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ORAL NARRATIVES OF PERSIAN-SPEAKING HEARING-IMPAIRED STUDENTS IN THE REGULAR SCHOOLS

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Abstract
The purpose of this study was to survey the oral narratives used by hearing-impaired students of ordinary schools with their hearing counterparts based on the transitivity system. Three types of oral narratives were collected from eighteen hearing impaired students (selected as an available sample) as well as eighteen hearing students. And with regard to the normality of the data in each of the transitivity indicators, data analysis including two-independent samples t-tests and U Mann-Whitney tests was carried out using SPSS-26. Findings revealed in the total three types of narratives, the median difference between the two groups is significant in all transitivity indices (p= 0/024, p=0/022, and p=0/001 for processes (verbs), participants (agent, goal, etc.), and circumstances (place, time, manner, etc.) respectively. The results show that Persian-Speaking students with hearing problems in regular schools perform weaker in the total three types of oral narratives because they are weak at telling personal stories and making up stories, but this have not be seen for story retelling.

Keywords: Functional linguistics, transitivity system, oral narratives, regular schools, hearingimpaired students

1. Introduction

Nine children in every 1,000 have severe or profound hearing loss in school-age children (Teele et al., 1989). According to the American Speech and Language and Hearing Association, children with hearing impairments face various challenges in their daily lives, including difficulties communicating cognitively and expressively, learning difficulties in school, low self-esteem, and social isolation

(National Academies Press, 2004). Different hearing-language and speech-related studies have investigated the relationship between language outcomes and potential predictors among these children. Language development studies have examined early language skills primarily in this population. Most clinical assessments of school-aged children with hearing impairments focus on those who attend special schools, but modern technology and early rehabilitation have enabled many of these children to attend ordinary schools, but a little information is available to determine the impact of new technologies and modern rehabilitation methods on more complex aspects of language, such as narrative production (Boons et al., 2013), However, narratives are closer to spontaneous languages than the elicited languages used in standard language tests (Merritt and Liles, 1989). A narrative is a type of discourse that involves the expression of events and activities with a temporal sequence, and it plays an important role in our lives (Markowiak, 2005). Proficiency in narrative discourse can impact positively a range of related outcomes, including social, emotional, and educational development (Shiel et al., 2012). While most narrative studies on students focus on written texts rather than oral narratives (Asker-Árnason et al., 2010; Crosson and Geers, 2001), some studies demonstrate that our spoken narrative ability can have a significant impact on our social, emotional, and educational lives (Heilmann et al., 2010; Soares et al, 2010; Pinto et al., 2015). In recent decades, there has been more interest in oral narrative evaluation; however, most organizations only use picture-based assessments for retelling stories (Mojahedi et al., 2020). There has been little research comparing the transitivity of Persian-speaking children with hearing impairments and their hearing counterparts. Previous research has only compared the processes involved in retelling picture stories at the preschool age (Vaferi, 2015). As Milosky (1987) pointed out, oral and written narrative language are essential to students, teachers, and books in their daily interactions. The assessment of narrative production is a challenging and complex task at all levels and aspects of form, content, and function, and this is particularly true in children. According to Hughes et al., (1997), three samplings were considered appropriate for eliciting narratives from children easily and naturally:

1) Narrations of personal experiences
2) Story Retelling with or without visual stimulation
3) Story Creation

The concept of transitivity investigated in this study was first proposed in Halliday's Systemic Functional Grammar (SFG). An important aspect of SFG is the approach it offers clinicians to understand language in use as a functional system (Ball et al., 2008). SFG aims at providing functional explanations for the formal system of language and considers it dependent on the communicative role of language (Dabir-Moghaddam, 2004). The principle unit of analysis in this grammar is the clause, which is a grammatical concept that simultaneously has three semantic layers (experiential, interpersonal, and textual metafunctions) and is interpreted based on the main verbs. As part of the experiential metafunction, the clause is considered as a representation, and the purpose of representation is a set of events or experiences that are manifested in grammar, and the grammatical system that permits expression of experience (and on which this article focuses); is called a transitivity system (Tafreshi and Ramezani, 2010). As mentioned earlier, the experiential and transitivity systems in the external world and in the context of a situation are related to the element of the "Field of Discourse" and themselves consist of three macro functions: processes, participants, and circumstances. Figure 1 shows some examples based on our samples. Within the clause, processes and participants are the primary relationships, but circumstances aren't necessary, but their presence does increase the semantic richness of the experience. Transitivity is determined by first determining the number and type of process (that is, the particular schema that the clause has to interpret experience); Secondly, by determining the type of process, we can determine the type and number of participants, and finally, if present, the number, and type of circumstances in the clause.

According to Halliday and Matthiessen (2013, 2014), there are three main types of processes (material, mental, and relational) and three subtypes (verbal, behavioral, and existential). However, some functional linguists believe that verbal processes are one of the main processes because,

although they are between material and mental processes, they have grammatically obvious features that distinguish them from the others (Thompson, 2013). A material process represents the event or happening (such as arriving, departing, pouring, picking up, giving, etc.), and a mental process represents the mentality and feelings (perceptions such as seeing, hearing, emotive, or reactive feelings), or cognitive functions such as thinking, imagining, etc; and relational processes (such as be, become, have, seem, appear, etc,) include attributive and identifying, each of these processes can be Intensive, Circumstantial, or Possessive. Formally, attributional possession (my house) and predicative possession (this house is mine) are distinguishable, but identifying ownership and its type is not always straightforward. In such cases, cognitive-semantic parameters can be applied (Aghagolzadeh and Haghighi, 2014). In addition to these main processes, behavioral, verbal, and existential processes are also included. Behavioral processes describe physiological activities (such as breathing, yawning, coughing, staring, etc.), expressive/verbal processes describe the expression of something (such as say, tell, explain, criticize, etc.), and existential processes (be, exist) describe the existence of an entity.

Each process has its own participant (or participants) represented as nominal groups. In the nontransitive material process, the actors, i.e. the principal players of the event, are the main participants, while in the transitive material process, in addition to the actor, the goal on which the performance was based is also included. For participants in mental processes (sensor and phenomenon), the sensor is the person whose senses or mind are involved in the process, and the phenomenon is what the sensor senses or thinks about. In attributional processes, the attribute and carrier are the main participants (an attribute is usually an indefinite nominative group or an adjective), and in the processes of identity relations, the identifier and the identified are the main participants (an identifier is usually a definite nominal group). Behavioral processes involve participation associated with the physiological behavior, and verbal processes involve main participants being the sayer and verbiage (sometimes the receiver is also explicitly included in the clause), and existential processes involve participants who are existents. Objectified as groups of adverbs or prepositions by Halliday and Metiso (Murri et al., 2014), circumstances are elements that are somehow related to this process. These include extents (distance, frequency, duration), locations (time, place), manner (means, comparison, quality, and degree), causes (reason, Purpose, behalf), and Contingency (Condition, Concession, and default).

The main focus of speech-language pathologists is on the “micro” aspects of communication in social contexts (Farrokhi, et al., 2020), which is one aspect of SFG, but there are also wider aspects that may be relevant to their practices (Armstrong, et al., 2005). The transitivity (relationship between processes, participants, and circumstances) in a text is essential to determine the discourse style, and also to predict the degree of cohesion and coherence of the text (Hasan, 2009). These studies are undertaken in the field of discourse analysis, which interacts most with other fields in Iranian linguistics in the form of inter-field studies and interdisciplinarity (Masounmi et al., 2017). Currently, clinical discourse research is used to study and evaluate communication skills in children, adults, and people with communication disorders (Ghayoumi et al., 2022; Beytollahi et al., 2019; Mojahedi Rezaeian, et al., 2018). The field of clinical linguistics has previously conducted studies comparing some aspects of functional grammar between groups with different special needs and their normal counterparts. For children with hearing impairments, for example, we could refer to research comparing the use of various types of Themes in primary school (in the Fifth Grade) (Ghiasian, 2014), and of various types of processes in preschool (Vaferi, 2015).

The main purpose of this research was to compare the three types of oral narratives mentioned above in hearing-impaired Persian-speaking students enrolled in normal elementary schools with their hearing peers, which has not been done so far, and it was necessary to assess the needs of educational and rehabilitation programs to strengthen their oral narrative production skills.

2. Materials and Methods:

Design: This research has been conducted in a quasi-experimental design and descriptive-analytical manner.

Participants: Thirty-six students from Qazvin's ordinary schools participated in the study, eighteen with normal hearing (NH) were randomly selected and eighteen with hearing impairment were selected as available samples. In both groups, half of the children were female and the other half male, with a mean age of 9 years and 4 months in the NH group and 10 years and 1 month in the HI group. In both groups of children, Persian was the first language and they did not have any physical or mental problems. All of the children in the experimental group had congenital hearing loss, and their degree of hearing loss ranged from severe to profound. Nine children in the experimental group used hearing aids and nine had cochlear implants, all of whom had at least two years of auditory rehabilitation (oral or verbal) before entering school. Due to previous research [4, 14] showing that the gender variable was ineffective at predicting narrative skills among school-age children, this variable was not included in this study.

Method of gathering data: After ensuring they were ready (not tired, hungry, or sleepy), students were asked to answer the following questions in the interview room:
1- How was yesterday? (Personal narration)
2. Tell a story you heard before (retelling a memorized story)
3- Make an improvised story of yourself (narration creation)

Each student's answers were recorded 30 seconds after each question (equal processing time for all students). A transcription was made of each student's narrative and then the number and type of processes and participants, as well as circumstances, were calculated.

Procedure, materials and tools: Data were extracted from the narratives based on transitivity indices defined in SFG. As stated in the introduction, the data were extracted based on the definitions given of types of processes, participants, and circumstances. It is sometimes difficult to determine which type of process is involved when we analyze transitivity in actual texts (Vaferi, 2015). Hence, using a reference (Razavian H, Feizi M., 2017) that specified the type of process of Persian verbs on the basis of pragmatic meaning, the type of process was determined.

The following steps must be followed in order to score:
- The transcription narrative is divided into clauses. Each main verb is contained in a clause.
- The type of process in each clause is determined by its pragmatic meaning. As an example, in some clauses, "to be" is a relational process and in others, an existential process.
- Each clause's participants are determined by its type of process. For example, we look for participants of the type actor (and if there is, a goal) during the material process, and we look for participants of the type sensor and phenomenon during the mental process.
- Then we have to check the presence or absence of circumstances elements and their type/s in the clause.
- Our final step is to record the number of all types of processes, participants, and circumstances in the narrative as transitivity indicators.

Ethical rules: This study was approved by Tarbiat Modares University's ethical committee. (Approval ID: IR.MODARES.REC.1400.072, Approval date: 2021-06-12).

Data analysis: Statistical analyses were performed using SPSS software 26. A statistical significance level of 5% was chosen for all analyses. Depending on the normality or non-normality of the distribution of data, independent two-way t-tests or U-Mann-Whitney tests were used.

3. Results:

Before comparing NH and hearing impairment, a within-group comparison was made among hearing aid (HA) users and cochlear implant (CI) users in the HI groups. Since the distribution of the data did not match normality, U Mann-Whitney tests were used. In any of the narrative types, there were no significant differences in the transitivity indicators (Table 1).

Table 1. *Comparison transitivity within hearing-impaired group*

PROCESSES					
Narrative type	**Hearing Instrument**	**MEAN**	**Std. Deviation**	**Std. Error Mean**	**P -value**
Personal	**HA (9)**	17.44	11.71	3.90	0.790
	CI (9)	14.33	5.52	1.84	
Story retelling	**HA (9)**	25.00	17.94	5.98	0.122
	CI (9)	48.11	30.46	10.15	
Story creation	**HA (9)**	23.67	15.36	5.12	0.785
	CI (9)	28.89	15.37	5.12	
Total	**HA (9)**	22.04	15.00	2.89	0.257
	CI (9)	29.11	23.97	4.61	
Participants					
Narrative type	**Hearing Instrument**	**MEAN**	**Std. Deviation**	**Std. Error Mean**	**P -value**
Personal	**HA (9)**	26.11	18.25	6.08	0.859
	CI (9)	22.22	10.12	3.37	
Story retelling	**HA (9)**	40.33	28.18	9.39	0.102
	CI (9)	79.33	52.55	17.52	
Story creation	**HA (9)**	37.11	22.80	7.60	0.952
	CI (9)	37.88	23.11	7.75	
Total	**HA (9)**	34.53	23.35	4.49	0.337
	CI (9)	46.44	40.61	7.82	
Circumstances					
Narrative type	**Hearing Instrument**	**MEAN**	**Std. Deviation**	**Std. Error Mean**	**P -value**
Personal	**HA (9)**	10.44	6.88	2.29	0.212
	CI (9)	7.11	3.44	1.15	
Story retelling	**HA (9)**	10.44	8.37	2.79	0.170
	CI (9)	18.57	14.72	4.91	
Story creation	**HA (9)**	13.00	9.68	3.23	0.785
	CI (9)	14.22	9.00	3.00	
Total	**HA (9)**	11.30	8.15	1.57	0.448
	CI (9)	13.30	10.88	6.09	

Having ensured that there are no significant differences between the two groups of HA users and CI users, the whole HI group is compared with the hearing group based on the U Mann-Whitney test, Table 2 shows the results of looking at the mean of the processes in the two groups.

Table 2. *Comparison PROCESSES between two groups*

PROCESSES					
Narrative type	**Hearing Status**	**MEAN**	**Std. Deviation**	**Std. Error Mean**	**P -value**
Personal	**HI (18)**	15.89	9.02	2.13	0.161
	NH(18)	22.00	14.35	3.38	
Story retelling	**HI (18)**	36.56	27.01	6.37	0.521
	NH(18)	50.06	45.34	10.69	
Story creation	**HI (18)**	24.28	14.92	3.51	0.047*
	NH(18)	39.22	18.24	4.29	
Total	**HI (18)**	25.57	20.12	2.74	0.024*
	NH(18)	36.09	31.08	4.23	

The usage of various types of processes (appendix 1) in the task of personal narrative has the same pattern from maximum to minimum:
NH: Material > relational > behavioral > mental > verbal > existential
HI: Material > relational > behavioral > mental > verbal > existential

Compared to their hearing counterparts, HI children, in retelling a memorized story, have used more mental than verbal processes, and existential processes than behavioral processes:
NH: Material > relational > verbal > mental > behavioral > existential
HI: Material > relational > mental > verbal> existential > behavioral

The mean difference in the improvisation of the narrative was statistically significant, but the groups mostly followed the same pattern (except for the existential and behavioral process):
NH: Material > relational > mental > verbal> existential > behavioral
HI: Material > relational > mental > verbal > behavioral > existential

As well, in the three narratives combined, the mean differences of each group were statistically significant, but each group repeated the same pattern (except for the mental and verbal processes):
NH: Material > relational > verbal > mental > behavioral > existential
HI: Material > relational > mental > verbal > behavioral > existential

Likewise, the normality hypothesis was rejected in all participants cases, so the Mann-Whitney test was applied to compare the mean participation rates for HI and NH students (Table 3).

Table 3. *Comparison Participants between two groups*

Participants					
Narrative type	**Hearing Status**	**MEAN**	**Std. Deviation**	**Std. Error Mean**	**P –value**
Personal	**HI (18)**	24.17	14.46	3.41	0.168
	NH(18)	33.00	21.91	5.16	
Story retelling	**HI (18)**	59.83	45.56	10.74	0.486
	NH(18)	84.72	80.66	19.01	
Story creation	**HI (18)**	37.44	22.27	5.25	0.029*
	NH(18)	60.56	33.33	7.86	
Total	**HI (18)**	59.43	25.52	7.52	0.022*
	NH(18)	40.48	33.36	4.54	

As both groups employ similar types of processes in the personal narrative, it is predicted that both groups will use the same types of participants (appendix 2) in this task.
NH: actor > goal > identifier and identified > behavior > attribute and carrier > sensor and phenomenon > sayer and verbiage > receiver > existent
HI: actor > goal > identifier and identified > behavior > attribute and carrier > sensor and phenomenon > sayer and verbiage > receiver > existent
The pattern of using participants in storytelling differs as follows:
NH: actor > sayer and verbiage > sensor and phenomenon > attribute and carrier > identifier and identified > goal > receiver > behavior > existent
HI: actor > sensor and phenomenon > sayer and verbiage > goal > attribute and carrier > identifier and identified > behavior < receiver > existent
Also, a different pattern of participation is required in each group when creating improvised narratives:
NH: actor > sensor and phenomenon > sayer and verbiage > attribute and carrier > identifier and identified > goal > existent > receiver > behavior
HI: actor > sensor and phenomenon > sayer and verbiage > goal > attribute and carrier > identifier and identified > behavior > existent <receiver

A comparison of the mean use of circumstances in each type of narration and in total is shown in Table 4. For all narrative contexts, the hypothesis of group normality is accepted so twoindependent-samples t-test is used to compare means, but for comparisons of total mean, U MannWhitney tests were used since the k-s test rejected normality hypothesis.

Table 4. *Comparison Circumstances between two groups*

Circumstances					
Narrative type	**Hearing Status**	**MEAN**	**Std. Deviation**	**Std. Error Mean**	**P -value**
Personal	**HI (18)**	8.78	5.55	1.31	0.041*
	NH(18)	14.72	10.35	2.44	
Story retelling	**HI (18)**	14.50	12.34	2.91	0.057
	NH(18)	24.44	17.45	4.11	
Story creation	**HI (18)**	13.61	10.65	2.14	0.073
	NH(18)	19.72	9.09	2.51	
Total	**HI (18)**	12.30	9.58	1.30	0.001*
	NH(18)	19.63	13.58	1.85	

The pattern of using circumstances (appendix 3) in the personal narrative task was as follows:
NH: location > manner > extent > cause > contingency
HI: location > manner > extent, cause
In the task of telling the story, the frequency of using circumstances in two groups is as follows:
NH: location > manner > extent > cause > contingency
HI: location > manner > cause > extent > contingency
Finally, the pattern of using circumstances in both groups when creating an improvised narrative is as follows:
NH: location > manner > cause > extent > contingency
HI: location > manner > extent > cause > contingency
In all three types of narratives, it can be seen that both groups use circumstances related to location and manner most frequently, and contingency is least often used.

4. Discussion

The present study analyzed the transitivity of three types of oral narrative in Persian students with and without hearing impairments in elementary schools**.** Tables 2, 3, and 4 indicate that the difference in the transitivity indices (processes, participants, and circumstances) in a total of three narrative types between the two groups is statistically significant**.** This finding is in accordance with research that has found HI children have difficulties in narrative development despite learning spoken language (Jones et al., 2016). According to the present study, these problems are not identical across all types of oral narration.

Observing Tables 2, 3, and 4, it appears that in the story-telling task, there were no significant differences between the two groups on any of the transitivity indicators (processes, participants, and circumstances). Although no research has been conducted on the ability of HI children to recall memorized stories, our findings are generally in agreement with those of previous studies that asked children to retell a pictorial story verbally and found there was no significant difference in macrostructures between the narratives of these children and their peers. (Zamani et al., 2018). A possible explanation is that auditory training and speech therapy programs provide HI children with a great deal of experience with retelling stories before entering school. This could also be explained by the fact that the students are only reporting the elements existing from previously memorized stories, whereas when they are creating their own stories and narratives, the elements must be generated and processed independently. Ashouri and Jalil-Abkensar (2020) which examined how memory-based cognitive training impacted the abilities and communication skills of deaf students can support this interpretation. This interpretation might also be supported by the research (Mousavi and Karami Nouri, 2008) which compared the two main systems of long-term memory of deaf students in

special schools with hearing students and has concluded that these students may have difficulty with longterm memory. Another point worth noting is that retelling a previously preserved story requires less creativity and productivity than producing a personal narrative, and especially creating a story. Personal narrative does not demonstrate a significant difference in the mean of total processes and participants between the two groups, however, the mean of circumstance in personal narratives produced by HI students is significantly lower than those produced by hearing students. It might be that both groups produced shorter and less complex narrations in story creation, but in personal narration, hearing students produced longer and more elaborate narrations. In the retelling of the tale, as mentioned, the elements already exist in the story and the student's job is to merely recall them. A HI child may also feel compelled to point out certain extents, locations, manners, causes, and contingencies when recalling a personal narrative, but do not elaborate further because of a lack of vocabulary and information.

Based on Table 1, the two subgroups of users of hearing aids and users of cochlear implants did not differ in any of the transitivity indices. These results are consistent with previous research (Razavi et al., 2017), where the intelligibility of speech in children with hearing loss who use cochlear implants and those who use HAs was not significantly different.

The present research had two major limitations, firstly, it is not possible to test transitivity indicators in the narratives of preschool-age children due to the lack of sufficient narrative production development, and secondly, due to the restrictions of the coronavirus, even in the blue and yellow conditions of the coronavirus, there was no permission to travel to other provinces, therefore only the samples available in the province where the first author resides were evaluated.

5. Conclusion

Study results suggest that HI students in normal primary schools display different levels of competence in representing transitivity in various types of oral narrative activities. In retelling a memorized story, they did not differ significantly from their counterpart in any transitivity indicator, including processes, participants, or circumstances. In contrast, there was a significant difference between the mean use of the two groups of processes and participants in creating an improvisational narrative. Additionally, the use of circumstances in the personal narrative task differed significantly between the two groups. As mentioned in the discussion, this can be due to the focus of preschool education and rehabilitation programs in Iran on storytelling skills (especially pictorial stories) and neglecting the development of other types of narration in these children, so a review of these programs according to the results of this research, it seems necessary.

Declarations of interest

None.

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Appendix 1

Proccessed Data

KIND	Narrative Type					
	Personal		Memorized Story Retelling		Story Creation	
	HI (n)	NH (n)	HI (n)	NH (n)	HI (n)	NH (n)
Material	198	276	336	412	243	301
Mental	12	18	86	105	43	95
Relational	35	54	92	182	66	134
Verbal	11	3	84	148	39	84
Behavioral	30	44	29	32	24	15
Existential	0	1	31	22	22	23
Total	286	396	658	901	437	652

Appendix 2 *Participants Data*

KIND	Narrative Type					
	Personal		Memorized Story Retelling		Story Creation	
	HI (n)	NH (n)	HI (n)	NH (n)	HI (n)	NH (n)
Actor	198	277	336	412	243	301
Goal	90	120	129	154	76	115
Sensor & Phenomenon	24	36	172	210	86	182
Identifier & Identified	42	68	74	170	56	116
Attribute & Carrier	28	40	104	192	74	154
Behaver	30	45	29	32	24	14
Sayer and Verbiage	20	6	168	295	77	166
Receiver	3	1	34	37	18	19
Existent	0	1	31	23	20	23
Total	435	594	1077	1525	674	1090

Appendix 3
Circumstances Data

	KIND	Narrative Type					
		Personal		Memorized Story Retelling		Story Creation	
		HI (n)	NH (n)	HI (n)	NH (n)	HI (n)	NH (n)
Extent	Distance	0	2	3	5	7	5
	Duration	8	35	13	17	7	17
	Frequency	10	7	10	22	8	18
Location	Time	41	65	35	60	36	44
	Place	48	56	88	139	80	86
Manner	Means	7	34	11	25	23	12
	Quality	10	12	22	45	23	38
	Comparison	2	11	14	31	12	30
	Degree	14	29	23	46	25	34
Cause	Reason	4	4	9	17	6	24
	Purpose	1	4	7	10	3	12
	Behalf	13	4	12	9	5	20
Contingency Condition		0	2	7	9	5	7
Concession		0	0	4	2	2	5
Default		0	0	3	3	3	3
Total		158	265	261	440	245	355