

Participation and Interaction of Deaf and Hard-of-Hearing Students in Inclusion Classroom

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Abstract

This study identified a variety of strategies that facilitate the participation and interaction of d/Deaf and hard of hearing students in the general education classroom at a public elementary school. In addition, it identified the issues that limit the participation of those students. Particularly, the study focused on describing factors related to general education teachers, sign language interpreter and d/Deaf and hard of hearing students, and hearing students, in order to develop a practical framework for assist students with hearing impairment to gain more social and communication skills. The data were collected through interviews and classroom observation. The finding indicates that d/Deaf and hard of hearing students face barriers that concern their participation and interaction in the general education classroom. Also, the findings identified specific strategies in order to facilitate the participation of d/Deaf and hard of hearing students in the general education classroom.

Keywords: *Classroom observation, Disability, General Education Classroom, Interview, Legislation*

Introduction

The number of d/Deaf and hard of hearing students who receive their education in general education classrooms with hearing students has rapidly increased (Eriks-Brophy & Whittingham, 2013; Luckner & Muir, 2002; Powers, 2002). According to the Gallaudet Research Institute (2004), the percentage of d/Deaf and hard of hearing students in local regular public schools in the United States has increase from 46% in 1977–1978 to 91% in 2002–2003. More specifically, the U.S. Department of Education (2013) reports that 14.1% of students with hearing impairment spend less than 40 percent of their school day in the general education classroom, and 16.7% spend between 40 to 70 percent of their time in the general education classroom, whereas 56.1% spend more than 80 percent of their day in the general education classroom. On the other hand, around 8.3% of students with hearing impairment are still educated in special schools for d/Deaf and hard of hearing students, 3.4% are served in separate residential facilities, 1.2% are parentally placed in regular private schools, 0.2% receive their education in homebound or hospital placement, and 0.1% are served in correctional facilities. Antia et al. (2009) predict that the percentage of students with hearing impairment in the general education classroom will continue increasing due to the use of early identification and intervention techniques, such as cochlear implants. Other scholars attribute the increase of the inclusion of d/Deaf and hard of hearing students into the general education classroom to three factors: financial pressures, parental expectations, and technological developments (Angelides & Aravi, 2007).

However, this change in the education of /Deaf and hard of hearing students is mainly due to the development of the legislation that supports inclusive education for students with disabilities (Stinson & Antia, 1999). For instance, the inclusion of d/Deaf and hard of hearing students in the United States began when the Disabilities Education Act (IDEA) was enacted (Villa & Thousand, 2000). The goal of IDEA is to provide appropriate education for students with disabilities and to assist them to improve their social skills in an appropriate environment (Colker, 2008). In specific, this law requires schools to provide all educational support to students with disabilities in the general education classroom.

Although there is an increase in placement of d/Deaf and hard of hearing students in the general education classroom in many countries (Standley, 2007; Stinson, Antia, 1999), numerous studies have shown that those students experience difficulties participating and interacting with general education teachers and hearing peers (Levy-Shiff & Hoffman, 1985; Stinson & Liu, 1999). For example, some studies have indicated that inclusion of d/Deaf and hard of hearing students in regular education classrooms contributes to the loneliness and social isolation of students with hearing impairment (Newcomb & Bagwell, 1995). Further, some studies emphasized that inclusion has a negative influence on d/Deaf and hard of hearing students' communication and interaction skills, as well as on their academic achievements (Stinson & Antia, 1999).

A literature review indicates many possible factors, including communication barriers, teachers' attitudes and knowledge about inclusion and disabilities, hearing students' awareness about deafness, and the classroom organization, that might limit the participation and interaction of d/Deaf and hard of hearing students in general education classrooms (Antia, 1985; Antia, Kreimeyer, & Eldredge, 1994; Garrison, Long, & Stinson, 1994; Saur, Popp-Stone, & Hurley-Lawrence, 1987). Hence, it is important that all staff in schools, particularly teachers, who work

in the inclusive education classroom, create conditions and develop a variety of strategies that eliminates barriers facing d/Deaf and hard of hearing students' participation. Moreover, teachers need to develop a regulatory framework in the classroom which helps students to promote positive interaction between d/Deaf and hard of hearing students and hearing students (Stinson & Liu, 1999). In addition, general education teachers and teachers of students with hearing impairment are required to provide information to hearing students about deafness and characteristics of d/Deaf and hard of hearing students in order to improve their awareness, as well as to encourage them to talk and interact with each other (Newcomb & Bagwell, 1995; Stinson & Lang, 1994).

Research Problem

The number of d/Deaf and hard of hearing students who are educated in general education classrooms has significantly increased (Eriks-Brophy & Whittingham, 2013). Therefore, there is an urgent need to identify all key issues concerning their participation and interaction in general setting. Several studies indicated that d/Deaf and hard of hearing students experience difficulties participating and interacting with general education teachers and hearing students (Levy-Shiff & Hoffman, 1985; Stinson & Liu, 1999). The purpose of the present study is to identify the barriers that concern the participation of students with hearing impairment in inclusive education setting, as well as to identify strategies that facilitate their interaction with their hearing peers and teachers. Furthermore, the present study identified appropriate accommodations that assist d/Deaf and hard of hearing students to participate and interact effectively in the general education classroom.

Theoretical Framework

Vygotsky's theory (1987) was employed as the framework of this study to explore the participation and interaction of students with hearing impairment in general education classroom. This theory indicates that social interaction leads to cognitive development. Particularly, the collaboration and interaction with more capable peers is an effective way of developing skills and strategies. For Vygotsky, the learning context has a strong impact on learning and development. This theory, in specific the concept of zone of proximal development, emphasizes that teachers in the classroom are responsible for structuring interactions between students. In addition, they are responsible to guide the students through the tasks associated with learning a concept. It will be very important to see how d/Deaf and hard of hearing students participate and interact with hearing students in the general education classroom and how the teachers provide varied methods of instruction that allow students to participate and interact with each other.

Research Setting and Participants

This study was conducting in inclusive education program for d/Deaf and hard of hearing students at public elementary school in Ohio state. This school has 17 teachers of d/Deaf and hard of hearing students, 15 full-time general education teachers, and three full time sign language interpreters. This program provides a variety of support services, including: speech therapy, audiology, amplification, sign language interpreters, instructional assistants, work study services, and counseling; to 50 /Deaf and hard of hearing students from grades K to 5. Those students begin their preschool and kindergarten in self-contained classrooms with a maximum of seven students. When they move to first grade, their parents, based on the Individual Education Plan (IEP) of their child, assessment and achievement in the self-contained classroom, make the

decision whether the student continues in the self-contained classroom or moves to a general education classroom with the sign language interpreter. This program provides different levels of inclusion in the general education classrooms, ranging from students being on their own with little support, to situations where a group of students goes into a general education setting with a teacher of students with hearing impairment. Deaf and hard of hearing students in general education classroom always use total communication method in order to participate and communicate with teachers and hearing peers.

For this study, two general education classrooms were selected. The participants were two general education teachers, one sign language interpreter and four d/Deaf and hard of hearing students. The teachers of the 3rd and 5th grade classrooms have a master's degree in education, and both are teaching all subjects in this school. The teacher of the 5th grade has been teaching students from grades 3 through 5 for 29 years. The other 3rd grade teacher has been teaching students from grades 3 through 5 for 25 years. Both teachers have lengthy experience teaching students with hearing impairments in their classrooms. The interpreter has a two-year diploma in American Sign Language and mainly works with students in the general education classroom. She has four years' experience working in elementary and middle schools.

In addition, four students with moderate to profound hearing losses were observed in this study. One student attended a 5th grade general education classroom on a full-time basis with supportive services under the responsibility of general education teacher. The student has moderate hearing and she wears hearing aids in the classroom. The other three students are included only in math class in the 3rd grade general education classroom. One of the three students had a cochlear implant, and he can speak a little bit. The other two students have profound hearing loss and wear hearing aids.

Research Methods

The ethnographic design was used to conduct this study (Pole & Morrison, 2003). The data were collected using semi-structured interviews and classroom observations (Heath & Street, 2008). The researcher interviewed two general education teachers and one sign language interpreter. Each interview lasted from 18 to 25 minutes. The interviews were mainly conducted to determine the story behind a participant's experiences, as well as to obtain important information on the research's issue (MacNamara, 2009). All the interviews were audio recorded, and the participants were asked five questions: 1) What are the key issues that influence the participation of d/Deaf and hard of hearing students in general classes? 2) What are the barriers to social interaction and development of peer relationships between d/Deaf and hard of hearing students and hearing students in the general education classroom? 3) What is the teacher's role in improving the d/Deaf and hard of hearing students' participation in the general education classroom? 4) What are the most successful strategies that promote the participation of d/Deaf and hard of hearing students in the general education classroom? 5) What factors beside the teachers' strategies can facilitate the participation of d/Deaf and hard of hearing students in the general education classroom? The interviews were important in order to identify some themes that assist the researcher when starting classroom observations.

The classroom observations were conducted three times for each grade, 3rd and 5th, once a week. Two observations in the 3rd grade were videotaped and other observations were conducted without videotaping. The researcher videotaped the participation and interaction of three d/Deaf and hard of hearing students in the general education classroom, as well as the sign language interpreter. Each classroom observation was 50 minutes, and detailed field notes about

students' interaction and participation, as well as the interpreter and teachers' instructional strategies, were taken during each one. Particularly, the main goal of the classroom observation was to observe 1) the participation and interaction of d/Deaf and hard of hearing students, 2) the effect of the general education teacher's attitude, knowledge, strategies and collaboration on the participation of d/Deaf and hard of hearing students, 3) the role of the sign language interpreter in terms of improving the communication and interaction between students with hearing impairment and general education teachers and hearing students, 4) hearing students' acceptance of d/Deaf and hard of hearing students and their interaction with them.

Preliminary Findings and Interpretations

Analysis of interviews and field notes revealed different issues that are explicitly linked to the research's problem and to the research's questions. This section is comprised of two parts. The first one focuses on analyzing and interpretation of interview data; the second part includes analyzing and interpretation of observational classroom data.

Interview Data Analysis

Analysis of interviews data revealed two themes: 1) issues related to school, including the general education teachers and the sign language interpreter, 2) issues related to students with hearing impairment and hearing students. To support the analyzing and interpretation in this section, quotations from the interviewees' speech were used.

Issues Related to Teacher and Interpreter

The data collected from the interviews with the teachers and interpreter reveals that there are some barriers facing the participation of d/Deaf and hard of hearing students in the general education classroom. They indicated some teachers may not have the knowledge about deafness and the characteristics of the d/Deaf and hard of hearing students. In addition, some teachers have lack of skills of how to structure classroom activities that facilitate the participation and interaction of d/Deaf and hard of hearing students in the general education classroom. For example, some teachers have a lack of collaboration skills, which influences their collaboration with the teacher of students with hearing impairment, as well as with the interpreter. Teacher 2 stated,

Some teachers do not have experience or they feel nervous that they do wrong for deaf and hard of hearing students. They spend as much time thinking what they are doing is not right.

Teacher 1 added,

"Teachers sometimes speak fast so the deaf students fall behind because they cannot keep up with the teacher's speed."

Another barrier facing d/Deaf and hard of hearing students in the general education classroom is teachers' negative attitudes. This sometimes refers to the lack of teachers' awareness and knowledge about the characteristics of d/Deaf and hard of hearing students. Participants emphasized that the teachers' negative attitude often affects the attitude of hearing students toward their d/Deaf and hard of hearing peers. When the hearing students see their teachers treat the d/Deaf and hard of hearing students as unimportant members in the classroom, this decreases the interaction and communication between students. The interpreter explained,

Hearing students usually follow their teacher's attitudes toward the d/Deaf and hard of hearing students. Teachers who have positive attitudes and treat d/Deaf and hard of hearing students as vital members, this encourages students to interact and communicate with each other. Also, this encourages d/Deaf and hard of hearing students to participate and raise their hand to participate.

Further, participants agreed that the teachers who have positive attitudes often try to engage d/Deaf and hard of hearing students in their classroom. They ask them questions, communicate with them individually, and encourage them to participate in classroom activities. The interpreter indicated,

"I think the general classroom teacher should try to engage the d/Deaf and hard of hearing students by asking them questions and then give them some time to answer."

Additionally, the teachers indicated that one of the teachers' responsibilities is improving their hearing students' awareness about deafness and sign language. It is important to provide information about the characteristics of d/Deaf and hard of hearing peers, hearing aids, and how they can support them in the classroom. Some teachers attempt to assist hearing students to understand the best way to communicate with d/Deaf and hard of hearing students. The interpreter pointed out,

"Some general classroom teachers ask me to teach hearing students sign language. Some of them try to improve the communication and interaction of d/Deaf and hard of hearing students in their classroom."

Vygotsky's (1978) concepts of zone of proximal development indicated that the teacher is responsible for structuring interactions between students, as well as to guide the students through the tasks associated with learning a concept. Moreover, Vygotsky explained the scaffolding concept, in which the teacher helps to arrange the classroom context so that students can participate and socially interact with each other. Participants in this study assert that teachers who have knowledge about deafness and skills of teaching d/Deaf and hard of hearing students can develop different classroom activities in order to facilitate the participation and interaction of d/Deaf and hard of hearing students. Teacher 1 suggested,

One of the best strategies to assist d/Deaf and hard of hearing children to participate in the general classroom and communicate with hearing students is working in small group activities. The deaf student usually communicates and interacts with hearing students when they work in small groups.

Similarly, the participants illustrated the important role of the interpreter in facilitating the interaction between d/Deaf and hard of hearing students and hearing students in the small group activities. According to the teachers, the interpreter often leads the discussion and the activity so s/he is supposed to collaborate effectively with the teachers as well as to encourage both d/Deaf and hard of hearing students and hearing students to participate and communicate with each other.

The collaboration between the general education teacher and the interpreter is a significant issue to facilitate the participation of d/Deaf and hard of hearing students in the general education classroom. Participants asserted that teachers and interpreters are responsible

to discuss the issues that concern d/Deaf and hard of hearing students, such as where the student should sit and what the activities are that should be done. The interpreter indicates, *The collaboration between teacher and interpreter is huge because the role of the interpreter is significant in how to assist d/Deaf and hard of hearing students to facilitate their participation and complete their tasks. It is difficult for the teacher to watch all students in the classroom because sometimes the class has more than 30 students, so the interpreter plays a significant role to facilitate the learning of d/Deaf and hard of hearing students and keep the teacher aware of their challenges.*

Teacher 2 added,

The interpreter is a person who d/Deaf and hard of hearing students feel comfortable to talk to. The interpreter usually helps to build their confidence in being signed and speaking up in the class and to use their own language to communicate. Also, the interpreter sometimes sits and helps the students if they do not understand something.

Issues Related to Deaf and Hard of Hearing Students and Hearing Students

All participants agreed that spoken language difficulty is the greatest challenge facing the participation and interaction of d/Deaf and hard of hearing students in the general education classroom. For Vygotsky (1987), using language, particularly verbal speech, is the most important tool to facilitate the communication and interaction. According to this theory, the private speech begins with students from age seven where students become able to plan their own activities and strategies. Also, students use the language as a tool for communication and thinking. This is not the case for the majority of d/Deaf and hard of hearing students who struggle with spoken language, which makes it difficult for them to participate and communicate with hearing students who speak and do not know sign language. Teacher 1 stated, *“Spoken language is the most common barrier that influences the participation and interaction between d/Deaf and hard of hearing students and hearing students.”*

For this reason, participants suggested schools to provide sign language classes for hearing students to learn basic sign language and become able to communicate with d/Deaf and hard of hearing students. The participants also pointed out that hearing students are curious to learn sign language. They usually ask teachers and interpreters about the meaning of some signs or how they can sign certain words. Therefore, it is useful to provide some sign language classes to hearing students in order to reduce the language and communication difficulty with d/Deaf and hard of hearing students. Teacher 1 explained,

One strategy to improve the participation and interaction of d/Deaf and hard of hearing students in the general education classroom is the sign language class for hearing students which is focused on teaching them basic sign language. This encourages the hearing students to communicate with d/Deaf and hard of hearing students as well as encourage d/Deaf and hard of hearing students to participate in the classroom.

Another issue is that d/Deaf and hard of hearing students are always busy inside the general education classroom, watching the interpreter and the teacher as well as working on the task. Thus, it is very difficult for them to participate or answer the questions that are asked by the teacher. The interpreter pointed out,

When deaf and hard of hearing student have the answer to the teacher's question, they are always three or four seconds behind hearing students who have the answer. Deaf and hard of hearing students usually try to balance so many things.

Participants assert that teachers should understand that d/Deaf and hard of hearing students need more time than hearing students to raise their hand and answer the questions. This requires teachers to follow some strategies, such as speaking slowly, so d/Deaf and hard of hearing students can follow up with them and explain to hearing students to be more patient to give d/Deaf and hard of hearing students an opportunity to participate.

Observational Data Analysis

The goal of this section is to understand and describe the nature of the inclusive classroom of d/Deaf and hard of hearing students. This means understanding the constructing participation and interaction context and how inclusion of d/Deaf and hard of hearing students influences the teaching and learning in the classroom. Analysis of observational data is important to understand the barriers that limit the face to face interaction between hearing students and d/Deaf and hard of hearing students, as well as to understand the participation structure of students with hearing impairment in the general education classroom (Heath & Street, 2008). Moreover, the analysis of observational data assists the researcher to identify the contextual factors that promote the d/Deaf and hard of hearing students' interaction and participation (Green, 2009), as well as to determine the role of the teacher and interpreter in improving the verbal and nonverbal participation of d/Deaf and hard of hearing students in the general education classroom.

General Education Classroom Observation (5th Grade)

There is only one full time hard of hearing student in the 5th grade. This student, "Sara", was always sitting in the front of the class, which allows more visual access to the interpreter and teacher. Sara often interacts and communicates only with the interpreter who always sits in front of her. She was always busy, working on tasks and watching the interpreter and teacher. This student is apparently in isolation from hearing students because she does not interact and communicate with them. Also, she rarely raises her hand to answer or ask questions. In the reading class, the teacher asked students a question about the story that they read at home. Most students, beside Sara, raised their hands to answer the question, but the teacher was only looking at hearing students. The teacher did not look at Sara at all, so she put her hand down and she did not raise her hand again during the rest of class. This was probably because the teacher did not expect that Sara would raise her hand. Therefore, in this situation, the interpreter was supposed to inform the teacher that Sara wanted to answer the question. Additionally, it is important that the interpreter encourage the student to participate and raise her hand, even if the teacher does not see her.

The teacher placed students in small groups consisting of around six students. Each student read aloud a part of the story. Then, they discussed with each other the main characters of the story. Sara's participation in the small group was better than when she was in a big group. She tried to ask and answer some questions as well as to communicate and interact with hearing students in her group. For example, Sara and the student who was sitting next to her were laughing and talking with each other about the story. Also, when the students began to discuss the story, Sara tried to be a part of the discussion by asking and answering the interpreter's

questions. Sara, in the small group, tried to speak more than sign because all students were near to her, so they can know what she is saying. This indicates that spoken language difficulty is the only reason why she does not participate in a big group. Indeed, the small group activities assist d/Deaf and hard of hearing students to improve their private speech, which is important to their cognitive development (Vygotsky, 1987). Also, it gives students an opportunity to work with each other and improve their friendship.

General Education Classroom Observation (3rd Grade)

Deaf and hard of hearing students in the 3rd grade were included in the general education classroom only in math class, and then they go back to their special education classroom. Those students showed effective participation and interaction with other students, as well as with the teacher. Also, both the interpreter and the teacher played a significant role in enhancing the students' participation and interaction. They developed some strategies that assist d/Deaf and hard of hearing students to interact with hearing students. For example, every week the interpreter and teacher chose a hearing student who knows some sign language to sit with d/Deaf and hard of hearing students at the same table in order to improve the communication and interaction between them. This hearing student sometimes assists the interpreter to interpret the teacher's instructions to d/Deaf and hard of hearing students. For example, this hearing student often tells her d/Deaf and hard of hearing peers to put their hands down when the teacher chose another student to answer the question. It was obvious that this hearing student always wants to help those students and learn more sign languages from them. Also, I observed that the teacher always used different strategies such as face to face interaction or working in small group activities in order to engage d/Deaf and hard of hearing students in the classroom activities, as well as to increase the interaction between those students and hearing students.

When I visited the 3rd classroom, the three d/Deaf and hard of hearing students were sitting around one table with the interpreter and one hearing student. The topic was about "Understanding Fractions", and the teacher used different shapes on the board to assist students to understand the topic, as well as to encourage them to participate and interact with the lesson.

Transcript – Mainstream Classroom (Math lesson): Tuesday, November 11th

1. *Teacher: All of you look at the shape on the board.*
2. *Teacher: How many equal parts are in the square?*
3. *Interpreter: Who knows the answer?*
4. *Mike: I know.*
5. *Interpreter: Why didn't you raise your hand?*
6. *Interpreter: You should raise your hand when you know the answer. (Encouraging deaf and hard of hearing students to participate).*
- 7- *Teacher: Okay Mike, how many equal parts are in the square?*
- 8- *Mike: Six parts.*
- 9- *Teacher: Good. Your answer is correct.*
- 10- *Teacher: Okay, now how many are shaded in the square?*
- 11- *Teacher: Mike, do you know the answer?*
- 12- *Mike: Yes, I know.*
- 13- *Teacher: How many?*
- 14- *Mike: One.*

- 15- Teacher: Good job, Mike.
16- Teacher: Did you write this on your paper?
17- Mike: silent.
18- Teacher: Did you write like this “one of six”?
19- Mike: No.
20- Teacher: So how?
21- Teacher: Did you write $\frac{1}{6}$ like that?
22- Mike: Yes.
23- Teacher: Did you all see how Mike wrote that?

The above transcript explains the role of the teacher and sign language interpreter in the participation and interaction context of d/Deaf and hard of hearing students in the general education classroom. Further, it illustrates how the context of the classroom was shaped by different factors. Erickson (2004) indicated that classroom context is shaped by individuals. Generally, because the teacher is more powerful in the classroom, h/she is required to shape the classroom' context by effective classroom management and organization of activities. Moreover, Vygotsky's (1978) concepts of zone of proximal development emphasizes that the teacher's role is to facilitate the interactions between students, as well as to guide the students through the tasks associated with learning a concept. However, students and interpreter in the inclusive classroom also play a significant role in shaping the classroom's context. For example, the interaction between students is important to enrich the educational process in the classroom. In addition, the interpreter's role is necessary to facilitate the communication between d/Deaf and hard of hearing students and the teacher.

In one math class, the teacher asked a question verbally of all students (line 2). When hearing students raised their hand, the interpreter asked d/Deaf and hard of hearing students, using sign language, to raise their hands if they knew the answer (line 3). Then she encouraged the student who knew the answer to raise his hand and participate with hearing students (line 3). The interpreter in this situation played a significant role in facilitating the communication between d/Deaf and hard of hearing students and their teacher. Also, this interaction is important to understand that some d/Deaf and hard of hearing students who are educated in the general education classroom might know the answer, but they do not have the confidence to participate due to the language difficulty. Therefore, the interpreter tried to be an effective factor that encouraged students to participate and assisted them to find a good pattern of participation (Green, 2009).

Although, the teacher does not know sign language, she often gave the deaf student an opportunity to participate when he raises his hand (line 7). The teacher's expectation seemed high for this student because she asked him again another question (line 11). The teacher in this situation aimed to improve the student's confidence by continuing to ask him sequential questions that the teacher knew the student could answer (line 11-13). In addition, the teacher's goal was to construct the classroom lesson by interaction with students. She wanted to develop the face to face interaction between her and students, specifically d/Deaf and hard of hearing students. Bloome et al., (1989) indicated that “Classroom lessons do not just happen, they must be constructed by the interaction of teachers and students” (p.271). For the success of the classroom, all students should be a part of the interaction and have an opportunity for participation.

This interaction between the teacher, deaf student and interpreter illustrates how the teacher of the general education classroom can hide and overcome the differences between students with hearing impairment and hearing students, such as communication barriers. Further, it shows that the teacher wants to engage her d/Deaf and hard of hearing students in the classroom context. For instance, while the interaction between the student and the teacher was happening, I observed the teacher looking at the student, not at the interpreter who was only interpreting what the teacher was saying to the student. This was necessary to enhance the deaf student's self-confidence, as well as to encourage him to speak when the teacher communicated with him. The goal of the mainstream classroom is not only to assist deaf and hard of hearing students to be integrated academically, but also to improve their spoken language as well as their social interaction.

The teacher encouraged deaf student (line 15). Then, she encouraged him again in a different way (line 23). This encouraged the other two d/Deaf and hard of hearing students to participate in the class. For example, after Mike answered the question, the teacher again asked students who could divide the circle into five equal parts. All d/Deaf and hard of hearing students raised their hand without encouragement from the interpreter. It is obvious that motivation is an important factor of the learning and development of the d/Deaf and hard of hearing students, particularly in the general education classroom. Thus, one important role of the teacher and interpreter is to make sure that the classroom's context is appropriate and supportive for d/Deaf and hard of hearing students to learn and effectively participate.

Conclusion

This study investigated the significant issues that concern the participation and interaction of d/Deaf and hard of hearing students in the general education classroom. The data collected indicates that facilitation of participation and interaction of d/Deaf and hard of hearing students in the general education classroom requires the knowledge and skills of the schools' staff, including teachers and interpreters. Additionally, the teachers' awareness and attitudes toward deafness and inclusion are important to increase the participation and interaction of d/Deaf and hard of hearing students in the general education classroom. For issues related to students, this study found that the spoken language difficulties for d/Deaf and hard of hearing students are the greatest barriers that limit the participation and interaction of those students. Also, the d/Deaf and hard of hearing students is always busy in the classroom because h/she is working on his/her task and watching the teacher and interpreter simultaneously. Thus, this student often receives the information and the questions a few seconds after hearing students. Generally, this study suggests that schools' staff should improve their collaboration with each other in order to develop the best strategies that make the context of the general education classroom appropriate for d/Deaf and hard of hearing students. Moreover, teachers are responsible for improving the awareness among hearing students about the characteristics of d/Deaf and hard of hearing students. Generally, most obstacles that d/Deaf and hard of hearing students encounter in the general education classroom can be addressed when the entire school staff works together and provides all possible support to those students.

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Appendix 1

Transcript – Mainstream Classroom (Math lesson): Tuesday, November 11th

- 1- Teacher: All of you look at the shape on the board.
- 2- Teacher: How many equal parts are in the square?
- 3- Interpreter: Who knows the answer?
- 4- Mike: I know.
- 5- Interpreter: Why didn't you raise your hand?
- 6- Interpreter: You should raise your hand when you know the answer. (Encouraging deaf and hard of hearing students to participate).
- 7- Teacher: Okay Mike, how many equal parts are in the square?
- 8- Mike: Six parts.
- 9- Teacher: Good. Your answer is correct.
- 10- Teacher: Okay, now how many are shaded in the square?
- 11- Teacher: Mike, do you know the answer?
- 12- Mike: Yes, I know.
- 13- Teacher: How many?
- 14- Mike: One.

- 15- Teacher: Good job, Mike.
- 16- Teacher: Did you write this on your paper?
- 17- Mike: silent.
- 18- Teacher: Did you write like this “one of six”?
- 19- Mike: No.
- 20- Teacher: So how?
- 21- Teacher: Did you write $\frac{1}{6}$ like that?
- 22- Mike: Yes.
- 23- Teacher: Did you all see how Mike wrote that?