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# **TRAUMATIC BRAIN INJURY AND TEACHER TRAINING: A GAP IN EDUCATOR PREPARATION**

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## **ABSTRACT**

This study examines the level of training provided on traumatic brain injury (TBI) in teacher training programs. Research has shown teachers lack knowledge about the consequences of TBI and about the related services students with TBI might require. Participants included faculty members in teacher training programs in the United States. The current study revealed very little formal training on TBI is provided in teacher training programs. If provided, TBI training was more likely to be found in special education classes than in general education settings.

Traumatic brain injury (TBI) is often classified as a “low incidence” disability among educators; however, TBI is a leading cause of death and disability among children worldwide. Individuals who survive a TBI can experience long-lasting, significant alterations in social, behavioral, physical, and cognitive functioning. Relative to students with other disabilities, the outlook for children and youth with TBI is poor, and in general, the degree of difference in academic skills between children with TBI and their peers increases over time (Ewing-Cobbs et al., 2006; Farmer & Johnson-Gerard, 1997; Taylor et al., 2002; Todis & Glang, 2008; Todis, Glang, Bullis, Ettel, & Hood, 2011; Wagner, Newman, Cameto, Levine, & Garza, 2006). Furthermore, post-secondary education enrollment and employment rates for youth with TBI are far lower than those for their non-disabled peers (Todis et al., 2011).

A critical factor in children’s lag in academic achievement is the cognitive challenges that result from TBI. Executive dysfunction, memory problems, diminished attention and impulse control, and information processing problems are all areas critical to learning and school success (Anderson, Anderson, Northam, Jacobs, & Catroppa, 2001; Sohlberg & Mateer, 2001; Tonks, Yates, Williams, Frampton, & Slater, 2010). The cognitive challenges experienced by children with TBI are diverse and dynamic (Dikmen et al., 2009; Yeates & Anderson, 2008), and they might not become apparent until later-developing skills fail to emerge and academic and behavioral expectations increase (Taylor et al., 2008; Babikian & Asarnow, 2009).

Educator awareness of cognitive and other challenges is critical to providing students with appropriate monitoring and support as needs and issues change, sometimes dramatically, over time (Shaughnessy, Greathouse, Neely, & Wright, 2006). In 1990, the United States added TBI to federal special education law as an educational disability under the Individuals with Disabilities in Education Act (IDEA, 2004). However, unlike teacher preparation for working with students with other disabilities under IDEA, efforts to improve professional development regarding TBI has been negligible (Bullock, Gable, & Mohr, 2005; Chapman, 2000). In many cases, teachers receive information about TBI only on a need-to-know basis in a briefing by a counselor or therapist prior to a student with TBI re-entering their class (Mohr & Bullock, 2005).

Effective assessment and instructional methods can help mitigate the academic and behavioral challenges associated with TBI and the long-term problems that can follow these children into adulthood (Glang, Dise-Lewis, & Tyler, 2006). Teachers and related service providers benefit when the mystery is removed from “brain injury” and they learn how to successfully apply

strategies they already know (Ylvisaker et al., 2001). Specific areas of training include: (a) the nature and psychosocial implications of TBI, (b) the similarities and differences between TBI and other disabilities, (c) the impact of TBI on academic and behavioral performance, (d) developing individualized programs based on individual strengths and weaknesses, (e) assessment and teaching strategies, and (f) collaboration with the family and professionals in the rehabilitation setting (Bullock et al., 2005). Unfortunately, many teachers leave their university training programs with little or no pre-service training in the incidence and etiology of childhood TBI and a resultant lack of awareness about its school-related implications and strategies for addressing them (Blosser & DePompei, 1991; Chapman, 2000; Chapman, 2002). Surveys of a variety of school professionals reveal limited training in assessment and intervention with children with TBI, suggesting inadequate preparation across professions, including speech pathology (Hux, Walker & Sanger, 1996) and school psychology (Davies, 2013; Hooper, 2006).

Training in TBI for those who interact most frequently with these students, general education teachers, is minimal (Glang et al., 2008; Mohr & Bullock, 2005; Walker, Boling, & Cobb, 1999; Ylvisaker et al., 2001). This is especially troubling given that about half of students with TBI in the USA spend almost all their school day in regular education classrooms (U.S. Department of Education, 2010). Most special education teacher preparation programs focus on training specific to students with higher-incidence disabilities (e.g., specific learning disability and attention-deficit/hyperactive disorder; Ludlow, Conner, & Schechter, 2005; U.S. Department of Education, 2010). For more than a decade, the need for pre-service training for school professionals has been identified as a primary issue in providing services to students with brain injuries (Farmer & Johnson-Gerard, 1997; Funk, Bryde, Doelling, & Hough, 1996; Janus, 1994; Janus, 1996; Mohr & Bullock, 2005; Tyler, 1997; Ylvisaker et al., 2001).

For all areas of disability, teachers' extensive preparation in special education content is associated with improved student achievement (Feng & Sass, 2009; Goe, 2006). Pre-service educator training about TBI is essential to prepare teachers to address the complex and often challenging issues facing students with TBI (Glang, Tyler, Pearson, Todis, & Morvant, 2004; Tyler, 1997). To design effective pre-service educator training, it is important to understand how current teacher training programs prepare future educators. The purpose of this study was to survey a sample of undergraduate teacher preparation programs about the degree to which TBI is covered in their programs. Although Chapman conducted a regional rural study (2000) and a five-state study

(2005) of education program coverage of TBI, this topic has not been examined recently or nationally. It was expected that special education programs would have more extensive TBI coverage than regular education programs, but that both program tracks would devote relatively little time to the topic.

## METHOD

The primary research questions in this study were: (1) What training on childhood TBI is provided in a sample of teacher training programs at state and private universities in the United States, and (2) is there a difference between the TBI training provided in Special Education programs and in Regular Education programs?

### PARTICIPANTS

We used a random sampling technique to select universities for the study. Using the National Council for Accreditation of Teacher Education website ([www.ncate.org](http://www.ncate.org)), we selected an equal number of universities from 5 regions of the United States (Northeast, Southeast, Midwest, Southwest, and Northwest). Universities were chosen based on student enrollment and whether they were public or private. From each region, we identified 15 public universities and 5 private universities. Thus, a total of 100 institutions were represented in the final sample.

Faculty members were contacted by email; respondents produced 156 sets of complete participant data. Table 1 provides descriptive statistics for the participants completing the university curriculum questionnaire.

### PROCEDURE

The questionnaire was delivered using [surveymonkey.com](http://surveymonkey.com), an online survey distributor to education department faculty members via a personalized e-mail message. The questionnaire on university curriculum included both demographic information and items related to the first and second research questions. Demographic data included: participants' position in the department, whether their university was public or private, the approximate number of students who attend their institution, the region of the country in which their institution is located, and their program specialty. Participants were also asked whether they taught a class that contained information on TBI. If participants answered "No," they were finished taking the questionnaire. If participants answered "Yes," they responded to additional questions regarding

Table 1.

*Questionnaire on University Curriculum Descriptive Statistics*

	N	%
Position		
Chair/Director	12	7.7%
Professor	120	76.9%
Other	24	15.4%
University Type		
Private	7	4.5%
Public	149	95.5%
Region		
Northeast	34	21.8%
Southeast	31	19.9%
Midwest	39	25%
Southwest	42	26.9%
Northwest	10	6.4%

that class. These covered: course category, whether the course was required, extent of coverage of TBI (in one class period or over 1–2 classes periods), number of minutes devoted to discussion of TBI, whether another faculty member taught the same class, and whether the class was undergraduate or graduate level (only undergraduate data were analyzed). Before it was administered, the questionnaire was piloted at two universities and questions with weak discrimination were eliminated.

## RESULTS

Respondents came from the five geographic regions in fairly equal proportions, roughly 20–25% each, with the exception of the Northwest at six percent. Participation from all regions indicates that the response rate was likely not due to any systematic bias due to geographic region, which supports the representativeness of the sample.

The majority of Education department faculty members who responded to the questionnaire (66.7%) reported that they did not provide TBI-specific training in any of the courses they taught, which was statistically significant,

Table 2.

*Extent of TBI Coverage in Courses that Include TBI*

Extent of TBI Coverage	Observed N	Expected N	Percentage
In one class	35	27.5	63.6%
Over 1–2 classes	20	27.5	36.4%

Table 3.

*TBI Training by Program Affiliation*

	Program Affiliation	
	General Education N (%)	Special Education N (%)
Teach TBI		
Yes	7 (7.4%)	45 (72.6%)
No	87 (83.7%)	17 (16.3%)

$\chi^2(1, N = 156) = 17.33, p = .00$ . For faculty who included TBI in their courses, “extent of coverage” was examined dichotomously, with categories of “in one class” or “over 1–2 classes.” The majority of courses that included TBI did so during one class (63.6%) rather than more than one class (36.4%), which was statistically significant as well,  $\chi^2(1, N = 55) = 4.09, p = .04$  (Table 2).

Results from a two-way contingency table analysis showed a statistically significant difference between the TBI coverage provided by General Education programs and that seen in Special Education programs,  $\chi^2(1, N = 156) = 71.32, p = .00$ . A greater percentage of Special Education faculty members (72.6%) provided TBI-specific training in the courses they taught (Table 3). A lesser percentage of General Education faculty members (7.4%) provided TBI specific training in the courses they taught.

## DISCUSSION

This study was designed to investigate the degree to which TBI is covered in current undergraduate general and special education teacher training programs in public and private universities across the United States. Findings from this questionnaire suggest that TBI-specific training was minimal in undergraduate general education programs; the majority of faculty respondents stated they did not include TBI-specific training in the courses they taught. Faculty affiliated with Special Education programs were more likely to

include TBI-specific training in their courses. These results suggest that only students preparing to be Special Education teachers are likely to learn about childhood TBI in their university coursework; those preparing to teach in general education settings are unlikely to receive training specific to this disability.

The results indicate that TBI-specific training in the undergraduate curriculum is inconsistent and not widely available to all undergraduate Education students. Even when TBI-specific training is in the curriculum, it may not be accessible to all students. In addition, faculty members and administrative officials in Education departments may be unaware of the degree of TBI-specific training in their program.

This study also indicated that faculty members affiliated with Special Education are more likely to include TBI in their classes. Education department heads perhaps believe that Special Education courses are the most appropriate places to present information on TBI. However, most students with TBI spend their day in regular education classrooms, and the necessary training is not being provided to those future teachers. General Education teachers should be provided with as much, if not more, TBI-specific training than special education teachers so they can understand the impact of TBI on student learning and learn effective strategies for supporting affected students.

For more than a decade, the lack of pre-service training for educators has been identified as a critical issue in providing appropriate educational services to students with brain injuries (Farmer & Johnson-Gerard, 1997; Funk et al., 1996; Janus, 1994). The results from this study suggest that this need is still present today, confirming the findings of Janus (1996) and others who found TBI was rarely included in the curriculum of teacher training programs.

## LIMITATIONS AND FUTURE RESEARCH

Although the limitations of online questionnaires can include technical difficulties, unreliability of self-report, and systematic bias (Evans & Mathur, 2005; Granello & Wheaton, 2004), the main limitation of this survey was the low response rate, which might affect the representativeness of the sample. However, the fairly equivalent participation of faculty from each of the five regions, with the exception of the Northwest, suggests a lack of regional systematic bias. An attempt to combat a low response rate by distributing the questionnaire nationwide, using a clear and concise online format, and sending occasional reminders encouraging completion failed to prevent the low response. Technical difficulties, such as problems with questionnaire length, ease of return method, and decreased pressure to respond immediately (Evans & Mathur, 2005) might also have deterred potential participants from completing the survey. Furthermore, response bias issues are inherent in the use of



self-report measures; faculty members might have reported TBI-training in their courses because the nature of the survey indicated the importance of such training. Another potential reason for limited response might be that the lack of TBI-specific training in higher education courses deterred faculty from responding to the questionnaire. Given the choice of responding to or ignoring a survey about a missing area of their curriculum, faculty members may have chosen to ignore it.

The instruments used in this study have potential limitations as well. The curriculum survey was designed to measure the scope of TBI training; however, there was not one consistent source in each Education department who could provide information on material covered in all classes offered in the department. Therefore, rather than getting an overview of the TBI training offered by a whole program, we had to gather information on the extent of training provided by individual faculty members. Because of this limitation, the amount of TBI-specific training might be over- or underrepresented. And, although the initial draft of the curriculum questionnaire was pilot tested, the final draft was not, due to time constraints.

Future research might examine the relationship between the extent of TBI instruction in the university setting and subsequent student knowledge and skills. It would also be interesting to see if states that have more generic endorsements cover TBI more than those with categorical endorsements, or vice-versa. Future research can also examine how information about TBI can be presented to have the greatest impact on teacher knowledge, self-efficacy, and skill implementation. For example, a qualitative study of teacher educators might reveal obstacles to covering TBI in teacher preparation programs, what courses should cover TBI, what resources are used, and what might be the optimal extent of TBI coverage. An examination of course syllabi in education might be beneficial, allowing researchers to evaluate lecture topics on TBI across courses. This information can be used to guide teacher training program curricula.

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