Current Clinical Practice of Speech-Language Pathologists who Treat Individuals with Aphasia: A Grounded Theory Study

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Abstract

Little is known about the current practices of speech-language pathologists working with people with aphasia in rehabilitation settings, or to what extent speech-language pathologists incorporate evidence for aphasia in clinical practice. This systematic grounded theory study described how speech-language pathologists treating individuals with aphasia understood the major processes of their current practice. Ten speech-language pathologists were interviewed. A theory emerged demonstrating a process of connecting with patients with aphasia to meet their communication needs to develop treatment strategies. This process evolved as the clinician gained experience from empirical evidence, client perspectives, and clinical expertise. During their graduate programs, participants obtained knowledge related to evidence-based practice but reported difficulty implementing evidence during actual practice. Participants reported limited time to locate and read literature. Understanding the process speech-language pathologists used to select treatment for people with aphasia may influence the role of evidence in clinical practice.

Keywords: aphasia; evaluation; treatment; evidence-based practice; grounded theory

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1. **Introduction**

Recent advances in aphasia rehabilitation make it essential that speech-language pathologists understand and implement evidence that supports their assessment and intervention of clients with aphasia; however, little is known about the current practices of speech-language pathologists working with this population. Ideally, the clinical practices of speech-language pathologists evolve through the use of empirical evidence, theoretical support, and/or clinical expertise (Roulstone *et al.* 2012). Interestingly, these areas resemble the definition of evidence-based practice (EBP). According to the American Speech-Language-Hearing Association (ASHA), EBP is the integration of scientific inquiry, clinical expertise, and client perspectives, which enrich the treatment strategies of speech-language pathologists (ASHA 2013). While EBP is an expectation of all speech-language pathologists, it is unknown how speech-language pathologists use evidence to treat clients with aphasia, or how their clinical expertise matures with experience (Ratner 2006).

Some researchers have examined current speech-language pathology practice in the area of aphasia rehabilitation, with varying results. When exploring assessment practices, Simmons-Mackie *et al.* (2005) studied aphasia outcome measures and found that the majority of clinicians (85%) administered some form of assessment. However, there was no consistency among aphasia assessment tools used by speech-language pathologists. Verna *et al.* (2009) found that 70 Australian speech-language pathologists reported using 180 assessment measures. Most respondents used an impairment-based measure (92.8%) and several (77.1%) used a screening assessment. The Western Aphasia Battery (Kertesz 1982), Boston Naming Test (BNT) (Kaplan *et al.* 1983), Boston Diagnostic Aphasia Examination (BDAE) (Goodglass *et al.* 2001), and subtests of the Psycholinguistic Assessment of Language Processing Activities (Kay *et al.* 1992) were the assessment tools reported most frequently.

One multi-national study compared aphasia management techniques among five different English-speaking healthcare systems (Katz *et al.* 2000). Findings revealed the most widely used assessment tool for acute aphasia was the BNT, while the BDAE was used most commonly to assess language performance of individuals who had chronic aphasia. The authors also indicated that some speech-language pathologists used informal assessments.

Treatment approaches in clinical practice have also been explored through surveys of speech-language pathologists (Katz *et al.* 2000; Rose *et al.* 2013; Verna *et al.* 2009). Investigation of current practices of aphasia rehabilitation in Australia revealed that most direct intervention occurred in inpatient rehabilitation hospitals (Verna *et al.* 2009). However, within the acute care setting, there were mixed results regarding the amount of aphasia services. Self-reports from speech-language pathologists indicated a high amount of aphasia services
Observational reports found that speech-language pathologists provided a limited number of aphasia services (Duffy et al. 2010; Godecke et al. 2012). Across all settings, clinicians preferred individual therapy using a functional approach (Verna et al. 2009). Recently, Rose et al. (2013) investigated current practices of aphasia rehabilitation in Australia. Participants worked in acute care, inpatient rehabilitation, outpatient rehabilitation, and community care settings. Findings revealed that speech-language pathologists who completed the questionnaire used functional, social, and cognitive neuropsychological treatment approaches. Group therapy and discourse approaches have rarely been used. Participants reported they were not able to implement group therapy due to inflexible funding models (Rose et al. 2013). This is similar to findings from Katz et al. (2000) showing that less than half of the respondents reported using group aphasia treatment despite the marked evidence on its [group aphasia treatment] effectiveness.

Ciccone et al. (2012) investigated the differences between projected and actual service delivery (sessions/week) speech-language pathologists provided to persons with aphasia (PWA). Results indicated that speech-language pathologists were not able to provide the planned services secondary to institutional and clinical factors as well as factors associated with the client. Institutional influences included the number of clients on a speech-language pathologist’s caseload, the type of employment (full-time or part-time), and the model of service delivery. Clinical components comprised clinical reasoning and application of research evidence. The issues related to the PWA involved prognostic elements (time post onset, age, severity, discharge destination, psychosocial issues, motivation, support, and availability for treatment). Based on these findings, speech-language pathologists’ clinical decision making is multidimensional and is influenced by several external factors (Ciccone et al. 2012).

While it is unknown to what extent speech-language pathologists use empirical evidence in current practice with clients with aphasia, there is some evidence to suggest that implementation of EBP during clinical practice is based on exposure to research journals during graduate school and clinical expertise during the clinical fellowship year (Zipoli and Kennedy 2005). Still, a decline in exposure to the research literature occurs as clinicians move from an educational setting into the clinical environment (Byng and Black 1995; McCabe et al. 2009; Zipoli and Kennedy 2005). Several models have been proposed to enhance students’ knowledge and transfer of EBP. A case-based approach to learning teaches students how to use EBP during all stages of client contact from referral to dismissal (McCabe et al. 2009). Students subjectively reported positive responses to case-based learning (CBL) following its second year of implementation (McCabe et al. 2009). In addition, Bauer and Schultz (2010) applied two approaches – assignment model and journal club – to...
enhance transfer of EBP from the university setting to clinical practice during students’ clinical practicums. Students reported that the assignment model improved their knowledge of and ability to evaluate and apply EBP principles. However, practicing clinicians from the students’ internships reported that during the journal club model, 78% searched for and used peer-reviewed research to evaluate or treat a client compared to 68% from the assignment model (Bauer and Schultz 2010). No studies were found documenting transfer of these models into the clinical setting following graduation (McCabe et al. 2009; Modi and Ross 2000).

One clinical report documented subjective outcomes of speech-language pathologists’ EBP behaviors in an aphasia rehabilitation setting. The Evidence-Based Aphasia Clinic (EBAC) was an outpatient clinic comprised of five clinical speech-language pathologists, a behavioral neurologist, neuropsychologist, and a research speech-language pathologist (Fucetola et al. 2005). Care paths based on the most efficacious aphasia treatments were created for receptive and expressive deficits as well as their impact on life participation. Clinicians who participated in the clinic were more motivated to search for and apply EBP during treatment. One obstacle noted was time to read and analyze the literature as well as to update care paths accordingly in order to ensure reliable and effective treatment (Fucetola et al. 2005). This clinical report provides subjective information regarding application of EBP in clinical aphasia rehabilitation, but further research is warranted.

Scant research is available that describes the specific clinical practices of speech-language pathologists working in aphasia rehabilitation. It is unknown if, or to what extent, speech-language pathologists incorporate principles of EBP. Additionally, it is not clear what factors influence the practice patterns of speech-language pathologists. Although current aphasia literature provides some information related to assessment and treatment procedures, no studies have reported specific practices of speech-language pathologists treating individuals with aphasia. For these reasons, the aim of this study was to develop a theory to describe how speech-language pathologists who work with people with aphasia understood their current practice of developing aphasia assessment and intervention strategies, and the major processes that their clinical practice undergoes over time.

2. Methods

A university Institutional Review Board approved this study and all participants signed informed consent. For purposes of this study, aphasia rehabilitation was defined as therapeutic intervention performed by a speech-language pathologist to improve a communication deficit or to facilitate communication. A systematic grounded theory design (Corbin and Strauss 2008) was
used to allow a theory to emerge that is grounded in the words of the participants. An exploratory qualitative design gave credibility to the clinical speech-language pathologists’ voice as well as provided rich descriptions of each speech-language pathologist’s current practice techniques.

2.1. Participant selection
The selection of participants occurred through maximum variation purposive sampling in order to obtain rich information representing a wide range of participants’ experiences treating individuals with aphasia in a variety of settings. Participants were recruited from several rehabilitation facilities in central Kentucky by a letter, e-mail or verbal communication. Participants included ten speech-language pathologists who were employed in acute, inpatient rehabilitation, long-term, or home health care (see Table 1) and had at least one person with aphasia on their caseload or had one year of experience treating individuals with aphasia. Age ranged from 22–60 years. All participants were female and spoke English as their primary language. Range of experience treating individuals with aphasia was one to 29 years. In Table 1, pseudonyms were applied to protect identification of participants. Theoretical sampling occurred to ensure that all participants were able to express concepts that would help inform the emerging theory. Sampling ceased when data saturation was evident.

Table 1. Participant characteristics

<table>
<thead>
<tr>
<th>Participant</th>
<th>Years of Experience</th>
<th>Current Place of Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Callie</td>
<td>29</td>
<td>Home health</td>
</tr>
<tr>
<td>Chloe</td>
<td>10</td>
<td>Long-term care</td>
</tr>
<tr>
<td>Demple</td>
<td>9</td>
<td>Acute care</td>
</tr>
<tr>
<td>Emily</td>
<td>28</td>
<td>Inpatient rehabilitation</td>
</tr>
<tr>
<td>Greta</td>
<td>9</td>
<td>Long-term care</td>
</tr>
<tr>
<td>Hannah</td>
<td>1</td>
<td>Long-term care</td>
</tr>
<tr>
<td>Julie</td>
<td>1.5</td>
<td>Acute care</td>
</tr>
<tr>
<td>Madison</td>
<td>5</td>
<td>Inpatient rehabilitation</td>
</tr>
<tr>
<td>Nelma</td>
<td>1.5</td>
<td>Inpatient rehabilitation</td>
</tr>
<tr>
<td>Sandy</td>
<td>19</td>
<td>Long-term care</td>
</tr>
</tbody>
</table>

2.2. Data collection
Data were collected through semi-structured interviews. Interviews were conducted by the principle investigator, who was also a speech-language pathologist. Reflexive bracketing was completed prior to and during the research process in order to identify potential biases (Ahern 1999). As a speech-language pathologist, the author acknowledged biases of her own treatment approaches. To ensure no bias toward one participant’s views, quotes from all participants were reflected in the final story line.
The designated time and location of interviews was selected based on convenience of participants. Interviews occurred in a private room, were audio-recorded, and lasted 45–90 minutes. The interviews were guided by six open-ended questions (see Table 2). Based on any similarities between responses to interview questions or new, relevant issues, modifications were made during the following interview. For instance, the first two participants expressed the importance of establishing rapport; therefore, a question was added to the next interview, ‘how do you think having good rapport impacted treatment?’ Following the interview, the primary investigator transcribed audio recordings verbatim. Each participant took part in one interview and was contacted by phone or e-mail to clarify any transcription ambiguities. Data collection ceased after interviews with 10 participants when data saturation was evident.

Table 2. Research Sub-Questions

- How do speech-language pathologists assessing and treating persons with aphasia in a rehabilitation setting describe their current practice?
- What is their process of determining an assessment or treatment plan, including activities and materials?
- How does a speech-language pathologist’s practice change over time from school to present?
- What causes or influences the change in practice over time?
- How do speech-language pathologists learn new treatment techniques?
- How do speech-language pathologists incorporate evidence-based practice into their assessments or treatment plans?

3. Data analysis and results

Data collection and data analysis occurred simultaneously to allow constant comparison (Corbin and Strauss 2008). The constant comparative procedure permitted comparison of all interviews in order to group similar data, develop theory, and drive theoretical sampling. For instance, codes from interview two were compared to those of interview one. Guided by grounded theory procedure, three types of coding (open, axial, and selective) were applied to the data (Corbin and Strauss 2008). During all phases of data analysis, in vivo codes were used in which codes represented the words expressed by the participants.

During data collection and analysis, memos were generated to ensure the emerging theory supported participants’ views. During coding, memos were made regarding the relationship between codes. Memos were also recorded to express the researcher’s thoughts about codes and categories. For example, after open coding, the following memo was made, ‘Although being busy decreases opportunities to individualize treatment and engage in literature review, it does increase the number and type of clients a speech-language
pathologist treats which increases clinical knowledge and experiences.’ The coding process and results are described in more detail below.

3.1. Open coding
Open coding involved identification of *in vivo* codes using words, phrases and sentences from interview transcriptions. For example, in the following excerpt from Julie’s interview, all of the bold words were coded as ‘limited time to read journals’.

*I would like it if I had more time to read research and go to conferences or learn more things, but there is not enough time and when you have to spend all your time treating patients you don’t have time to learn new EBP.’

Table 3 provides examples of the open coding process, including the participant(s) who referred to the code, and corresponding quotes from participants. A total of 730 codes emerged. Each code was written on a notecard and similar codes were grouped to form a category. A total of 34 major categories surfaced (see Table 4). For example, one category was ‘limited experience with EBP’. This category described the following codes: ‘did not know how to determine good research,’ ‘enjoyed reading research when I first started,’ ‘I don’t use EBP,’ ‘limited access to research databases,’ ‘no practical advice from research articles,’ and ‘I don’t think EBP is implemented well in rehab’.

<table>
<thead>
<tr>
<th>Code</th>
<th>Participant who mentioned</th>
<th>Corresponding quotes made by participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>A shock when you leave school</td>
<td>Demple, Greta</td>
<td>School clinic is not realistic</td>
</tr>
<tr>
<td>Able to use clinical experiences to help with treatment</td>
<td>Julie, Hannah</td>
<td>Apply treatment techniques used by supervisors</td>
</tr>
<tr>
<td>Determine best communication modality</td>
<td>Callie, Demple, Emily, Chloe</td>
<td>Use of multi-modalities during treatment: singing, writing, auditory, verbal Goals should address communication in multiple modalities (gestures, one-word responses)</td>
</tr>
<tr>
<td>Educating nursing staff about treatment</td>
<td>Emily, Chloe, Hannah</td>
<td>Nurse may ask what they need to do to help the patient communicate Posted guidelines (communication or swallowing) above bed.</td>
</tr>
<tr>
<td>Flexible treatment</td>
<td>Callie, Demple, Greta, Hannah, Julie, Madison</td>
<td>Providing informal treatment Flying by the seat of their pants; going with the flow</td>
</tr>
</tbody>
</table>
Table 4. An example of how the categories emerged

<table>
<thead>
<tr>
<th>Category</th>
<th>Codes</th>
</tr>
</thead>
</table>
| A shock when you leave school | Aphasia and child language were taught in the same class  
Give us more ideas for treatment  
Graduate program taught EBP but did not practice it  
I wanted to be taught specific therapy tasks  
Limited training in swallowing and cognition  
My instructor was not a researcher  
Professor encouraged communication-partner training  
School prepared me to work in educational setting  
I attend conferences/trainings  
I get continuing education units from a program at work |
| Gain confidence as you grow and get experience | Learn from other therapists  
Clinical experience guides treatment  
More clinical experience leads to less time needed to dwell on each patient  
Therapist must be motivated to learn  
You just learn as you go |

3.2. Axial coding

Axial coding involved defining the conditional relationships of the categories that emerged during open coding, by answering the questions what, when, where, why, how, and with what consequence (Corbin and Strauss 2008; Scott 2004). For example, for the category ‘little experience with EBP (research literature),’ the first question of ‘what’ was answered by developing a definition of the category. The second question was ‘when did you have little experience with EBP?’ The third question was ‘where did you have little experience with EBP?’ The first three questions (what, when, and where) identified the foundational structure of the category. The fourth question was ‘why did you have little experience with EBP?’ This question created a condition for the category (Scott 2004). The next question was ‘how did you have little experience with EBP?’ The fifth question, ‘what is the consequence of little experience with EBP?’ allowed actions and interactions to develop between the categories (Scott 2004). This analytic process was completed for all 34 categories (see an example in Table 5; all data in the table were taken from the interviews). The final question generated a list of consequences that connected all the data and became the focus of the remaining coding process. There were a total of 54 consequences.
<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Little experience in evidence-based practice (EBP) (research literature)</td>
<td>Amount of experience or exposure to EBP</td>
<td>Training Actual practice</td>
<td>School Actual practice</td>
<td>Hit the floor running (busy)</td>
<td>I don't keep up with the profession like I should</td>
<td>Clinicians use a trial and error system</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Quick changes in patients</td>
<td>I don't do research/use EBP</td>
<td>I don't know the long-term benefits of my patients.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>My instructor was not a researcher</td>
<td>I don't want ST to consume my life</td>
<td>It's hard not to go with the norm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not as much time to think about each patient in actual practice</td>
<td>I attend conferences to learn</td>
<td>Therapeutic routine</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Did not know to determine good research</td>
<td>I would guess at a definition of EBP</td>
<td>Inconsistent accuracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Non-thesis program</td>
<td>People still do treatments that research has proven ineffective</td>
<td>I haven't seen anyone achieve a goal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Graduate program taught EBP but did not practice it</td>
<td>Research articles don't tell you what to do in a therapy session</td>
<td>Straightforward goals</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Graduate experience with research focus</td>
<td>Do people really believe it works or don't know what else to do?</td>
<td>I don't know how much language they get back</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Therapist must be motivated to learn</td>
<td>No way to measure carryover or generalization</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>You just learn as you go</td>
<td>No change in treatment outcomes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Now read when I am unsure of a treatment or certain situation</td>
<td>Treatment will not change</td>
</tr>
</tbody>
</table>
The 54 consequences were further defined using a reflective coding matrix (see Figure 1) in order to form a core category, which represented all of the categories and described the data as a whole (Corbin and Strauss 2008; Scott and Howell 2008). The reflective coding matrix included five areas as described by Corbin and Strauss (2008): processes, properties, dimensions, contexts, and modes for understanding the consequences. Again, the matrix was constructed using in vivo participant codes. Construction began by examining the consequences column from the conditional relationship table. Consequences that were mentioned most frequently (6 to 15 times) became a process. The four essential processes that emerged were ‘establish an ongoing relationship’, ‘improve lines of communication’, ‘meet their needs as best we can’, and ‘connect with patients at a different level’. These processes represented the main actions of the participants (Scott and Howell 2008).

The remaining 50 consequences filled in the other sections of the reflective coding matrix (see Figure 1). Properties helped to define each process (Corbin and Strauss 2008). For example, for the process ‘improve lines of communication’, the property was ‘therapist communicates recommendations to other health care team’. Dimensions described variations of the process. For the process ‘establish an ongoing relationship’, some of the dimensions were ‘goal related to family education, provide personal opinion, sometimes you need to spend more time with family, good rapport makes caregivers as well as patients want to do’. Context was the environment in which the process occurred. For the process ‘meet their needs as best we can’, the context was ‘make cause and effect connections in the brain’. Modes for understanding consequences were the result of the consequences. For the process ‘connect with patient at a different level’, the result was ‘better outcomes with flexible treatment style’. These areas as a whole led to the core category: ‘connecting with patients to meet their communication needs’. Each component of the core category was mentioned frequently within the codes, conditional relationship table, and the reflective coding matrix.

3.3. Selective coding
The selective coding process related the core category, consequences, and processes to form a sequential story, or theory. The story line (Figure 2) described an emerging descriptive theory of the progressive process these speech-language pathologists underwent to develop assessment and treatment strategies for individuals with aphasia. Evolution of this process occurred as the clinician gained experience with empirical evidence, clinical expertise and client perspectives. This theory is described below, with supporting verbatim quotations.
### Core Category: Connecting with patients to meet “their” communication needs.

<table>
<thead>
<tr>
<th>Process</th>
<th>Establish an ongoing relationship</th>
<th>Improve lines of communication</th>
<th>Meet their needs as best we can</th>
<th>Connect with patient at different level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties</td>
<td>Involvement of support system in therapy</td>
<td>Therapist communicates recommendations to other health care team</td>
<td>What patient needed</td>
<td>Patient centered goals</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Goal related to family education</td>
<td>Medicare is cracking down</td>
<td>I want to know how we can best help with their communication</td>
<td>Home treatment program</td>
</tr>
<tr>
<td>Properties</td>
<td>Provide personal opinion</td>
<td>Make professional recommendations</td>
<td>Determine best communication modality</td>
<td>More community reintegration</td>
</tr>
<tr>
<td>Properties</td>
<td>Sometimes you need to spend more time with family</td>
<td>Therapist makes recommendation to treat patient</td>
<td>Determine best techniques to help patient</td>
<td>More home programs for families</td>
</tr>
<tr>
<td>Properties</td>
<td>Make recommendations to patient and family</td>
<td>I don't think EBP is implemented well in rehab</td>
<td>Create a treatment plan</td>
<td>More psychosocial issues in the future</td>
</tr>
<tr>
<td>Properties</td>
<td>My people skills are better</td>
<td>I don't use EBP</td>
<td>Functional to go home</td>
<td>Treatment will become more quality/outcome focused</td>
</tr>
<tr>
<td>Properties</td>
<td>Good rapport makes caregivers as well as patient want to do</td>
<td>Time limits discovery of new materials</td>
<td>Clinicians use a trial and error system</td>
<td>My mental library is fuller</td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td>You don't have time to research every patient</td>
<td>Length of plan of care</td>
<td>I can think better on my feet</td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td>I still use some of the same materials but not as often</td>
<td></td>
<td>Became more flexible and well-rounded</td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td>Want to individualize treatment but don’t have time (CONTROL)</td>
<td></td>
<td>More informal with treatment now</td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td></td>
<td>May not keep them on caseload entire time</td>
<td>More personalized treatment now</td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td></td>
<td></td>
<td>No personal goals</td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td></td>
<td>Need for immediate services</td>
<td>If patient makes progress, they put forth effort</td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td></td>
<td>No way to measure carryover or generalization</td>
<td></td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td></td>
<td>Perfect candidate for therapy</td>
<td></td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td></td>
<td>School is a bubble</td>
<td></td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td></td>
<td>School provides base knowledge</td>
<td></td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td></td>
<td>Make cause and effect connections in brain</td>
<td></td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td></td>
<td>I think we do make a difference</td>
<td></td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td></td>
<td>Better outcomes with flexible treatment style</td>
<td></td>
</tr>
</tbody>
</table>

**Contexts**
- Caregiver education
- Impact of reimbursement agency
- School provides base knowledge
- If it interest the patient, it will hopefully generalize

**Modes of understanding consequences**
- Providing security and reassurance
- Collaboration is what rehab is all about
- Better outcomes with flexible treatment style
3.3.1. Establish an ongoing relationship.
First, the speech-language pathologists established an ongoing relationship with patients and families to provide security and reassurance via good rapport and trust. Participants reflected on the importance of building rapport to enhance treatment outcomes, such as when Chloe stated, ‘If they don’t trust you and they don’t see you as someone who is there to help them versus somebody that is there to bother them or drag out of their room for therapy, your odds of making progress towards your goals are a lot less.’ Building rapport appeared to be the hallmark of establishing a relationship with the client. This component of the process did not appear to differ between participants with less or more experience. Hannah, who had one year of experience, and Chloe, who had ten years of experience, both made the same comment, ‘Rapport provides security and reassurance’.

3.3.2. Improve lines of communication.
Then, the speech-language pathologists established and maintained lines of communication with clients, families, other therapists, nurses, reimbursement
agencies, and doctors. This involved collaborating and remaining flexible when communicating with others, as demonstrated by Greta’s comment ‘You get older and you mature and you look at the big scheme of things and you just learn to adapt because every day or year or whatever the time may be there are changes with Medicare or health insurance or your company policies. You have to learn to go with the flow and adapt.’ Several participants commented on the lines of communication with reimbursement agencies. For instance, participants expressed limited control over the number of clients on their caseloads as well as the frequency and number of treatment sessions. Madison stated, ‘His insurance approved him for sub-acute, which is an hour and a half a day but we gave him three hours a day because we could and he needed it. Eventually, because he was making progress, his insurance bumped him up to acute so he got three hours of therapy.’

All of the participants communicated with the family as part of a patient’s plan of care. However, they employed different methods based on the years of experience. Participants with less experience incorporated caregiver involvement using more concrete methods (such as providing handouts), while participants with greater experience tended to use more flexible methods (such as engaging the family in conversation). For example, Julie, who had one and a half years of experience stated ‘I have not seen workbooks be helpful but I have seen a lot of families like that [workbooks] because that gives them something to do’; while Sandy, with 19 years of experience, noted, ‘Depending on how they do on that test, I write my goals. Then I try to talk to the family member. If it’s something they weren’t doing before, I will not write that goal.’

3.3.3. Meet their needs as best we can.

Next, the participants determined the patient’s communication needs and established a treatment plan based on academic and clinical knowledge, in order to meet the patient’s needs as best as possible. As Callie stated, ‘We need to meet their needs as best we can. From not just a professional standpoint, but personal, because a lot of times these people need more than just the professional.’

Participants discussed obtaining foundational and practical knowledge related to aphasia treatment during graduate school, and several of the speech-language pathologists gained additional hands-on experience through participation in an aphasia clinic. In addition, the importance of empirical evidence for aphasia treatment was emphasized during graduate training for several participants, as when Greta noted ‘That (research literature) is all we did in school. I can just remember being inundated with evidence-based practice.’

All participants stated they learned about new or different treatment strategies most efficiently from other speech-language pathologists. Greta said ‘I
tend to consult with another therapist more often. You are going to get more accurate, timely information. It is easier than sifting through information. Researching is hard and time-consuming. I don’t have that time on the clock and it is hard to have the time off the clock. Susie (pseudonym) is someone I respect, she was my clinical supervisor; she has been doing it for years. It seems like it is more of a convenient thing to do.’ Likewise, Nelma stated ‘I would probably just ask another therapist because it would take a long time to search for journal articles. So, usually if they don’t know they can direct me toward someone who does know. Since they have experience, I feel like it’s, you know, a lot easier and quicker.’

As the speech-language pathologists became more experienced, their application of empirical or theoretical support declined. During their graduate programs, participants obtained knowledge related to research literature but reported difficulty implementing empirical findings into actual practice. For this reason, participants relied on clinical expertise to guide their practice. In other words, the longer a participant practiced speech-language pathology, the more they relied on clinical expertise to guide their practice. Demple stated, ‘You don’t really have as much time to think about each one as you would hope. But luckily, my experience has been that the more clinical experience I get the less time I need to dwell on each patient.’ With time, participants gained clinical knowledge that created more confidence in treating individuals with aphasia.

There was no difference in the application of evidence across the continuum of care. Whether these speech-language pathologists worked in an acute care setting or a long-term care facility, experiences with research literature were similar. For instance, Julie, who worked in acute care, stated, ‘I had graduate experience with a research focus. Now, I don’t do research. I don’t want speech therapy to consume my life.’ Nelma, who worked in inpatient rehabilitation, and Greta, who worked in long-term care, each made a similar statement about not having time to look at evidence.

Participant experience levels also influenced the relationship between evaluation and intervention planning, which shifted from focusing on structured tasks addressing specific impairments to more social approaches targeting an individual’s overall needs. All participants indicated that deficits found in the evaluation were components of intervention. However, participants with more experience considered psychosocial issues. For example, Nelma, who had one and a half years of experience described a goal of asking a client to identify an object from a field of four objects, while the more experienced Emily (28 years) stated, ‘I usually like to find out what is important to the patient. If they are in to the newspaper, I will try to use the newspaper.’
3.3.4. Connect with the patient at a different level

Finally, by implementing a flexible treatment style, the speech-language pathologists were able to connect with the patient at an individualized, personal level, which yielded better communicative outcomes. As Callie noted, 'As you establish an on-going relationship with people, you can sense their mental-emotional state. Sometimes, they just need you to connect on a different level.'

As experience increased, clinicians strived to provide more personal, functional treatment. Even more seasoned clinicians stated that they utilized workbooks when they first started, but now implement items that belong to the patients during treatment. Hannah, who had one year of experience, presented an example of a treatment session: 'I do have some W ALC [workbook of activities for language and cognitive] pages of simple to complex yes/no questions, or small paragraphs, or that auditory-comprehension rehabilitation book, small to large paragraphs with questions to follow. I have a little bag of everyday objects I can carry from room to room.' In contrast, Sandy, who had 19 years of experience, suggested a greater focus on functional interventions: 'During ADLs [activities of daily living], I do a lot of functional things. As they are following directions or sequencing I have them name the task or object. I am not a traditional therapist that lays out five objects and says name the cup. I don't like to do that and I don't feel like the patient enjoys it.' Callie, who had 29 years of experience, gave a similar example of a treatment session for memory: 'If there is something you [patient] watch on TV, like the evening news or a show, pick two things you can recall and tell your spouse.'

Participants reported that their treatment style and repertoire had evolved over the years. Nelma stated, 'I learned more therapy tasks to do.' Demple noted 'I feel like I can think on my feet much better. I think part of it is just nerves and not having the confidence. You gain that as you grow and get a lot of different experiences. I would say that confidence, flexibility, and thinking on my feet have all improved.' Chloe stated 'I use less textbooks and more personalized and patient-driven treatments with regard to the patient’s interests, family, job.' And Sandy reported 'I think because I have gotten so comfortable with what I do that I have gone from the traditional approach of using the book and going exactly by the questions in the book to where I can pick up a newspaper or something in their room and have a good treatment session. I feel like I have better outcomes now than I did before.'

In summary, the clinical practice of these speech-language pathologists was based on the process of connecting with patients to meet their needs. This process developed over time based on educational and clinical experience. During graduate training, the participants obtained knowledge regarding research literature. However, empirical findings were not applied to treatment; instead, these speech-language pathologists depended on per-
sonal and collaborative clinical expertise to guide assessment and treatment strategies.

4. Study rigor

Study rigor included several verification procedures based on criteria outlined by Schwandt et al. (2007). To increase credibility of findings, member checking was used in which participants reviewed the final data analysis. Through member checking, respondents were granted the right to modify the story line to ensure all of their views were expressed accurately. All participants agreed to the final analysis making no adjustments. In addition, an external reviewer experienced in qualitative research verified the analysis and findings. A second person compared the transcriptions to the audiotapes. If any discrepancies were found, revisions were made. Verification of data collection and analysis was confirmed through the use of memos and field notes and via use of in vivo quotes. Also, an audit trail was kept to ensure an accurate record of the presence and number of codes and categories.

5. Discussion

Our findings describe a process that these speech-language pathologists underwent to develop evaluation and treatment strategies for persons with aphasia. Connecting with patients to meet their communication needs describes the process these speech-language pathologists used to engage in their clinical practice; this process evolved over time as the clinician gained experience from empirical evidence, clinical expertise, and client perspectives.

5.1. Empirical evidence

During their graduate programs, participants obtained knowledge related to research literature but reported difficulty implementing findings into actual practice. Vallino-Napoli and Reilly (2004) indicated that only 53% of respondents used electronic databases to search for literature. The decline in exposure to the research literature as clinicians moved from the educational setting into the clinical environment may be due to time constraints (McCabe et al. 2009; Vallino-Napoli and Reilly 2004; Zipoli and Kennedy 2005). Often speech-language pathologists have large caseloads followed by documentation obligations as well as family, caregiver, or physician interactions. In addition, speech-language pathologists may find it difficult to understand peer-reviewed articles (Pollock et al. 2000; Vallino-Napoli and Reilly 2004; Zipoli and Kennedy 2005). Participants in the current study reported the same obstacles of limited time and access as well as difficulty understanding the practical implications of research articles. Therefore, when faced with a
clinical question, speech-language pathologists may seek professional advice from clinical guidelines, personal contact, professional development events, colleagues, old texts, or the internet (Foster et al. 2013; Ratner 2006; Zipoli and Kennedy 2005) instead of seeking information from libraries or electronic resources (Foster et al. 2013).

Although the participants did report learning about empirical evidence in graduate school, their difficulty implementing it in clinical practice may indicate challenges in teaching EBP. McCabe et al. (2009) noted two such challenges: teaching students to search and evaluate the literature, as well as to develop clinical expertise using evidence. One solution may be case-based learning (CBL), defined as a ‘method that uses case studies as active learning tools’ (McCabe et al. 2009: 209). Case-based learning uses a small number of detailed, complex cases to increase learning and clinical reasoning as compared to a large number of short, simple cases. Cases are real-life examples of clients which aids in bridging the gap between research and practice. Students subjectively reported more positive responses to CBL following its second year of implementation. No evidence was found regarding transfer of CBL into clinical practice.

5.2. Clinical expertise
Defined as acquired knowledge based on best judgments of clinical practice, clinical expertise (Sackett 1997) is an important component of EBP. Participants in the current study reported learning about new or different evaluation and treatment strategies most efficiently from other speech-language pathologists. Although clinical decisions should include evaluations of the best empirical evidence, there continues to be a divide between research methodology and clinical experience (Bero et al. 1998; McIntyre 2006). Often, clinicians are skeptical regarding implementation of research findings due to the individualized nature of their clients (Ratner 2006). As Malterud (2001: 399) noted, ‘when knowledge is applied to the individual patient, the logic of affirmation often over-rules the scientific logic of refutation’. For this reason, practicing speech-language pathologists often rely on their own or fellow therapists’ experiences to guide their clinical practice. For instance, speech-language pathologists who completed a survey in Australia reported that expert opinion was the least acceptable type of evidence to guide practice; however, 86% of the respondents relied on expert opinion as a source of evidence (Vallino-Napoli and Reilly 2004).

Ratner (2006) noted that speech-language pathologists cannot rely solely on clinical experience throughout their careers. Knowledge related to professional practices evolves based on the most efficacious treatment. Evidence-based practice related to communication disorders grows each year and
treatments must be updated. Therapists may be using treatments that have already been proven ineffective (Ratner 2006). One participant in the current study commented on seeing this occur quite often in the educational and clinical environments. Madison stated, ‘I feel like a lot of people are still doing old treatments for aphasia. I feel like what I learned in school are what people are still doing out there. I don’t think its super effective. I work with a (person) who has been out for 30 years and that is what (this person) is doing. This (person’s) aphasia class was in the same class as child language. So people just treat it the same.’

5.3. Client perspectives
Client perspectives included the opinions expressed by the individual receiving therapy. Clients’ views provided significant information to aid the participants’ clinical decision-making. Client perspectives were featured prominently in the emergent theory, with all participants reporting that client-centered care was important to them. Several studies have addressed the importance of including client’s views in the goal-writing process in order to enhance performance (DiLollo and Favreau 2010; Hersh et al. 2012; Kagan et al. 2008; LPAA Project Group 2001). One example of client-centered service delivery is the Life Participation Approach to Aphasia (LPAA). The LPAA emphasizes functional, relevant goals within aphasia rehabilitation. The intent of LPAA is for persons with aphasia to ‘reengage into everyday society’ from the assessment until the client elects to no longer have communication support (LPAA Project Group 2001: 280). However, Foster et al. (2013) reported a difference between the patient’s goals and those set by the speech-language pathologist. Based on the International Classification of Functioning, Disability and Health (ICF), speech-language pathologists’ goals were impairment and activity based. Individuals with aphasia prefer goals spread across the components of the ICF. People with aphasia want a patient-centered approach to care.

Although EBP includes three components, the interaction between them is required to ensure best clinical practice. Clinical decision making combines research literature, professional expertise as well as a client’s views. This study showed that the process of connecting with patients to meet their communication needs evolved over time as the clinician gained experience from empirical evidence, clinical expertise, and client perspectives; a finding that is consistent with the well-established principles of EBP.

6. Clinical implications
In this study, the process of developing aphasia evaluation and treatment strategies mostly depended on clinical expertise with limited use of empirical
evidence. For over a decade, dissemination of research into clinical practice has been an obstacle (Bero et al. 1998; McIntyre 2006). Our findings supported this challenge. Participants stated that they did not have access to or time to interpret EBP. Others expressed frustration in not understanding the clinical relevance of research literature. The most effective and consistent methods for ensuring EBP in the health care field are through ‘educational outreach visits, reminders, multifaceted interventions like audit and feedback, and interactive educational meetings’ (Bero et al. 1998: 467). Increasing access and readability of EBP in clinical practice is imperative for the use of evidence to become standard clinical practice.

Participants reported that research findings were often left in the classroom and not applied to practice. By understanding the process these participants used to treat persons with aphasia, researchers and educators can design methodology as well as course materials that adhere to the clinical reality faced by many practitioners. Students should have experience implementing EBP while in school since implementation of EBP is partly based on exposure during the clinical fellowship year (CFY) (Zipoli and Kennedy 2005). Several of the participants from the current study stated they learned the most during their CFY from their clinical supervisor. Ensuring opportunities for implementing EBP during the CFY could establish enduring habits.

7. Limitations and future research

This study may have been limited by including only speech-language pathologists in the central Kentucky area. Although data saturation was established following the tenth interview, including speech-language pathologists from various geographic locations may have improved the theoretical sampling. However, the intent of this study was not to identify the experiences of all speech-language pathologists working with PWA, but instead to generate a theory that began to explain the experiences of this group of speech-language pathologists, which may in turn permit understanding of individuals working in similar situations. Additional research related to speech-language pathologists’ understanding of EBP and evaluation and treatment of people with aphasia is needed.

8. Conclusion

Connecting with patients to meet their communication needs was the ultimate therapeutic goal expressed by all participants. Evolution of speech-language pathology practice begins in graduate school with foundational knowledge of EBP, and continues into clinical practice with practical skills based on experience. Our findings support existing evidence of the EBP gap between educational curricula and clinical practice. However, understanding
the process these speech-language pathologists used to design treatment for people with aphasia will influence the role of research literature in clinical practice. Researchers and/or educators can design methodology and courses with a clearer comprehension of clinical reality, which may result in current and future speech-language pathologists implementing empirical literature more successfully into their clinical practice.

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