Measuring Effect of Graduate Student Service Learning Experiences: Pre-Post Self-Efficacy of Counseling and Educational Diagnostician Students

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Abstract

Advanced standards for the preparation of special education and counseling students require programs to incorporate collaboration experiences and collect outcome data for these experiences. Graduate students in the Educational Diagnostician and Counseling programs, collaboratively provided academic and career assessment to first-year at risk college students in a cross-disciplinary Service-Learning project. Pre-and post self-efficacy scales were administered along with prompted reflective writing. Paired t-test results indicated statistically significant differences (p <. 05) for students from both programs indicating increases in professional self-efficacy. The Linguistic Inquiry and Word Count program was applied for analysis of the prompted reflective writing and revealed evidence of cognitive processes, such as insight, and positive affect about professional collaboration. The participants assessed by the graduate students also rated the experience positively.

Educational Diagnosticians and School and Community Counselors often work with common clients who require support services to achieve academically. In order to work in the best interest of their common clients, collaboration across disciplines is preferred (Milsom, Goodnough, & Akos, 2007; Schoffner & Briggs, 2001). Moreover, both professional organizations of the Council for Exceptional Children (CEC, 2012) and the Council for Accreditation of Counseling and Related Educational Programs (CACREP, 2009) include standards of practice for collaboration with stakeholders including other professionals. Training standards of both Educational Diagnosticians and Counselors require the programs to provide evidence of collaborative experiences for these candidates. However, in the Hispanic Serving Institution in which this study was implemented, such pre-practicum collaborative experiences had not been provided for graduate students in either program.

In addition to the professional organization requirement of collaboration, the HSI in this study encourages civic engagement and Service-Learning and bears the distinction of being awarded the Carnegie Foundation's Community Engagement Classification. As part of the university's mission and vision, students attending the university experience a variety of Service-Learning opportunities within individual courses and programs. Although cross-disciplinary Service-Learning has been found to be beneficial to both faculty and students (Rooks & Winkler, 2012) the institution of the current study provided few cross-disciplinary Service-Learning experiences at the undergraduate level and none have been offered at the graduate level.

Service-Learning

Evidence indicates that Service-Learning is an effective method of instruction for students in higher education (Driskoll, 2009) in the fields of Special Education (Jenkins & Sheehey, 2009; Novak, Murray, Scheuermann, & Curran, 2009; Silverman, Hong, & Trepanier-Street,

2010) and Counseling (Arnold & McMurtery, 2011; Schoffner & Briggs, 2001). For example, Service-Learning has been found an effective instructional method for students to acquire content knowledge, gain a sense of community and personal responsibility, promote collaborative problem solving, and participate in experiences working with families (Jenkins & Sheehey, 2009; Schoffner & Briggs, 2001). Service-Learning opportunities have been used to increase students' understanding of social problems and to provide experiential learning in the application of content to problem solving of real world issues (Eyler, 2002). Service-Learning with graduate counseling students provided evidence that it contributed to improving multicultural competence (Burnett, Hamel, & Long, 2004).

Reflection as an Assessment of Service-Learning

Assessment of Service-Learning activities has traditionally included a component of reflection (Eyler, 2002). Reflection activities such as journaling and self-evaluations have been employed (Burnett et al. 2004). Service-Learning includes a component of self-reflection of the experience that can also provide a method for determining the effect of the activity on learning and increases in content knowledge (Jenkins & Sheehey, 2009; Schoffner & Briggs, 2001). Reflective activities have been used to promote students' sense of self-efficacy, commitment, and to develop problem-solving skills (Eyler, 2002). The structure of the reflection activity has been inconsistent across the literature and in some cases is not considered a valid method of assessing the level of students' learning (Eyler, 2002).

Self-Efficacy as Assessment of Collaboration and Service-Learning

Although the literature reports results of Service-Learning in higher education, few studies exist that incorporate cross-disciplinary collaboration. One interdisciplinary Service-Learning project assessing self-efficacy was completed in an engineering program and determined that students reported increased self-efficacy through the experience (Schaffer, Chen, Zhu, & Oakes, 2012). The same study in this engineering program also found a correlation between higher self-efficacy ratings and improved GPAs. Another study found that counselors who reported a Service-Learning experience prior to practicum had increased self-efficacy and less anxiety in their counseling role than counselors who did not report Service-Learning experiences (Barbee, Scherner, & Combs, 2003). A cross-disciplinary Service-Learning project for Counselor and Educational Diagnostician graduate students examining self-efficacy was not been found in the literature.

Bandura defined perceived self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (1997, p. 3). According to Bandura's general definition of self-efficacy, future professionals who manifest higher levels of self-efficacy will be able to determine the activities and actions that will contribute to their graduate education and ultimately to their professional roles. Although Bandura provided a general definition of self-efficacy, he also cautioned that there must be specific measures of self-efficacy for specific domains (2006). In other words, in order to understand self-efficacy related to Service-Learning tasks of assessment or counseling for example, it must be measured using scales designed to tap the individuals' perception of their self-efficacy for those specific

counseling tasks. To assess graduate students' perception of their self-efficacy, the diagnostician students and the counseling student groups each require a measure that assesses tasks within their specific role responsibilities (Bandura, 2006; Lent & Brown, 2006).

The current study provided a Service-Learning project for graduate students in both the educational diagnostician and counseling programs in which they assessed first-year college students. The first-year college students were assessed to assist in determining basic academic skills and their confidence about their career plans. The following questions are the focus of this study:

Will participation in a collaborative Service-Learning project increase self-ratings on efficacy scales for graduate students in the Educational Diagnostician and Counseling programs?

Will graduate students' written responses to prompts of reflective questions provide information about their thinking and problem solving related to assessment and collaboration as measured by a linguistic analysis?

Will the undergraduate assessment student participants rate their assessment experiences with the graduate students favorably?

Method

Participants

Purposeful sampling was used in this quasi-experimental design pre-posttest design. The sample included 43 current graduate students in the HSI, 13 graduate students in the Masters of Education in Special Education Educational Diagnostician program, 20 graduate students in the Masters of Education in Counseling Program, and 20 first-year students recruited from a summer bridge program for students who are at risk for academic achievement at the post-secondary level. The summer bridge program was created to assist first-year students with developmental reading or math needs, to learn the skills that would increase their likelihood of success at the college level. The coordinator of the summer bridge classes recruited participants with flyers and follow up discussions about the project with each first year student who expressed interest in the testing.

Educational Diagnostician students were enrolled in a program that incorporates test and measurement, assessment of academic and cognitive abilities, and special education laws and regulations. The Educational Diagnostician students were taking their academic assessment course. The Counseling students were enrolled in either community or school counseling programs. Both counseling programs require a course in counseling assessment techniques that include rating scales, career assessment, and screening measures for emotional challenges.

Both Educational Diagnostician and Counseling students had examined and practiced the instruments in class prior to the project. Training consisted of 1) review and explanation of the instrument and the psychometric qualities, 2) review of each subtest, all subtest items, and scales, 3) practice administration in class with class peers, 4) observation during the practice administration by the course instructor using a checklist for verification of administration techniques, 5) practice of entire administration with another peer in class, 6) scoring of the results obtained in the practice session.

These training activities were conducted during three class sessions prior to the testing date.

Graduate level students were provided with alternative experiences if they did not want to participate in the study. The undergraduate assessment students were recruited through their summer bridge program and offered a bookstore card for $20 for their participation. All of the students in the graduate courses, three males and thirty females, volunteered to participate in the study. Of the 44 students in the summer bridge program, 20 volunteered to participate in the study. The demographic information for the participants is displayed in Table 1.

Table 1
Participant Characteristics

	Male	Female	Mean Age (range)	% Hispanic
Educational Diagnostician Graduate Students	1	12	34 (23–50)	85
Counseling Graduate Students	2	18	32 (24-50)	95
Assessment Students	6	16	19.4 (16-23)	90

Procedures

Following recruitment, the graduate level students were trained in the administration of their specific instruments. Counseling students were trained to administer the Career Decision Scale (Osipow, 1987) and Education Diagnostician students were trained to administer the Woodcock-Johnson Form C Brief (Woodcock, Schrank, McGrew, & Mather, 2005). Graduate students and first-year students were asked to schedule a time for their assessments. Prior to the assessment appointments, graduate students completed their specific self-efficacy scale. All assessments of the first-year students were conducted under the supervision of the author and an additional assessment faculty member and were conducted in the university counseling training center.

Instrumentation

Woodcock-Johnson Tests of Achievement III Form C. The undergraduate assessment students were administered the Woodcock-Johnson Tests of Achievement Form C-Brief Edition by the Educational Diagnostician graduate students. The test is individually administered and has normative information for college students. The instrument has well-established psychometric qualities including multiple measures of reliability and validity with this age group. General academic skills, such as applied mathematics, reading comprehension, sentence writing, and fluency on academic tasks, are measured on this instrument.

Career Decision Scale, 3rd Edition. Undergraduate assessment students completed this self-rating instrument with the Counselor graduate students. This is a 19 item self-rating scale in which the undergraduate assessment students endorse items as "Like me" or "Not like me." This instrument provided percentile ranks and additional information to the student about their level of certainty with their own career decision. The instrument was developed for high school and college age students and reports adequate reliability and validity data. This instrument is not designed to assist students in determining which career they would like but rather assesses the certainty of the career path they have chosen to pursue.

Educational Diagnostician Self-Efficacy Scale. Although there is not a self-efficacy instrument designed specifically for Educational Diagnosticians, an adaptation of the Teachers' Sense of Efficacy Scale, long form (Tschannen-Moran & Woolfolk Hoy, 2001) was used in this study (Appendix A) with permission of the authors. The original version has been found to have a 3-factor structure including efficacy for classroom management, instructional practices, and student engagement (Fives & Buehl, 2010; Tschannen-Moran & Woolfolk Hoy, 2001). For the purpose of this study, the items were adapted to reflect management of the testing experience, assessment practices and skills, and client engagement. These changes are consistent with recommendations to more accurately effect self-efficacy by asking participants to rate specific tasks related to the assessment process rather than general instructional practices.

Counselor Activity Self-Efficacy Scale. The Counselor Activity Scale was designed to assess counselors' self-efficacy in their ability to perform the activities consistent with their role as counselors (Lent, Hill, & Hoffman. 2003). Both internal consistency and test-retest reliability are adequate. Since the items cover more general counseling skills, the instrument was slightly adapted to focus on the skills required for career decision assessment and collaboration with other professionals (Appendix B). The primary author of the instrument granted permission for the adaption. Adaptation of the instrument was made with consideration for the cognitive construct of self-efficacy as recommended in a best practice Measurement Guide (Lent & Brown, 2006). These changes were made to increase the number of items that asked the participant to rate him or herself on specific assessment tasks rather than more global counseling tasks. These changes are consistent with the recommendations of the authors of the scale.

Graduate Student Feedback Form. This four-item prompt form was used to collect reflective thoughts about the students' participation in the project. The graduate student reflective responses were analyzed using the Linguistic Inquiry and Word Count (LIWC) computerized text analysis system (Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007). This system analyzes text of written responses and determines the usage of style words, content, emotional words, cognitive words, function words, and pronouns. To this end, the system provides data regarding the percentage of text indicating cognitive and analytic words, for example. These percentages can then be compared with the data of word use collected since 1986 from multiple formats and thousands of

participants (Pennebaker et al. 2007). The types of writing prompts of the LIWC include emotional writing, control writing, science articles, blogs, novels, and talking.
The prompt items included: 1) Please take a moment to write a few paragraphs about your overall experience testing the first-year students, 2) Please take a moment to write a few paragraphs about your experience in the collaboration with the other graduate students, 3) If this experience helped you to learning something about the course content or about yourself, please describe, and 4) Write any additional comments or suggestions for a future project.

Undergraduate Assessment students Feedback Form. The undergraduate form asked the students to rate statements as "Strongly Disagree, Disagree, Agree, or Strongly Disagree". The four items were: 1) This assessment experience helped me to gain information about my own skills, 2) This assessment experience helped me to gain information about my own career plans, 3)The assessment experience will help me to make my future plans, and 4) The graduate students who worked with me were professional and helpful. Undergraduate undergraduate assessment students were also asked to write any additional comments about the project at the end of the feedback form.

Results

Data Analysis
The responses on Educational Diagnostician Self-Efficacy Scale and the Counselor Activity Self-Efficacy Scale for the graduate students were compared using paired sample t-tests to examine significant differences in responses using SPSS-20. The responses on the Educational Diagnostician Sense of Self-Efficacy resulted in statistically significant differences for 10 of the 23 items. Among the items in which significant differences existed were: *get through difficult assessment situations, control behavior during an assessment session*, *respond to difficult questions asked by an assessment client* and *establish "flow" of testing during a session*. Other statistically significant differences were found for items *gauge client's comprehension of the testing demand or task*, *foster your client's fluid responding process, improve insight of client's weakness* and *adjust a basal or ceiling item administration according to the responding of the client during the assessment*. Additional statistically significant differences were found for the items *keep a client from ruining the assessment session* and *respond to a defiant or upset client*. The results of the Educational Diagnostician Sense of Self-Efficacy Scale are presented in Table 2. As noted in Table 2, effect sizes for significant items ranged from medium to large on these items.

Table 2
Educational Diagnostician Paired *t* test results

Item	M	SD	*t*(11)	*p*	95% CI LL UL	Cohen's *d*
1. Difficult situations	-1.538	1.506	-3.682	.003	-2.449--.628	1.021
2. Control behavior	-.846	1.144	-2.668	.020	-1.537--.155	.739
3.Motivate student	-.538	1.984	-.979	.347	-1.737-.660	
4.Clear expectations	-.462	1.198	-1.389	.190	-1.186-.263	
5. Students do well	-.615	1.609	-1.379	.193	-1.588-.357	
6. Respond to questions	-2.308	2.428	-3.426	.005	-3.775--.840	.950
7. Flow of testing	-1.000	1.354	-2.663	.021	-1.818--.182	.738
8.Gauge comprehension	-1.000	1.354	-2.663	.021	-1.818--.182	.738
9. Understand importance	-.308	1.494	-.743	.472	-1.210-.595	
10.Standardized administration	.077	1.605	.173	.866	-.893-1.047	
11.Fluid responding	1.462	2.106	2.502	.028	.189-2.734	.694
12. Follow instruction	.385	1.387	1.000	.337	-.453-1.223	
13.Understand weakness	-1.154	1.772	-2.347	.037	-2.225-.083	.651

14. Calm anxious client	-.385	2.256	-.615	.550	-1.748-.979	
15.Adjust basal/ ceiling	-2.308	2.136	-3.895	.002	-3.599--1.017	1.080
16. Variety of assessments	-.154	2.035	-.273	.790	-1.384-1.076	
17. Maintain testing session	-1.769	1.423	-4.482	.001	-2.629--.909	1.243
18. Alternative explanations	-.083	2.644	-.109	.915	-1.763-1.597	
19. Defiant client	-.923	.862	-3.860	.002	-1.444--.402	1.070
20. Assist in school	-.308	1.109	-1.000	.337	-.978-.303	
21.Recommendations for school	-.462	1.266	-1.315	.213	-1.227-.417	
22. Appropriate challenges	-.538	1.330	-1.460	.170	-1.342-.265	

The paired *t* test results for the Counselor Activity Self-Efficacy Scale indicated statistically significant differences for 14 of 22 items. The scale is divided into three sections and for this study, two sections were adapted and used with Part I items and Part II including more specific assessment tasks. Part I items that were significant were *restatements, reflections*, *immediacy, information giving*, and *direct guidance*. The Part II significant items of specific assessment tasks included *keep "on track"*, *respond to assist*, *career concerns*, *after client comments*, *set career goals*, *client thoughts about career*, *case conceptualization*, *remain aware* and *help client decide*. The results of the Counselor Activity Self-Efficacy Scale are presented in Table 3. The effect sizes for the significant items ranged from small to large.

Table 3. Counselor paired *t* test results

Item	M	SD	*t*(11)	*p*	95% CI LL UL	Cohen's *d*
PART I						
1. Attending	-.350	1.309	-1.196	.246	-.963-.263	
2. Listening	-.350	1.226	-1.277	.217	-.924-.224	
3.Restatments	-.750	1.372	-2.445	.024	-1.392--.108	.546
4.Open questions	-.600	1.501	-1.788	.090	-1.302-.102	
5. Reflections	-.550	1.146	-2.146	.045	-1.086-.014	.479
6. Self-disclosure for exploration	-.450	2.235	-.900	.379	-1.496-.596	
7. Challenges	-.500	1.504	-1.486	.154	-1.818--.182	
8.Interpretations	-.450	1.317	-1.528	.143	-1.066-.166	
9. Self-disclosure for insight	-.550	2.089	-1.177	.254	-1.528-.428	
10.Immediacy	1.350	1.927	-3.133	.005	-.2.252--.448	.700
11.Information giving	-1.250	1.410	-3.966	.001	.1.910--.590	.886
12. Direct Guidance	-1.400	1.635	-3.829	.001	-2.165 -.635	.856

PART II						
1.Keep “on track”	-.750	1.293	-2.595	.018	-1.355--.145	.580
2. Respond to assist	-1.000	1.556	-2.874	.010	-1.728--.272	.642
3. Client explore career decisions	-.350	1.268	-1.234	.232	-.943--.243	
4. Career concerns	-.800	1.196	-2.990	.008	-1.360--.240	.668
5. After client comments	-.900	1.410	-2.854	.010	-1.560--.240	.638
6. Set career goals	-1.000	.918	-4.873	.000	-1.429-571	1.089
7. Client thoughts about career	-1.050	1.317	-3.566	.002	-1.666--.434	.797
8. Case conceptualization	-1.500	1.277	-5.252	.000	-2.098-.902	1.174
9. Remain aware	-.700	1.174	-2.666	.015	-1.250-.150	.596
10. Help client decide	-1.400	1.314	-4.765	.000	-2.015--.785	1.065

An analysis of aggregate data was completed using the Linguistic Inquiry and Word Count Program (LIWC), (Pennebaker, Chung, Ireland, Gonzales, Booth, 2007). For the purpose of this project, the reflection writing feedback form, completed by the graduate students, is considered to be a controlled writing prompt and aggregate data were compared with the controlled writing Base Rate percentages provided in the LIWC. In order to determine if the reflection activity was able to assess students’ cognitive and problem solving thinking, the following categories were deemed relevant: cognitive processes, insight, causation, discrepancy, tentative, certainty, inhibition, inclusive, and exclusive. Graduate students used several terms revealing anxiety, work, and achievement. These categories were also included in the analysis. When results were compared with the Base Rates provided in the LIWC, all elements of writing

revealed statistically significant differences with the graduate students' responses containing significantly higher percentages of word usage in each category. Aggregate responses by question were analyzed and the high frequency word use categories are presented in Table 4. It should be noted that the categories included in the analysis were categories of specific interest. Other categories, such as adverbs, prepositions, common verbs, etc. were not selected for this analysis. Therefore, the total percentages for each prompt do not equal 100%. This highest category of word use across all prompts was cognitive process that includes the subcategories of insight, causation, discrepancy, tentative, certainty, inhibition, inclusive and exclusive. These linguistic markers support the graduate students' use of reasoning, insight, and cognitive processes during their experiences in the project. Examples of the types of reflective remarks made by the graduate students are presented in Table 5. By examining the analysis, it can be determined, for instance, that within the affect category, the positive emotion subcategory had the greatest percent of word use on the collaboration experience prompt. Although the anxiety words were infrequent, these words appeared most often in the prompt of overall experience.

Table 4. LIWC Analysis of Graduate Students' Responses

Aggregate LIWC Analysis of Post Project Reflective Responses				
Category	**Overall Experience Percent**	**Collaboration Experience Percent**	**Content Learning or Self Learning Percent**	**Additional Comments Percent**
Affect	8.13	8.07	5.03	6.75
Positive Emotion	5.85	7.68	4.64	6
Negative Emotion	2.28	0.2	0.39	0.25
Anxiety	1.63	0.2	0.19	0
Cognitive Processes	18.37	20.28	21.28	18.25
Insight	6.5	6.89	7.54	4
Causation	2.28	1.77	2.9	1.25
Discrepancy	1.95	0.39	1.16	3.75
Tentative	2.44	1.77	0.97	2.75
Certainty	1.3	0.39	2.13	1.25
Inhibition	0.16	0.39	0	0.25
Inclusive	3.09	8.66	5.8	4.25
Exclusive	2.11	0.39	1.35	1.5
Work	6.02	11.02	11.22	10.75
Achievement	3.9	4.33	4.06	2.5

Table 5

Sample Remarks from Reflection Paper	
Prompt	Comments
Overall Experience	"My overall experience testing the first-year student was a successful experience. I enjoyed meeting with the partner and she was anxious to know she was almost done." "The experience testing first year students was highly valuable and provided strong insight into the process involved with administering the assessment." "I cannot stress enough on how this project helped me understand the role of assessment. It is very valuable for any student to go through this project during the course. It helps definitely get a deeper understanding on assessment. I learned how to interact with students who I am testing, learn through hands-on how to administer the test, read testing results, analyze data gathered from the test and inform students about testing. Overall, this was a great project."
Collaboration	"Great collaboration. We were able to email and text each other frequently in regards to both of our assessments. It was fun working with the other graduate students." "I learned a lot about what the student examiner does. We collaborated together on the scores of freshmen and also the recommendations." "Working with other graduate students such as diagnosticians helped me learn about their field and their thoughts about the assessment process."
Content Learning	"I was able to understand how assessments such as these are reliable in helping students with their overall realization about themselves." "I learn better by doing…hands on. It was great!" "Definitely learned something on both the course content, such as understanding how to record raw scores & convert to a percentile rank for comparison

	against the norm." "I really enjoyed being able to practice giving an assessment to another student. I think that this will benefit me in the future." "The assignment clarified the role of assessment in every area from reading the assessment; understand how to implement it, how to analyze it, and how to present the data gathered. This experience really helped me get a deeper understanding the difference between academic and transition assessment."
Additional Comments	"This was a good assignment. Worked well with other students. Good project." "Perhaps a collaborative project on delivering an achievement and or an achievement test to seniors in a capstone course would be interesting." "I would suggest that the next assessment be given more often. I believe the more instruction, direction, and practice, will always be beneficial." "Absolutely loved it; this should definitely be done for the course because it really helps students get a deeper understand of what they are learning in the books. What a better way to learn than actually doing what you are reading and learning in books. I learned so much from this project that at this point I don't see how I could have learned the same material without conducting the assessment."

The undergraduate assessment students were asked to complete a short rating scale of four items that assessed their overall experience in the project. Of the 20 undergraduate assessment students who participated, 17 completed the forms. The results of the rating scale are presented in Table 6. The undergraduate assessment students generally rated their experience as positive on all four items. The rating scale ranged from 1 for Strongly Disagree to 4 for Strongly Agree. The item rated consistently as Strongly Agree was the item rating the experience with the graduate students who provided the assessment.

Table 6

Project Evaluation by First-Year Students

Item	Average Rating
This assessment experience helped me to gain information about my own skills	3.41
This assessment experience helped me to gain information about my own career plans	3.11
The assessment experience will help me to make my future plans	3.05
The graduate students who worked with me were professional and helpful	4.0

Discussion

The first question of the current study asked if this collaborative Service-Learning experience would have an affect on professional self-efficacy for the graduate students. The numerous items in which there were significant differences provides evidence that this collaborative Service-Learning project is a method for increasing both the educational diagnostician and counseling graduate students' self-efficacy related to assessment. The significant findings of both self-efficacy rating scale items of the counseling students and the diagnostician students underscore the importance of meaningful hands-on experiences such as those offered through Service-Learning assessment projects. The items that resulted in significant pre-post differences, with medium to large effect sizes, for the educational diagnostician graduate students were items that most closely related to the actual assessment activity, such as *adjusting basal and ceiling levels*, *getting through assessment situations*, and *establishing a flow of testing*, for example. Likewise, the graduate counseling students responded in a manner resulting in significant pre-post differences on items that likely occurred during the assessment experience such as *immediacy*, *direct guidance*, *keeping on track*, and *addressing career concerns* and *client's thoughts about careers*. These results are consistent with Lent et al. (2006), and Bandura (2006) that support use of items that are within the specific domain or interest area to more accurately assess changes in self-efficacy. The results of the current study also support earlier work indicating that practical clinical experiences increase counseling students' self-efficacy (Lent et al. 2003).

When non-significant items were examined in an effort to determine why students did not experience changes in self-efficacy on these items it was evident that the Service-Learning project provided limited opportunity for tasks reflected by those items. For example, on the educational diagnostician self-efficacy rating scale, this

project did not provide sufficient exposure to tasks tapped by items such as *providing a variety of assessments* and *performing your role while remaining consistent with federal regulations*. These items might show significant change following actual experiences in a semester or yearlong practicum experience in the public school setting in which there are multiple opportunities for assessment and collaboration. Likewise the counseling items that did not result in significant pre-post differences were those that reflected general counseling practices rather than those that might have been experienced in this Service-Learning project.

The use of reflection for assessment of service learning has become a consistent practice, however, the literature does not provide evidence of quantitative evaluation of the reflections written by students. The LIWC provided a method to determine the most frequent word categories used by students in their reflection remarks in an effort to analyze how they think or feel (Pennebaker et al., 2007; Tausczik, & Pennebaker, 2010). The frequent use of cognitive process words provides evidence that the graduate students experienced insight, causation, and other cognitive processes as part of the Service-Learning project. Moreover, the graduate students' written reflections for the collaboration prompt provided evidence of positive affect, cognitive process, and words associated with work. These results provide evidence for the second research question of the study in that the LIWC determined high frequency of word use of thinking and problem solving as well as collaboration in the prompted reflective writing.

The undergraduate assessment students also rated their experience positively providing positive support for the third question of the study. It was especially interesting to note that the undergraduate assessment students perceived their experience with their particular graduate students as very positive. The undergraduate assessment students were asked to provide any additional comments about the experience. Two students added comments on the helpfulness of the graduate students and also that they thought the experience was helpful. The limited remarks prohibited an aggregate analysis using the LIWC program for the responses by the undergraduate assessment students.

Summary

In general, both graduate and undergraduate students had positive learning experiences through their participation in this project. Graduate students in both programs indicated significant increases in their own self-efficacy in assessment activities even though this project was of short duration. The reflections of the graduate students' experiences provided evidence of learning, positive affect, and collaboration. This cross-disciplinary collaboration provided opportunities for these two pre-service professional groups to interact with and learn about the functions of each others' roles. The project outcome data would be one avenue to demonstrate collaboration for meeting national professional accreditation standards for both CEC/NCATE and CACREP.

Limitations of the Study

This sample of students for this Service-Learning project was small and those who participated were intentionally selected due to their course enrollments in assessment classes. The undergraduate assessment students were recruited from a

small group of at risk undergraduate assessment students who participated in a summer bridge program to increase academic skills for success in the college setting. Both graduate and undergraduate students were enrolled in a HSI in which the population is more than 90% Hispanic and local to the region. Therefore, these results may not be generalized broadly. Another limitation of the study was the short duration of the Service-Learning project. It is likely that a more complex assessment experience across multiple sessions or multiple clients would have a great effect on self-efficacy rating scales.

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Appendix A

Diagnosticians' Sense of Efficacy Scale (Long Form) Research Number:

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Diagnostician Beliefs Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for diagnosticians in their day-to-day activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
How much can you do to get through to the most difficult assessment situations?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
How much can you do to control behavior in assessment situations?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
How much can you do to motivate your student/client in a testing situation?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
To what extent can you make testing expectations clear to assessment clients?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
How much can you do to get students to feel they can do well during assessment tasks?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
How well can you respond to difficult questions asked by an assessment client?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
How well can you establish the "flow" of	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Diagnostician Beliefs Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for diagnosticians in their day-to-day activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
testing during a session?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
How well can you gauge the client's comprehension of the testing demand or task?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
How much can you do to help the client understand the importance of the testing session?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
To what extent can you ask test items as designed by test developer?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
How much can you perform your role and remain consistent with federal regulations?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
How much can you do to get your client to follow the specific instructions?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
How much can you do to improve the insight or understanding of the client's weaknesses?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
How much can you do to calm a client who may feel unsure or anxious about	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Diagnostician Beliefs Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for diagnosticians in their day-to-day activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
the testing experience?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
How much can you do to adjust a basal or ceiling item administration according to the responding of the client during the assessment?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
How much can you do to provide a variety of assessment formats, tests, or subtests?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
17.How much can you do to keep a client from ruining the assessment session?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
To what extent can you provide alternative examples or explanations (when allowed) when a client is confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
How well can you respond to a defiant or upset client?									
How much can you assist a client to do well in school?									

Diagnostician Beliefs Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for diagnosticians in their day-to-day activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
How well can you provide appropriate recommendations for interventions?									
How well can you provide appropriate challenging recommendations for clients who are very capable?									

Appendix B
COUNSELOR ACTIVITY SELF-EFFICACY SCALES ADAPTED

General Instructions: The following questionnaire consists of three parts. Each part asks about your beliefs about your ability to perform various counselor behaviors or to deal with particular issues in counseling. Please provide your honest, candid responses that reflect your beliefs about your current capabilities, rather than how you would like to be seen or how you might look in the future. There are no right or wrong answers to the following questions. Using a dark pen or pencil, please circle the number that best reflects your response to each question.

Part I.

Instructions: Please indicate how confident your are in your ability to use each of the following skills effectively over the next week in completing the specific tasks.

No Confidence Some Confidence Complete Confidence
0 1 2 3 4 5 6 7 8 9

How confident are you that you can use the following skills effectively over the next week?

Attending (orienting yourself to the client) 0 1 2 3 4 5 6 7 8 9

Listening (capture comments made by the client) 0 1 2 3 4 5 6 7 8 9

Restatements (rephrase or repeat in understandable and clear, concrete, concise manner) 0 1 2 3 4 5 6 7 8 9

Open questions (asks questions that help the client clarify or understand career decisions) 0 1 2 3 4 5 6 7 8 9

Reflection of feelings (repeat or rephrase the client's statements with an emphasis on his or her feelings) 0 1 2 3 4 5 6 7 8 9

Self-disclosure for exploration (reveal your own history or credentials to relate to career decisions) 0 1 2 3 4 5 6 7 8 9

Challenges (point out discrepancies, contradictions, defenses, or irrational beliefs that the client is unwilling or unable to change) 0 1 2 3 4 5 6 7 8 9

Interpretations (make statements that go beyond what the client has overtly stated and that give the client a new way of seeing his or her career plans or statements) 0 1 2 3 4 5 6 7 8 9

Self-disclosures for insight (disclose past experience in which you gained some personal insight) 0 1 2 3 4 5 6 7 8 9

Immediacy (disclose immediate feelings you have about the client's career discussion or plans or completion of rating scale) 0 1 2 3 4 5 6 7 8 9

Information-giving (teach or provide the client with data, opinions, facts or resources) 0 1 2 3 4 5 6 7 8 9

Direct guidance (give the client directives or advice that imply actions for the client to take) 0 1 2 3 4 5 6 7 8 9

Part II.

Instructions. Please indicate how confident you are in your ability to do each of the following tasks effectively over the next week.

No Confidence Some Confidence Complete Confidence
0 1 2 3 4 5 6 7 8 9

Keep the assessment session “on track” and focused 0 1 2 3 4 5 6 7 8 9

Respond with the best assistance for the client to complete the assessment Session. 0 1 2 3 4 5 6 7 8 9

Help your client explore thoughts and feelings about career decisions or plans for the future. 0 1 2 3 4 5 6 7 8 9

Help your client discuss career concerns a deeper level 0 1 2 3 4 5 6 7 8 9

Know what to say or do after your client comments 0 1 2 3 4 5 6 7 8 9

Help your client set realistic career goals 0 1 2 3 4 5 6 7 8 9

Help your client understand the thoughts or feelings about their career decisions 0 1 2 3 4 5 6 7 8 9

No Confidence Some Confidence Complete Confidence
0 1 2 3 4 5 6 7 8 9

Build a clear conceptualization of the client and his or her future career direction 0 1 2 3 4 5 6 7 8 9

Remain aware of your own task and goals of the assessment session during the assessment time 0 1 2 3 4 5 6 7 8 9

10. Help the client decide about the career 0 1 2 3 4 5 6 7 8 9

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