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Examining the Preparedness of Educational Diagnosticians in Texas

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Abstract

This study examined the extent to which educational diagnosticians in Texas perceived their certification program prepared them with the professional knowledge recommended by the Council for Exceptional Children's *Advanced Preparation Standards Specialty Set: Special Education Diagnostician Specialist* (CEC, 2015). A total of 113 currently practicing educational diagnosticians in Texas responded to a 28-item survey based on the CEC standards for educational diagnosticians. Participants reported being less prepared to meet standards related to collaboration, vocational and assessment measures, behavior assessment measures, and language assessment measures. Diagnosticians working in urban school districts reported lower levels of preparation as compared to those working in suburban and rural school districts on standards related to assessment. Recommendations for educator preparation programs for educational diagnosticians are discussed.

Examining the Preparedness of Educational Diagnosticians in Texas

Educational diagnosticians in Texas are responsible for a variety of tasks related to the evaluation requirements for students with disabilities as set forth in the Individuals with Disabilities Education Improvement Act of 2004 and accompanying regulations. Their responsibilities include a) identifying, administering, and interpreting assessment results; b) leading multi-disciplinary teams consisting of professionals and parents to determine eligibility and develop the Individualized Education Program (IEP); and c) overseeing ongoing progress monitoring and data collection efforts to ensure students are moving toward accomplishing their IEP goals (De Zell Hall, 2014; Rueter et al., 2016). With the increased emphasis on response-to-intervention (RTI) systems in Texas schools, educational diagnosticians are also becoming increasingly involved in pre-referral procedures and developing intervention plans (De Zell Hall, 2014; Sattler & Simpson, 2014).

In order to receive Texas educator certification for their role, educational diagnosticians must hold a valid classroom teaching certificate and have taught for at least three years as a classroom teacher (TEC § 239.84(4-5)). The teaching certificate and classroom experience do *not* have to be in special education. For example, a teacher with a general education elementary level teaching certificate (referred to as EC-6 in Texas) and the requisite number of years in the classroom could meet these criteria. In addition to the teaching qualifications, certification candidates must complete a state-approved educational diagnostician preparation program and hold at least a master's degree from an accredited institution (TEC § 239.84(1,3)). Finally, educational diagnosticians must pass the Texas Examinations of Educator Standards (TExES) Educational Diagnostician Exam (TEC § 239.84(2)). The exam consists of 100 selected-response

questions that address knowledge and skills related to the professional expectations for educational diagnosticians.

Council for Exceptional Children (CEC) Diagnostician Standards

The *Advanced Preparation Standards Specialty Set: Special Education Diagnostician Specialist* developed by the Council for Exceptional Children (CEC, 2015) describes the knowledge and skills diagnosticians need to effectively support students with disabilities. The CEC is the leading national and international organization of special education professionals that is responsible for establishing the professional preparation standards used by credentialing agencies and accreditation organizations such as the Council for Accreditation of Education Preparation (CAEP) (CEC, n.d.). CEC developed the *Advanced Preparation Standards Specialty Set: Special Education Diagnostician Specialist* (CEC, 2015) to describe the skills and knowledge needed by educational diagnosticians to perform their responsibilities to students with disabilities under the IDEA.

For university-based preparation programs seeking national accreditation, these standards serve as the benchmark for program and candidate expectations. As part of the accreditation process, university programs that prepare educational diagnosticians must demonstrate how curriculum and assessments are aligned to the CEC standards (CAEP, n.d.). This includes submitting evidence of how course syllabi, key assessments, and candidate performance meet the standards established by the CEC. A goal of university-based preparation programs is to ensure their educational diagnostician candidates are proficient in the knowledge and skills described in these standards. In turn, this helps to ensure that candidates are prepared to fulfill their professional responsibilities as educational diagnosticians upon entering the field.

As an advanced specialty set, the CEC standards for educational diagnosticians are considered appropriate for established educators moving forward in their career (CEC, 2015). The advanced specialty sets build on the competencies that were learned by educators through their initial teacher preparation work and early career experiences. The CEC standards for educational diagnosticians address the following competency areas. Each of the competency areas is delineated into discrete sets of *knowledge* and *skills* needed by educational diagnosticians. For purposes of brevity, the knowledge and skills are summarized below.

- Standard 1: Assessment – Knowledge about assessment constructs, such as reliability, validity, and test error; knowledge of assessment measures for cognitive, language, and other pertinent domains; skills related to the selection and use of assessment instruments; and the interpretation of assessment results.
- Standard 2: Curricular content knowledge – The CEC standards for educational diagnosticians do not address this competency area. Therefore, the standard is not addressed in this study.
- Standard 3: Programs, Services, and Outcomes – Knowledge of key assessment issues, such as disability categories and over- and under-representation of culturally and linguistically diverse students in special education; skills related to synthesizing information from multiple perspectives.
- Standard 4: Research and Inquiry – Knowledge related to research-based practices in assessment; skills for evaluating assessment techniques based on theory.
- Standard 5: Leadership and Policy – Knowledge about relevant laws, policies and theories that shape assessment practices; skills related to designing and evaluating

procedures for student participation in large-scale assessments, such as statewide assessments.

- Standard 6: Professional and Ethical Practice – Knowledge of appropriate qualifications for administering and interpreting test results; knowledge of ethical considerations regarding assessment; skills related to confidentiality and other professional responsibilities.
- Standard 7: Collaboration – Knowledge about the roles of agency and community partners; skills that address communication and collaboration with team members, outside agencies, and pre-referral processes and interventions.

Research on Educational Diagnosticians in Texas

Several studies have examined the extent to which educational diagnosticians in Texas are prepared to carry out their professional responsibilities. Cavin (2007) examined the preparedness level of educational diagnosticians in relation to criteria set forth in Texas state legislation. A total of 432 educational diagnosticians completed a survey that addressed their perceptions of the relative importance and their level of preparedness of ten diagnostic competencies outlined by the Texas State Board for Educator Certification (SBEC) (TEC § 239.84):

1. Knowledge of general requirements of assessment and special education services.
2. Understanding of ethical roles and responsibilities.
3. Building collaborative relationships with educators, parents, and outside agencies.
4. Ability to understand and apply assessment practices to inform educational planning.
5. Knowledge of eligibility criteria for determining need for special education services.
6. Ability to select, administer, and interpret formal and informal assessments.

7. Understanding the role of ethnic, linguistic, and cultural diversity in evaluation;
8. Ability to manage scheduling time, and organizational responsibilities.
9. Knowledge of assessment practices related to behavior and social skills; and
10. Understanding of instructional strategies for students with disabilities.

Survey respondents reported that their ability to select, administer, and interpret formal and informal assessments were the most important competencies. The respondents reported that the least important competencies were their understanding of ethical roles and responsibilities, as well as their understanding the role of ethnic, linguistic, and cultural diversity in evaluation. Regarding their level of preparedness, respondents reported that they were most prepared to administer formal assessments and to know the general requirements of assessment and special education. They were least prepared to identify instructional strategies, assess behavior and social skills, and build collaborative relationships.

Guerra et al. (2017) expanded on Cavin's research in Texas (2007). The authors used Cavin's survey instrument with a sample of 23 educational diagnosticians, 54 teachers, and 22 administrators in Texas. Survey respondents were asked to rate the importance of the diagnostic competencies outlined by the Texas SBEC (TEC § 239.84) and the extent to which educational diagnosticians utilize the competencies in their daily practice. Diagnosticians rated all of the competencies as more important than did the teachers or administrators, with the exception of the competency that diagnosticians should understand instructional strategies for students with disabilities. The survey results indicated that teachers and administrators felt understanding instructional strategies for students with disabilities was a more important role than was indicated by educational diagnosticians. Additionally, teachers and administrators reported that educational diagnosticians did not demonstrate the competencies to the same level that

diagnosticians reported carrying out these duties. Essentially, Guerra et al. (2017) found that educational diagnosticians perform a variety of roles and functions that are not readily apparent to teachers and administrators on a daily basis. This speaks to the specialized skill set required by diagnosticians related to assessment and evaluation.

Three articles have noted areas of professional practice in which educational diagnosticians may need additional training and support. Rueter et al. (2016) used a mixed-methods approach to measure the knowledge and skills of diagnosticians related to reading skill development. Their study consisted of 77 survey respondents and four interview participants. The authors reported that educational diagnosticians do not fully understand the processes of early reading development and need additional support in selecting and implementing appropriate reading assessments. Rueter and Simpson (2011) conducted a focus group of 19 educational diagnosticians in Texas that focused on the use of evidence-based practices. The participants reported several barriers to implementing evidence-based practices in classroom intervention. The diagnosticians indicated that a lack of knowledge about current evidence-based practices, a lack of time to research and recommend appropriate practices, and a lack of administrative support for carrying out these responsibilities all contributed to implementation challenges. Finally, Capps (2013) theorized in an opinion article that educational diagnosticians would benefit from additional training and support in ways to communicate and collaborate with families during educational planning.

Statement of the Problem

Educational diagnosticians are responsible for key evaluation components of IDEA. However, as described in the literature review above, several studies have identified potential issues in their level of preparedness to carry out these duties. Specifically, educational

diagnosticians in Texas may not be prepared to identify and implement evidence-based practices related to instruction (Cavin, 2007; Guerra et al., 2017; Rueter & Simpson, 2011), reading intervention and assessment (Rueter et al., 2016), behavior and social skill intervention (Cavin, 2007), and building collaborative relationships with families (Cavin, 2007; Capps, 2013). Additionally, one study found that educational diagnosticians viewed ethical responsibilities and cultural-linguistic diversity as less important competencies in their work (Cavin, 2007).

To further explore these issues, the study described here was designed to examine the preparedness of educational diagnosticians in Texas in relation to the professional preparation standards outlined by the Council for Exceptional Children (CEC). While the previous research from Cavin (2007) and Guerra et al. (2017) used state-specific standards developed by the Texas SBEC, these studies did not examine the issue in relation to national standards that are used to guide the accreditation of educator preparation programs.

Purpose of the Study

The purpose of this study was to examine the extent to which educational diagnosticians in Texas perceived their certification program prepared them with the professional knowledge recommended by the CEC standards. Since the CEC standards are the foundation for the accreditation of special education preparation programs (CAEP, n.d.), the researchers believe that it is important to better understand how educational diagnosticians rate their level of preparedness in relation to these standards. Through this research, important information may be gathered that can help preparation programs more effectively train educational diagnosticians for their professional responsibilities. Considering the critical role that educational diagnosticians play in the evaluation and program planning for students receiving special education services in

Texas (De Zell Hall, 2014), this research can provide valuable information for educator preparation programs. The research questions used to guide this study are as follows:

1. To what extent do educational diagnosticians in Texas perceive their certification program prepared them with the professional knowledge recommended by the CEC standards?
2. Are there differences in the perceived level of preparedness based on the type of employing school district (urban, suburban, rural) or the years of experience as an educational diagnostician?

Method

Participants

The target population for the study was educational diagnosticians currently practicing in Texas public schools. A total of 208 individuals began the survey and 113 educational diagnosticians completed the survey, resulting in a 54% completion rate. Their years of experience ranged from less than two years ($n = 35$; 31.0%), to 2-4 years ($n = 22$; 19.5%), to five or more years ($n = 56$; 49.6%). The participants worked in a variety of school district settings, including urban ($n = 29$; 25.7%), suburban ($n = 56$; 49.6%), and rural districts ($n = 28$; 24.8%).

<Insert Table 1 – Currently located after reference section>

Procedures

The electronic survey was developed using the Qualtrics online survey tool. A Quick Response (QR) code and web hyperlink were generated to assist potential participants in quickly accessing the survey. Snowball (Mills & Gay, 2019) and convenience (Lavrakas, 2008) sampling techniques were used to identify participants. The authors utilized a snowballing method by e-mailing an anonymous hyperlink and QR code to approximately 60 local education agency

(LEA) special education directors requesting that they disseminate the linked survey to their school district's educational diagnosticians. Using the convenience sampling method, the researchers set up a table at a statewide conference for educational diagnosticians with the QR code posted so that potential participants could easily access the survey. This posted QR code allowed for snowballing, as well, since participants were able to take a picture and forward it to their professional colleagues. While the survey completion rate was reported above, it was not possible to calculate the response rate (i.e., the proportion of survey completers out of the total chosen sample) due to the methods of survey dissemination. After data collection was completed, the survey data was exported into SPSS Statistics for analysis.

Instrument

The survey instrument was based directly on the six competency areas for educational diagnosticians as described in the *Advanced Preparation Standards Specialty Set: Special Education Diagnostician Specialist* (CEC, 2015). The initial draft of the survey included all 28 *knowledge* items and all 24 *skill* items that are listed in the six competency areas. The initial draft was presented to an expert panel consisting of educational diagnosticians and special education administrators who serve as an advisory committee for the researchers' university-based educational diagnostician graduate program. Due to concerns about the large number of items, the panelists recommended that the survey only focus on the 28 *knowledge* items from the educational diagnostician standards. The panelists suggested that a follow-up study could be conducted that focused on the *skill* items. The panelists' rationale was that certification programs are well positioned to impart the professional *knowledge* needed by educational diagnosticians, but *skill* development takes a combination of preparation and years of experience on the job. The panelists' final recommendation concerned the rating scale for the survey. Their recommendation

was to use a five-point Likert-type scale consisting of the following categories: *not prepared*, *somewhat prepared*, *neutral*, *adequately prepared*, and *highly prepared*. This recommendation for the survey scale was consistent with guidance provided by Mills and Gay (2019). Content validity and face validity were addressed through this combination of using the CEC standards and the recommendations of the panelists.

The internal consistency of the instrument was calculated using Cronbach's alpha for each competency area. Results were as follows: Assessment, $\alpha = 0.997$; Programs, Services, and Outcomes, $\alpha = 1.0$; Research and Inquiry, $\alpha = 0.996$; Leadership and Policy, $\alpha = 1.0$; Professional and Ethical Practice, $\alpha = 0.997$; and an overall Cronbach's alpha of $\alpha = 0.95$. A Cronbach's alpha was not calculated for the Collaboration standard, as it contained only one item. Table 2 in the Findings section presents the items from the final survey instrument.

Findings

Level of Preparation by CEC Standard Domain

As presented in Table 2, over 50% of the 113 educational diagnosticians responding to the survey indicated that they were *adequately prepared* or *highly prepared* in six out of the seven domains of the CEC standards. Standard 6: Professional and Ethical Practice had the highest percentage (74.9%) of respondents that reported being *adequately prepared* or *highly prepared*, followed by Standard 5: Leadership and Policy (65.7%). Slightly over half of the participants reported being *adequately prepared* or *highly prepared* for Standard 4: Research and Policy (56.6%), Standard 1: Assessment (55.5%), and Standard 3: Programs, Services, and Outcomes (52.9%). Diagnosticians reported their lowest level of preparation for Standard 7: Collaboration, as 26.6% of respondents selected either *adequately prepared* or *highly prepared*.

However, it should be noted that the CEC standards only included one knowledge item for Standard 7. The complete results are presented in Table 2.

<Insert Table 2 – Currently located after reference section>

Level of Preparation by CEC Sub-Standards in Each Domain

Next, the findings were examined by the knowledge sub-standards listed in each standard domain (see Table 2). Standard 1: Assessment had the widest range of participants who reported being adequately prepared or highly prepared across the knowledge items. The percentage of participants who reported these levels of preparation ranged from 17.7% (Standard 1.12: Vocational and Career Assessment Measures) to 85.9% (Standard 1.8: Cognitive Assessment Measures). The other standard with a somewhat wide range of results across the knowledge items was Standard 6: Professional and Ethical Practice. The percentage of participants who reported being adequately prepared or highly prepared ranged from 58.4% (Standard 6.2: Organizations and Publications Relevant to the Field of Educational Diagnosticians) to 80.3% (Standard 6.1: Qualifications to Administer and Interpret Test Results). The knowledge item with the lowest percentage of participants who reported being adequately prepared or highly prepared was Standard 7.1: Roles of various agencies within the community (26.6%).

Level of Preparation by Type of School District

The data were then examined to identify differences in the perceived level of preparedness based on the type of employing school district (urban, suburban, rural). Table 3 presents means and standard deviations for each CEC standard domain by type of school district for survey participants.

<Insert Table 3 – Currently located after reference section>

An initial multivariate analysis of variance (MANOVA) (see Table 4) examined type of school district as the independent variable (IV) and the six CEC Advanced Preparation Specialty Set standards as dependent variables (DVs). After excluding Standards 4, 5, 6, and 7 as non-significant (all four variables had p values > 0.1), a follow-up MANOVA examined associations between the DVs and IV described above. It showed significant main effects for the two latent variables (Standards 1 and 3, $<.05$ and $<.01$, respectively) as groups in relation to the type of school district.

<Insert Table 4 – Currently located after reference section>

The study sought to determine if there were statistically significant differences between the means of the CEC standards, thus an analysis of variance (ANOVA) was conducted. Prior to the univariate analysis, assumptions for ANOVA were tested. Levene's test showed that the variances were equal, and no outliers were noted; however, according to the Shapiro Wilks test, the Standard 3 data were not normally distributed. Thus, parametric testing was used for Standard 1 and non-parametric testing was used for Standard 3.

Univariate analyses of the effect of the type of school district significantly predicted responses related to Standards 1, with educational diagnosticians working in suburban and rural school districts reporting as significantly more prepared on Standard 1 than those working in urban school districts [$F(2,110) = 3.76, p < 0.05$]. A Kruskal-Wallis H test showed that there was a statistically significant difference in Standard 3 between the different types of school districts, $\chi^2(2) = 13.007, p = 0.001$, with a mean rank Standard 3 score of 38.22 for urban, 64.15 for suburban and 62.14 for rural.

The discrete sets (sub-standards) of knowledge (DV) subsumed under each standard (listed in Table 2) with the independent variable of the type of school districts were analyzed by

MANOVA. Significant differences between groups were noted in Standard 1: Assessment (1.9), Standard 3: Programs, Services, & Outcomes (3.1, 3.2, 3.3, and 3.4), and Standard 5: Leadership and Policy (5.4). A one-way between subjects ANOVA was conducted to compare sub-standards amongst types of school districts. There were significant differences in the sub-standards between the three types of school districts (see Table 5), with urban educational diagnosticians reporting significantly less preparedness than their suburban counterparts for Standard 1.9: Language Assessment Measures, Standard 3.1: Assessment Procedures that Address all Disabilities, and Standard 3.3: Over- and Under-Representation of Individuals with Cultural and Linguistic Diversity Referred for Assessment. Both suburban and rural educational diagnosticians reported significantly higher levels of preparedness than their urban colleagues for Standard 3.2: Variability of Individuals within Each Category of Disability, Standard 3.4: Characteristics of Individuals with Exceptional Learning Needs that Affect the Development of Programs and Services, Standard 5.4: Models, Theories, and Philosophies that Form the Basis of Assessment. Within Standards 4 and 6, there were no significant interactions between the type of school districts and the specific knowledge components subsumed under each standard listed in Table 2. Levene's test showed that the variances were equal; however, normality violations and outliers were noted.

<Insert Table 5 – Currently located after reference section>

Level of Preparation by Years of Experience

Regarding the years of experience as an educational diagnostician, a separate MANOVA was used to examine the association between perception of preparedness (DVs) and years of experience (IV). There was no significant interaction between years of experience and perceptions of preparedness.

Discussion

Standard 1: Assessment

There was a statistically significant difference in reports of preparation levels for Standard 1: Assessment based on an educational diagnostician's school district [$F(2,110) = 3.76, p < 0.05$]. More specifically, educational diagnosticians working in suburban school districts reported significantly higher preparation levels than their counterparts working in urban school districts for Standard 1.9: Language Assessment Measures [$F(2,110) = 3.59, p < 0.05$]. According to Bialik et al. (2018), English Learners (ELs) in urban school districts comprise 16% of the enrolled population, as compared to 4% in rural districts. Federal regulations (§ 300.304(c)(1)(ii)) require that “assessment and other evaluation materials used to assess a child are provided and administered in the child’s native language or other mode of communication and in the form most likely to yield accurate information.” Since urban school districts assess more linguistically diverse students, it makes sense that urban educational diagnosticians would require a deeper understanding of and access to a variety of tools to assess ELs.

Cavin (2007) reported that educational diagnosticians were not prepared to assess behavior and social skills. Similarly, Wehby and Kern (2014) found that educators involved in planning and implementing behavior and social skill supports reported a lack of training in this area. The researchers have similar findings in this study, with only 30.1% of participants indicating being adequately prepared or highly prepared for Standards 1.11: Social, Emotional, and Behavior Assessment Measures. Functional behavioral assessments (FBA), as appropriate, are required for a student receiving special education services “who is removed from the student’s current placement” (§300.530 (d)(1)(ii)). Educational diagnosticians are tasked with being contributing members of the FBA team. This study indicated that many educational

diagnosticians did not feel that they were prepared with the depth and breadth of knowledge needed to conduct or contribute to an FBA.

Standard 3: Programs, Services, and Outcomes

Standard 3 involves synthesizing information from multiple perspectives when assessing and developing service plans for students with disabilities. The competencies required of educational diagnosticians in this area include implementing assessment procedures that address all disability categories (Standard 3.1), accounting for the variability of students within each category of disability (Standard 3.2), addressing issues related to the over- and under-representation of students from cultural and linguistically diverse backgrounds who are referred for evaluation (Standard 3.3), and accounting for how the characteristics of individual students affect the development of programs and services (Standard 3.4). In this study, there was a statistically significant difference in reports of preparation levels for Standard 3: Programs, Services, and Outcomes based on an educational diagnostician's school district [$F(2,110) = 7.11, p < 0.01$].

Educational diagnosticians working in urban school districts reported lower preparation levels than their suburban counterparts on Standards 3.1 and 3.3. The educational diagnosticians from urban school districts reported lower preparation levels than both their suburban and rural colleagues on Standards 3.2 and 3.4. These findings connect to Cavin (2007), who reported that educational diagnosticians rated their understanding of the role of ethnic, linguistic, and cultural diversity in evaluation as one of the least important competency areas. As noted previously, educational diagnosticians in urban school districts typically work with more diverse student populations. Although the Cavin (2007) study did not report results by type of school district, in

the present study the results from educational diagnosticians in urban districts show that this is an area in which they feel additional preparation is needed.

Standard 5: Leadership and Policy

Educational diagnosticians working in urban school districts reported feeling less prepared with their understanding of models, theories, and philosophies that form the basis of assessment (Standard 5.4) than did suburban and rural educational diagnosticians. These guide the development, implementation, and interpretation of assessment measures. For example, a diagnostician must thoroughly comprehend Item-Response Theory (IRT), as it determines the difficulty and order of items for norm-referenced, criterion-referenced, and curriculum-based assessment measures. Intellectual theories (i.e. Cattell-Horn-Carroll (CHC), Sternberg's Triarchic Theory, and Spearman's General Intelligence Factor) undergird norm-referenced cognitive assessments. Young children transitioning from IDEA Part C of the Act (Early Childhood Intervention) to Part B of the Act (§ 300.124) are ensured a seamless transition, including transition planning, assessment, and IEP development, if appropriate. Thus, district staff working with young children must incorporate child development theories (e.g., Piaget's Cognitive Development Theory, Bowlby's Attachment Theory, Bandura's Social Learning Theory, and Vygotsky's Sociocultural Theory) into their interactions to better understand a child socially, emotionally, and cognitively. Theories, models, and philosophies enable an educational diagnostician to understanding human development and the individual differences found therein.

Standard 7: Collaboration

In the present study, the most notable area in which educational diagnosticians indicated a lack of preparation was Standard 7: Collaboration. This standard only included one sub-standard: Roles of Various Agencies within the Community. Only 26.6% of participants reported

being *adequately prepared* or *highly prepared* in this domain, with no statistically significant difference between the type of school district. Collaboration involves effectively assisting within district and interagency collaboration in reviewing assessment results and planning interventions for students. This finding is consistent with findings from Capps (2013) and Cavin (2007). Cavin (2007) reported that educational diagnosticians felt that building collaborative relationships was an area in which they were comparatively less prepared. In an opinion article on future directions in the field, Capps (2013) recommended additional training and support for educational diagnosticians in strategies for communicating and collaborating with families and service providers during educational planning.

Implications

A notable implication from this study is related to the district size in which educational diagnosticians work. Diagnosticians working in urban school districts reported being less prepared than their colleagues in suburban and rural districts in multiple standards domains and associated sub-standards. Preparation programs may need to closely examine their curriculum and field-based learning opportunities to ensure that educational diagnosticians are being prepared to work in large, urban communities with diverse student populations. This focus could begin to address the perception that educational diagnosticians in urban school districts feel less prepared to effectively meet the expectations for this work.

In addition to the low level of reported preparation for Standard 7.1: Roles of Various Agencies within the Community (26.6% reported being adequately or highly prepared), only 17.7% of participants reported being adequately prepared or highly prepared for Standard 1.12: Vocational and Career Assessment Measures. When considering the results of Standards 7.1 and 1.12 in combination, the researchers believe that the participants in this study may not be

adequately prepared with the knowledge needed to carry out their responsibilities related to secondary transition planning as outlined in IDEA, which include both collaborating with outside agencies and conducting appropriate vocational and career readiness assessments. As noted by Mitchell and Cole (2017), educational diagnosticians play an important role in the transition process. In some cases, the diagnostician is responsible for ensuring that transition is addressed by appropriate personnel at the IEP meeting and within the IEP document, while in other cases the diagnostician may be responsible for the conducting the transition assessment(s) and facilitating the transition planning discussions. Therefore, preparation programs for educational diagnosticians may want a greater focus on developing their candidates' abilities to facilitate and meaningfully participate in the transition planning process.

Limitations

There are several limitations to this study. One limitation of this study relates to the items included in the survey. As noted in the *Instrument* section, the panelists who informed the instrument creation for this study recommended that the researchers only focus on the 28 knowledge items from the CEC educational diagnostician standards due to concerns about the large number of items and the survey length. A follow-up study that addresses the *skill* items from the standards would provide an important contribution to the literature on the preparation of educational diagnosticians.

Another limitation relates to the independent variables from this study. The only two independent variables in this study were the type of school district and the years of experience. It could be potentially informative to collect data on additional independent variables, such as the delivery format of participants' educational diagnostician preparation programs (e.g., online,

hybrid, or face-to-face) and their area of teacher certification (e.g., special education, general education, or counseling).

Finally, the study would be strengthened by increasing the number of participants. The generalizability of results is limited by the small number of participants (n = 113) who participated in this study. Future studies should attempt different outreach and dissemination techniques to recruit a larger pool of participants. Additionally, the generalizability of results would be improved by including diagnosticians who work in other states in order to expand the results into a larger regional or national setting.

Conclusion

The results indicated that there are several areas in which educator preparation programs for educational diagnosticians may want to further emphasize in their curricula and learning experiences. In some areas of the standards, educational diagnosticians working in urban school districts reported being less prepared than their colleagues in suburban and rural school districts. Considering the critical role that educational diagnosticians play in the evaluation and program planning for students receiving special education services in Texas (De Zell Hall, 2014), it is critical for preparation programs to address identified knowledge gaps in order to prepare educational diagnosticians to work in a variety of school district settings and meet the wide range of demands required by the IDEA.

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Table 1
Survey Participants (n = 113)

	Less than 2 yrs.		2-4 years		5 or more years	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Years of experience as educational diagnostician	35	31.0	22	19.5	56	49.6
Type of school district	Urban		Suburban		Rural	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Type of school district	29	25.7	56	49.6	28	24.8

Table 2*Self-reported Preparation Levels of Educational Diagnosticians (n = 113)*

CEC Standard	Not Prepared %	Somewhat Prepared %	Neutral %	Adequately Prepared %	Highly Prepared %	Total %
Standard 1: Assessment	13.1	19.6	11.8	34.8	20.7	100
1.1 Standards of reliability and validity related to individual test measures	5.3	17.7	4.4	50.4	22.1	100
1.2 Procedures used in standardizing assessment instruments	2.7	11.5	3.5	45.1	37.2	100
1.3 Standard error of measurement related to individual test measures	6.2	22.1	8.9	38.9	23.9	100
1.4 Use and limitations of portfolios in assessment	17.7	19.5	19.5	28.3	15.0	100
1.5 Sources of test error	8.0	23.9	9.7	42.5	15.9	100
1.6 Uses and limitations of assessment information	3.6	23.2	9.8	45.5	17.9	100
1.7 Achievement assessment measures	2.7	10.6	6.2	43.4	37.2	100
1.8 Cognitive assessment measures	1.8	9.7	2.7	41.6	44.3	100
1.9 Language assessment measures	12.4	22.1	17.7	33.6	14.2	100
1.10 Motor skills assessment measures	31.0	25.7	22.1	16.8	4.4	100
1.11 Social, emotional, and behavior assessment measures	22.1	29.2	18.6	21.2	8.9	100
1.12 Vocational and career assessment measures	43.4	20.4	18.6	10.6	7.1	100
Standard 3: Programs, Services, & Outcomes	9.8	25.0	12.4	38.3	14.6	100
3.1 Assessment procedures that address all disabilities	8.9	23.0	8.89	44.3	15.0	100
3.2 Variability of individuals within each category of disability	8.0	30.1	9.7	38.9	13.3	100
3.3 Over- and underrepresentation of individuals with cultural and linguistic diversity referred for assessment	12.4	24.8	13.3	33.6	15.9	100

3.4 Characteristics of individuals with exceptional learning needs that affect the development of programs and services	9.7	22.1	17.7	36.3	14.2	100
Standard 4: Research & Inquiry	6.7	23.1	13.7	37.6	19.0	100
4.1 Best practices in research-based assessment	4.4	20.4	11.5	38.9	24.8	100
4.2 Resources and methods that address student learning, rates, and learning styles	8.9	25.7	15.9	36.3	13.3	100
Standard 5: Leadership & Policy	4.0	18.3	12.0	46.7	19.0	100
5.1 Laws and policies related to assessing individuals with exceptional learning needs	1.8	15.9	7.1	47.8	27.4	100
5.2 Emerging issues and trends that influence assessment	4.4	16.8	13.3	50.4	15.0	100
5.3 Implication of multiple factors that influence the assessment process	5.3	15.0	9.7	50.4	19.5	100
5.4 Models, theories, and philosophies that form the basis of assessment	3.5	20.4	14.2	41.6	20.4	100
5.5 Issues in general and special education that affect placement decisions for individuals with exceptional learning needs	3.5	22.1	12.4	46.0	15.9	100
5.6 Policy and research implications that promote recommended practices in assessment	5.3	19.5	15.0	44.3	15.9	100
Standard 6: Professional & Ethical Practice	3.0	12.4	10.0	41.8	33.1	100
6.1 Qualifications to administer and interpret test results	2.7	10.6	7.1	37.8	42.5	100
6.2 Organizations and publications relevant to the field of educational diagnosticians	5.3	19.5	16.8	38.9	19.5	100
6.3 Ethical considerations relative to assessment	0.9	7.1	6.2	48.7	37.2	100
Standard 7: Collaboration						
7.1 Roles of various agencies within the community	16.8	32.7	23.9	20.4	6.2	100

Table 3*Descriptive Statistics of Educational Diagnosticians as a Function of Employment Location (n = 113)*

CEC Standard	Urban <i>n</i> = 29 <i>M</i> (<i>SD</i>)	Suburban <i>n</i> = 56 <i>M</i> (<i>SD</i>)	Rural <i>n</i> = 28 <i>M</i> (<i>SD</i>)
Standard 1: Assessment	2.91 (.88)	3.42 (.88)	3.48 (.97)
Standard 3: Programs, Services, & Outcomes	2.61 (.92)	3.47 (1.03)	3.39 (1.12)
Standard 4: Research & Inquiry	2.94 (1.08)	3.44 (1.11)	3.31 (1.07)
Standard 5: Leadership & Policy	3.28 (1.03)	3.68 (.92)	3.73 (.93)
Standard 6: Professional & Ethical Practice	3.69 (1.05)	3.92 (.84)	4.06 (.84)
Standard 7: Collaboration	2.41 (.91)	2.79 (1.28)	2.68 (1.16)

Table 4*Multivariate Analyses of Variance for Type of School District by CEC Standard (n = 113)*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Standard 1	6.13	2	3.06	3.76	.026*
Standard 3	15.01	2	7.50	7.11	.001**
Standard 4	4.77	2	2.39	1.20	.141
Standard 5	3.79	2	1.90	2.08	.129
Standard 6	2.02	2	1.00	1.24	.292
Standard 7	2.65	2	1.33	.98	.378

* $p < .05$ ** $p < .01$

Table 5*Significant Univariate Effects for CEC Sub-Standards (n = 113)*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Standard 1.9	10.64	2	5.32	3.49	.034*
Standard 3.1	10.10	2	5.05	3.45	.035*
Standard 3.2	20.49	2	10.25	7.55	.001**
Standard 3.3	14.47	2	7.23	4.50	.013*
Standard 3.4	19.92	2	9.96	7.40	.001**
Standard 5.4	12.75	2	6.38	5.34	.006**

* $p < .05$ ** $p < .01$