Specific Language-Impairment (SLI) and Literacy: Teachers' Knowledge and Practice.

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Specific Language-Impairment (SLI) and Literacy:

Teachers' Knowledge and Practice.

This research project purposed to examine the knowledge and practice of early elementary teachers (K-2) regarding Specific-language impairment (SLI), and its connection to early literacy development. It has been established that there is a link between written and oral language. Oral Language shares a close relationship with literacy (Birsh 1999; Catts 2005; Snowling & Stackhouse 2006; Snow 1998). This research paper focused on the language disorder Specific Language-Impairment (SLI), which Bishop (2000) defines, "Children who display sign of limitations in language abilities in the absence of accompanying hearing impairment, low nonverbal intelligence scores, or neurological damage are described as specifically language impaired (SLI)" (p. xii). When students have developmental language disorders such as SLI there are delays in oral growth which reduces experience with expressive language. Lack of experience may result in deficits in emergent literacy essentials, the most commonly phonological awareness and vocabulary knowledge (Bishop 2000; Snowling & Stackhouse 2006). Phonological awareness has been found to be important to literacy achievement. A student having a deficit in this area puts them at risk for reading difficulties (Adams1990; Bishop 2000; Hay 2007, Schuele 2008; Snow 1998, Snowling & Stackhouse 2006). Students use phonemes, part of phonological awareness, to sound out word spelling (decoding), essential in connecting speech to print knowledge, and directly related to literacy. Due to reduced experience and familiarity of spoken words, students with SLI have a reduced vocabulary, further hindering literacy.

Early assessment and intervention is essential in treating both expressive language and literacy disabilities (Snow, 1998). Phonological awareness can be measured as early as age two. Putting off assessment and intervention too long, Catts (2002) states, can have negative literacy effects: "It has been observed children that do not lose the verbal impairment by age 5 are also at increased risk for later problems in literacy" (p.13).

The early elementary teachers' knowledge and experience with oral development, disabilities, and the connection of oral and written language is the catalyst to early intervention for students. Teachers in early elementary grade levels (K-2) are the instructors for children's early literacy and responsible for preventing and remediating early reading difficulties (Snow & Scarborough, 1999). Under their guidance, students connect speech ideas into print concepts. Wright states qualifications teachers should possess to work with students with a language disorder as: communication and language development, affects of communication on student learning, plan and implementation of curriculum taking in account a student's communication needs, evaluation of inter-professional intervention and evaluating their own spoken and written communications skills with students and parents (Wright & Kersner, 1998). To accomplish this important job teachers need the proper resources such as training, administrative, and professional support.

Collaboration with different professionals is essential to increase knowledge/training and support for teachers (Campbell, 2007). The Speech and Language Pathologist (SLP) is the best resource a teacher could have when addressing SLI and literacy issues (Hammond & Prelock, 2005). SLP knowledge can help teachers develop and implement developmentally appropriate literacy goals, and educate them

about oral development (Roth &Baden, 2001). Teachers with the adequate resources can include students' oral goals and literacy instruction together holistically to avoid reading disabilities. This research project surveyed early elementary teachers (K-2) to find out if collaboration between school SLP and the classroom teacher is happening. Are teachers knowledgeable about SLI and its connection to literacy? Do teachers have the resources to contend with the assessment and intervention of SLI and poor literacy achievements? Do they have an understanding of communication and language development?

Chapter 2 Review of Literature

This review pertains to current literature on early elementary teacher knowledge and practice regarding Specific Language-Impairment (SLI), and its connection to early literacy development. It integrates the importance of teacher training, resources to complete assessment, and implementing intervention with collaboration between Speech-Language Pathologists (SLP) and issue priority by school administrations.

Dockrell and Lindsay (2001) executed a study interviewing 69 third-year teachers currently with students with SLI. It mainly addressed the teachers' understanding of specific speech and language difficulties, and their training and experience of students in applicable areas. The results showed forty percent of the teachers interviewed not able to define SLI, with only one teacher giving a comprehensive definition. Teachers self reported their experience, working with students with SLI, as lacking in understanding the nature of the problem, issues of appropriate intervention, and delegation of responsibility. Dockrell and Lindsay (2001) concluded from their research teachers had received no formal instruction pertaining to Specific speech and language delay (SSLD), and knew they generally lacked the skills to effectively service them.

Early signs of a student having difficulties are frequently apparent by defects in phonological awareness and vocabulary, important in the foundation of successful literacy achievement (Bishop, 2000; Snowling & Stackhouse, 2006). Teacher knowledge of literacy and student instruction concerning developmental language delays, such as SLI, was also at question. Absence of experience puts students with SLI at risk for poor literacy achievement. Greater teacher knowledge of literacy development and the oral connection hugely aids handling of deficits.

Moats (1994) explained phonological awareness as the best predictor of later reading success. She states solidly the degree of phonological awareness as the best predictor of reading success. Moats surveyed 89 teachers attending her course for teachers. In surveys given at the beginning of six different sections of her course, participants averaged five years teaching experience. Main areas addressed were terminology, phonic knowledge, phoneme and morpheme. She requested in-depth answers to the survey questions to expose any misconceptions or absence of information. From her results she concluded experienced teachers lack understanding of language structure and differences between speech and print, and would therefore be inherently unable to effectively teach beginning readers or students with disabilities.

Moats (1994) gave examples why knowledge of spoken and written language is important for teachers. Knowledge allows teachers to use the best examples to explicitly instruct students in decoding and spelling, organizing the instruction by difficulty to allow for slow progression, avoid stress, and to replicate the natural development of learning. Then, infer areas of difficulty from a student's error patterns, and respond with specific and appropriate instruction. Understanding the meaningful parts in words,

showing students the roots of words, and reasons behind their spelling greatly benefits

student literacy achievement (1994).

Bernhardt and Major (2005), completed a follow-up study looking at children

who previously participated in a phonological intervention program in preschool.

Originally, groups of 19 preschoolers, with moderate to severe phonological

impairments, took part in a 16 week intervention (45 minutes, 3 times a week) that

included treatment in speech sounds, and syllables. The follow up intended to document

the later speech, language, and literacy. Twelve of the original group participated in the

follow-up, consisting of 9 tests covering phonology, meta-phonology, language

compensation and production, and reading and spelling. "The results were very positive

most children performed within normal limits on a number of speech, language and

literacy tasks, in spite of early history of phonological impairments and delay in language

production" (p.23) This test provided an example of how early and intense intervention

can led to successful literacy achievement. Children received much needed intervention

and showed marked improvement (Bernhardt & Major, 2005).

Therefore, further training for early elementary teachers to contend with

assessment and implementing of intervention needed for students' with is needed.

Petterson (Kersner & Wright, 2001) promotes such training and states, "This may

encourage generalization of specific speech and language work across different

environments "(p.116). Training depends on specific needs and resources available,

possible discussions with colleagues, staff or team meetings, or in-service sessions

(Kerser & Wright, 2001). With greater knowledge of language development, teachers can

incorporate oral goals into the classroom daily in a supportive environment, encouraging

oral interaction, providing positive feedback, and building oral language skills through literacy topics (Choate, 2004). Increasing the services a student receives improves student academic and social success.

Hammond and Prelock (2005), and Roth and Troia (2006), emphasized involvement and collaboration with the Speech-Language Pathologist (SLP). The SLP is the best resource a teacher could have when addressing SLI and literacy issues, *"SLP's might participate in literacy development as a planning team member, provide direct services to identified students, and collaboratively consult with general educators and other resource professionals to incorporate developmentally appropriate literacy activities into the classroom curricula"*(Hammond & Prelock, 2005, p. 3). A collaborative consultation relationship benefits both professionals. Roth and Troia (2006) described the emergent early goals of the SLP and teachers, and the benefits of collaboration:

> *"Professionals in each discipline bring unique knowledge and resources to this goal, which, when teamed, provided integrated educational programming to maximize the learning potential of youngsters. Despite time constraints and resource issues, collaboration service delivery models hold many advantages for professionals in the early childhood education setting."*(p.37)

To begin consultation and collaboration the teacher and SLP must establish a relationship with brief informal conversations about student progress, continually gathering information. Current goals and progress of individual students with SLI should be readily available to either professional. Consultation may develop to include assistance in planning, and implementing of curriculum modifications if needed. The SLP and teacher can model therapy/instruction towards better oral and literacy development. An equal consultant relationship kept voluntary surely will produce effective collaboration.

Ehren (2000) stated educators should collaborate with the SLP once a grading period to discuss oral goals.

> "Clearly, when general educators teach subjects called language arts or English, they are in the domain of language. The content and processes of language are the same regardless of who is involved. It does not make sense to parse out pieces of language by role. It would be arbitrary to say that the speech-language pathologist with syntax and the teacher does not, or that because teachers teach grammar, the SLP need not be concern with it. (p. 220)".

Miller (1999) wrote about some barriers to successful collaboration including differing professional framework, limited time, and little understanding of the collaboration process. An SLP's medical jargon and a teacher's educational jargon differ widely. Lack of understanding of the others party's profession can inhibit collaboration. "Speech and language therapists, who in some countries are known as 'Pathologists', and often refer to individuals as 'patients'…they engage in 'diagnosis' and prognosis' and frequently conclude that a person has a 'disorder' "(Miller, 1999, p.143). Using clear language understandable to everyone is absolutely necessary to successful collaboration.

Wright and Krasner (1998) added time as another barrier to collaboration. Often a SLP works in several schools and can spend only a few days in any one school. For the teacher, "having to liaise and share information with yet another professional (the speech and language therapist) may seem like an unacceptable extra task" (Wright & Krasner, 1998, p.40).

Risko and Bromley (2001) said, "Sound communication skills are at the heart of collaboration" (p.23). Other qualities necessary include problem solving, planning, and the process in which individuals follow to accomplish goals (Risko & Bromley, 2001; Friend & Cook, 2007).

School administrators can provide continued professional development, with in-service training covering collaboration, oral, and literacy development (Wright & Kersner, 1998). School administration assistance is the second support essential to early elementary teachers, when working with students with SLI. School administrations could set aside 15min during the school day for collaboration, time possible recovered by eliminate gaps and overlaps in curriculum. Administration should value and encourage collaborative in the school, and have the authority to supervise collaboration teams and arrange times for meetings. Administration could offer incentives for participating in collaborative activities, as explained by Montague and Warger (2001),

> "*the principal might hire a permanent substitute teacher to support teachers who need to be away temporarily from their class for collaborative activities. Releasing teachers from time-consuming duties such as recess and cafeteria duty may provide additional incentive for teachers to participate.*" (p.29)

Clearly current research, as of this study, shows correlation between speech development and literacy development, and outlines collaboration and further education as methods to better service students with speech delays. This study aimed to determine teacher understanding and practices.

Chapter 3 Methodology

This study aimed to determine early elementary teacher knowledge and the amount of support they provide concerning developmental language impairment, particularly Specific Language Impairment (SLI). This section looks at the participatants, the data collection procedures, the survey and its target areas, and the method of data analysis.

Surveyed were three Southeastern Ohio public elementary schools, choosing teachers of kindergarten through second grade students. The study anticipated to recruit 21 participatants from elementary "A", located in a rural area. As of a 2000 census area population was 2,525 people, with 1,103 households, 659 families, and a population density of 1,396.1 people per square mile. Median family was $29,349. Per capita village income was $13,138. About 16.3% of families, and 24.1% of the population, were below the poverty line, of which 30.4% were under the age 18 and 17.6% over age 65.(Wikipedia, 2008).

The study participants from elementary "B" were 15. Also in a rural area, its student body is comprised from consolidation of a small town and nearby township. As of the 2000 census population was 5,230 people, with 2,036 households, 1,060 families, and population density was 1,051.9 people per square mile. Median family income was $27,122. Per capita village income was $11,552. About 22.9% of families, and 33.9% of the population were below the poverty line, of which 41.5% were under the age 18 and 16.9% over age 65(Wikipedia, 2008).

The study anticipated nine participants from elementary "C". This school is in a city area. As of the 2000 census population was 2,931 people, with 1,224 households, 714 families, and population density is 1,275.8 people per square mile. Median family income was $44,761. Per capita city area income was $17,164. About 13.3% of families, and 17.7% of the population, were below the poverty line, of which 18.9% were under age 18 and 14.8% age 65 (Wikipedia, 2008).

Recruitment of the anticipated 45 participatants initially required pre-approval from school principals by telephone. School district locations were based on proximity to the researcher. Three principals allowed for participation.

With the consent of the three school principals and approval by the Ohio University Institutional Review Board (IRB) surveys were delivered to the school, and principals or assistant principals signed a consent form permitting distribution to K-2nd grade teachers in their school. Included with each survey were brief cover letters explaining the subject and instructions for participation, and a consent form with separate envelopes for survey and consent form, to assure confidentiality (See appendix). Upon completion they deposited surveys in provided envelopes located in their school office. After a two week deadline to complete surveys, the researcher retrieved completed surveys. All data was destroyed after research completion.

A 16-item survey was developed for this study after the researcher reviewed current literature. Items were divided into five sections covering demographics and main areas of interest. Section one (1-3) addressed information about participant background including level of education, date completed, and total years teaching experience. Section two contained five questions (4-7) pertaining to teacher understanding of communication and language development. Section three contained two questions (9-10) pertaining to teacher knowledge of developmental language disorders such as Specific Language-Impairment (SLI) and its connection to literacy. These questions intended to determine early elementary teachers' knowledge of Specific Language-Impairment (SLI) and its connection to literacy. The fourth section contained three questions (11-13) addressing collaboration between teachers and in school Speech-language Pathologist (SLP), and

intended to determine amount of collaboration between school Speech-language Pathologist (SLP) and the classroom teacher. The final section of the survey contained three questions (14-16) covering resources available to teachers to contend with assessment and intervention of developmental language disorders such as (SLI), and poor literacy achievement.

Analysis of the first section containing demographics was by percentages of responses. The last four sections used the Likert-type 5-point scale, with a range of high level to low level. Results were added and a mean calculated for each school. Cutoffs were set for interpreting the high level/ low level of the survey questions. Means ranging from 5.00 to 3.51 were interpreted as a high level, means ranging 3.50 to 2.50 were interpreted as neither high nor low responses, and means ranging from 2.49 to 1.00 were interpreted as low level responses to the survey questions.

The results intend to determine differences and similarities in teachers' understanding of communication and language development and literacy connections, and show the supports available pertaining to speech and language development by their responses.

Chapter 4 Results

Thirteen participants completed the survey, a 29.9 % return rate. Data was completed on the total number of surveys returned (N= 13/45). Answers from section one of the survey, on background, were analyzed by percentage and frequency.

Most commonly teachers held masters degrees, 69.2 % (N= 9/13), with the additional 30.8 % (N= 4/13) of respondents with bachelor degrees. Background information showed the majority of survey respondents completed degrees between 1983

and 2002, and 92.3% (N= 12/13). Forty-six percent (N= 6/13) had 25 or more years of

teaching experience. The remainder evenly divided among three groups of 11-14 years

(15.4%; N= 2/13), 15-20 years (15.4%; N= 2/13), and 21-24 years (15.4%; N= 2/13) of

teaching experience (see Table. 1).

Table 1.Section 1Responses

N=13	Percentage	Number
1. Highest level of education		
Masters Degree	69.2%	9
Bachelor Degree	30.8%	4
2. Year completed		
1973-1982	8%	1
1983-1992	31%	4
1993-2002	31%	4
Since 2002	31%	4
3.Total years of teaching experience		
5-10 years	8%	1
11-14 years	15%	2
15-20 years	15%	2
21-24 years	15%	2
25-30 years	15%	2
More	31%	4

Survey participant responses to the subsequent four sections of the survey follow,

and appear in Table.2 (see Table 2). From section two, understanding of communication

and language development, teachers reported a mean of 3.21, with a standard deviation of

0.12. This falls in the "uncertain" (M=3.21; SD= 0.12) range. From section three, SLI

and literacy connection, teachers reported a mean of 4.56, with a standard deviation of

0.14. This falls in the "high level" (M=4.56; SD= 0.14) range. From section four,

collaboration and school SLP, teachers reported a mean of 3.23, with a standard deviation of 0.43. This falls in the "uncertain" (M=3.23; SD= 0.43) range. From section five, resources, teachers reported a mean of 3.21, with a standard deviation of 0.12. This falls in the "uncertain" (M=2.5; SD= 0.35) range.
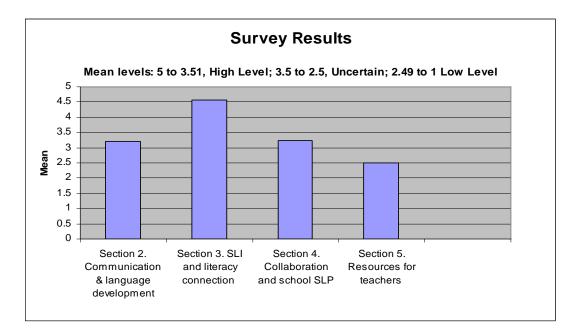
Figure 1. Surveys Response

Survey Results

Mean levels: 5 to 3.51, High Level; 3.5 to 2.5, Uncertain; 2.49 to 1 Low Level

Table 2. Survey Results

MEAN KEY: 5.00 to 3.51 High Level, 3.50 to 2.50 Uncertain, 2.49 to 1.00 Low Level	N=4 SCHOOL "A"		N=5 SCHOOL "B"		N=4 SCHOOL "C"		N=13 TOTAL	
SURVEY ITEMS	M	SD	M	SD	M	SD	M	SD
Section Two: Understanding of Communication and Lang. Development								
4. Familiarity of oral language development	4	0.71	4	0.63	3.75	1.09	3.92	0.12
5. Knowledge of oral language disorders such as SLI	3.25	0.83	3.25	0.4	2.5	0.5	3	0.35
6. Level of communication and language in initial teacher education	2.75	0.83	2	0.9	3	0.82	2.58	0.42
7. Classroom experience with SLI	3.75	1.09	3.6	1.02	3.25	0.83	3.53	0.21
8. Confidence in planning and integrating oral language therapy in curriculum	3	0.71	3.4	1.02	2.5	1.12	2.97	0.37
Total	3.35	0.46	3.24	0.67	3	0.47	3.21	0.12
Section Three: SLI and literacy connection								
9. Importance of students' oral development on academics	4.25	0.43	4.8	0.4	4.75	0.43	4.6	0.25
10. Likelihood students with speech delay will have poor literacy achievement	4.5	0.5	4.6	0.49	4.5	0.5	4.53	0.05
Total	4.37	0.12	4.7	0.1	4.62	0.12	4.56	0.14
Section Four: Collaboration and school SLP								
11. Understanding of speech-language services	4	0.71	3.4	0.5	3.25	0.43	3.55	0.32
12. Amount of time spent collaborating with SLP	3.25	1.8	2.2	0.4	3	0.71	2.82	0.45
13. Extent SLP keeps me up to date with students progess	4	1.22	2.5	1.5	3.5	0.5	3.33	0.62
Total	3.75	0.35	2.7	0.51	3.25	0.2	3.23	0.43
Section Five: Resources								
14. Training in communication and language development thru in-service	3	1.22	2.2	1.6	1.75	0.83	2.32	0.52
15. Resources available to contend with SLI and literacy	2.75	0.43	2	1.26	2.5	0.87	2.42	0.31
16. Importance school administration puts on collaboration between teachers and SLP	3	0.71	2	0.89	3.25	0.83	2.75	0.54
Total	2.92	0.12	2.07	0.09	2.5	0.61	2.5	0.35

Chapter 5 Discussion, Recommendations, Conclusions

Teachers reported high knowledge pertaining to language development delays and their impact on literacy achievement. But, they reported uncertainty in their understanding of communication and language development (M=3.21; SD=0.12). Current research shows a deficit in knowledge of literacy and oral development (Dockerell & Lindsay, 2001; Moats, 1994). Teachers see language delays and their impact on literacy achievement but remain largely ineffective because they know or understand little about language development.

The collaboration section of the survey (Section 4) reported in the range of "uncertain" (M=3.23; SD=0.43), with the lowest score given on amount of time spent collaborating with the speech language pathologist (M=2.82; SD=0.45). Current literature says time for teachers to collaborate with the SLP is a barrier to effective collaboration, which is needed to train early elementary teachers in language development and SLI (Montague & Warger, 2001; Wright and Kersner, 1998). Perhaps with administration appropriated time, or schedules for more formal collaboration, teachers may collaborate more amongst themselves and with the SLP.

Survey scores reported teacher resources at a low level (M=2.5; SD=0.35). Training in collaboration and language development from in-services scored the lowest of all questions asked (M=2.32; SD=0.52). Current research states school administration can provide continued professional development, with in-service training covering collaboration, oral, and literacy development (Wright & Kersner, 1998). Obviously administration in the three schools surveyed did not provide this at the time of the survey.

Resources available, to contend with SLI and literacy (M=2.42; SD=0.31) was also in the low range, the lowest the survey. Current research states the need for collaboration time, money for in-services, and administration support. Obviously teachers in the schools surveyed lack these needed resources.

The link between oral and written language development is established, in research and also in existing teacher knowledge. Teachers surveyed affirmed this with the highest rated answers of the survey (M=4.56; SD=0.14).

The results of this survey parallel existing research. Teachers recognized the associations between speech delays and literacy achievement, but lacked needed knowledge and understanding of speech development. Research states collaboration and resources as key to literacy achievement but teachers surveys report very little collaboration, especially with a SLI, and lack of time, in-service training, and administration support.

Limits of the study included the narrow geographical area of schools surveyed, as well as the relatively small number of surveys delivered. Census information of schools surveyed was similar. Additional data from urban areas or from a socioeconomically different pool of participating school systems might produce different results. Also, with only a 29% return rate of surveys, further study would benefit from a larger pool of consenting school administrations, and therefore a larger pool of participants and returned surveys. A longer more specific survey might also provide more data, but could cause lower return rate.

Chapter 6 Implications for Practice

The findings of this study help education professionals observe existing problems in student literacy achievement, levels of understanding among their peers, and gaps in practice and knowledge base. They can then take steps to fix apparent resource deficits and request money for additional pertinent education. It gives teachers, administrators, and speech language pathologists a push towards working to collaborate more, therefore avoiding curriculum overlap and saving time. With broadened knowledge the solution spreads from the SLP's office to the wider school day curriculum, thereby further increasing oral experience and building an overall much stronger literacy. Literacy improves, test scores improve, and education professionals have more resources available.

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