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Journey To Professional Competency in Speech-Language Pathology

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Liz Stevens journeyed into the scholarship of teaching and learning from the academic service-learning area. As one who studied student learning from a service-learning perspective and was not always able to identify the learning that could be attributed to this pedagogy, Liz naturally began to wonder about what learning looks like in her field. Liz's work then moved into examining the growth of professional competency in the speech-language pathology field, seeking to understand how students gain the knowledge that professionals hold; this work reflects the theme in this volume of narrowing the expert-novice gap.

This piece compares student work with that of professionals in the field, demonstrating similarities and differences in how each address "real world" speech-language pathology problems. Liz makes a compelling case for providing multiple ways for students to learn course material; since everyone learns differently, the road to professional competence should have many lanes. This piece should be of great interest to anyone who seeks to help their students think more like "professionals in the field," whatever the field may be.

The Starting Point: Exploring Service-Learning

My interest in teaching and learning emerged rather abruptly after I introduced academic service-learning (AS-L) into one of my graduate courses (Stevens 2002). As an advocate of serving others, I sought to support a most-vulnerable group of our population, individuals with communication impairments. As a speech-language pathologist (SLP) training students to enter the profession, I hoped to provide them with unique learning opportunities. I began to send my students out to work with various community partners including SLPs as well as teachers who supported persons with severe communication disorders. Many of my students reported to me that they were having extraordinarily meaningful learning experiences while others complained that their assignments were little more than "cut and paste" activities which did nothing to expand their skills. This prompted me to begin thinking about the nature of these experiences and what constituted both good and bad community placements.

> *To be a teacher in the right sense is to be a learner. Instruction begins when you, the teacher, learn from the learner, put yourself in his place so that you may understand what he understands and in the way he understands it.*
>
> *--- Kierkegaard (1962)*

My career as an academic at the time was in its infancy and followed a lengthy and highly rewarding career of over 20 years as an SLP. I knew quite a lot about professional practice but significantly less about how to train students. My teaching experience was limited and my pedagogical preparation sparse. My naiveté relative to teaching and learning emanated from years of mediocre instruction by professors both at the masters and doctoral levels. The predominant style used at all levels was the lecture. This was given routinely sans visual aids of any type and with only the slightest hint at its overall organization (i.e., where the lecture was going). While I myself had survived this instructional format, excelling as a student despite it, I believe it had bled all original thought out of me. My aim in providing experiential

learning in my class was an intuitive move initially to connect students with challenges they would face outside the classroom in the real world and in application of course material to genuine problems.

I had learned from a literature review that research on AS-L fully supported its efficacy as a tool to promote civic engagement, but was less clear about the role, if any, that it played in mastery of course content. Previous research I conducted had explored the role of AS-L in students' learning course content, using course grades and marks on exams as measures of such (Stevens 2005, 2006a, 2006b). The results had yielded weak, non-significant correlations with service-learning experiences. Did this mean that students did not benefit academically from service-learning as an instructional tool? Or, was I using the wrong measures to assess learning outcomes? I was measuring something, but what?

At that point it became clear to me that before I continued to explore the benefits of AS-L, I had to determine how learning was taking place within my class. My selection for the Faculty Development Seminar on the Scholarship of Teaching and Learning (SOTL) at Eastern Michigan University for 2006-2007 enabled me to explore this problem. I had the opportunity to read, study, and dialogue with others about the very nature of teaching and learning. I began to ask myself if I even knew what learning was. How could I measure something without first defining it?

> *If we knew what it was that we were doing, it would not be called research, would it?*
>
> *--- Einstein (found in Calaprice 2000)*

Defining the Path

Within the area of communication sciences and disorders (CSD) that includes both the professions of speech-language pathology and audiology, research and publications related to training have focused traditionally on the clinical teaching of students (McCrea and Brasseur 2002; Scudder 2006). More recently interest in academic teaching and pedagogy has emerged (Ginsberg, Carpenter, Eichstadt

and Bennett 2007; Scudder 2006; Steckol 2007). To date, however, there is still little understanding of the processes by which students in training come to be professionals. There is widespread agreement by practicing SLPs and academicians on the knowledge and skills necessary to practice (ASHA Scope of Practice 2001; see also ASHA 1999). However, at the same time conflicting expectations exist about what entry-level performance of new professionals should be and about when and where students should acquire this information.

In fact, we actually know very little about how students acquire information and learn to apply it clinically. We also have scant information about whether students learn equally well from case studies, simulations, and/or actual practical experiences within a CSD curriculum. In the interest of using time and resources wisely, it only makes sense that we set about to determine what is the most effective and efficient method of instruction. This is particularly critical due to rising costs to support programs and the decline in the number of individuals pursuing careers in higher education (Anderson 2007; Silliman 2007). To this end, recently the American Speech-Language-Hearing Association (ASHA) held a national summit to discuss the crisis in higher education related to the education and training of students in CSD, with these types of issues foremost on the agenda (Anderson 2007; McNeilly 2007).

My interest in investigating the effectiveness of service-learning in training students to become skilled and caring professionals led me to consider first what learning was taking place and then to consider the more fundamental question of what defines the professional. Merely examining acquisition of content knowledge was not particularly helpful in exploring professionalism. However, by rethinking what constituted 'learning' for a professional – such as the place of application, analysis, synthesis, and evaluation – my perspective had changed (Anderson and Krathwohl 2001). I was no longer looking only at isolated, splinter skills involving specific knowledge but instead at activities that would tap into the real skills required of the professional (see Guilford, Graham and Scheuerle 2007).

In order to provide the most effective training programs, understanding how students learn and what is required for them to

achieve professional competency seems paramount. General questions of interest should include: (1) what does professional competency look like in SLPs? In particular, are there specific features or characteristics which distinguish it? and (2) are there particular thought processes associated with competent professional SLPs? If so, how do students come to develop these? These general questions formed the basis for the present inquiry.

My current investigation involves comparing graduate students-in-training, practicing speech-language pathologists, and academicians in CSD programs at institutes of higher education in regard to their thinking skills as defined in the following research questions:

- Are there differences between thinking processes in students, competent professionals, and academicians as applied to treating and/or assessing individuals with communication disorders?
- What characteristics of thought typify students? Competent professionals? Academicians?
- Do students change their thought processes in the course of a term in which they engage in a hands-on service-learning project under the mentorship of a competent professional?

All participants in the study completed written case study analyses along with rating their competencies on a checklist relative to knowledge and skills on 9 selected objectives that were learner outcomes for the graduate-level course in Augmentative/Alternative Communication in which the students were enrolled. Data are being analyzed using a mixed method design comprising both qualitative and quantitative methods. For example, essays are being analyzed qualitatively and then items are grouped categorically for statistical analysis.

Sixteen students completed two case studies each, one at the beginning of the term and one at the end. Two community partners completed a single case study. An example of one case study is given below in Figure 2-1 and a comparison of responses from a student and community partner appears in Table 2-1. These data comprise the qualitative piece of the study.

Figure 2-1

Sample Case Study with General Directions

Read the case below and briefly answer the questions which follow. Do not take any longer than 15-20 minutes (max) to write your answers. Write whatever you can based upon what you now know. Tell what you would do and briefly tell why and/or how you came to that decision.

CASE ONE: You have a new student Ron on your caseload who has just moved into your district. There is little information available about support/ services that he has received in the past.

- Ron is a 16 year old high school student who lives with his parents. He attends classes in a Physically Impaired Program at the high school because he sustained a brain injury when he was seven years old.
- Ron was hit by a car when he was crossing the street and since that time (nine years ago) has been unable to speak except for one or two words.
- Ron walks and does not need to use a wheelchair. He can use his hands as well. He has some problems with his vision due to field deficits but generally sees pretty well. Although he can write his name, he essentially cannot spell words or read print.
- So far he appears to be a 'model' student at school, but according to his parents, at home Ron flies into a rage and becomes aggressive. He becomes impatient when his mother cannot guess what he wants. He likes watching basketball and wrestling.
- He currently has no Augmentative/Alternative Communication system in place.

Preliminary comparisons of case study responses from students and professionals as exemplified in Table 2-1 reveal both similarities and differences. While students fail to provide a rationale for their choices (i.e., they neglect to answer the "why" question), common themes in both emerge (e.g., "age" and "literacy"). Since data analysis of all respondents at this writing is incomplete, it is impossible to know if significant differences will emerge between these two groups relative to themes. Certainly, the generally close correspondence of answers to many specific questions suggests perhaps that the questions were too leading.

Given explicit questions relative to specific practice issues, it is comforting to have discovered, as is clear from Table 2-1, that students have the capability of answering them adequately. However, it is probably more critical to determine whether or not students would generate these same questions for consideration as they attempt to address the broader problem of "what you would do and why."

Table 2-1: Comparison of Student and Community Partner Case Study Responses

Question	Student	Community Partner
One What are some things you know about Ron which must be considered as you determine his needs for Augmentative/ Alternative Communication (AAC) and **why**?	• Age, ability to speak, • Ability to read and spell is severely impaired so he would benific [benefit] from a picture board. • And because of a field deficit I would make the pictures rather large 3X3 or 2X2.	• Male, age 16. Unable to read or spell. • AAC device should be gender and age appropriate. • Symbol system cannot be only words and any type of ABC board would not be appropriate.
Two What AAC system and/or device would you recommend for Ron and **why**?	• I would use a picture board with large colorful pictures pretiaining [pertaining] to his everyday life as well as his interest in basketball and wrestling.	• I would like to work Ron up to something in the Dynavox family. This would allow for a combination of pictures and words, voice-output – a male voice, as well as plenty of room /capacity for required vocabulary.
Three Do you need any additional information in order to make this or any recommendation? If yes, what else would you like to know and **why**?	• Cognitive ability—a nonverbal test of IQ as well to see if he is able to retain information as well as being taught how to use an AAC device as well as if he uses any meds for behavior and if these need to be changed per psychologist referral.	• It would be helpful to know what exposure & experiences he has had in the past with AAC. This could lead me to a device he is already familiar with. • And help me decide what level to start at. • If he has no experience, I'd likely start with something more simple than a Dynavox—i.e. Blackhawk, 32 Messenger, to teach the basics.

Reflections on Mid-Course Corrections in the Project

To move toward discovery of what it means to think like a professional, it may be more useful to give open ended scenarios and allow students and professionals to simply describe what they would do and why. Or, in other words, how they are solving the particular problem presented? In sum, as a result of my initial data collection and analysis, I have decided to eliminate the specific questions the next time I teach the course (in the fall) and retain only the general direction of "Tell me what you would do and why." The comparison of the quality of responses between the two groups given the different format of the questions should be enlightening.

In addition to the "objective" evidence regarding the students' level of thinking obtained by their response to the scenarios, consideration was also given to their perception of their own knowledge and what they believed had benefited them instructionally. These data were collected by having the students rank their level of knowledge/competency at the onset and end of the term on nine course objectives. At the term's end they also were asked to report how they thought this learning had been achieved.

Students' self-reports of learning indicated change on a majority of items. Table 2-2 presents each student's reported mastery of course objectives at both the beginning and end of the term. This information was compiled from students' individual reports. Twelve of the sixteen students in the class were sampled at both time periods and are included in the data analysis; the students who only completed one of the surveys are excluded from the analysis. While the majority of students were able to select one of the three categories of competency, several had difficulty limiting their choice to one level. For example, student S2 indicated being simultaneously at both levels 2 and 3 on all nine objectives at term end (see Table 2-2).

As mentioned previously, most students indicated movement toward mastery of a majority of objectives. For example, in Table 2-2, one student (S1) reported a level of "2" on Objective 1 (i.e., "understand AAC terms" – AAC refers to Augmentative/Alternative Communication), which means that the objective was "in progress" at the

beginning of the term, and, at term's end, the same student reported a "3" indicating the objective had been "achieved." On Objective 2 which is "know aids and techniques" the student reported a "2" (i.e., in progress) for both time periods, indicating there had been no change. However, the student showed movement on Objective #3 (i.e., "compare AAC systems") from "1" indicating "emerging" to "3" (i.e., achieved) by term end. In sum, for student S1, five objectives out of nine were reported achieved (3=achieved) while the remaining four objectives were reported to be in progress (2=in progress). There was a change of 11 points total from the beginning of the term to the end of the term on all nine course objectives.

Table 2-2: Self-Report by 12 Graduate Students of Course Objectives in SPSI 622 (Augmentative/Alternative Communication) at Term Beginning and End

	Obj 1		Obj 2		Obj 3		Obj 4		Obj 5		Obj 6		Obj 7		Obj 8		Obj 9	
Sub	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E
S1	2	3	2	2	1	3	1	2	2	3	1	2	1	3	1	3	1	2
S2	2	2-3	2	2-3	1-2	2-3	1-2	2-3	1-2	2-3	1-2	2-3	2	2-3	2	2-3	1-2	2-3
S3	2	3	2	3	1	3	1	3	2	3	2	3	1	3	1	2	2	3
S4	2	3	2	3	2	3	1	3	2	3	2	3	1	3	1	3	1	3
S5	1	3	2	2	2	2	2	2	1	3	2	2	2	3	2	3	2	3
S6	2	3	2	2	2	2	2	3	2	2	2	2	2	—	2	3	2	2
S7	2	2	2	2	2	1	2	1	2	2	2	2	2	1	2	3	2	3
S8	2	2	1	2	1	1	1	1	1	1	1	1	1	2	1	2	1	2
S9	1	3	2	2-3	1	3	1	2	1	1	1	1	1	1	1	2	1	3
S10	2	2	2	3	2	3	1	2	1	3	1	3	1	2	1	2	1	1
S11	2	3	2	3	2	3	1	3	2	3	1	3	1	3	2	3	2	3
S12	2	3	2	2	2	2	1	2	2	2-3	1	2	1	2-3	2	2-3	1	2-3

Notes: B=beginning of term, E=end of term Numerical Values for Objectives:
1=Emerging 2=In progress 3=Achieved

Objectives are as follows:
1=Understand AAC terms
2=Know aids and techniques
3=Compare AAC systems
4=Understand AAC assessment
5=Know when/how to use AAC aids
6=Be able to evaluate Tx effectiveness
7=Applications to practical setting (Dx, Tx, tech)
8=Be aware of challenges/issues in AAC
9=Recognize/utilize resources for advocacy and intervention to overcome barriers

Performance of all students collectively on objective mastery is reflected in Table 2-3, which provides the mean rankings for all students on each course objective at the beginning and end of the term. The mode of all student rankings at term outset and end is also provided. A rank of "1" indicated that mastery/knowledge of the objective was "emerging," a rank of "2" "in progress" and a rank of "3" "achieved." Although these categories reflect ordinal data, the computation of the mean ranking for all students seemed appropriate. There was positive movement on all nine objectives. Of note is the curious assignment of "2" to many objectives at the outset. This ranking is more of an indicator of the timing of actual data collection (which took place after the first 3 weeks of class). Had data collection commenced on day one of the term it is likely that more students would have chosen "1" to rate

Table 2-3: Summary of Reported Data on 12 Students' Knowledge at the Beginning and End of Course, Relative to Numerical Value of Stated Objectives

(1=Emerging 2=In progress 3=Achieved)

Course Objective	BEGINNING Mean	END Mean	BEGINNING Mode	END Mode
1. Understand AAC terms	1.87	2.63	2	3
2. Know aids & techniques	1.93	2.33	2	2
3. Compare AAC systems	1.63	2.3	2	2 & 3
4. Understand AAC assessment	1.37	2.23	1	2
5. Know when/how to use AAC aids	1.7	2.4	2	3
6. Be able to evaluate Tx effectiveness	1.5	2.17	1 & 2	2
7. Applications (Dx, Tx, tech.) to practical settings	1.4	2.2	1	3
8. Be aware of challenges/ issues in AAC	1.6	2.6	2	3
9. Recognize & utilize resources for advocacy & intervention to overcome barriers	1.57	2.53	2	3

their level relative to many objectives. In sum, change was evident on all learning outcomes.

For the first objective, "understand AAC terms," for example, 7 students reported learning through class discussions, 10 through assignments, 11 through reading and 6 through service. The totals for all categories ranged from 63 for service to 69 for reading, a range of only 6, indicating relatively little difference between perceived learning measures. However, closer examination across specific objectives reveals some vehicles for learning are clearly preferred over others. Students also reported achieving course outcomes through a variety of different ways (Table 2-4). As students individually reported on achievement of course objectives, they concurrently reported on how they perceived these objectives to be learned: through class discussions, assignments, readings, and/or service.

For each objective students were asked to identify any and all vehicles for learning. In other words, these categories were not mutually exclusive. For example, some students selected multiple learning vehicles for each objective. The individual reports of students were tabulated across students, and are reported in Table 2-4.

For example, for understanding augmentative communication devices (i.e., aids) and techniques to use them, which is Objective 2, both assignments and service-learning were identified as preferred learning modalities. In contrast, service-learning was rated well below other vehicles for mastering Objective 4 (i.e., "understanding AAC assessment") with only 4 individuals selecting it. Reading, typically a highly regarded vehicle for learning, was ranked well below others in "knowing when and how to use AAC aids" (Objective 5). In this instance practical experiences and class discussions weighed in as being far more important to mastery of this objective.

Table 2-4 shows that collectively class discussions, assignments, readings, and service contributed about equally to the achievement of outcomes. However, upon close examination of individual student rankings of these vehicles for student learning, a very different picture emerged (see Table 2-5). Responses were tabulated for every student reporting on how they learned. Categories were then rank-ordered from the greatest number of responses to the least.

Table 2-4: Twelve Student Reports of How Learning Was Achieved (students could select any or all learning strategies)

Item	How Item Was Learned			
	Class Discussion	Assignments	Reading	Service
1. Understand AAC terms	7	10	11	6
2. Know aids & techniques	6	10	7	10
3. Compare AAC systems	5	8	6	7
4. Understand AAC assessment	8	6	8	4
5. Know when/how to use AAC aids	8	7	4	8
6. Be able to evaluate Tx effectiveness	7	5	7	6
7. Applications (Dx, Tx, tech.) to practical settings	7	6	7	7
8. Be aware of challenges/ issues in AAC	9	9	11	9
9. Recognize & utilize resources for advocacy & intervention to overcome barriers	9	7	8	6
TOTAL responses for specific learning strategies	66	68	69	63

These individual learning styles are shown in Table 2-5. For example, student S3 (line 6) preferred learning most through Reading (9 responses), then class discussion (6 responses), followed by service (4 responses), and finally through assignments (2 responses). The entry of "Readings → Discussion → Service → Assignments" is followed by the individual student who exhibited this pattern (i.e., S3).

The original pooling of all the responses together (as seen in Table 2-4) obliterated the very clear picture of student's individual preferences for specific vehicles of learning, and moreover, for specific

ways of achieving the nine distinct course objectives. Of the twelve students reporting on these four vehicles for learning, no two students showed identical preferences. The conclusion to be drawn was that each student had a unique response to the assignments and teaching.

Table 2-5: Individual Student Learning Scenarios

1. Assignments → Discussion → Service → Readings (S5)
2. Discussion → Assignments & Readings & Service (last 3 equal) (S12)
3. Discussion→ Readings → Assignments → Service (S9)
4. Discussion → Assignments → Readings & Service (S6)
5. Discussion → Readings → Assignments (S1)
6. Readings → Discussion → Service → Assignments (S3)
7. Readings → Assignments & Discussion → Service (S8)
8. Service → Assignments → Readings (S10)
9. Service → Readings → Discussion → Assignments (S7)
10. Service & Assignments → Discussion → Readings (S4)
11. Service & Assignments (S2)
12. Service, Assignments, Discussion, Reading (all 4 equal) (S11)

Rounding the Corner and Turning Toward Home

As a follow-up to what I have found, I gave each student the Index of Learning Styles (Felder and Soloman 1993). Profiles are currently in the process of being analyzed. I expect to find significant correlations between elements on the index and the different formats for learning described above. In particular, for example, I expect relatively

high correlations between active learners' preferences for learning through service. I will compare the learning style of each student and its correspondence to his/her achieved level of learning (e.g., application, analysis, synthesis, evaluation) and preference for type of learning (e.g., reading, discussion, service, etc.). This may provide a clearer picture about how to customize learning for students.

My research investigating applied knowledge in students and professionals through a scholarship of teaching and learning perspective has changed my view of both learning and teaching. I have had an awakening to the tremendous impact of an individual's personal learning style on his/her ability to profit from instruction. While the ultimate objective is to train students to become competent professionals, the path to this end still remains unclear. We are reminded that there is no "one size fits all." Moreover, we still have yet to define what constitutes professionalism. This beginning investigation provides a first step on the road.

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