Learning and Instruction 42 (2016) 47–57

Contents lists available at ScienceDirect

Learning and Instruction

journal homepage: www.elsevier.com/locate/learninstruc

Stigma and stratification limiting the math course progression of adolescents labeled with a learning disability

Dara Shifrer

Department of Sociology, Portland State University, 1721 SW Broadway, 217K, Portland, OR, 97201, USA

ARTICLE INFO

Article history:
Received 8 October 2014
Received in revised form
15 November 2015
Accepted 3 December 2015
Available online xxx

Keywords:
Teacher expectations
Educational stratification
Special education
Labeling
Learning disabilities
Mathematics

ABSTRACT

Learning disability (LD) designations may produce stigma by masking the real causes of learning differences, altering perceptions, and legitimizing stratification. This study uses data on adolescents and their teachers from The Education Longitudinal Study of 2002 to show the negative effect of LD designations on adolescents' math course attainment is partially mediated by disparities in adolescents' earlier math course placements, and teachers' more negative attributions and expectations. Results indicate addressing low achievement through LD designations may reproduce disadvantage through stigma and stratification.

1. Introduction

Some disability categories, such as autism and attention deficit hyperactivity disorder (ADHD), are perceived as a means of securing extra educational resources (King, Jennings, & Fletcher, 2014), perhaps because they are more prevalent among white or socially advantaged youth in the US (Eyal, 2013; King & Bearman, 2011; Morgan, Staff, Hillemeier, Farkas, & Maczuga, 2013). In contrast, racial minorities and poor youth are disproportionately classified with learning disabilities (LDs) in both the US and Europe (Ong-Dean, 2009; Strand & Lindsay, 2009). Comprising the largest proportion (nearly half) of the special education population in the US in 2003 (Spellings, Knudsen, & Guard, 2007), LDs include disorders like dyslexia, dyscalculia, and dysgraphia, that is, issues respectively with reading, calculation, and writing (American Psychiatric Association, 2000). In an important clarification, 'learning difficulty' describes British students that might be described as learning disabled in America, whereas the British use 'learning disability' to describe youth with low IQs (Jingree & Finlay, 2012). Youth with low IQs are also categorized separately from youth with LDs in the US but are described as 'intellectually disabled' (formerly 'mentally retarded').

Youth labeled with LDs fare poorly on a multitude of life outcomes, including math outcomes (Shifrer, Callahan, & Muller, 2013). Students classified with an LD typically struggle in math coursework regardless of the specific diagnosis (e.g., dyslexia, dyscalculia) (Krajewsi & Schneider, 2009), as math coursework involves reading and writing as well as calculation. The common attribution of this group's poorer outcomes to neurological differences is problematic given the subjective socially rooted diagnostic criteria (Devine, Soltész, Nobes, Goswami, & Szűcs, 2013). The possibility that these students' poorer outcomes partially result from stigma and stratification related to the LD designation is particularly troubling given the disproportionate categorization of poor youth and racial minorities with LDs, and evidence that classifications sometimes occur inaccurately or inequitably (Samson & Lesaux, 2009; Shifrer, Muller, & Callahan, 2011).

This study uses data from the Education Longitudinal Study of 2002 (ELS), a large data set representative of 10th graders in the US in 2002, to investigate whether stigma is implicated in the high school math course attainment of adolescents designated with an LD. Multilevel models first investigate differences by LD status in teachers' attributions of academic performance to disability, teachers' educational attainment expectations for adolescents, and adolescents' early high school math progression. A decomposition technique then demonstrates the degree to which any disparities in these early high school outcomes contribute to designated

E-mail address: dshifrer@pdx.edu.

http://dx.doi.org/10.1016/j.learninstruc.2015.12.001
0959-4752/

adolescents' lower math course attainment by the end of high school. This study is an important contribution because of its use of data with individual level measures, a large and diverse sample, and inclusion of peers not designated with disability as a base of comparison. The few research teams using individual level data representative of the US population find youth designated with an LD underperform even compared to otherwise similar youth without a disability designation (Morgan, Frisco, Farkas, & Hibel, 2010; Shifrer et al., 2013), but have not identified processes within schools that contribute to these disparities. This study moves beyond the documentation of gaps in search of specific mechanisms whereby LD designations influence poorer outcomes. ELS also measures the official school designation of disability, whereas previous studies relied on adolescents' or their parents' perceptions of disability, or even diagnosed adolescents through a survey, such as Sprung et al. (2009). This study focuses on teachers' expectations for adolescents' educational attainment, a contribution to the previous expectancy literature that has largely focused on teachers' expectations for performance in the classroom (Eccles & Wigfield, 1985; Good, Aronson, & Inzlicht, 2003; Jussim, Smith, Madon, & Palumbo, 1998; Rubie-Davies, 2006). In addition to being relevant for educational policy related to low achievement and the professional development of teachers, this study's findings contribute to the literature on educational stratification, educational psychology, labels, stigma, and educational disabilities.

1.1. Stigma

Link and Phelan (2001) framed stigma as powerful entities allowing labeling, stereotyping, and separation to culminate in status loss and discrimination, as evidenced in poorer outcomes in important life domains. Progression through high school math coursework, closely linked with success in other academic subjects and enrollment in college (Hudson & O'Rear, 2015; McFarland, 2006), is an important life outcome for adolescents. *Hypothesis 1*: If the lower math course attainment of adolescents is partially a function of stigma and stratification, measures of labeling, stereotyping, and separation will explain some part of the negative association between the LD designation and math course attainment, net of controls for adolescents' social and academic backgrounds, and attitudes and behaviors.

1.2. Labeling: teachers' attributions

Beginning with the labeling component of stigma, Link and Phelan (2001) describe how differences first gain salience through oversimplification and inconsistency in the qualities that qualify a person for inclusion in the group. The adolescents in this study were likely diagnosed by school personnel through one of three models, as described by Fletcher, Denton, and Francis (2005). In the ability-achievement discrepancy model, adolescents receive the LD designation for achievement levels lower than expected given their IQ. In the intra-individual discrepancy model, an uneven cognitive profile, strengths in some areas and weaknesses in others, suggests an LD. The low-achievement model legitimized the classification of any student unexpectedly performing below a certain benchmark. With LD diagnostic practices contextually variable (Lester & Kelman, 1997), the qualities of students classified with an LD are inconsistent (Singer, Palfrey, Butler, & Walker, 1989) and not easily distinguished from those of unclassified low achievers (Fletcher et al., 2005).

LD diagnostic criteria, primarily academic achievement and, to a lesser extent, learning behaviors (Hibel, Farkas, & Morgan, 2010), are also socially rooted and subjective. Both are socially rooted because they vary as a function of economic status and culture (McLeod & Kaiser, 2004; Noguera, 2003). Importantly, subjectivity may facilitate bias but is not always indicative of biased designations. For instance, whereas there are relatively objective indicators of achievement, teachers may unconsciously shift the bar for a special education referral depending on the average achievement level of the other students in the school (Hibel et al., 2010). Ultimately, although the LD classification may represent valid neurological or biological distinctions, the categorization occurs without explicit confirmation of such difference (Vellutino, Fletcher, Snowling, & Scanlon, 2004). America's federal regulations prohibit the designation of adolescents whose learning difficulties arise from "cultural factors," "economic disadvantage," or "Limited English proficiency" (Spellings et al., 2007), but it remains unclear whether diagnostic methods can make these distinctions, or if there even are valid distinctions (Dudley–Marling, 2004).

Building on previous studies' use of attributions to understand stigma (Phelan, 2005), teachers can attribute differences in student performance and behaviors to a multitude of factors other than disability, such as home life or poor attitudes. LDs are not associated with recognizable mannerisms or traits (Coughlin, 1997). Thus, among similarly achieving and behaving students, teachers' attributions of performance to disability could particularly depend on extra-classroom information they regard as important and objective. Carrier (1983) described the designation of a child as learning disabled as a process in which an explanation for a child's underachievement is developed and propagated. *Hypothesis 2*: If teachers interpret the school LD designation as an important objective indicator, they would be more likely to attribute the performance of an adolescent with an LD designation to disability than they are the performance of a similarly achieving and behaving adolescent not designated with disability.

1.3. Negative stereotypes: teachers' educational attainment expectations

The linking of negative stereotypes to designated differences is the second element of stigma (Link & Phelan, 2001). Although not focused on students classified with disability, previous studies consistently find student performance is partially a function of teachers' educational attainment expectations, even after accounting for the student qualities that shape teachers' educational attainment expectations (Becker, 2013; Benner & Mistry, 2007; Gill & Reynolds, 1999; Mistry, White, Benner, & Huynh, 2009; Sciarra & Ambrosino, 2011; Wu & Bai, 2015). Teachers' expectations for students' performance within the classroom are largely accurate but can affect student performance net of prior performance (Good, 1981; Jussim, 1989; Jussim & Eccles, 1992; Kaiser, Retelsdorf, Südkamp, & Möller, 2013). The negative influence of teachers' expectations within the classroom on student performance is stronger for low-achieving students (Madon, Jussim, & Eccles, 1997), and for students from lower income households (Sorhagen, 2013), qualities more prevalent among students classified with LDs (Shifrer et al., 2011; Wagner, Newman, Cameto, & Levine, 2006). Qualitative studies found educators perceived children with disability designations in vignettes and videos more negatively than they did undesignated but similarly behaving children (Allday, Duhon, Blackburn–Ellis, & Dycke, 2011; Ohan, Visser, Strain, & Allen, 2011). If teachers interpret the LD designation as an indicator of biological difference despite the designation's social rootedness and subjectivity, stereotypes linked to the LD designation may trump more objective evidence. *Hypothesis 3:* Teachers' educational attainment expectations are, in themselves, not a stereotype, but if LD designations are negatively stereotyped, teachers will hold lower educational attainment expectations for adolescents designated with an LD than they do for similarly achieving and behaving