

Spring 2017

# Interdisciplinary skill development during summer autism clinic

Rachel F. Kagle  
*James Madison University*

Follow this and additional works at: <http://commons.lib.jmu.edu/honors201019>

 Part of the [Occupational Therapy Commons](#), and the [Speech Pathology and Audiology Commons](#)

---

## Recommended Citation

Kagle, Rachel F., "Interdisciplinary skill development during summer autism clinic" (2017). *Senior Honors Projects, 2010-current*. 356.  
<http://commons.lib.jmu.edu/honors201019/356>

This Thesis is brought to you for free and open access by the Honors College at JMU Scholarly Commons. It has been accepted for inclusion in Senior Honors Projects, 2010-current by an authorized administrator of JMU Scholarly Commons. For more information, please contact [dc\\_admin@jmu.edu](mailto:dc_admin@jmu.edu).

Interdisciplinary Skill Development During Summer Autism Clinic

---

An Honors College Project Presented to  
the Faculty of the Undergraduate  
College of Health and Behavioral Sciences  
James Madison University

---

by Rachel Fay Kagle

May 2017

---

Accepted by the faculty of the Department of Communication Sciences and Disorders, James Madison University, in partial fulfillment of the requirements for the Honors College.

FACULTY COMMITTEE:

HONORS COLLEGE APPROVAL:

---

Project Advisor Cynthia R. O'Donoghue, Ph.D.,  
CCC-SLP  
Department Head, Communication Sciences and  
Disorders

---

Bradley R. Newcomer, Ph.D.,  
Dean, Honors College

---

Reader: Marsha Longerbeam, Ph.D., CCC-SLP  
Assistant Professor, Communication Sciences and  
Disorders

---

Reader: Linda Freeman, MS. CCC-SLP  
Professor, Communication Sciences and Disorders

---

PUBLIC PRESENTATION

This work is accepted for presentation, in part or in full, at James Madison University on April 21, 2017.

## Table of Contents

|                                  |    |
|----------------------------------|----|
| ACKNOWLEDGEMENTS.....            | 3  |
| ABSTRACT.....                    | 4  |
| ABOUT AUTISM .....               | 5  |
| TREATMENT DISCIPLINES .....      | 7  |
| INTERDISCIPLINARY TREATMENT..... | 12 |
| METHOD .....                     | 14 |
| CONCLUSION.....                  | 18 |
| BIBLIOGRAPHY.....                | 19 |
| TABLES .....                     | 22 |

## **Acknowledgements**

First, I would like to sincerely thank Dr. Marsha Longerbeam for her continuous support throughout this process. Her knowledge, support, and assistance gave me the ability to complete this thesis. Additionally, by allowing me to participate in the Summer Autism Camp at James Madison University she provided me with valuable experience and essential skills that I will need in my future.

Additionally, I would like to thank the rest of my committee and helpful CSD faculty members: Professor Linda Freeman, Dr. Lincoln Gray, and Dr. Cynthia O'Donoghue, for their assistance.

Finally, I greatly appreciate all of the students and faculty at JMU's Summer Autism Camp for allowing me to conduct my research, teaching me about interdisciplinary treatment, and for their participation in this study.

## **Abstract**

The present paper focuses on the interdisciplinary skill development of speech-language pathology graduate student clinicians and occupational therapy graduate student clinicians in the treatment of children with Autism Spectrum Disorder. This paper explains the significance of these disciplines in the treatment of Autism before giving the results of the study. For the present study, data was collected at James Madison University's Summer Autism Camp over a four-week period. There were ten speech-language pathology (SLP) clinicians that received the survey and eleven children with Autism that were enrolled in the program. It was hypothesized that the SLP clinicians would display skill acquisition and improvement based on observations rated on a Likert scale. Data collected on a basis of frequency of occurrence of observation results shows that clinicians did acquire skills and knowledge over the four-week period in both disciplines.

## **About Autism**

Autism is a developmental disability that affects 1 in 68 American children and is defined as a spectrum disorder because it can have varying impacts. Individuals range in the number, kind, and intensity of symptoms, the age of onset, level of functioning, and their abilities. Cognitively, there can be great differences in rate of learning, generalization of skills, organizational skills, attention, and abstract reasoning among different individuals. Often, individuals with autism have strengths in visual-spatial skills, attention to detail, focus in areas of high interest, long-term memory, and rote memory. Autism manifests itself differently in each individual but always impacts communication, social interaction, and may bring about repetitive and restrictive behaviors (“What is Autism?,” n.d.).

According to the American Psychological Association’s Diagnostic and Statistical Manual of Mental Disorders (DSM-5), deficits in the three following domains: communication, social interaction, and repetitive and restrictive behaviors, make up the criteria for diagnosis (“What is Autism?,” n.d.). In regards to communication, individuals with autism may face significant impairments. The DSM criteria for autism includes communication features such as impaired understanding and use of nonverbal communication, impaired ability to understand and maintain reciprocal interaction, lack of verbal or nonverbal means to bring attention to things of interest, impaired ability to communicate, impaired ability to initiate and maintain a conversation, and ritualized use of language when interacting with others. The second impairment focuses on the social domain. Individuals with autism face marked impairment in nonverbal behaviors that regulate social interactions, a lack of social cognition and processing of social information, lack of social and emotional reciprocity, and a lack of social initiation. Finally, the third characteristic defined by the DSM-5 is the presence of restricted, repetitive, and

stereotyped behavior patterns, interests, and activities. Examples include preoccupation with one or more restricted or stereotyped pattern of interest that can be abnormal in intensity or focus, inflexible adherence to routines, stereotyped and repetitive motor movements, and persistent preoccupation with parts of objects.

Together, these three domains make up a set of behaviors that will require some form of intervention. Treatment for individuals with autism can be designed through looking at this triad of impairments alongside the individual's specific strengths. The most important factor in the treatment and provision of services for individuals with autism is a focus on individual needs. Each individual with autism has different needs and will require an individualized plan which explicitly lists their strengths and weaknesses along with a design to improve the areas of weakness. In order to address these needs, these individuals will require multiple modes of therapy. (Autism Internet Modules, n.d.) Some of the services that can be provided to individuals with autism include: occupational therapy, speech-language therapy, applied behavior analysis (Interventions and Treatment Options).

## **Treatment Disciplines**

Occupational therapists focus on assisting individuals in daily activities. (“About Occupational Therapy,” n.d.). For children, “occupations” may encompass playing, learning, routines, and social relations. Services include comprehensive evaluations, individualized therapy to improve performance, and adaptation recommendations, performance skills assessments and treatment, adaptive equipment recommendations and training on how to use this equipment, and guidance to family and caregivers (“Patients & Clients,” n.d.).

One area that an occupational therapist will focus on in a child with autism spectrum disorder (ASD) is sensory-processing issues (Case-Smith, J. & Arbesman, 2008). Sensory processing awareness includes body awareness, coordination of movements across both sides of the body, fine and gross motor control and coordination, ocular motor skills, visual perceptual skills, and reaction to external stimuli (“What Does an Occupational Therapist Do?,” n.d.). An estimated 80% of children with autism have sensory processing problems, meaning that they cannot filter out extraneous sensory stimulation or that they do not process this stimulation in the same way as others. Tactics include the use of a weighted vest if a child needs calming, positive behavior supports, and helping with the understanding of these sensory issues (“Supporting Parents of Children with Autism,” n.d.). Studies have shown a connection between sensory integration intervention and an enhanced ability to modulate behavior and participate in social interactions. Sensory based interventions, including therapeutic touch, can decrease maladaptive behaviors, reduce hyperactivity, inhibit stereotypic movements and self-stimulation, and improve attention and focus. Trials have shown that massage, used as a sensory technique, can improve attention and reduce stereotypic behaviors. Approaches targeting all senses through the auditory system have also shown improvements in behavior. Although sensory processing issues can be a



significant part of a child with autism's life, sensory-based interventions are just one component of therapy.

Individuals with autism also may face struggles in social situations. Another component of therapeutic intervention is relationship-based and interactive interventions that use modeling, implement high levels of positive responsiveness, apply prompting, facilitate peer interaction, provide a socially supportive environment, and demonstrate positive effects on social engagement. Studies show that social interaction improves with positive reactions, eye contact, reinforcement, and waiting for a response (Case-Smith, J. & Arbesman, 2008). Occupational therapists provide an environment that fosters the growth and success of social relationships and interactions. Techniques can include structured play activities that support relationships and social-emotional development by implementing developmental skill-based models that use play, peer models, and focus on the strengths of the child (Case-Smith, J. & Arbesman, 2008).

Speech-language pathologists are skilled in the various aspects of human communication. Overall, through many different service delivery methods, a speech-language pathologist is able to serve populations with speech and/or language disorders from assessment to treatment and beyond. Individuals may see a speech-language pathologist for speech sound delays or disorders, language delays or disorders, fluency disorders, voice and resonance disorders, swallowing and feeding disorders, cognitive-communicative disorders, pre-literacy and literacy skills, pragmatic deficits, and other delays and disorders that may be related to hearing impairments, traumatic brain injury, dementia, or other genetic or neurological impairments (“What do Speech-Language Pathologists do?,” 2013.)

For individuals with autism, therapy tactics can vary greatly. Some of these individuals may have difficulties with communication; however, often, individuals with autism spectrum

disorder have difficulties in social functioning such as understanding nonverbal social cues that may include body language, eye contact, and understanding facial expressions. These individuals often also have deficits in developing expressive and receptive language skills. Individuals with autism spectrum disorder have deficits in motor planning, requesting wants and needs, and using language effectively to communicate with others, which may include aspects involving meaning or rhythm of words and phrases (“Autism Spectrum Disorder: Communication Problems in Children,” n.d.). Common communication behaviors among those with autism include difficulties in following directions, the understanding and the use of words, having conversations, and difficulty learning to read or write. Often, individuals with autism spectrum disorder also use tantrums rather than speaking, have echolalia (repeating words) and may not use very much expression or emotion. Communication can also be affected by social deficits which can include problems in multiple different areas, including sharing a focus with another, changing from one activity to another, and difficulty understanding others’ feelings. (“Autism - Autism Spectrum Disorders,” n.d.).

In working with a person with autism spectrum disorder, a speech-language pathologist will evaluate their communication status and set goals that will help them communicate effectively and functionally by following professional guidelines and developing an individualized plan. Because autism is on a spectrum, there are incredible variations in the severity of the disability that require such a specific plan for each individual. Some people with autism may be completely nonverbal. Those who are nonverbal may use augmentative and alternative communication devices and methods. Often, a Picture Exchange Communication System (PECS) is used to facilitate communication. A speech-language pathologist will teach those with autism how to use pictures for requesting desired items or activities in the early stages

and then using them to form sentences for communication. As technology has evolved, greater options for communication have developed including: iPads, specially programmed devices, and specialized apps (“What Treatments are Available for Speech, Language and Motor Issues?,” n.d.). Overall, through a variety of methods and service delivery modes, a speech-language pathologist has the ability to help an individual with autism spectrum disorder regardless of where they lie on the spectrum. Through these services, individuals can reach improved communication strategies and a better quality of life.

Regardless of how or what intervention is provided, a main concern across all domains is the client’s behavior and its relation to their educational success. The behavior of a child has the ability to significantly affect their learning environment and therefore their education. According to Horner, Carr, Strain, Todd, and Reed (2002), studies suggest that 13-30% of young children engage in problem behaviors that require intervention and that those with limited social or communication skills are at risk for these problem behaviors. Problem behaviors not only disrupt learning and social development but also bring about exclusion and isolation that can interfere with learning. Behavioral concerns can cause children with autism to be moved to a more restrictive educational setting, because these individuals may require more support. While they will receive behavioral support, this environment may not be the most suitable for the development of other skills. Individuals with autism are particularly at risk for developing problem behaviors that, without intervention, will likely worsen and more negatively affect the learning environment. Research shows that aggression/destruction, disruption/tantrums, self-injury, and stereotypy are most identified for intervention. Providing various forms of behavioral support and intervention strategies can help reduce problem behaviors, improve the learning environment, and foster better social skills (Horner et al., 2002).

## **Interdisciplinary Treatment**

Interprofessional or interdisciplinary treatment is, as it sounds, a form of treatment through a collaboration of different professionals. The World Health Organization (WHO) is a supporter of this form of treatment and describes interprofessional education as occurring when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes. The WHO has developed a framework for action on this interprofessional education and collaborative practice which is one of the few sources that currently gives a good description of the scope and procedures involved in collaborative practice. (World Health Organization, 2010). Instead of visiting several professionals, an individual receiving interdisciplinary treatment will receive multiple different services simultaneously. This would not only make better use of therapy time but can also strengthen the use of multiple strategies and their concurrent use. While many medical disciplines could work together, an example interdisciplinary team for autism treatment could consist of a Speech Language Pathologist, an Occupational Therapist, and an Applied Behavior Analyst. These three disciplines could work together with individuals with autism or other syndromes that may require several modes of therapy in order to provide an efficient and effective treatment program (White et al., 2016). While it is common for an individual with autism to see a speech-language pathologist, an occupational therapist, and an applied behavior analyst, the three are rarely seen upon the same appointment. Interprofessional treatment involves a combination of treatment approaches by multiple clinicians on the same visit, tackling multiple goals at the same time. There is little research on the topic, but according to the World Health Organization, in order to reach optimal health services, individual service providers must incorporate interprofessional collaboration. The WHO further explains that there must be a working culture with structure,

shared decision-making, and routine meetings. The environment should include effective space in order to facilitate communication and eliminate barriers. By incorporating interprofessional autism therapy, an individual can potentially receive services from many clinicians during one appointment.

Overall, collaborative practice is expected to make treatment more effective for both the patient and the service providers by giving an efficient and educational experience (World Health Organization, 2010). Literature shows that this is still a very new concept. Currently, there are no set terms to define and describe the basic premises or the procedures of interprofessional collaboration and there is very little research to show its effectiveness, especially in regards to specific disciplines such as Speech Pathology, Occupational Therapy, and Applied Behavior Analysis. However, because life is multidisciplinary and disabilities tend to have many different effects combining different areas of expertise to provide treatment may be a very beneficial process.

## **Method**

This study focuses on the interprofessional practice of Speech-Language Pathology and Occupational Therapy in the treatment of children with autism. Graduate clinicians of both professions worked with children at JMU's Summer Autism Camp to provide services for four weeks. The purpose of the study was to determine the effectiveness of the interprofessional collaboration in behavioral management and service delivery among different clients.

### **Participants**

Ten Communication Sciences and Disorders graduate clinicians were the focus of this study. The clinicians spent four weeks of their summer at JMU's Summer Autism Camp providing therapy to eleven children with Autism. These clinicians worked directly with two Occupational Therapy students to provide thirty minutes of therapy to a small group of children. Each clinician was randomly assigned a client at the beginning of the four-week camp. After two weeks, they were randomly assigned a different client. Each Communication Sciences and Disorders (CSD) clinician was responsible for preparing their own lesson plan and materials for their client. This study was IRB approved (no. 17-0020).

### **Setting**

This study was conducted at JMU's Summer Autism Camp during the summer of 2016 which was held at the Occupational Therapy Clinical Education Services building. The camp was in session from 9:00 a.m. to 12:00 p.m. for a four-week period. Data was taken twice a week during a thirty-minute "circle-time" section of the day in which the CSD graduate students worked together with the Occupational Therapy students.

## **Experimental Design**

The survey was ranked on a Likert scale based on observable behaviors of the CSD graduate clinicians during the circle time session. Ten survey questions were developed based on expectations of CSD graduate clinicians and their abilities to work collaboratively with another discipline by displaying observable behaviors that suggest knowledge of their own discipline and ability to adapt that knowledge. Questions, along with their operational definitions, are displayed in table . Data was collected by the author twice a week using this survey.

## **Data Collection**

First, data was assessed by calculating the individual average per question for each clinician. Then, the questions were separated into categories of speech-language pathology (questions 1-5) and occupational therapy (questions 6-10). Question 8 was removed due to inability to accurately assess whether or not the clinicians understood OT treatment. After separating the questions, averages were then calculated between the first and second client that each clinician served (tables 2-6). This data was also organized based on frequency of occurrence per response (tables 11-14). Additionally, clients were grouped based on level of compliance. Compliant children were defined as those that displayed minimal behavioral outbursts. Noncompliant children had significantly interfering behavioral outbursts and caused clinicians more difficulty keeping the client engaged in the activity. A majority of the compliant children were verbal versus nonverbal (5:1) while the noncompliant children tended to be nonverbal versus verbal (3:2). Then, averages were calculated and categorized based on the client's level of compliance or non-compliance (tables 7-10).

## **Data Analysis**

The results of the study are best depicted in the frequency counts displayed in tables 11-14. These charts depict the transformation of the clinicians' behaviors and knowledge over time based on the results of the observations rated on the Likert scale. This data gives a visual representation of the confidence of the clinicians in their own discipline of speech-language pathology (SLP) and in the discipline of occupational therapy (OT).

It is clear, based on tables 11 and 12 compared to tables 13 and 14, that the clinicians had a higher level of confidence with the questions related to SLP than those related to OT throughout the entire study. However, in comparing tables 11 and 12, data shows that in weeks 3 and 4, there was a higher frequency of moderate to very confident responses than in weeks 1 and 2. During the first two weeks, there are reports of no confidence which have been greatly decreased by weeks 3 and 4. This shows that with experience across the four-week period, the clinicians showed higher levels of confidence in providing treatment in their own discipline. The same can be seen in the clinicians' understanding of occupational therapy. In the OT charts depicted in table 13, there is a higher number of "not at all," "somewhat," and "neutral" responses than in table 14. In table 14, the "often" and "always" responses have a higher frequency of occurrence. Again, over time, there is an increase in the frequency of occurrence per response that displays an increase in the clinicians' overall level of confidence.

Reliability data was established via inter-observer agreement (IOA) to ensure accuracy in behavior observation. With IOA, there is no set level of agreement, but the commonly used standard is 80% or higher (Barlow, et al., 2009). A certified speech-language pathologist who was a supervisor during the summer clinic randomly selected 25% of 32 sessions in which to



calculate inter-observer agreement. The average IOA equaled 80% or higher meeting standards for established reliability.

## **Discussion**

Aspects of the study worked well: in general clinicians were engaged and wanted to learn, clinicians realized value of learning experience, clinicians individualized the sessions for the clients, the program was well organized, taking data during this section allowed for CSD and OT clinician input, the Likert scale worked well to assess clinicians.

However, there were confounds that may have had potential impact on the outcomes of this study: the behavior of the children differed daily related to outlying conditions and could have impacted the clinician's scores, some children had low attendance due to illness, CSD clinicians occasionally left the room because it was crowded and children would get overwhelmed, some sessions did not require much CSD clinician input, some clinicians failed to understand that they were to work collaboratively with OT clinicians, clinicians had off-task behavior and would engage in side conversations, after two weeks, the clinicians finally mastered their first client then were switched to a new one – with more time, more effective treatment may have occurred.

## **Conclusion**

Overall, based on recent research and the data collected in this study, interdisciplinary treatment of Autism has been shown to have a positive impact on both clients and clinicians. The study focuses on interdisciplinary skill development of speech-language pathology and occupational therapy graduate student clinicians in the treatment of children with Autism Spectrum Disorder. During the four-week Summer Autism Camp program hosted by James Madison University, graduate students of the disciplines of speech-language pathology and occupational therapy worked together to provide services to children with Autism. According to the data from this study, the clinicians gained knowledge and experience that provided them with the skills to deliver better treatment to these children over time. As the program progressed, clinicians improved in existing skills and acquired new ones related to their own discipline of speech-language pathology as well as occupational therapy. Although more research is necessary in the field of interdisciplinary treatment, it appears to be a beneficial intervention strategy for both clinicians and clients.

## Bibliography

- Autism - Autism Spectrum Disorders. (n.d.). Retrieved March 23, 2016, from <http://www.asha.org/public/speech/disorders/Autism/>
- Autism Internet Modules. (n.d.). Retrieved December 7, 2016, from [https://www.autisminternetmodules.org/dash.php?cat=dash\\_tab\\_mn](https://www.autisminternetmodules.org/dash.php?cat=dash_tab_mn)
- Autism Spectrum Disorder: Communication Problems in Children. (n.d.). Retrieved March 23, 2016, from <https://www.nidcd.nih.gov/health/autism-spectrum-disorder-communication-problems-children>
- About Occupational Therapy. (n.d.). Retrieved February 24, 2016, from <http://www.aota.org/about-occupational-therapy.aspx>
- Barlow, D. H., Nock, M. K., & Hersen, M. (2009). *Single Case Experimental Designs: Strategies for Studying Behavior Changes*. Boston: Pearson.
- Benefits of Occupational Therapy for Autism. (n.d.). Retrieved February 24, 2016, from <http://www.webmd.com/brain/autism/benefits-of-occupational-therapy-for-autism?page=2>
- Case-Smith, J., & Arbesman, M. (2008). Evidence-Based Review of Interventions for Autism Used in or of Relevance to Occupational Therapy. *American Journal of Occupational Therapy*, 62(4), 416-429. Retrieved February 24, 16.
- Choi, B. C., & Pak, A. W. (2006). Multidisciplinarity, interdisciplinarity and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness. *Clinical & Investigative Medicine*, 29(6), 351-364. Retrieved April 12, 2016.

Horner, R. H., Carr, E. G., Strain, P. S., Todd, A. W., & Reed, H. K. (2002). Problem Behavior Interventions for Young Children with Autism: A Research Synthesis. *Journal of Autism and Developmental Disorders*, 32(5), 423-446.

Interventions and Treatment Options. (n.d.). Retrieved October 31, 2016, from <https://www.autismspeaks.org/family-services/tool-kits/asperger-syndrome-and-high-functioning-autism-tool-kit/interventions-and-t>

Lauderdale-Littin, S., Howell, E., & Blacher, J. (2013). Educational Placement for Children with Autism Spectrum Disorders in Public and Non-Public School Settings: The Impact of Social Skills and Behavior Problems. *Education and Training in Autism and Developmental Disabilities*, 48(4), 469-478. Retrieved from <http://www.jstor.org/stable/24232504>

Occupational Therapy. (n.d.). Retrieved February 24, 2016, from <http://kidshealth.org/en/parents/occupational-therapy.html#>

Patients & Clients. (n.d.). Retrieved February 24, 2016, from <http://www.aota.org/About-Occupational-Therapy/Patients-Clients.aspx>

Scope of Practice in Speech-Language Pathology. (n.d.). Retrieved March 23, 2016, from <http://www.asha.org/policy/SP2016-00343/>

Supporting Parents of Children with Autism: The Role of Occupational Therapy. (n.d.). Retrieved February 24, 2016, from <http://www.aota.org/about-occupational-therapy/professionals/cy/articles/parents-autism.aspx>

What Does an Occupational Therapist Do? (n.d.). Retrieved February 24, 2016, from <http://handtohold.org/resources/meet-the-provider/what-does-an-occupational-therapist-do/>

White, H., Stokes, T. F., Simons, E., Longerbeam, M., E. R., & T. Z. (2016). *Interprofessional practice to implement merged techniques from three disciplines:*

*OTSLPABA* (Unpublished master's thesis). James Madison University.

What do Speech-Language Pathologists do? (2013). Retrieved March 23, 2016, from <http://sac-oac.ca/public/what-do-speech-language-pathologists-do>

What Is Autism? (n.d.). Retrieved October 31, 2016, from <https://www.autismspeaks.org/what-autism>

What Treatments are Available for Speech, Language and Motor Issues? (n.d.). Retrieved March 23, 2016, from <https://www.autismspeaks.org/what-autism/treatment/what-treatments-are-available-speech-language-and-motor-impairments>

World Health Organization. (2010). *Framework for action on interprofessional education and collaborative practice*. Retrieved April 12, 2016, from

[http://whqlibdoc.who.int/hq/2010/WHO\\_HRH\\_HP\\_N\\_10.3\\_eng.pdf?ua=1](http://whqlibdoc.who.int/hq/2010/WHO_HRH_HP_N_10.3_eng.pdf?ua=1)

## Tables

Table 1. Likert Scale

- 0 = not applicable
- 1 = no confidence
- 2 = little confidence
- 3 = neither confident nor not confident
- 4 = moderately confident
- 5 = very confident

|   |  |
|---|--|
| 1. CSD graduate clinician's ability to manage behavior of clients<br>(Graduate clinician's client was engaged throughout the activity; Reinforcement)   |  |
| 2. CSD graduate clinician's understanding of nonverbal communicative cues<br>(Gestures and/or vocalization; is not confused)  |  |
| 3. CSD graduate clinician's ability to use prompting<br>(Visual, verbal, physical)  |  |
| 4. CSD graduate clinician's ability to engage with the client at an appropriate communicative level<br>(Graduate clinician does not try to speak at or expect responses that are above the level of functioning of the child) |  |
| 5. CSD graduate clinician gives the opportunity to respond<br>(Not prompting too quickly; waits at least 5 seconds)   |  |

- 0 = not applicable
- 1 = not at all
- 2 = somewhat
- 3 = neutral
- 4 = often
- 5 = always

|   |  |
|---|--|
| 6. CSD graduate clinician incorporates ideas from OT students<br>(CSD graduate clinician understands the basis of OT in order to incorporate basic ideas without assistance)                            |  |
| 7. CSD graduate clinician relies heavily on the OT student(s)<br>(CSD graduate clinician does not play a role during OT treatment)  |  |
| 8. CSD graduate clinician appears to understand the focus of the OT treatment<br>(CSD graduate clinician can answer questions about the OT treatment for the specific client; what are their OT needs?) |  |
| 9. CSD graduate clinician shares an understanding of their own discipline with the OT student<br>(Listen for discussion)  |  |
| 10. Clinicians ask questions of each other<br>(Listen for discussion)   |  |

Table 2. Averages per clinician A and B

| Averages                    | Clinician A |          |               | Clinician B |          |               |
|-----------------------------|-------------|----------|---------------|-------------|----------|---------------|
|                             | Client 1    | Client 2 | Average Total | Client 3    | Client 2 | Average Total |
| QUESTION                    |             |          |               |             |          |               |
| 1. Manage behavior          | 4.75        | 4.33     | 4.54          | 5.00        | 4.00     | 4.50          |
| 2. Nonverbal communication  | 5.00        | 4.33     | 4.67          | 4.50        | 4.00     | 4.25          |
| 3. Prompting                | 5.00        | 4.67     | 4.83          | 4.75        | 4.67     | 4.71          |
| 4. Appropriate level        | 4.50        | 3.67     | 4.08          | 5.00        | 3.67     | 4.33          |
| 5. Opportunity to respond   | 5.00        | 4.00     | 4.50          | 4.25        | 4.33     | 4.29          |
| Total average               | 4.85        | 4.20     | 4.53          | 4.70        | 4.13     | 4.42          |
|                             |             |          |               |             |          |               |
|                             |             |          |               |             |          |               |
| 6. Incorporates OT ideas    | 5.00        | 4.67     | 4.83          | 5.00        | 4.67     | 4.83          |
| 7. Relies heavily on OT     | 1.00        | 1.67     | 1.33          | 1.00        | 2.00     | 1.50          |
| 8. Understands OT treatment |             |          |               |             |          |               |
| 9. Shares understanding     | 4.50        | 4.67     | 4.58          | 4.50        | 4.67     | 4.58          |
| 10. Asks questions          | 4.75        | 4.67     | 4.71          | 4.50        | 4.67     | 4.58          |
| Total average               | 3.81        | 3.92     | 3.86          | 3.75        | 4.00     | 3.88          |

Table 3. Averages per clinician G and C

| Averages                    | Clinician G |          |               | Clinician C |          |               |
|-----------------------------|-------------|----------|---------------|-------------|----------|---------------|
|                             | Client 4    | Client 5 | Average Total | Client 6    | Client 3 | Average Total |
| QUESTION                    |             |          |               |             |          |               |
| 1. Manage behavior          | 2.75        | 3.00     | 2.88          | 5.00        | 4.00     | 4.50          |
| 2. Nonverbal communication  |             | 2.50     | 2.50          | 4.67        | 3.50     | 4.08          |
| 3. Prompting                | 3.50        | 2.50     | 3.00          | 5.00        | 4.50     | 4.75          |
| 4. Appropriate level        | 4.00        | 4.00     | 4.00          | 5.00        | 5.00     | 5.00          |
| 5. Opportunity to respond   |             | 3.00     | 3.00          | 4.33        | 4.00     | 4.17          |
| Total average               | 3.42        | 3.00     | 3.08          | 4.80        | 4.20     | 4.50          |
|                             |             |          |               |             |          |               |
|                             |             |          |               |             |          |               |
| 6. Incorporates OT ideas    | 3.00        | 3.50     | 3.25          | 4.33        | 4.50     | 4.42          |
| 7. Relies heavily on OT     | 3.75        | 3.50     | 3.63          | 1.33        | 1.50     | 1.42          |
| 8. Understands OT treatment |             |          |               |             |          |               |
| 9. Shares understanding     | 3.00        | 5.00     | 4.00          | 4.33        | 5.00     | 4.67          |
| 10. Asks questions          | 3.00        | 5.00     | 4.00          | 4.33        | 5.00     | 4.67          |
| Total average               | 3.19        | 4.25     | 3.72          | 3.58        | 4.00     | 3.79          |



Table 4. Averages per clinician H and I

| Averages                    | Clinician H |          |               | Clinician I |          |               |
|-----------------------------|-------------|----------|---------------|-------------|----------|---------------|
|                             | Client 7    | Client 1 | Average Total | Client 8    | Client 9 | Average Total |
| QUESTION                    |             |          |               |             |          |               |
| 1. Manage behavior          | 3.25        | 4.00     | 3.63          | 4.75        | 3.67     | 4.21          |
| 2. Nonverbal communication  | 2.50        | 3.75     | 3.13          | 4.75        | 4.00     | 4.38          |
| 3. Prompting                | 2.50        | 4.25     | 3.38          | 4.25        | 4.67     | 4.46          |
| 4. Appropriate level        | 3.25        | 4.50     | 3.88          | 4.75        | 4.00     | 4.38          |
| 5. Opportunity to respond   | 2.50        | 4.00     | 3.25          | 4.25        | 4.00     | 4.13          |
| Total average               | 2.80        | 4.10     | 3.45          | 4.55        | 4.07     | 4.31          |
|                             |             |          |               |             |          |               |
|                             |             |          |               |             |          |               |
| 6. Incorporates OT ideas    | 3.50        | 4.00     | 3.75          | 4.75        | 4.33     | 4.54          |
| 7. Relies heavily on OT     | 2.25        | 1.00     | 1.63          | 1.00        | 1.00     | 1.00          |
| 8. Understands OT treatment |             |          |               |             |          |               |
| 9. Shares understanding     | 4.00        | 3.50     | 3.75          | 4.25        | 4.00     | 4.13          |
| 10. Asks questions          | 4.00        | 3.25     | 3.63          | 4.25        | 4.00     | 4.13          |
| Total average               | 3.44        | 2.94     | 3.19          | 3.56        | 3.33     | 3.45          |

Table 5. Averages per clinician J and D

| Averages                    | Clinician J |          |               | Clinician D |          |               |
|-----------------------------|-------------|----------|---------------|-------------|----------|---------------|
|                             | Client 10   | Client 7 | Average Total | Client 11   | Client 8 | Average Total |
| QUESTION                    |             |          |               |             |          |               |
| 1. Manage behavior          | 2.67        | 3.00     | 2.83          | 4.75        | 4.00     | 4.38          |
| 2. Nonverbal communication  | 2.33        | 3.00     | 2.67          | 4.50        | 4.50     | 4.50          |
| 3. Prompting                | 2.33        | 4.00     | 3.17          | 4.00        | 4.00     | 4.00          |
| 4. Appropriate level        | 3.33        | 3.25     | 3.29          | 4.00        | 4.00     | 4.00          |
| 5. Opportunity to respond   | 2.00        | 3.50     | 2.75          | 4.00        | 3.75     | 3.88          |
| Total average               | 2.53        | 3.13     | 2.83          | 4.25        | 4.05     | 4.15          |
|                             |             |          |               |             |          |               |
|                             |             |          |               |             |          |               |
| 6. Incorporates OT ideas    | 2.67        | 3.85     | 3.26          | 4.75        | 4.25     | 4.50          |
| 7. Relies heavily on OT     | 3.00        | 1.67     | 2.33          | 1.00        | 1.00     | 1.00          |
| 8. Understands OT treatment |             |          |               |             |          |               |
| 9. Shares understanding     | 3.67        | 3.81     | 3.88          | 4.50        | 4.00     | 4.25          |
| 10. Asks questions          | 3.67        | 3.93     | 3.80          | 4.50        | 4.00     | 4.25          |
| Total average               | 3.25        | 3.37     | 3.31          | 3.69        | 3.31     | 3.50          |

Table 6. Averages per clinician E and F

| Averages                    | Clinician E |           |               | Clinician F |           |               |
|-----------------------------|-------------|-----------|---------------|-------------|-----------|---------------|
|                             | Client 9    | Client 10 | Average Total | Client 2    | Client 11 | Average Total |
| QUESTION                    |             |           |               |             |           |               |
| 1. Manage behavior          | 4           | 4.5       | 4.25          | 3.00        | 3.80      | 3.40          |
| 2. Nonverbal communication  | 4           | 4         | 4             | 4.00        | 4.00      | 4.00          |
| 3. Prompting                | 4           | 4.25      | 4.125         | 4.00        | 4.40      | 4.20          |
| 4. Appropriate level        | 3.5         | 4.5       | 4             | 4.00        | 4.40      | 4.20          |
| 5. Opportunity to respond   | 2.5         | 3.5       | 3             | 3.00        | 4.40      | 3.70          |
| Total average               | 3.6         | 4.15      | 3.875         | 3.60        | 4.23      | 3.92          |
|                             |             |           |               |             |           |               |
|                             |             |           |               |             |           |               |
| 6. Incorporates OT ideas    | 3.5         | 4.50      | 4             | 3.00        | 4.40      | 3.70          |
| 7. Relies heavily on OT     | 1.5         | 1.25      | 1.375         | 1.00        | 1.20      | 1.10          |
| 8. Understands OT treatment |             |           |               |             |           |               |
| 9. Shares understanding     | 3           | 4.25      | 3.625         | 5.00        | 4.40      | 4.70          |
| 10. Asks questions          | 3           | 4.25      | 3.625         | 5.00        | 4.40      | 4.70          |
| Total average               | 2.75        | 3.56      | 3.15625       | 3.50        | 3.60      | 3.55          |

Table 7. Data averages for compliant clients based on SLP questions

| Compliant SLP | Phase 1 | Phase 2 |      |
|---------------|---------|---------|------|
| Client 1      | 4.85    | 4.1     |      |
| Client 3      | 4.7     | 4.2     |      |
| Client 11     | 4.25    | 4.23    |      |
| Client 6      | 4.8     | 4.08    |      |
| Client 4      | 3.42    |         |      |
| Client 8      | 4.55    | 4.05    |      |
| Total Average |         |         | 4.29 |

Table 8. Data averages for non-compliant clients based on SLP questions

| Non-Compliant SLP |         |         |       |
|-------------------|---------|---------|-------|
|                   | Phase 1 | Phase 2 |       |
| Client 2          | 3.6     | 4.2     |       |
| Client 9          | 3.6     | 4.07    |       |
| Client 10         |         | 3       |       |
| Client 5          | 2.8     | 3.13    |       |
| Client 7          | 2.53    | 4.15    |       |
| Total Average     |         |         | 3.453 |

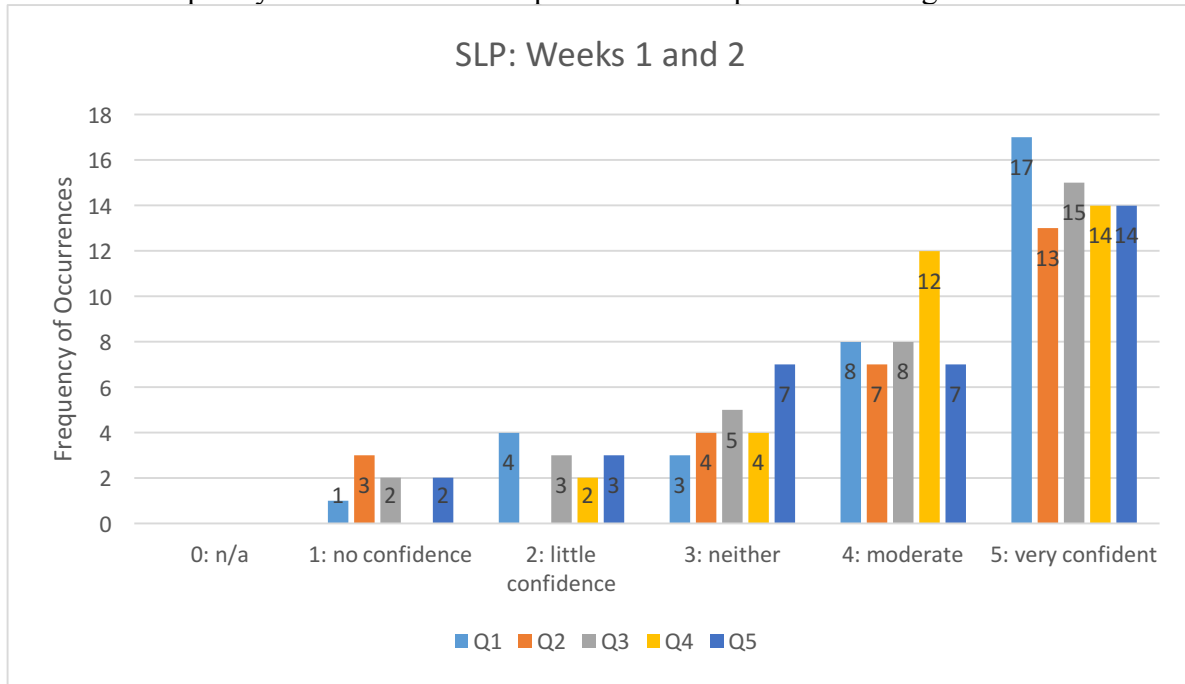
Table 9. Data averages for compliant clients based on OT questions

| Compliant OT  |         |         |      |
|---------------|---------|---------|------|
|               | Phase 1 | Phase 2 |      |
| Client1       | 3.81    | 2.94    |      |
| Client 3      | 3.75    | 4       |      |
| Client 11     | 3.69    | 3.6     |      |
| Client 6      | 3.58    | 3.42    |      |
| Client 4      | 3.19    |         |      |
| Client 8      | 3.6     | 3.31    |      |
| Total Average |         |         | 3.54 |

Table 10. Data averages for non-compliant clients based on OT questions.

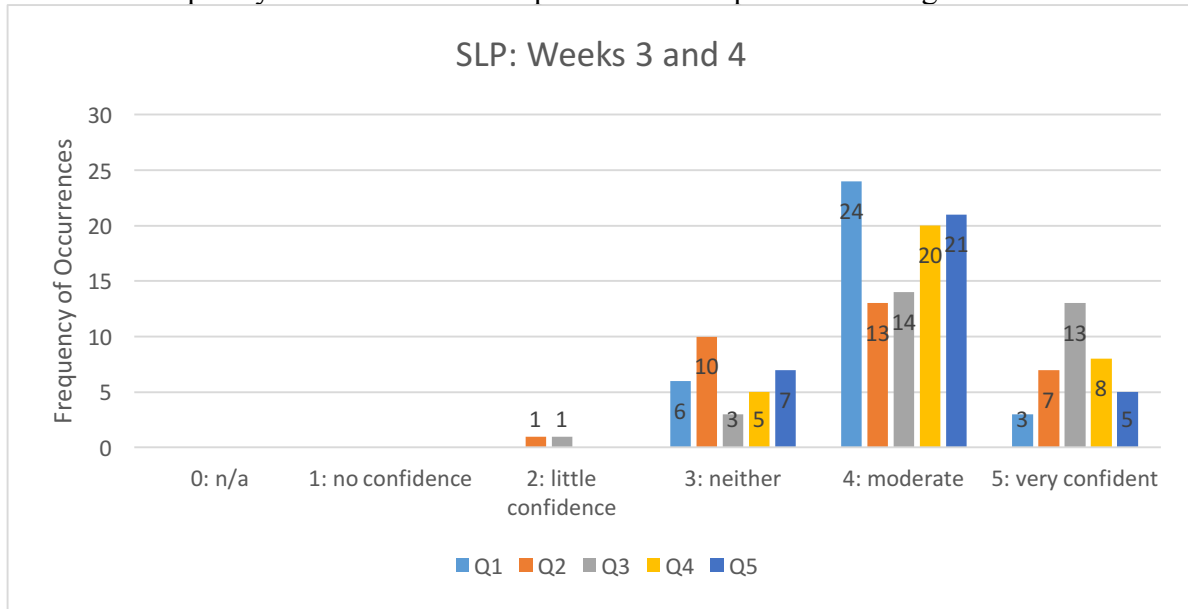
| Non-Compliant OT |         |         |      |
|------------------|---------|---------|------|
|                  | Phase 1 | Phase 2 |      |
| Client 2         | 3.5     | 3.92    |      |
| Client 9         | 2.75    | 3.33    |      |
| Client 10        |         | 4.25    |      |
| Client 5         | 3.44    | 3.29    |      |
| Client 7         | 3.25    | 3.59    |      |
| Total Average    |         |         | 3.48 |

Table 11. Frequency of occurrence of responses to SLP questions during weeks 1 and 2



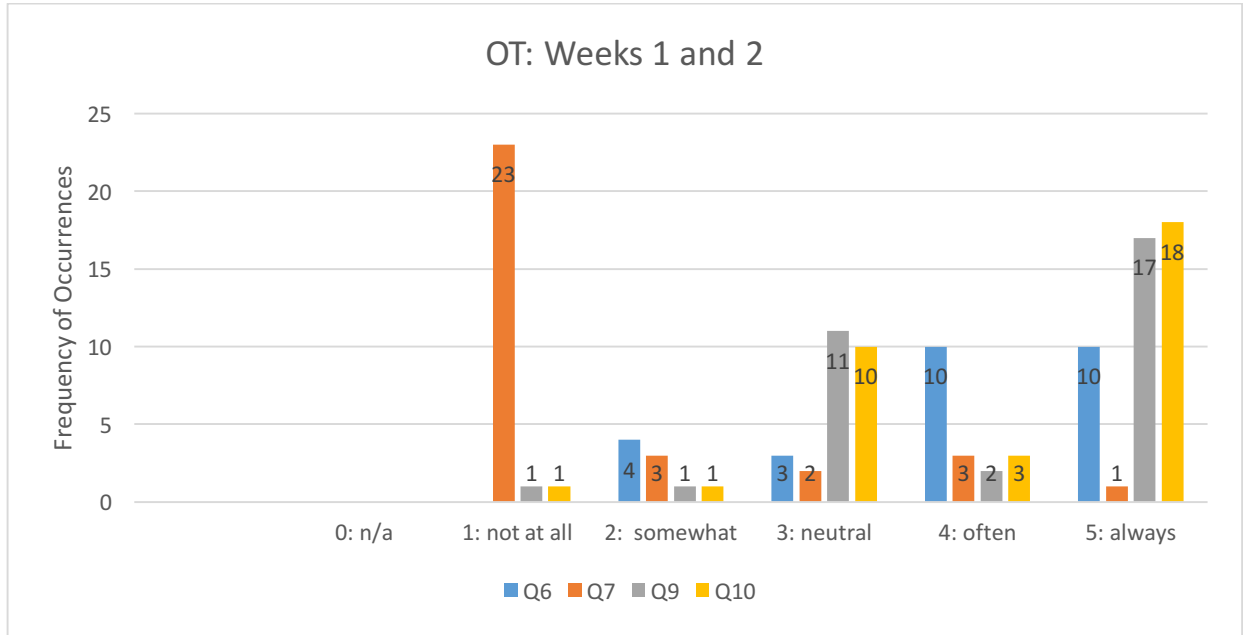
| Frequency for SLP    | Q1 | Q2 | Q3 | Q4 | Q5 | Total |
|----------------------|----|----|----|----|----|-------|
| Weeks 1 and 2        |    |    |    |    |    |       |
| Likert Scale         |    |    |    |    |    |       |
| 0: n/a               |    |    |    |    |    |       |
| 1: no confidence     | 1  | 3  | 2  | 2  | 2  | 8     |
| 2: little confidence | 4  | 3  | 3  | 2  | 3  | 12    |
| 3: neither           | 3  | 4  | 5  | 4  | 7  | 23    |
| 4: moderate          | 8  | 7  | 8  | 12 | 7  | 42    |
| 5: very confident    | 17 | 13 | 15 | 14 | 14 | 73    |

Table 12. Frequency of occurrence of responses to SLP questions during weeks 3 and 4



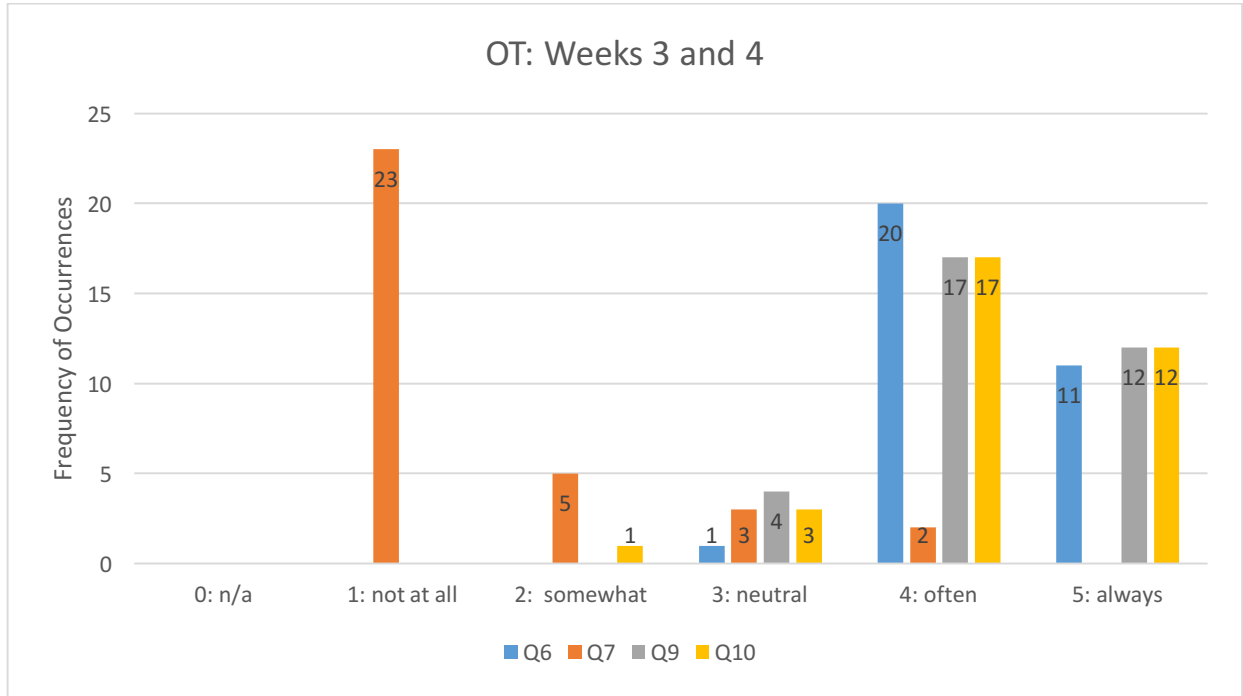
| Frequency for SLP    | Q1 | Q2 | Q3 | Q4 | Q5 | Total |
|----------------------|----|----|----|----|----|-------|
| Weeks 3 and 4        |    |    |    |    |    |       |
| Likert Scale         |    |    |    |    |    |       |
| 0: n/a               |    |    |    |    |    |       |
| 1: no confidence     |    |    |    |    |    |       |
| 2: little confidence |    | 1  | 1  |    |    | 2     |
| 3: neither           | 6  | 10 | 3  | 5  | 7  | 31    |
| 4: moderate          | 24 | 13 | 14 | 20 | 21 | 92    |
| 5: very confident    | 3  | 7  | 13 | 8  | 5  | 36    |

Table 13. Frequency of occurrence of responses to OT questions during weeks 1 and 2



| Frequency for OT | Q6 | Q7 | Q9 | Q10 |  | Total |
|------------------|----|----|----|-----|--|-------|
| Weeks 1 and 2    |    |    |    |     |  |       |
| Likert Scale     |    |    |    |     |  |       |
| 0: n/a           |    |    |    |     |  |       |
| 1: not at all    |    | 23 | 1  | 1   |  | 25    |
| 2: somewhat      | 4  | 3  | 1  | 1   |  | 9     |
| 3: neutral       | 3  | 2  | 11 | 10  |  | 26    |
| 4: often         | 10 | 3  | 2  | 3   |  | 18    |
| 5: always        | 10 | 1  | 17 | 18  |  | 46    |

Table 14. Frequency of occurrence of responses to OT questions during weeks 3 and 4



| Frequency for OT | Q6 | Q7 | Q9 | Q10 |  | Total |
|------------------|----|----|----|-----|--|-------|
| Weeks 3 and 4    |    |    |    |     |  |       |
|                  |    |    |    |     |  |       |
| Likert Scale     |    |    |    |     |  |       |
| 0: n/a           |    |    |    |     |  |       |
| 1: not at all    |    | 23 |    |     |  | 23    |
| 2: somewhat      |    | 5  |    | 1   |  | 6     |
| 3: neutral       | 1  | 3  | 4  | 3   |  | 11    |
| 4: often         | 20 | 2  | 17 | 17  |  | 56    |
| 5: always        | 11 |    | 12 | 12  |  | 35    |
|                  |    |    |    |     |  |       |