Writing Skills Development among Students with Deafness at Elementary Level

Munawar Malik[*] and Naseer ud Din[**]

Abstract

Assessment and evaluation are key aspects of teaching and instruction, which serve to promote learning through better planning. The procedures should be robust and be able to depict the grey areas for later reviews. Writing as an integral component of literacy, deals with convention and purpose – essentials that need to be incorporated in children to develop them into quality writers. Writing evaluation has been catered on holistic grounds for much of the time however, for novice and challenged writers some analytical criterion has been proposed in literature. The present study was designed to develop a scientific and analytical tool for the evaluation of writing skills of the deaf that have been identified as struggling writers. Keeping in view the challenges of a typical Pakistani teacher of the deaf, the researcher aimed to develop an analytical tool for writing assessment. The population comprised deaf students studying in public sector schools in Lahore district. The sample comprised 20 students of elementary grades through convenient random selection. The developed tool having analytical qualities had an internal consistency (Cronbach's Alpha score) of .71. Conducted through a pre-post research design, the tool, when applied to the sample yielded better post-test scores in all three areas of planning, translating and reviewing, the sub variables of which included spelling, mechanics, ability to revise/ evaluate, coherence, cohesiveness, generation and organization of ideas, identifying its efficacy in terms of writing evaluation.

Keywords: Writing, Analytical tool, Deafness

[*] Assistant Professor, Department of Special Education, University of the Punjab, Lahore
E-mail: munmalik@yahoo.com
[**]Professor, Department of Special Education, University of the Punjab, Lahore.
E-mail: nasir.uddin@alumni.utoronto.ca

Introduction

Writing is a mean of communication; it can also be a tool for reasoning and learning, (Bangert-Drowns, R. L., Hurley, M. N., & Wilkinson, B. 2004; de la Paz & Felton, 2010; Nuckles, M., Hubner, S., & Renkl, A. 2009). Writing being an integral component of literacy development has been identified as a challenge for the novice writers. The elements of writing as in reading are dependent upon purposive efforts conducted during instruction process. The art of writing comes natural to many as they tend to get involved in more reading experiences. According to Sturm and Koppenhaver (2000), writing composition may involve a complex thinking process that must integrate multiple components including the topic or theme, i.e. choice of words, organization, purpose, audience, clarity, sequence, cohesion and transcription. Writing competence on the other hand relies heavily on coordinates that include vocabulary, knowledge of syntactical structures, planning, composing, reviewing and revising a written product. According to DSM-5 (American Psychiatric Association, 2013, pp. 66-74) the diagnostic criteria for "impairment in written expression" entails sub skills involved in spelling, grammar, punctuation and written composition. These sub skills include spelling accuracy, grammar and punctuation and clarity in organization of a written expression. Typical writing development has been addressed through certain theories and philosophies as it has been considered as a complex phenomenon. Graham and Harris (2011) have summed up these theories as having cognitive and motivation basis. One category of such theories deal with the mental operations while the other talks about motivational resources. Students with disabilities are identified to suffer more challenges than their peers owing to different mental operations leading to sensory and/or motor deficits. The researchers have further identified a link between disabilities and writing development, i.e. about 19 of every 20 students with disabilities fail to acquire writings skills required for school success (ibid.)

Deafness is a sensory disability which hinders language development and at times it is referred to as a disability of language itself. The limited language casts its effect on reading development because of the missing element of "phonological processing". The same is held responsible for a poorer writing skill in deaf students. According to Mather, Wendling, and Roberts (2009), poorer phonological awareness hinders a person to guess the order of sounds and poses difficulties in identifying and remembering orthographic forms of words. Researchers and scholars have long been working to find a crucial linkage that could serve as a bridge to neutralize the effects of hearing loss on writing competencies. Andrews, Shaw and Lomas, (2011) have reported that students who are deaf typically find reading and writing challenging. Many of them have found reasons in the cognitive domains, while others have raised elements in the process of writing itself. Berninger (2009) postulated a significant link between memories in general and working memory is particular while during writing that may cause a fault

especially for deaf writers. He has referred to problems with spelling, grammatical structures, morphological awareness, organizing information and translating thoughts in a written product.

Literature has generously reflected upon measures that can improve reading and writing. Referring to writing itself, certain evaluation paradigms have been developed in past that could readily quantify a written sample on a given scale and may also comment on the missing links. Such analytical tools have identified many elements about good written products to the benefit of teachers and instructors investing in writing skill development. On a similar construct however, McCardle, P. (2002), has discussed "Inside-Out" and "Outside-In" skills as a pre-requisite for literacy development which have been reported to be predominantly effected in deaf children. Moores (1978) pointed out the deaf students lag significantly behind their peers with hearing issues in aspect of convention of writing. However, Mayer (2007) and Watson (2002) have identified severe language deficiencies as a factor contributing towards a poorer use of higher forms of language, including cohesion and coordination. Owing to the difficulties and delays in the writing process, Marschark, Lang, & Albertini, (2006) reported a gap in terms of writing skill levels among hearing and deaf peers by quantifying that a 17-18 year old deaf student write at par with hearing peer who are 8-10 years old. Literature in general is indicative of a similar perspective about writing skills of deaf and talk about a lack of cohesion among sentences, higher syntactical errors, lexical variations and elaboration of content (Devilliars 1991; Maxwell & Falick, 1992). On the vocabulary fronts of language, research reflects upon a severe delay in terms of lexical items development, use of markers and spellings (Paul 2001; Marschark, Lang & Albertini, 2002).

In light of the valuable information about written deficiencies of the deaf, linguists have established tools and protocols through which such challenges could be intervened. The solution regarding these struggling writers and respective evaluation strategies of their written content could be traced back in models proposed by Berninger, Vaughn, Abbot, Begay, Coleman, Crutin, Hawkins, and Graham, (2002) and Saddler (2006). In an undaunted fashion, researchers heve identified challenges for deaf writers in terms of grammar, spellings, punctuation at one hand (lower order skills), while generating ideas, sequencing and revising of the content (higher order skills) as on the other. Looking back the timeline, Yoshinaga- Itano and Synder (1985), while working on the writings of the deaf children, have proposed a five point criterion through the use of which inadequacies could be witnessed in the writings of deaf students. The list includes of items include (1) number of sentences and words used in composition, (2) complexity of syntactic form, (3) analysis of error and their categorization, (4) quantitative use of parts of speech and (5) quantitative analysis of types of transformational grammar. Much

earlier, however, Powers and Wilgus (1983) proposed a scheme based on syntactic domains for assessing the writings of deaf children. The key concerns highlighted were a repetitive usage of a single pattern, use of variety of simple patterns, and deficiencies in terms of usage of adverbial/gerundial phrase or compound and complex sentences. Heefer and Shaw (1996) worked upon a six dimensional syntactical criteria including ideas and content development, organization, voice, word choice, fluency and convention. On the qualitative sides, however, research signifies elements that reflect upon the quality aspects of a written product. Elements, e.g. ideas and content, voice, word choice, introduction, character, opening, ending, linkages across paragraphs, and originality, contribute to the qualitative aspects of a writing sample. Harris and Graham (1992) offered more specific suggestions for analyzing the message quality including introduction to main character statement of time and stay, description of locale, actions of linked reactions.

Talking in terms of more recent times, a range of assessment batteries have been made available to identify the errors in a writing pattern. Approaches using multisensory aids have been used to teach spelling (Pallock, Waller & Pollitt, 2004), while considering it as a missing essential in the written product of such students. Likewise 'correct writing sequences" provided by Mather, et al. (2009) is a curriculum based assessment which covers spellings, accuracy, grammar, punctuation and capitalization. The advents of more analytic scales provide scores on aspects of writing and can be interpreted in terms of instructional engagements. Elements like quality of argument and development of plot can serve to analyze the quality of writing in general and can throw light on the respective intervention agendas. Mather, et al. (2009) have also developed a tool for phonics e.g. 'check-off chart' covers consonants at the levels of initial diagraphs, consonant blends, and blends in the forms of final diagraphs.

Special education in Pakistan emerged in the decade of late eighties. General education teachers took lead and made their contributions however, the craftsman ship required to address the writing deficiencies remained off guard for a long time. The prevailing holistic styles of writing evaluation yet remain an element of concern even to date. According to Graham and Harris (2011), struggling writers tend to shy off in their knowledge about genres, devices and convention of writing. Besides other significant influences family poverty and poor instruction are considered important. Research conducted in Pakistan has already established linkages of poorer literacy development in deaf students with the incapacities of teachers (Bano & Hameed, 2007).

Being a complicated language, learning to write Urdu has yet more to add to challenges of a typical student in Pakistan. As a mix of multiple languages and with a different lexicon it poses extra burden on teachers and learners. A much different writing

style with a unique phonology repertoire, Urdu has been reported as difficult language to learn as compared to English where the segmental phonics has limited shapes and styles. Not much was witnessed in literature about deafness and Urdu language learning; rather most of the linguistic contributions were made in perspective of English language. Since struggling students tend to learn through explicit instruction, the role of a teacher is signified yet again in research. The support in terms of a model, guide, and a mentor can yield results only if the teachers are equipped with certain tools and work agendas pertaining to writing. The emergent need for the time being was to provide a tool for writing assessment that can serve as a bench mark in terms of writing evaluation for Urdu and could also signify an intervention strategy. The study was aimed to develop a workable tool with analytical qualities that could find issues in the written products and provide solutions for a respective resolve. The "taught" and "caught" dichotomy has to have its respective role for the development of writing skills among deaf students in Urdu language through the possible advent of such a tool.

Objectives of the Study

The key objectives were to develop a tool having analytical qualities both in terms of syntactic and qualitative aspects that could provide teachers a way forward rather than holistic style of writing assessment. The objectives of the study were:

1. To develop a tool for enhancing writing skills of students with hearing impairment in Urdu language at elementary level.
2. To develop an awareness among the teachers of deaf about the common errors elicited in the writing of the deaf and make informed decision while developing IEP's.

Research Methodology

The study was experimental and signified a pre-post test analysis. The purpose built tool was designed, piloted and used to assess writing challenges among deaf students. Later on the identified challenges of the respective group were addressed through an intervention of three months. The pre-post test analysis was conducted to find the efficacy of the tool.

The population comprised students with deafness studying in elementary grades in Lahore District. The sample was randomly selected through convenient sampling. 20 students having profound degree of hearing loss studying in elementary grades in the public sector schools constituted the sample of the study. Being single sex educational set up, all participants of the sample were male in the age range of 16-18 years.

Tool development

Besides a thorough review of literature, an observation was conducted before any formal attempt on tool development was made. The observation revealed that idea generation insufficiency on the part of students tend to serve as a major hurdle in setting goals and leading to poor written products. Besides issues in goal setting and idea generation, a significant shortfall was also witnessed in vocabulary, grammar and coherence as mentioned by Haris and Graham (1992). The elicited writing samples portrayed challenges in translation of ideas, appropriate vocabulary, spellings, and mechanics. Further a reviewing incapacity was found to seriously block the revision attempts which are significant attributes of a mature writer. Keeping in view the same, the tool was developed, validated by professionals and piloted on writing samples from the students other than the sample. Finally, 13 variables were selected as a part of writing evaluation tool which primarily were 15. The variables of writing assessment tool included associative, purposive, avoidance, generating ideas, writing goals, coherence, cohesiveness, spellings and mechanics (Figure 1). The Cronbach's alpha score was .71 depicting a higher level of consistency amongst the items of the tool. Descriptive statistics were used on the data by the application of SPSS. Frequency distribution and percentages were calculated to draw findings and conclusions for both individual as well as group scores.

Scoring Criterion

A rubric was developed to gauge the writing samples in terms of numerical scores. Each variable of 13 was attributed scores so as to quantify and make analysis of an elicited written effort, e.g. planning phase included setting goals for writing, generation and organization of ideas. The phase could maximally yield a score of 24. The translating phase comprising, vocabulary, spelling and mechanics could earn a maximum score of 9 and finally the reviewing phase (ability to evaluate and revise) could earn six marks. The scoring criterion was piloted on writing samples before the formal usage in the experiment. All written samples were subject to these evaluation standards both in the pre and post tests.

Tool For Writing Evaluation-Scoring Criterion		
Planning	**Setting Goals**	
	Purposive	
	Writing relevant to the identified goal	3
	Writing is somewhat relevant to identified goals	2
	Writing is not relevant to the goals	1
	Associative	
	Vocabulary used relevant to the topic	3
	vocabulary used is some what relevant	2
	vocabulary used is Irrelevant	1
	Avoidance/ escape from Writing	
	Eager to write	3
	Writes when prompted	2
	Refusal to write	1
	Generation of Ideas	
	Number of ideas	
	six sentences or more	3
	three to five sentences	2
	two sentences or less	1
	Recollection of the goals	
	No recollection of the topic required	3
	Helped once for topic recollection while writing	2
	Helped more than once for topic recollection while writing	1
	Cueing/ Prompting	
	Automatic-No Cueing	3
	Cueing done once	2
	Cueing done for more than once	1

Tool For Writing Evaluation-Scoring Criterion		
	Organization of Ideas	
	Cohesiveness	
	Appropriate use of cohesives of Urdu	3
	Occasional use of cohesives of Urdu	2
	Non use of cohesives of Urdu	1
	Coherence	
	Very Coherent	3
	Little Coherent	2
	Not Coherent	1
Translating	**Vocabulary**	
	use of appropriate vocabulary	3
	Relevant but not exact	2
	Totally Irrelevant	1
	Spellings	
	Spelling errors less that two in the text	3
	Spelling errors more than two but less than six	2
	spelling errors more than six	1
	Mechanics	
	Legible and neat	3
	Some what legible	2
	Inegible	1
Reviewing	**Ability to evaluate**	
	Independent review	3
	Made a review when reminded	2
	did not bother to review or ignored	1
	Ability to revise	
	Successful Revision	3
	Tried to revise but unsuccessful	2
	Did not revise	1

Figure 1: *Tool for Writing Evaluation of Urdu language*

Intervention

According to MacArthur and Philippakos (2012) and Slotte and Lonka (2001), the elements of writing including planning, revising and editing can be satisfactorily addressed through note taking, out lining, drafting, proof reading and rewriting. In the

light of approaches recommended by Graham, S., MacArthur, C., & Fitzgerald, J. (Eds.) (2013), strategies for intervention were designed and explicitly taught through modeling, scaffolding and peer collaboration. The elements within the tool were capitalized through cognitive and meta-cognitive strategies through self regulated processes. The intervention program remained unchanged and continued for three months (excluding the calendar holidays). The structure of the intervention included, thinking aloud, modeling of strategy in line with the developed tool, guided practice, prompting, practice in pair, discussion and feed-back. The frequencies of the session were 5/ week of 1-1/2 hour's duration each. While during the writing sessions students were encouraged to elicit writing samples with due planning (setting goals, generate and organize ideas) translating (with appropriate vocabulary, spelling, mechanics) and reviewing (evaluations and revisions). With this atypical approach of teaching writing the students were encouraged to focus on the essential elements for a better written output.

Findings of the Study

In order to make inference, the data was tabulated to get mean, standard deviation and *t*-scores for every variable and its sub-elements. The mean scores of the pre and post test scores were compared to find significant difference if any. Following is the tabulation of data which was considered while making inferences and conclusion. Table 1, 2 and 3 below reflect the findings about the planning, translating and reviewing variables respectively.

Table 1
Mean, Standard Deviation and Comparison of "Planning" aspect

	Pre test Scores		Post test Scores			95% CI for mean difference	*r*	*t*	*df*
Setting Goals	*M*	*SD*	*M*	*SD*	*N*				
Purposive	16.4	2.92	9	22.4	4.06	-8.90, -3.09	0.455	4.7*	8
Associative	14.6	3.12	9	20.7	4.26	-9.84, -2.37	0.163	3.7*	8
Avoidance of writing	17.3	4.89	9	23.2	5.26	-10.3, -1.43	0.351	3.07*	8
Generation of Ideas									
Ideas Development	14	2.06	9	24	2.54	-11.8, -8.15	0.476	12.5*	8
Recollect goals	15.6	3.35	9	21.6	3.16	-9.66, -2.23	0.071	3.7*	8
Cueing/prompting	10.5	0.8	9	22.5	4.82	-15.30, -8.69	0.653	8.37*	8
Organization of Ideas									
Cohesiveness	15.7	2.72	9	19.3	3.6	-6.99, -.11	0.021	2.83*	8
Coherence	15.5	3.43	9	20	2.44	-7.90, -.98	0.149	2.91*	8

*p< .05.

1) Writing scores of students in purposive writing skill before were (*M* = 16.4, *SD* = 2.92) and after providing writing interventions were (*M* = 22.4, *SD* = 4.06). Paired sample *t test* results (*t* = 4.7, *df* = 8, p < .05, 95% CI for mean differences -8.90, -3.09, and *r* = .455) show that purposive writing skills of students with hearing impairment improved significantly after receiving writing intervention.

2) Mean and Standard deviation writing scores of students in Associative writing skill in pretest were (M = 14.6, SD = 3.12) and after providing writing interventions (M = 20.7, SD = 4.26). Paired sample t $test$ results (t = 3.7, df = 8, p< .05, 95% CI for mean differences -9.84, -2.37, and r = .163) show that associative writing skills of students with hearing impairment improved significantly after receiving writing intervention.

3) Mean and Standard deviation writing scores of students in "Avoidance of writing" in pretest were (M = 17.3, SD = 4.89) and after providing writing interventions (M = 23.2, SD = 5.26). Paired sample t $test$ results (t = 3.07, df = 8, p< .05, 95% CI for mean differences -10.3, -1.43, and r = .351) show that avoidance of writing of students with hearing impairment improved significantly after receiving writing intervention.

4) Mean and standard deviation writing scores of students in "Development of Ideas" skill during pretest were (M = 14, SD = 2.06) and after providing writing intervention were (M = 24, SD = 2.54). Paired sample t $test$ results (t = 12.5, df = 8, p< .05, 95% CI for mean differences -11.8, -8.15, and r = .476) show that idea generation of students with hearing impairment improved significantly after receiving intervention.

5) Mean and standard deviation writing scores of students in "Recollection of goals" while in pretest were (M = 15.6, SD = 3.35) and after intervention changed to (M = 21.6, SD = 3.16). Paired sample t $test$ results (t = 3.7, df = 8, p< .05, 95% CI for mean differences -9.66, -2.23 and r = .071) show that recollection of goals for students with hearing impairment improved significantly after receiving writing intervention.

6) Mean and Standard deviation Writing scores of students in "Cueing/prompting" dependence before intervention were (M = 10.5, SD = .8) and after providing interventions improved to (M = 22.5, SD = 4.82). Paired sample t $test$ results (t = 8.37, df = 8, p < .05, 95% CI for mean differences -15.30, -8.69 and r = .653) show that dependence on "cueing/prompting" of students with hearing impairment improved significantly after receiving writing intervention.

7) The pre and post test scores of students in "Cohesiveness skill" were (M = 15.7, SD = 2.72) and (M = 19.3, SD = 3.60) respectively. Paired sample t $test$ results (t = 2.83, df = 8, p< .05, 95% CI for mean differences -6.99, -.11, and r = .021) show that Cohesiveness writing skills of students with hearing impairment improved significantly after receiving writing intervention.

8) The pre and post test scores of students in "Coherence writing skill" were (M = 15.5, SD = 3.43) and (M = 20.0, SD = 2.44). Paired sample t $test$ results (t = 2.91, df = 8, p < .05, 95% CI for mean differences -7.90, -.98and r = .149) show that coherence writing skills of students with hearing impairment improved significantly after receiving writing intervention.

Table 2

Mean, Standard Deviation and Comparison of "Translating" aspect

	Pre test Scores			Post test scores		95% CI for mean difference	*r*	*t*	*df*
	M	*SD*	*N*	*M*	*SD*				
Vocabulary	14.6	4.06	9	21.5	3.28	-11.3, -2.44	0.288	3.57*	8
Spellings	15.3	3.53	9	21.4	3.64	-8.73, -3.49	0.55	5.38*	8
Mechanics	16	3.67	9	21.5	5.72	-10.43, -.67	0.143	2.62*	8

*p < .05.

9) The pre and post test writing scores of students in "Vocabulary" skills were (*M* = 14.6, *SD* = 4.06) and (*M* = 21.5, *SD* = 3.28) respectively. Paired sample *t test* results (*t* = 3.57, *df* = 8, p< .05, 95% CI for mean differences -11.3, -2.44, *r* = .288) show that Vocabulary writing skills of students with hearing impairment improved significantly after receiving writing intervention.

10) The pre and post test writing scores of students in "Spellings" skill were (*M* = 15.3, *SD* = 3.53) and (*M* = 21.4, *SD* = 3.64) respectively. Paired sample *t test* results (*t* = 5.38, *df* = 8, p < .05, 95% CI for mean differences -8.73, -3.49 and *r* = .550) show that spellings skills of students with hearing impairment improved significantly after receiving writing intervention.

11) The pre and post test writing scores of students in Mechanics skill before intervention (*M* =16.0, *SD* = 3.67) and after were (*M* = 21.5, *SD* = 5.72) respectively. Paired sample *t test* results (*t* = 2.62, *df* = 8, p< .05, 95% CI for mean differences -10.43, -.67 and *r* = .143) show that mechanical skills of students with hearing impairment improved significantly after receiving writing intervention.

Table 3

Mean, Standard Deviation and Comparison of "Reviewing" aspect

	Pre test Scores			Post test scores		95% CI for mean difference	*R*	*t*	*df*
	M	*SD*	*N*	*M*	*SD*				
Ability to evaluate	11	1.58	9	13.4	1.66	-4.55, -.33	-0.47	2.67*	8
Ability to revise	10.3	0.7	9	12.3	1.5	-3.38, -.61	-0.23	3.32*	8

*p < .05.

12) The pre and post test writing scores of students in "Ability to evaluate" were (M = 11.0, SD = 1.58) and (M = 13.4, SD = 1.66) respectively. Paired sample *t test* results (t = 2.67, *df* = 8, p< .05, 95% CI for mean differences -4.55, -.33 and r = .47) show that the ability to evaluate improved significantly after receiving intervention for writing.

13) The pre and post test writing scores of students in "Ability to revise" were (M = 10.3, SD = .70) and (M = 12.3, SD = 1.50) respectively. Paired sample *t test* results (t = 3.32, *df* = 8, p < .05, 95% CI for mean differences -3.38, -.61, r = .23) show that student's ability of students with hearing impairment to revise improved significantly after receiving writing intervention.

Discussion

The key objective of this study was to develop an analytical tool that could readily predict and reflect upon the errors in writing for deaf students, and could come handy while during explicit instruction for writing. Since students with deafness are confronted with the challenges in terms of vocabulary, a staggering behavior of writing remains an agenda of concern for teachers. The intervention attempted during this study has been previously recommended in literature since the traditional ways were reported to be of lesser benefit. According to Ferretti and Lewis (2012); Graham and Perin (2007a); and Perin (2007), the disadvantaged writers continue to struggle irrespective of their element of aging thus asking for an intervention in terms of explicit strategic support and scaffolding. The difficult processes involved in writing can be successfully supported by self regulated strategy instruction as is repeatedly evidenced in research (Graham et. al., 2013).

The developed tool during this study talks about identified variables of planning, translation and reviewing. Literature can be evidenced for a number of possible elements that can serve as changing agents for a better writing. The sub variables identified for pre writing, during and after writing stages in this study (Figure 1) have been previously utilized in varied combinations depending upon the nature of tools itself, i.e. syntactic and qualitative. While learning the expressive forms of language, i.e. speaking and writing, general heuristics including goal setting, organizing, analyzing and modifying, can benefit struggling writers. (Graham, et al. 2013). With reference to some recent models with substantial empirical evidence, a respectable written composition depends on the writers' ability to set goals, create plans, draft text, and make appropriate revision; (Alamargot & Chanquoy, 2001; McCuthen, Teske, & Bankston, 2008; Oling house & Graham, 2009). The tool developed in this study benefitted from utilizing both the different agenda of quality and quantity aspects of a writing tool mentioned in literature mentioned above.

The intervention during this study was based on cognitive and behavioral models. Students, during this study, were engaged through cognitive quarters as well as corridors of social domains. Self Regulated Strategy Development (SRSD) (Harris & Graham, 1996; MacArthur, 2011) model signifies strategies that are based on personnel model of learning development. The strategy deals with activities in which the students are engaged by providing and enhancing learning experiences while keeping their motivation intact. According to Harris and Graham, (1996) and MacArthur, (2011), SRSD models improve competencies in writing by improving students strategic behavior, content awareness, motivation and self regulation skills. Meta analytic studies conducted by Graham and Perin, (2007a), Lienemann, Graham, Leader-Janssen, & Reid, (2006); and Saddler (2006), have also reported a positive and stronger impact of cognitive strategy instruction on the writing skills of the challenged writers as attempted in this study.

Conclusion

The tool for writing evaluation has been found efficient as is evidenced in the results above. The tool, when applied on a written output, successfully identifies the elements of qualitative and syntactic aspects to the effect. The major three elements of planning, translating and reviewing with their respective sub-variables have significantly improved after this explicit intervention. A conclusive evidence has been achieved which signifies the efficacy of the tool itself. Although Urdu writing skills development for the deaf has not been emphasized through a purposive engagement similar to this study, the tool has established itself as a workable model. It can be inferred that by developing a focus on these variables, while instruct for writing through explicit teaching, writing skills in deaf students can be improved. The writing competency and motivation of students can be increased if this systematic tool is utilized at the levels of evaluation and instruction.

Recommendations

The tool developed can serve as an effective model for both diagnostic and therapeutic purposes. An effective utilization for formative, summative and functional level of usage for the respective audience is recommended. It is hoped that the use will enable the teachers to find the intricacies linked to writing and will help bridge in between the odds. The teachers on the other hand are also recommended to make use of this respective tool while developing IEP's for writing instructions. The applicability of the tool should also be verified on a larger group of students with writing challenges in lower grades. Further, a study in line with this effort should be carried out with a different age group and a wider sample.

Finally, it is recommended that a computer based software may be developed in line with the prescribed elements of this tool. Likewise, a mobile app location may also be handy with these credentials for a friendly assessment and functional use of writing. The examples of such functional writings may include sending emails, making notes, reminders and communicating through social media.

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