instructions other than those listed on the Questionnaire were provided. The participants completed the Questionnaire independently without consultation with the investigators or others.

PHASE II - Once the questionnaire was completed, the second stage of the study was implemented. All participants who identified the “tongue-tip down” position as their preferred placement for the /s/ sound were asked to produce the sound following the directions suggested in the Introduction section of this poster: “Close your teeth, put your tongue on the magic spot (alveolar ridge) and say /s/.”

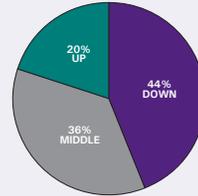
RESULTS OF THE PHASE I - QUESTIONNAIRE

The results of this survey indicated there was consistent placement of the tongue blade within the oral cavity cross-culturally. The tongue blade was retracted with the sides of the tongue blade elevated to make contact with the side teeth as pictured below:



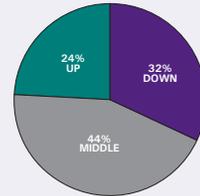
1. Analysis of the data reported by the 785 subjects revealed: 44% produced the /s/ with the tongue-tip pointed down, 36% produced the /s/ with the tongue-tip tensed in the middle neither pointed up nor pointed down, and only 20% of the subjects produced the /s/ with the tongue-tip pointed up.

ALL SUBJECTS - ACROSS CULTURES

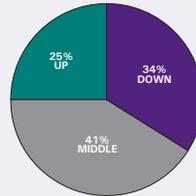


2. Analysis of the data revealed variation in tongue tip position across ages (10 years to 78 years)
3. Analysis of the data revealed the following information related to international locations where English was the first language.

UNITED STATES OF AMERICA

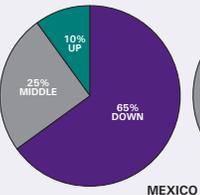


CANADA

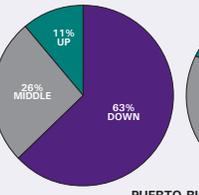


4. Analysis of the data revealed the following information related to international locations where English was not the first language.

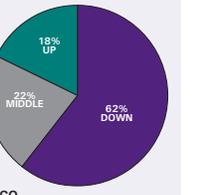
SWEDEN



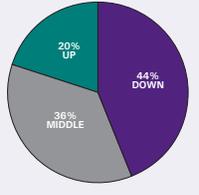
FINLAND



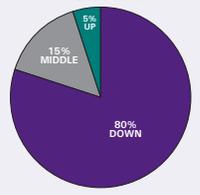
HONG KONG



MEXICO

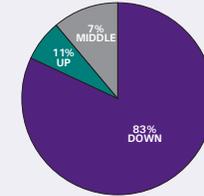


PUERTO RICO



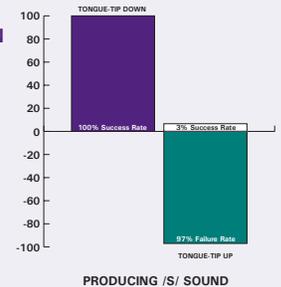
5. Analysis of the data revealed the following information related to bilingual English and Spanish speaking subjects:

BILINGUAL ENGLISH AND SPANISH



RESULTS OF THE PHASE II - REQUIRED TONGUE-TIP UP POSITION

The results of this phase indicated that when individuals who habitually used the tongue-tip down position were required to use the tongue-tip up position, an acoustically lateral production of /s/ was elicited 97% of the time; only 3% of the time was the acoustic production standard.



CONCLUSION

The results were consistent with the hypotheses regarding variability of tongue-tip placement with consistency of tongue blade placement across age groups and across cultures. The survey (completed by 785 individuals between the ages of 10 and 78 years in seven (7) countries including the United States) revealed that cross culturally 44% produced the /s/ with the tongue-tip down, 36% produced the /s/ with the tongue-tip in the middle (neither up nor down), and only 20% produced the /s/ with the tongue-tip up. However, an extensive survey of the literature, speech therapy texts, and published /s/ therapy programs suggested that tongue-tip up position was the manner in which the /s/ sound was produced most commonly. In this survey, tongue-tip up position was used by the fewest participants. Therefore, the results of this survey imply:

1. Speech-language pathologists (who assume children and adults produce the standard /s/ based upon how they themselves produce the /s/ or how they have been taught the /s/ is produced) may teach an incorrect tongue-tip placement, thereby inhibiting progress or even creating a lateral production of the sibilant sounds.
2. 83% of bilingual speakers who consider Spanish to be their primary and/or first learned language use the tongue-tip down position consistently in both Spanish and English. Because there are so many children in the United States (US) who are bilingual Spanish-English speakers, this information needs to be considered when planning a speech therapy program within the Public Schools in the US.
3. It is the responsibility of the speech-language pathologist to identify the most acoustically appropriate tongue-tip position for each client prior to teaching tongue-tip placement for the production of /s/.

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