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Sherri L. Horner

Bowling Green State University, shorner@bgsu.edu

Alicia Mrachko

Bowling Green State University, mrachka@bgsu.edu

Evelyn A. O'Connor

Adelphi University

Anastasia E. Yasik

Pace University

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Pre-Service Teachers' Knowledge of Special Education Laws

Sherri L. Horner
Bowling Green State University

Alicia Mrachko
Bowling Green State University

Evelyn A. O'Connor
Adelphi University

Anastasia E. Yasik
Pace Univeristy

As more and more children are being identified as needing special services, all teachers need to know special education laws. One hundred and thirty-eight preservice teachers answered an online survey about their knowledge and confidence level of IDEA and Section 504. Our participants, on average, did not have accurate knowledge of IDEA or Section 504 laws (overall IDEA $X = 42\%$; 504 $X = 40\%$). Having coursework related to IDEA and Section 504 laws did increase participants' scores, regardless of whether they were majoring in a special education related degree or not. However, their scores were still low, basically at chance level. Having coursework related to IDEA and Section 504 laws also increased participants' confidence in their scores. Except for participants who had not taken a class with Section 504 information, participants' confidence levels were also associated with their scores. The qualitative data showed that the majority of the relevant responses were from participants who had had coursework on special education laws. Overall, the results showed a general lack of knowledge about specific details of these special education laws.

More students are being diagnosed with disabilities and more students with disabilities are being educated, at least partly, in general education classrooms than in the past. From school year 2000–01 through 2017–18, the number of students ages 3–21 who received special education services under the Individuals with Disabilities Education Improvement Act (IDEA) increased from 6.3 million (13%) to 7.0 million (14%) of the total public school enrollment (National Center for Educational Statistics, 2019). As noted by Mader (2017), “between 1989 and 2013, the percentage of students with disabilities who were in a general education class for 80 percent or more of the school day increased from about 32 percent to nearly 62 percent” (para. 9). Moreover, in 2016, 66.8% of 3 to 5 year olds with disabilities and 94.9% of 6 to 21 year olds with disabilities were educated in a regular classroom setting for at least some portion of the day (the most recent year with data collected; Office of Special Education Programs, [OSEP] 2018). which was up from approximately 70% in 2000 (US Department of Education, 2000, as cited in deBettencourt, 2002).

To appropriately teach all children in their classrooms, both general and special education teachers should have an adequate understanding of the special education laws that are the

guiding principles of support for children identified as having special needs. For instance, “Section 602 of IDEA requires that teachers providing instruction to students with disabilities in core academic subjects meet the same Highly Qualified Teacher (HQT) requirements that apply to special education teachers under ESEA” (National Center for Education Evaluation and Regional Assistance, 2011, p. 3). Although we were unable to find data on how many general education teachers in PK-12 public schools have at least one child with a disability for at least part of the school day in their classroom, we can assume that most, if not all, will have at least one child in their classroom during their teaching careers. Plus, identification and referrals of children for special education evaluation are frequently made by their classroom teacher (Vaughn, Bos, & Schumm, 2010). Therefore, it is necessary for all teachers to understand special education laws.

Individuals with Disabilities Education Act (IDEA)

The Individuals with Disabilities Education Act (IDEA), which was re-authorized in 2004 as the Individuals with Disabilities Education Improvement Act (2004; P.L. 108-446), regulates how schools provide services to children with special needs from birth through age 21. This law protects and ensures that children who are identified with at least one of the 13 federal categories of disabilities will have a right to a free and appropriate public education in the least restrictive environment (LRE). In addition, an individualized education program (IEP) must be created to address all the child’s needs with specialized instruction. With children with IEPs increasingly being educated in the general education environment, it is important that teachers understand that the IEP is a legal document that needs to be implemented fully and appropriately in the classroom. Another key component of this law is the obligation of schools to identify children who are in need of special education services. Classroom teachers may be the first to identify children who may qualify under IDEA. These teachers may notice “red flags” (i.e, academic performance, behavior, and attendance patterns) that could indicate a need for a referral for evaluation (Zirkel, 2015).

Section 504 of the Rehabilitation Act (Section 504)

Section 504 of the Rehabilitation Act (1973) “is a federal law designed to protect the rights of individuals with disabilities in programs and activities that receive Federal financial assistance from the U.S. Department of Education” (US Department of Education, 2018). While IDEA is applicable only to public schools, Section 504 is a civil rights law that is relevant and enforceable in any place of employment, including schools, that receive federal funds (U.S. Department of Health and Human Services, 2017). Eligibility for Section 504 protections, which are broader than IDEA, is based on “any mental or physical impairment that substantially limits one or more major life activities, which include but are not at all limited to learning” (Zirkel, & Weathers, 2016, p. 68). Therefore, students with disabilities can fit into three categories: IDEA only, Section 504-only, or ‘double-covered’, that is, those who are eligible under both IDEA and Section 504 (Zirkel & Weathers, 2016). In the 2000’s, schools are providing more services through Section 504 plans than in the past (Brady, 2004; Smith, 2002), although “all too often, educators are ill-trained in both understanding and implementing Section 504 legal regulations in their respective schools” (Brady, 2004, p. 319).

Literature Review

In a previous study, the O'Conner, Yasik, and Horner (2016) surveyed 43 general education teachers who taught kindergarten through eighth grade in the New York City metropolitan area and had five or fewer years of teaching experience. These participants showed a general lack of knowledge about special education laws (i.e., IDEA, Section 504). For instance, only 22% could correctly indicate that under Section 504 children do not need to have a specific diagnosis to receive services. Unfortunately, those participants who self-reported taking coursework related to special education laws did not score significantly better than those who had not taken a course. Approximately half of the participants stated, "I don't know" or did not answer the open-ended questions about IDEA and Section 504. In a dissertation, Holland (2016) reported similar results for special education teachers' ability to apply their knowledge of IDEA to 16 scenarios. Their scores ranged from 78% to 19%, with an average of 58%. Brookshire and Klotz (2002) found that special education teachers scored higher than general education teachers on IDEA questions dealing with related services, appropriate evaluations, and zero tolerances, while general education teachers did better on the question related to parental participation. There were no differences on Least Restricted Environment (LRE), procedural safeguards, and Individualized Education Plans (IEP). They also found that special education teachers had higher perceptions of their knowledge (i.e., agreed that they had enough knowledge) and preservice training. However, there were no correlations between their perceptions of knowledge and actual knowledge. Sanders (2011) found that special education and general education preservice teachers' scores on an IDEA survey were, on average, significantly lower than 70%, with no differences between the two degree types nor any relationship between their perceptions of knowledge and actual knowledge. However, the number of special education courses and knowledge scores were correlated. Rewoldt (2018) also reported a non-significant correlation between perceived level of legal knowledge about IDEA and actual knowledge for school psychologists. However, this dissertation only had six participants and did not report averages or other information about the actual scores so the results are difficult to interpret. Although 97% of preservice teachers in an undergraduate school law course knew that students with ADHD could get accommodations under Section 504, only 26% knew that they might qualify under IDEA as well (Wattan, Benson, & Reyes, 2019). LaBarre (2017), another dissertation, reported that 245 secondary principals in Ohio "seemed to have knowledge at the level of compliance" (p. 142) for legal knowledge related to IEPs. However, all the survey statements were true, with ratings of strongly agree, agree, disagree, and strongly disagree. This lack of diverse questioning could have increased these participants' scores.

Other studies have shown a lack of knowledge of and training about special education law by education professors and PK-12 school support personnel (e.g., school psychologists) who typically provide information about special education laws and services to teachers. "Studies indicate that many school employees are legally illiterate, with many wishing they had better legal training" (Decker & Brady, 2015, p. 240). For instance, faculty and administration at a southwestern university, who were surveyed about the legal rights of students with disabilities, had very little awareness of these laws (Thompson & Bethea, 1997). When school district personnel (e.g., special education teachers, school psychologists) who implemented the law in their schools were asked about their perceptions and experiences with the law, they responded that they had a frustrating amount of paperwork to complete that kept them from working with students who needed their support (O'Dell & Schaefer, 2005). Madus and Shaw (2008) examined the training of committee members who implemented and managed Section 504 in their schools. The committee members consisted of school personnel (e.g., teachers,

administrators, school psychologists). The researchers found that only 28% of members had received training when they were preservice teachers. Furthermore, almost a third of the committee members never received any staff development training and an additional 29% had no training in the last 2-5 years. In a qualitative dissertation, Maydosz (2009) found that "there were several important points of confusion about Section 504 among Section 504 Virginia school administrators and division coordinators" (p. 127). In summary, research investigating school personnel's knowledge of special education laws specifically have found a lack of adequate knowledge.

Several researchers have investigated school personnel's knowledge of education laws, a broader topic that includes the legal rights and responsibilities of schools, teachers, and students and special education laws. Leschied, Dickinson, and Lewis (2000, p. 40) stated, "Teachers report being poorly equipped to act in the best interests of their students, their profession and themselves because they do not understand fully their legal obligations and rights." Schimmel and Militello's (2007) found that 60% of teachers were unable to identify the correct answer for questions on education laws. For example, most teachers were unfamiliar with students' right to wear t-shirts that criticize school policies as long as it did not hinder teaching and learning in the school environment.

Some researchers have investigated potential reasons for why teachers might lack knowledge of education laws. Both Bruner and Barlett's (2008) survey of professors and college administrators and Wagner's (2008) review of the literature on pre-service teacher instruction on education law determined that colleges and universities are providing little to no preparation in this area. Schimmel and Militello's (2007) survey of more than 1300 teachers found that over 75% did not take a course related to education law as a preservice teacher. In an investigation of states' certification offices, Gajda (2008) found that the study of educational law was either a minimal or nonexistent requirement for teachers. We reviewed multiple teaching-related Standards, (i.e., Council for Exceptional Children (CEC) Initial Preparation Standards, CEC Early Childhood Special Education/Early Intervention standards, CAEP K-6 Standards, INTASC Standards, Ohio Standards for the teaching profession) with all of them having standards, typically relating to assessment or ethics, that had the words "law" or "legal" in them. However, none of them mentioned IDEA or Section 504 specifically.

Currently, most information and advice that teachers receive about education laws comes from other teachers and principals who may also not have adequate knowledge of the law (Curtis, 2014; Leschied et al., 2000; Schimmel & Militello, 2007). For instance, Curtis (2014) showed that school administrators lacked knowledge of key procedural elements of Section 504. Therefore, teachers and other school personnel may lack basic knowledge (Leschied et al., 2000; Schimmel & Militello, 2007) or they could have misconceptions about educational law (Imber, 2008).

Beliefs about their inadequacies might be mitigated by taking an education law course; however, results have been mixed. Decker, Ober, and Schimmel (2017) examined the effects that a graduate school law class had on the legal beliefs and actions of teachers, administrators, and support staff, with the results showing that 81% said they had better attitudes and less anxiety related to legal issues and were more confident and empowered. In addition, 85% of respondents said it changed their behavior, in that they followed the legal requirements, sought legal advice when necessary, and provided information to colleagues. However, Militello, Schimmel, and

Eberwein (2009) reported that while 87% of principals had taken a course on school law, they correctly identified only 54% of the questions relating to teachers' rights and liability and 65% on students' rights.

Purpose of Study

In this study, we extend previous research in three ways. First, Decker et al. (2017) showed that school personnel's knowledge, attitudes, and behaviors about education law could be enhanced by taking a graduate-level law course; however, our previous study (2016) and Miletto et al. (2009) showed a lack of knowledge even by those who reported taking a course. Therefore, we continue to investigate whether coursework has an influence on participants' knowledge by comparing those participants who report having some coursework (Participants with coursework; PWC) and those who have not had any coursework (Participants with no coursework; PWNC). Second, there are mixed results from studies with participants from general education and special education backgrounds. Sanders (2011) found no difference between the average scores of general education and special education preservice teachers whereas Brookshire and Klotz (2002) found that it depended on the specific question, with special education teachers scoring better than general education teachers on three questions, the reverse on one question, and no differences on another three questions. Therefore, we investigate whether majoring in a degree with a special education component is related to participants' special education law knowledge. At the university where this research was gathered, students in the inclusive early childhood (IEC) program earn both general and special education licenses so they and those majoring in special education could, in theory, have more knowledge about special education laws than students majoring in degrees (e.g., middle childhood, art education) with only general education licenses. Therefore, we compare those participants who will receive special education licenses (SE) to those who will receive only general education (GE) licenses. A third area of interest is participants' perceptions or confidence in their knowledge because previous research (Brookshire & Klotz, 2002; Rewoldt, 2018; Sanders, 2011) have shown non-significant correlations between participant's perceptions of their knowledge level and their actual scores. Therefore, we investigate participants' confidence in their answers. To investigate this aspect, we included a question about their overall level of confidence (0-100%) on the IDEA section of the survey and another on the Section 504 statements. The specific questions we investigated are:

1. Do preservice teachers have accurate knowledge of IDEA?
 - a. Are there statistically significant differences between PWCs and PWNCs?
 - b. Are there statistically significant differences between SE and GE participants?
 - c. What can PWCs and PWNCs explain a) about IDEA and b) how IDEA influences their work in classrooms?
2. Do preservice teachers have accurate confidence levels of IDEA?
 - a. Are there statistically significant differences between PWCs and PWNCs?
 - b. Are there statistically significant differences between SE and GE participants?
3. Do preservice teachers have accurate knowledge of specific IDEA statements?
 - a. Are there statistically significant differences between PWCs and PWNCs?
 - b. Are there statistically significant differences between SE and GE participants?
4. Do preservice teachers have accurate knowledge of Section 504?
 - a. Are there statistically significant differences between PWCs and PWNCs?
 - b. Are there statistically significant differences between SE and GE participants?

- c. What can PWCs and PWNCs explain a) about Section 504 and b) how Section 504 influences their work in classrooms?
5. Do preservice teachers have accurate confidence levels of Section 504?
 - a. Are there statistically significant differences between PWCs and PWNCs?
 - b. Are there statistically significant differences between SE and GE participants?
6. Do preservice teachers have accurate knowledge of specific Section 504 statements?
 - a. Are there statistically significant differences between PWCs and PWNCs?
 - b. Are there statistically significant differences between SE and GE participants?

Methods

Participants

Participants were undergraduate students enrolled in teacher education programs at a mid-sized Midwestern university. The university is accredited by the Higher Learning Commission, the teacher education programs are accredited through the Council for the Accreditation of Educator Preparation (CAEP), and the special education programs are also accredited through the Council for Exceptional Children (CEC; University website citation to be specific once manuscript is accepted).

A brief invitation to participate plus a link to the survey, which included the consent form, was emailed by the undergraduate advisement office to all 1926 teacher education undergraduates. A follow-up reminder email was also sent about a month later. Unfortunately, we cannot determine how many of these students actually received the email because the university system could have designated it as spam due to the high number of recipients or they might not read their university email. One hundred thirty-eight pre-service teachers responded for a rate of 7.14%. Although this response rate is low, the sample size is sufficient to address our research questions (Cohen, 1992). Plus, Fosnacht, Sarraf, Howe and Peck (2017) found that having at least 50-75 respondents, regardless of sample size, for surveys have adequate reliability for the results.

There were 122 (88%) females, 15 males and one participant chose other; 132 (96%) participants identified as White/Caucasian, 2 each as Black/African American and Latino(a)/Hispanic, and 1 each as Asian/Pacific Islander and other. One hundred and thirty-three (96%) were between 18-24 year olds with another five being 25 or older. Seventy-six (55%) were inclusive early childhood majors (IEC), 21 were special education majors, and another 41 were majoring in other teacher education fields (e.g., middle childhood, adolescent and young adult, art education). Eleven (8%) participants reported a diagnosable disability in either PK-12 or college (see Table 1).

Measure

The anonymous survey, administered through Qualtrics, had five components. The first component was nine demographic questions (e.g., age, gender, degree program). The second component assessed their knowledge about special education laws with randomly ordered forced-choice questions (yes, no, not sure) about IDEA (10 questions) and Section 504 (7 questions). For scoring purposes, not sure were counted as not correct. These knowledge questions were adapted from our previous research (O'Conner et al., 2016). The Total Cronbach alpha

TEACHERS' KNOWLEDGE OF SPECIAL EDUCATION

Table 1
Demographics for full and partial samples, with chi-square comparisons

Characteristics	Full Sample		>75%		X^2
	No	%	No	%	
Participants					
Gender					
Female	122	88.41%	76	88.37%	0.64 p = .727
Male	15	10.87%	9	10.47%	
Other	1	0.72%	1	1.16%	
Age					
18-24	133	96.38%	81	94.19%	3.14 p = .208
25-30	3	2.17%	3	3.49%	
31-50+	2	1.45%	2	2.33%	
Ethnicity					
White	132	95.65%	81	94.19%	2.60 p = .627
Black/African-American	2	1.45%	1	1.16%	
Latino(a)/Hispanic	2	1.45%	2	2.33%	
Asian/Pacific			1		
Islander	1	0.72%		1.16%	
Other	1	0.72%	1	1.16%	
Degree Program					
IEC	76	55.07%	40	46.51%	8.80 p = .012
MC, AYA, etc	41	29.71%	33	38.37%	
Special Education	21	15.22%	13	15.12%	
Degree Type					
SE	97	70.29%	53	61.63%	8.20 p = .004
GE	41	29.71%	33	38.37%	
Diagnosable Disability					
Yes	11	8.03%	6	6.98%	0.35 p = .556
No/Not sure	126	91.97%	80	93.02%	

Notes. AYA = Adolescent/Young Adult; GE = General Education; IEC = Inclusive Early Childhood; MC = Middle Childhood; SE = Special Education related

was .84, with the IDEA questions having a Cronbach alpha of .73 and Section 504 had .78, which are all good levels of reliability. The third component consisted of open-ended questions

about IDEA (2 questions) and Section 504 (2 questions). The first question for both IDEA and Section 504 asked the participant to identify the provisions of the law, and the second asked how the law will influence their work as a teacher. The fourth component were two sliding bar questions (0-100) about their overall confidence on their IDEA and Section 504 answers. The fifth component were questions about whether they had taken any coursework related to IDEA and Section 504, and if so, how recently.

Procedure

Students who clicked on the link in the invitational email were taken to a Qualtrics (qualtrics.com) site to do the survey. As per Institutional Review Board requirements, the first page was the consent form. If they consented to do the questionnaire, they answered the demographic questions. Next, they could choose the four open-ended questions or wait until the end of the survey to do them. Then they answered the special education laws knowledge questions. If they had chosen to skip the open-ended questions, they answered them after the knowledge questions. Then, they answered the questions about their confidence and about whether they had or were taking a course on IDEA or Section 504. Finally, they were thanked for taking the survey.

Research Design and Data Analysis

We used a quantitatively driven concurrent mixed methods design. For the quantitative aspects of the research questions, we used the Statistical Package for Social Sciences (SPSS) software. For the quantitative research questions (#1 and #4) that relate to accurate knowledge within the overall sample, we ran tests of one population means (t-tests). For the parts of those questions (#1a, #1b, #4a, #4b) that investigate differences on the knowledge scores between groups we ran univariate Analyses of Variance (ANOVA). For the questions (#2, #5) that relate to the accuracy of participants' confidence in their knowledge, we ran correlations between their confidence level scores and their knowledge scores. For the questions (#3, #6) that relate to participants' knowledge of specific statements, we ran t-tests.

For the qualitative research questions (#1c and #4c), we used a priori codes based on the provisions of IDEA and Section 504 to categorize the participants' written answers. The survey contained four open-ended questions to examine participants' ability to verbalize their knowledge about special education laws; two questions addressed IDEA/IDEIA and two addressed Section 504. The participants were asked to describe provisions or benefits to each law, and then to explain how that law influences (or will influence) their work with children. Comments that related to the a priori codes or reflected provisions of IDEA or 504 were first coded as Relevant. Comments that did not fall into any a priori codes or reflect a provision of IDEA or 504 were coded as Irrelevant and not coded further. Comments that stated "I am unsure" or "I don't know" were coded as "unsure" and not coded further. Codes created to apply to Relevant comments relating to IDEA were: Free and Appropriate Public Education (FAPE), Least Restrictive Environment (LRE), Individualized Education Plan (IEP), provisional safeguards and zero reject, non-discriminatory evaluation, transition services, and parent and family right to confidentiality. Codes created to apply to Relevant comments related to Section 504 are accommodations for accessibility to the general curriculum and student rights to non-discriminatory evaluation and access. The authors created emergent codes to label any other

Relevant information that did not fall into the above categories. These included federal funding, teacher responsibility to the student, schools must provide services, accommodations and modifications for IDEA, multidisciplinary team, health-related concerns, and early intervention services. Any Relevant items that did not fall into the above codes and only had one response were grouped into Other. Often a single participant would identify multiple provisions or influences in their work and these fit into multiple codes. These individual concepts in a single answer were scored separately. The comments were scored by code in an excel spreadsheet. The spreadsheet calculated percentages and authors identified themes.

Results

Many participants did not answer all questions, with 94 (65%) answering at least 13 (75%) of the 17 forced-choice answers. Because the number of questions answered varied, we used percentage correct rather than the total sum for the total score variable. For analyzes of individual questions, we included everyone who answered them. For those participants answering few questions (less than 75%), the questions they did answer become more heavily weighted in the total scores; therefore, the total score might not represent their knowledge of these laws. For instance, someone who answered only five questions and got four of them correct would score 80%, whereas someone who answered all 17 questions would need to get 14 correct to receive the same 80%. Therefore, we excluded all participants who answered less than 75% of the forced-choice questions in the analyses using total scores.

Before we investigated the data in relation to our research questions, we first explored whether the remaining participants for the total scores analyses were representative of our total sample by running chi-squares between those who did and did not answer at least 75% of the questions. They showed no significant differences in any background information (see Table 1) except for degree type. A higher percentage of special education-related majors, specifically the IEC participants, failed to complete at least 75% of the questions than did the general education-related majors. However, there was also a higher number of IEC majors (over 50% of the participants) who began the survey. This could be because two of the authors teach in the IEC program and these students, even though it was anonymous, felt a social obligation to open the survey link but this did not equate into actually finishing it. Although the remaining participants were not representative of our complete sample in the degree type, they are more representative of the university's teacher education programs, with 38% of undergraduates being in the IEC program, 12% in special education, and 50% in all other programs.

With the four open-ended questions, 59 participants (38 PWC & 21 PWNC) gave some type of description of the provisions or benefits to the laws, while 52 (34 PWC & 18 PWNC) attempted to explain how these laws influence their work with children. Table 2 provides information on the number of relevant, irrelevant and unsure answers. Predictably, PWC provided most of the relevant responses (54-82%), while most of responses stating "I don't know" or "I am unsure" were from PWNC (74-89%). Surprisingly, irrelevant responses came more from PWC (53-75%), although the total number of irrelevant information was low.

To investigate the first research question parts a) and b), which asked if pre-service teachers have adequate knowledge of the IDEA law, we performed a t-test using a test value of 70 for the IDEA score for a) the total sample, b) by coursework (i.e., PWC, PWNC), and c) by degree type

(i.e., SE, GE). We chose the test value of 70 because it represents the lowest possible passing grade (i.e., C-) if this survey was a test in a college course. To avoid inflating Type I error due to multiple t-tests (5), we employed a Bonferroni p-value adjustment. With a desired experiment-

Table 2

Qualitative Results

Question	Relevant Answer		Irrelevant Answer		Unsure or Don't know	
	% (n)		% (n)		% (n)	
	PWC	PWNC	PWC	PWNC	PWC	PWNC
IDEA						
Provisions	70% (54)	30% (24)	67% (2)	33% (1)	26% (10)	74% (28)
Influence teaching	82% (45)	18% (10)	75% (12)	25% (4)	11% (2)	89% (16)
Section 504						
Provisions	54% (22)	46% (19)	53% (9)	47% (8)	13% (4)	87% (27)
Influence teaching	74% (26)	26% (9)	56% (5)	44% (4)	17% (3)	83% (15)

wise Type I error rate of 0.05, an alpha of .01 (.05/5) was used. The t-test for the total sample showed a significant difference between the average IDEA score ($X = 42.29$; $SD = 22.92$) and the test value, $t(85) = -11.21$, $p < .001$, with participants doing significantly worse than 70%. We also split the participants by coursework, with the t-tests for both PWCs ($X = 52.06$; $SD = 17.61$) and PWNCs ($X = 30.00$; $SD = 23.26$) being significantly lower than 70%, $t(46) = -6.98$, $p < .001$ and $t(34) = -10.17$, $p < .001$ respectively. Finally, we split the participants by type of degree, with the t-tests for both SE ($X = 46.54$; $SD = 22.57$) and GE ($X = 37.78$; $SD = 26.95$) being significantly lower than 70%, $t(67) = -8.57$, $p < .001$ and $t(34) = -6.37$, $p < .001$ respectively. Regardless of whether they had courses on IDEA or were majoring in a special education-related degree, participants, on average, scored significantly lower than 70%; therefore, if this survey was for a course grade the average participant would have failed. Next, we looked at whether there were differences between PWCs and PWNCs and SE and GE participants by running an ANOVA with the dependent variable being the IDEA score and the independent variables being coursework and type of degree program. On average, PWCs scored significantly higher than PWNCs (See Table 3). Neither the differences between SE and GE nor the interaction were statistically significant.

IDEA-related Results

To investigate the first research question part c), the researchers asked, “In your own words, describe the main provision/benefits specified under the reauthorized IDEA (IDEA).” Overall, participants’ responses fell into four overall codes: 1) FAPE; (33%), 2) LRE; (15%), 3)

Table 3
Mean, Standard Deviations, and F-tests for IDEA and Section 504 scores by coursework and degree type

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	<i>η</i> ²
IDEA						
Scores						
PWCs	47	52.06%	17.62%	22.02	0.000	0.22
PWNCs	35	30.00%	23.26%			
SE	49	45.65%	21.72%	0.95	0.334	0.01
GE	33	38.18%	24.16%			
Confidence						
PWCs	45	54.64	27.20	29.15	0.000	0.28
PWNCs	33	21.58	22.34			
SE	47	47.21	30.23	4.1	0.046	0.05
GE	31	30.71	27.22			
Section 504						
Scores						
PWCs	32	64.29%	18.50%	51.27	0.000	0.40
PWNCs	49	23.62%	26.50%			
SE	48	43.15%	31.12%	1.77	0.188	0.02
GE	33	34.63%	30.31%			
Confidence						
PWCs	32	52.13%	26.14%	20.25	0.000	0.22
PWNCs	45	24.96%	24.08%			
SE	46	40.85%	28.10%	3.15	0.08	0.04
GE	31	29.42%	27.42%			

Note. PWCs = Participants with coursework; PWNCs = Participants with no coursework; SE = Special Education, GE = General Education.

student and family rights including confidentiality (13%), and 4) schools must provide services (13%). The first theme for both PWC and PWNC was FAPE for children with disabilities. From there it diverges; for PWC, LRE, and student and family rights were the next predominate themes, and for PWNC, school must provide services and accommodations/modifications in were predominate. For example, one PWC wrote, “The Individuals with Disabilities Education Act makes it so that every student with a disability has a free public education in the least restrictive environment. It gives rights to students with disabilities and their parents/guardians.” Other codes mentioned were early intervention, IEPs, federal funding, and transition from high school. Of the three participants who gave irrelevant information, two were PWC. These two participants identified some irrelevant information, but gave relevant information as well. One participant replied “IDEA gave students more rights and changed the purpose of the act,” then stated, “There was an emphasis on preparing students for life outside high school,” an accurate reflection of a provision in the reauthorization.

The other research question related to part 1c) asked, "Explain how IDEA/IDEIA influences (or will influence) your work with children." Nine participants gave a statement that was irrelevant to the question, such as "It gives them the same rights as their general education peers." Interestingly eight of those nine were PWC. Three codes predominated the relevant answers: a) following a student's IEP (24%), b) providing accommodations, modifications or appropriate resources (22%), and c) teacher's responsibility to the student (20%). One participant wrote, "I am obligated to work with and teach students who are in Special Education programs. I have to follow the IEPs and accommodate to their needs, as well as adhere to all non-discriminatory laws." Five participants who cited working on IEP goals also incorrectly stated that IDEA required them to work on 504 plans. Other relevant items mentioned by PWCs were multidisciplinary teams, providing early intervention, providing LRE, and other (non-discriminating, meeting student needs). Only two additional codes were mentioned by PWNCs: non-discrimination and other (helping identify students with special needs).

To investigate the second research question, which asked whether pre-service teachers have accurate confidence levels of IDEA, we ran a correlation between their confidence level score and their IDEA score for all participants. Next, we split the participants by coursework and by degree type and ran correlations to see whether this relationship held true by these grouping patterns. These tests were conducted at alpha of .01 (.05/5) to maintain the experiment-wise alpha level at .05. A strong correlation was found for the total sample, ($r = .656, p < .001$); therefore, as participants' IDEA scores got higher so did their confidence in those scores. The relationship between IDEA scores and confidence level was still strong ($r = .702, p < .001$) for PWCs, SE ($r = .660, p < .001$) and GE ($r = .624, p < .001$). With the adjusted alpha levels, PWNCs ($r = .366, p = .036$) did not show a significant correlation between their scores and confidence level.

To investigate whether there were differences in IDEA confidence level between PWCs and PWNCs and SE and GE participants, we ran an ANOVA with the dependent variable being the IDEA confidence score and the independent variables being coursework and type of degree program (See Table 3). On average, PWCs were significantly more confident than PWNCs as were SEs compared to GEs. The interaction was not statistically significant.

To investigate the third research question, which asked whether pre-service teachers have adequate knowledge of specific IDEA statements, we performed a t-test using a test value of 50 for each IDEA statement score by coursework and by degree type. With the questions having true or false answers, participants have a 50% chance of guessing correctly; therefore, we tested whether the mean score for specific IDEA statements were significantly above or below chance. Because of the number of t-tests needed, the increased chances of a Type I error, and that the most interesting results are within the groups (i.e, coursework, degree type) rather than the full sample, we chose not to run t-tests on the full sample. Therefore, 40 t-tests were run so the Bonferroni p-value adjustment is an alpha of .0013.

First, we split the participants by coursework (see Table 4). Seven t-tests for PWCs were statistically significant. Four were significantly better than chance: reevaluation, IEP review, LRE, and goals. The other three were significantly worse than chance: dangerous behaviors, observations, and three-year evaluation. Four t-tests for PWNCs were significantly worse than chance: professional development, dangerous behaviors, observations, and three-year evaluation.

TEACHERS' KNOWLEDGE OF SPECIAL EDUCATION

Second, we split the participants by degree type (see Table 5). Five t-tests for SEs were statistically significant. Two were significantly better than chance: reevaluation and IEP review. The other three were significantly worse than chance: dangerous behaviors, observations, and three-year evaluation. Three t-tests for GEs were significantly worse than chance: dangerous behaviors, observations, and three year-evaluation.

To investigate whether there were differences between PWCs and PWNCs and SE and GE participants, we ran a Multivariate Analysis of Variance (MANOVA) with the dependent variable being the individual IDEA statement scores and the independent variables being coursework and type of degree program (See Table 4). On average, PWCs scored significantly higher than PWNCs on five IDEA statements: appropriateness of instruction, IEP Review, LRE, and goals. The differences between SEs and GEs and the interactions for all IDEA statements were not statistically significant.

Table 4
Mean, standard deviations, t-tests, and ANOVAs for IDEA individual questions by coursework

Question	Course		<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i> *	99.9% <i>CI</i>	<i>F</i>	<i>p</i>	η^2
	work										
IEP Review	PWC	93.75%	24.46%	12.39	47	0.000	[0.31, 0.56]	15.10	0.000	0.16	
	PWNC	60.00%	49.71%	1.19	34	0.242	[-0.20, 0.40]				
LRE	PWC	83.33%	37.66%	6.13	47	0.000	[0.14, 0.52]	29.38	0.000	0.28	
	PWNC	28.57%	45.83%	-2.77	34	0.009	[-0.49, 0.06]				
Goals	PWC	81.25%	39.44%	5.49	47	0.000	[0.11, 0.51]	10.77	0.002	0.12	
	PWNC	45.71%	50.54%	-0.50	34	0.619	[-0.35, 0.26]				
Reevaluation	PWC	77.08%	42.47%	4.42	47	0.000	[0.06, 0.49]	5.83	0.018	0.07	
	PWNC	51.43%	50.71%	0.17	34	0.869	[-0.29, 0.32]				
Appropriateness of instruction	PWC	70.21%	46.23%	3.00	46	0.004	[-0.03, 0.44]	9.55	0.003	0.11	
	PWNC	37.14%	49.02%	-1.55	34	0.130	[-0.43, 0.17]				
Disability determination	PWC	43.75%	50.13%	-0.86	47	0.392	[-0.32, 0.19]	0.66	0.420	0.09	
	PWNC	31.43%	47.10%	-2.33	34	0.026	[-0.47, 0.10]				
Funding	PWC	39.13%	49.34%	-1.49	45	0.142	[-0.36, 0.15]	2.64	0.108	0.03	
	PWNC	22.86%	42.60%	-3.77	34	0.001	[-0.53, -0.01]				
Observations	PWC	14.58%	35.67%	-6.88	47	0.000	[-0.53, -0.17]	0.37	0.544	0.01	
	PWNC	8.57%	28.40%	-8.63	34	0.000	[-0.59, -0.24]				
Three-year re-evaluation	PWC	14.58%	35.67%	-6.88	47	0.000	[-0.53, -0.17]	1.41	0.239	0.02	
	PWNC	8.57%	28.40%	-8.63	34	0.000	[-0.59, -0.24]				
Dangerous behaviors	PWC	2.08%	14.43%	-23.00	47	0.000	[-0.55, -0.41]	0.84	0.361	0.01	
	PWNC	5.71%	23.55%	-11.13	34	0.000	[-0.59, -0.30]				

Notes. CI = confidence level; PWC = Participants with coursework; PWNC = Participants with no coursework.

TEACHERS' KNOWLEDGE OF SPECIAL EDUCATION

Table 5

Mean, standard deviations, t-tests, and ANOVAs for IDEA individual questions by degree type and interaction of coursework by degree

Questions	Deg	M	SD	t	df	p*	99.9% CI	F	p	η ²	Interaction Coursework by Degree		
											F	p	η ²
IEP Review	SE	83.33%	37.62%	6.51	53	0.000	[0.15, 0.51]	0.59	0.446	0.01	0.66	0.418	0.01
	GE	72.73%	45.23%	2.89	32	0.007	[-0.06, 0.51]						
Goals	SE	71.15%	45.75%	3.34	51	0.002	[-0.01, 0.43]	1.93	0.168	0.02	0.34	0.564	0.00
	GE	54.55%	50.56%	0.52	32	0.609	[-0.27, 0.36]						
Reevaluation	SE	70.59%	45.90%	3.70	67	0.000	[0.01, 0.40]	0.00	0.979	0.00	0.58	0.448	0.01
	GE	61.11%	49.44%	1.35	35	0.186	[-0.18, 0.41]						
LRE	SE	65.38%	48.04%	2.31	51	0.025	[-0.08, 0.39]	0.27	0.604	0.00	0.48	0.492	0.01
	GE	51.52%	50.75%	0.17	32	0.865	[-0.30, 0.34]						
appropriateness of instruction	SE	57.41%	49.91%	1.09	53	0.280	[-0.16, 0.31]	0.09	0.761	0.00	1.13	0.290	0.02
	GE	51.52%	50.75%	0.17	32	0.865	[-0.30, 0.34]						
Disability determination	SE	47.54%	50.35%	-0.38	60	0.704	[-0.25, 0.20]	0.25	0.618	0.00	1.37	0.245	0.02
	GE	33.33%	47.87%	-2.00	32	0.054	[-0.47, 0.14]						
Funding	SE	33.85%	47.69%	-2.73	64	0.008	[-0.37, 0.04]	0.02	0.888	0.00	0.64	0.427	0.01
	GE	30.56%	46.72%	-2.50	35	0.017	[-0.47, 0.09]						
observations	SE	15.25%	36.26%	-7.36	58	0.000	[-0.51, -0.18]	1.56	0.215	0.02	0.32	0.577	0.00
	GE	6.06%	24.23%	-10.42	32	0.000	[-0.59, -0.29]						
three-year re-evaluation	SE	9.26%	29.26%	-10.23	53	0.000	[-0.55, -0.27]	0.42	0.521	0.01	1.78	0.19	0.02
	GE	15.15%	36.41%	-5.50	32	0.000	[-0.58, -0.12]						
dangerous behaviors	SE	6.15%	24.22%	-14.60	64	0.000	[-0.54, -0.33]	0.12	0.734	0.00	0.17	0.68	0.00
	GE	2.86%	16.90%	-16.50	34	0.000	[-0.57, -0.37]						

Notes. CI = confidence level; SE = Special Education related; GE = General Education.

Section 504-related Results

To investigate the fourth research question, which asked whether pre-service teachers have adequate knowledge of Section 504 law, we used the same techniques as reported above for IDEA. The t-test showed a significant difference between the average Section 504 score ($X = 40.35$; $SD = 30.85$) and the test value, $t(85) = -8.91$, $p < .001$, with participants, on average, scoring significantly lower than 70%. We also split the participants by coursework, with the t-tests for both PWCs ($X = 51.98$; $SD = 26.88$) and PWNCs ($X = 24.49$; $SD = 29.72$) being significantly lower than 70%, $t(46) = -4.60$, $p < .001$ and $t(34) = -9.06$, $p < .001$ respectively. Finally, we split the participants by type of degree, with the t-tests for both SE ($X = 43.21$; $SD = 33.24$) and GE ($X = 35.51$; $SD = 32.01$) being significantly lower than 70%, $t(65) = -6.55$, $p < .001$ and $t(34) = -6.37$, $p < .001$ respectively. Regardless of whether they had courses on Section 504 or were majoring in a special education-related degree, participants, on average, scored significantly lower than 70%; therefore, if this survey was for a course grade the average participant would have failed.

To investigate whether there were differences between PWCs and PWNCs and SE and GE participants, we ran an ANOVA with the dependent variable being the Section 504 score and the independent variables being coursework and type of degree program. On average, PWCs scored statistically significantly higher than PWNCs. The differences between SEs and GEs and the interaction were not statistically significant.

To investigate the fourth research question part c), the authors asked the participants to describe the main provisions/benefits under Section 504. For those who provided an answer for the question (relevant or irrelevant) the responses were an even split between PWC and PWNC. Most of the irrelevant statements included modifications to the curriculum as part of their answer. Some participants mistakenly cited Section 504 for “less severe” impairments, wrote that it required a behavior plan, or made other incorrect statements about individualized education and non-discrimination. For example, one participant wrote, “This gives students accommodations if they have a condition that is not a learning disability that affects their ability to be successful in the classroom.” Seven relevant responses broadly stated that Section 504 was a non-discrimination law. Two codes emerged from the more specific relevant responses: a) Section 504 requires accommodations for individuals (49%), and b) it covers those who have health-related concerns with accessing the curriculum (12%). Some responses stated specific accommodations such as extra time on tests, moving a student with poor eyesight to the front of the room, and providing a separate reading space for a student with ADHD. One participant wrote, “For students who have health issues that may interfere with education, a 504 plan gives students supports to succeed. For example: students with an ADHD diagnosis may be given extra time to complete tests.” Specific health issues identified in a few responses were poor eyesight, migraines, and asthma.

The other research question related to part 4c) asked participants to identify how Section 504 influences their work with children. About the same number of participants with and without training (5 PWC, 4 PWNC) gave irrelevant responses that did not answer the question. Common irrelevant responses were identifying modifications as something they would need to do with a 504 plan and providing all students the same level of instruction. The most common relevant code for PWC was providing accommodations (46%), while the most common PWNC code was

schools must provide services from the 504c plan (55%). One PWC wrote, "We have to follow what is outlined in the 504 plan that students have so that they receive the proper accommodations so that they are successful in our classroom." Several accommodation responses identified individual accommodations such as extra time on assignments or tests, bigger font on reading materials, reading aloud, and seating for high stakes testing. Single relevant answers included non-discrimination of students with a 504c plan, and those coded as other (respect and awareness of the 504 plan, inclusion, referral for identification).

To investigate the fifth research question, which related to whether pre-service teachers have accurate confidence levels of Section 504, we ran a correlation between the confidence level score and the Section 504 total score for all participants. Then, we split the participants by coursework and by degree type and ran correlations to see whether this relationship held true by grouping patterns. These tests were conducted at alpha of .01 (.05/5) to maintain the experiment-wise alpha level at .05. All relationships between Section 504 scores and confidence level were strong; all participants ($r = .733, p < .001$), PWCs ($r = .684, p < .001$), PWNCs ($r = .711, p < .001$), SE ($r = .695, p < .001$) and GE ($r = .778, p = .036$). Therefore, regardless of grouping, as participants' Section 504 scores got higher so did their confidence in those scores.

To investigate whether there were differences in Section 504 confidence level between PWCs and PWNCs and SE and GE participants, we ran an ANOVA with the dependent variable being the Section 504 confidence score and the independent variables being coursework and type of degree program. On average, PWCs were significantly more confident than PWNCs. The differences between SE and GE and the interaction were not statistically significant.

To investigate the research question that asked if pre-service teachers have adequate knowledge of specific Section 504 statements, we performed a t-test using a test value of 50 for each Section 504 statement score by coursework (i.e., PWC, PWNC) and by degree type (i.e., SE, GE). Similar to the IDEA statements, because of the number of t-tests needed, the increased chances of a Type I error, and that the most interesting results are within the groups (i.e., coursework, degree type) rather than the full sample, we chose not to run t-tests on the full sample. Therefore, 28 t-tests were run so the Bonferroni p-value adjustment is an alpha of .0018.

First, we split the participants by coursework (see Table 6). Three t-tests for PWCs were statistically significant, with PWCs, on average, doing significantly better than chance on IEP all children, FAPE, and assessment process. Three t-tests for PWNCs were significantly worse than chance: child find, IEP all children, and federal funding.

Second, we split the participants by degree type (see Table 7). Only one t-test for SEs was statistically significant, with SEs, on average, doing significantly worse than chance on federal funding. Two t-tests for GEs were significantly worse than chance: diagnosis and federal funding.

To investigate whether there were differences between PWCs and PWNCs and SE and GE participants, we ran a MANOVA with the dependent variable being the individual Section 504 statement scores and the independent variables being coursework and type of degree program (See Table 7). On average, PWCs scored statistically significantly higher than PWNCs on six Section 504 statements: diagnosis, child find, handicap, IEP all children, FAPE, and assessment

process. The differences between SEs and GEs and the interactions for all Section 504 statements were not statistically significant.

Table 6
Mean, standard deviations, t-tests, and ANOVAs for Section 504 individual questions by coursework

Test Value = .50				
<i>t</i>	<i>df</i>	<i>p</i>	99.9% <i>CI</i>	
3.98	32	0.000	[0.03, 0.55]	
-1.91	48	0.063	[-0.38, 0.11]	
3.98	32	0.000	[0.03, 0.55]	
-5.09	48	0.000	[-0.50, -0.09]	
3.98	32	0.000	[0.03, 0.55]	
-2.56	48	0.014	[-0.41, 0.06]	
3.22	31	0.003	[-0.03, 0.53]	
-2.56	48	0.014	[-0.41, 0.06]	
1.44	31	0.161	[-0.19, 0.44]	
-4.58	48	0.000	[-0.49, -0.06]	
-0.17	32	0.865	[-0.34, 0.30]	
-9.19	48	0.000	[-0.55, -0.24]	
-3.22	31	0.003	[-0.53, 0.03]	
-9.11	48	0.000	[-0.55, -0.24]	

Notes. CI = confidence level; PWC = Participants with coursework; PWNC = Participants with no coursework.

Summary

In summary, we found that our participants did not have accurate knowledge of IDEA or Section 504 laws (overall IDEA $X = 42\%$; 504 $X = 40\%$). Having coursework related to IDEA and Section 504 laws did increase participants' scores, regardless of degree type. However, their scores were still low, basically at chance level. Having coursework related to IDEA and Section 504 laws also increased participants' confidence in their scores. Except for PWNCs on Section 504 questions, participants' confidence levels were also associated with their scores.

The average scores on individual questions varied widely, with a high of 94% of PWCs and 60% of PWNCs correctly answering the IEP review question to a low of 2% of PWCs and 6% of PWNCs on the dangerous behaviors question. Except for the dangerous behaviors question, PWCs had a higher average than PWNCs on the other questions, with five IDEA and six Section 504 showing statistically significant differences. For the PWCs, only four

TEACHERS' KNOWLEDGE OF SPECIAL EDUCATION

Table 7

Mean, standard deviation, t-tests, and ANOVAs for Section 504 individual questions by degree type and interaction of coursework by degree

Question	Deg	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i> *	99.9 % <i>CI</i>	<i>F</i>	<i>p</i> *	η^2	Interaction Coursework by Degree		
											<i>F</i>	<i>p</i> *	η^2
Diagnosis	SE	31.82%	46.93%	-3.15	65	0.002	[-0.38, 0.02]	1.53	0.219	0.02	1.23	0.271	0.02
	GE	20.00%	40.58%	-4.37	34	0.000	[-0.55, -0.05]						
Child find	SE	48.28%	50.41%	-0.26	57	0.795	[-0.25, 0.21]	4.84	0.031	0.06	5.94	0.017	0.07
	GE	27.27%	45.23%	-2.89	32	0.007	[-0.51, 0.06]						
Handicap	SE	54.55%	50.25%	0.67	54	0.505	[-0.19, 0.28]	0.19	0.743	0.00	0.19	0.743	0.00
	GE	45.45%	50.56%	-0.52	32	0.609	[-0.36, 0.27]						
IEP, all children	SE	48.21%	50.42%	-0.27	55	0.792	[-0.25, 0.22]	0.43	0.515	0.01	0.16	0.689	0.00
	GE	39.39%	49.62%	-1.23	32	0.228	[-0.42, 0.21]						
Federal Funding	SE	16.98%	37.91%	-6.34	52	0.000	[-0.51, -0.15]	0.72	0.397	0.01	0.51	0.479	0.01
	GE	12.12%	33.14%	-6.57	32	0.000	[-0.59, -0.17]						
FAPE	SE	56.86%	50.02%	0.98	50	0.332	[-0.18, 0.31]	0.34	0.561	0.00	0.82	0.368	0.01
	GE	45.45%	50.56%	-0.52	32	0.609	[-0.36, 0.27]						
Assessment process	SE	54.00%	50.35%	0.56	49	0.577	[-0.21, 0.29]	0.24	0.624	0.00	0.08	0.785	0.00
	GE	54.55%	50.56%	0.52	32	0.609	[-0.27, 0.36]						

Notes. CI = confidence level; SE = Special Education related; GE = General Education.

IDEA and three Section 504 were significantly above chance while there were zero for the PWNCs. Also, PWCs had three IDEA and no Section 504 questions that were significantly below chance while PWNCs had four of both IDEA and Section 504 laws.

Discussion

Limitations

There were several limitations to this study. First, the survey was researcher-developed; therefore, it has not been validated. It used a True/False question format, so there was a chance of guessing correctly although we reduced this with an added possible response of unsure. Second, we treated all questions about IDEA and Section 504 as equally important, which is what previous researchers have done with their surveys. That is, each question counted as one point towards a participant's total score. However, not all parts of the law may be equally important to participants. Third, we did not ask the participants what level (e.g., sophomore, senior) they were currently in nor did we ask details about the laws-related coursework they had. Some students could have had several courses that dealt with IDEA and Section 504 in detail while others could have had part of one lesson on these laws. All of these students were lumped together as PWCs. A final limitation is that the data was collected from one university in the Midwest. The results of this study may not be typical of results found at other universities in the country.

Implications

Unfortunately, similar to previous studies (O'Conner et al., 2016; Holland, 2016; Sanders, 2011), we found that participants, on average, did not have accurate knowledge of IDEA or Section 504 laws plus they struggled to explain these laws and how they would affect their teaching.

Although coursework in these laws did increase participants' scores, it did not do so sufficiently. If this survey was a test in a college course, the average student, regardless of course work or degree type, would have miserably failed it. That being said, many of the answers considered incorrect for research purposes were "not sure" rather than wrong. For instance, the question on dangerous behaviors had only one of 48 PWCs and two of 35 PWNC's answering correctly; however, 35 (73%) PWCs and 30 (85%) PWNCs answered not sure. These results lead us to several possible conclusions and recommendations of future research and practice.

Research has consistently shown that participants score low on surveys of education laws, which leads researchers to decry their lack of knowledge about these laws. Another perspective could be that some areas of these laws are more familiar to participants (e.g., LRE, IEPs) because these aspects are more pertinent to their students and careers. The reverse could also be true: their lack of knowledge of some aspects of these laws could signify that those parts are not relevant rather than that teachers are inadequately applying these laws. Therefore, based on the findings of this and previous studies, future research could categorize information about education laws based on importance to participants' students and careers. Some parts of the laws may be more important for all school personnel to know while others may be relevant for only some school personnel. Using the dangerous behaviors part of IDEA as an example, knowing this part of IDEA could be more relevant to middle and high school teachers and all principals than for preK and elementary teachers. Other aspects of the laws might be more pertinent for some teaching majors (e.g., English, mathematics) than others (e.g., art, music). If researchers weighed aspects of the laws differently based on their importance to school personnel's need to know and apply those aspects, the results might show that they know more than we have given them credit. In our study, PWCs did significantly better than chance and PWNCs on the questions related to IEP review, LRE, goals, and re-evaluation. This is a promising outcome because these are important parts of the law regardless of grade level, subject taught, and type of classroom.

Second, we did not obtain the specific information about the type of coursework the students had related to education laws. Future research could link the assessment of participants' knowledge of special education laws more directly to what is being taught in their courses. The areas in which PWCs did well on, as mentioned above, could be the information typically taught in college courses. Finally, as researchers continue to investigate school personnel's knowledge of special education laws, this will help increase the research community's understanding of this important topic and hopefully lead to helping them learn and apply these laws.

Author Notes

Sherri L. Horner is a professor at the Bowling Green State University, Bowling Green, OH.

Alicia Mrachko is a professor at the Bowling Green State University, Bowling Green, OH..

Evelyn A. O'Connor is a professor at the Adelphi Univeristy Garden City, NY.

Anastasia E. Yasik is a professor at the Pace University, One Pace Plaza, NY.

Correspondence concerning this article should be addressed to Sherri Horner at shorner@bgsu.edu.

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