Double Time? Examining Extended Testing Time Accommodations (ETTA) in Postsecondary Settings

Laura Sokal[1]
Laurie Anne Vermette[2]

Abstract

Over eight thousand test administrations across two universities were examined to determine whether students with disabilities were being given the necessary extended testing time accommodations and whether their use of extended time decreased over the course of their programs. Findings revealed that commonly accepted recommendations about appropriate durations of accommodations were not suitable in meeting individual students' needs and that students used more time on these types of accommodations as they moved through their first three years of their postsecondary programs. Recommendations are provided.

Keywords: Disability, accommodation, testing

The increasing number of postsecondary students with disabilities who request extended testing time accommodations (ETTA) places a spotlight on issues of fairness and validity in testing. As postsecondary institutions re-allocate resources in order to meet their legal duty to accommodate the needs of students with disabilities (Kettmann et al., 2007; Wolgast, Rader, Roche, & Thompson, 2005), questions arise about the fairness of ETTA to students with disabilities, other students, and professors, and additionally provoke questions about the suitability of timed testing per se. Although there is a high level of controversy about providing students with ETTA (Lindstrom, 2010; Sireci, Scarpati, & Li, 2005), little is known about how much time students with disabilities actually use when provided with the recommended increases of 50-100% time allotments in testing situations. The purpose of the current study was to examine the duration of time used by students provided with ETTA in course-based tests administered in postsecondary settings.

Increasing Requests for ETTA

Rothstein (2006) demonstrated that the generally accepted prevalence of learning disabilities in college populations is one in every eleven students in Australian schools, and Raue and Lewis (2011) showed that almost one third of students who attended two-year and four-year colleges in the United States in 2008-2009 reported having learning disabilities. Furthermore, the number of students registering with their university's accessibility services in order to access accommodations is increasing (Cairns, Massfeller, & Deeth, 2010). Although many of these students qualify for and use multiple accommodations (Brinckerhoff & Banerjee, 2007), ETTA is one of most common accommodations (Sokal & Desjardins, 2016; Kim & Lee, 2015; Lindstrom, 2010; Lovett, 2010; Stretch & Osborne, 2005), if not the most common (Sireci, et al., 2005), and is usually accompanied by an accommodation where the students write the tests in quiet, separate settings (Sokal, 2016). Test accommodations are defined as altering the processes of test administration in such a way that the test can accurately measure how well the student has learned the materials taught (validity) without altering or "watering down" the construct being tested (Sireci, Li, & Scarpati, 2006). Their goal is to "level the playing field" so that the learning (knowledge, skills and abilities) of students with disabilities can be accurately measured (Sireci, et al., 2005, p. 457).

While there has been recent research conducted on university students regarding the use of test accommodations, most research on this topic pertains to children (Runyan, 1991). Thompson, Blout, and Thur-

[1] *University of Winnipeg;* [2] *University of Manitoba*

low (2002) published a review of 46 empirical studies related to test accommodations, and only three of the studies were conducted with postsecondary samples. Runyan (1991) presented evidence that, insofar as it pertains to meeting the testing needs of students with learning disabilities, separate research about children and adults can be generalized between these groups.

How is ETTA Used?

When ETTA is used, it is common practice to allow students either 50% or 100% more time than the standard time allocated to students without disabilities who are writing the same test (Lewandowski, Cohen, & Lovett, 2013; Lovett, 2011). Although this practice is the most common way to enact ETTA, other procedures have also been used alone or in addition to this time allocation enhancement, including rest breaks between sessions and having students write portions of the test on consecutive days. These practices have been used effectively with younger students (Elliott & Marquart, 2004).

The intuitive appeal of ETTA is not easily denied when it comes to students with disabilities. Given that specific disabilities, such as learning disabilities or anxiety disorders—now the most common category of disabilities being served by university accessibility services (AUCCCD, 2014)—are often characterized by slower processing speeds, it is common sense that a more accurate, valid picture of student learning would result from allowing these students additional test-writing time (Lovett, 2011, Stretch & Osborne, 2005; Weiler, et al., 2000). That is, ensuring that students with slower response times have the opportunity to access and process all of the test questions would seem to allow for better measurement of their actual learning as opposed to their speediness at demonstrating it. However, given that most students with disabilities use multiple accommodations concurrently, little research has been conducted about the effects of any given accommodation in isolation, making it difficult to determine how effective ETTA is at addressing the needs of specific students (Lindstrom, 2010).

Despite its widespread use, researchers have questioned the appropriateness of ETTA as a "blanket" accommodation for students with disabilities and have instead proposed that accommodations are more appropriate when they are tailored to the needs of both the student with a disability as well as the intents and design of the specific test (Brinckerhoff, Shaw, & McGuire, 1992; Lovett, 2011). Various scholars have proposed processes to determine appropriateness of accommodations (Brinckerhoff, et al., 1992), as the same accommodation may affect students within the same categories of disability differently (Lindstrom, 2010; Medina, 2000), and while "certain testing accommodations may benefit some students with learning disabilities, no single accommodation has been shown to benefit all students with learning disabilities" (Brinckerhoff & Banerjee, 2007, p. 247). This statement takes on even greater meaning when the diversity of disabilities addressed through universities' student accessibility services is considered.

So, why then is the use of ETTA so prevalent? Research has shown that many students with disabilities, both in grade school and university, view ETTA as an effective way to meet their learning needs (Sokal, 2016; Sokal & Desjardins, 2016; Elliott & Marquart, 2004). University accessibility services are finding that their students' needs exceed their offices' resources and that providing ETTA satisfies both their students' wishes and their own duty to accommodate in a time-effective way (Sokal, 2016; Lovett, 2011). The most cost-effective accommodation options that meet students' immediate needs may be selected ahead of one-on-one counseling on test-writing skills, and other accommodations that are more expensive or intensive for accessibility service providers (Brinckerhoff, et al., 1992). As such, ETTA has now become the default accommodation in many cases.

Theoretical Basis for ETTA

The intuitive appeal of using ETTA is bolstered by strong theoretical support. For the purposes of clarity, we will make reference to the *Interaction Hypothesis* (see Sireci, et al., 2005), also called the *Accommodation-Disability Interaction Paradigm* (Elliott & Marquart, 2004) or the *Maximum Potential Thesis* (Zuriff, 2000), and contrast it with the *Differential Boost Theory* (Fuchs & Fuchs, 2001). In essence, the interaction hypothesis proposed that providing additional time should result in higher performance in students with disabilities but should not result in higher test scores in students without disabilities. The hypothesis is based on the premise that students without disabilities are able to complete the test when working to their maximum potential under timed testing situations and that well-designed tests therefore provide a reliable, valid measure of their learning of the content materials. Students with disabilities, however, are at a disadvantage, as slower processing times result in

them running out of time before they complete the test (Cahalan-Laitusis, Morgan, Bridgeman, Zanna, & Stone, 2007). In these instances, the well-designed test is not an accurate and valid measure of their learning but instead a measure of their speediness in accessing knowledge. Without having the time to access and attempt all of the test questions, students are denied the opportunity to fully demonstrate their learning. Therefore, according to the interaction hypothesis, the provision of extra time to students with disabilities allows a more valid and accurate measure of their learning, but should not affect the scores of students without disabilities in the same way.

The differential boost theory is similar in many aspects, yet it differs in one important way. The differential boost theory (Fuchs & Fuchs, 2001) also proposed that extended time will enhance performance on tests for students with disabilities, but does not require that there are no similar positive effects on students without disabilities. The important distinction in this theory is that the gains made by the students with disabilities must be *significantly greater* than the gains made by the students without disabilities, hence the "differential boost" to the students with disabilities. In this way, the differential boost to the achievement of students with disabilities when ETTA is provided suggests that this accommodation is an appropriate response to the student's specific disability.

There are other theories from the field of psychology that inform understanding of why ETTA may or may not result in higher test scores in students with disabilities. *Social Learning theory* (Bandura, 1991) proposed that people's perceived efficacy in a given situation will affect their functioning. Accordingly, Elliott and Marquart (2004) proposed that students may process being provided with ETTA in one of two ways. First, the students may be motivated by increased self-efficacy, as they perceive that the test is now achievable with the ETTA provided (Sokal & Desjardins, 2016). In addition, the extra testing time may result in lower levels of anxiety and therefore allow the students to focus more effectively on completing the test (Perlman, Borger, Collins, Elenbogen, & Wood, 1996). This possibility is noteworthy, as anxiety disorders have now surpassed depression as the most common disability in the general population, as well as in postsecondary populations (AUCCCD, 2014), and are often comorbid with other disabilities, suggesting that processes that address anxiety in testing situations would have broad application. An alternative psychological student response to being provided with ETTA is that the students may perceive the accommodation as a validation of their lower skill level, and ETTA may therefore inhibit self-perceptions of efficacy in testing situations (Elliott, Ysseldyke, Thurlow, & Erickson, 1998).

Literature Supporting and Refuting the Theoretical Basis of ETTA

As the use of high-stakes testing has grown, so has the study of how ETTA effects both the testing processes and the use of the results. Copious research has examined the interaction hypothesis to determine whether it stands up in various situations. Sireci et al. (2005) completed the most influential and recent examination. These researchers found that, based on a review of over 40 empirical studies, the hypothesis was partially supported. In most studies they examined, students with disabilities performed better when they were allotted more time than when they were not. In many of the studies they reviewed, however, it was shown that students without disabilities also performed better on tests with extended time. Thus, Sireci, et al. (2005) proposed a modification to the interaction hypotheses that, in effect, validated the differential boost theory: in ETTA situations, the scores of students with disabilities should be significantly greater when the students are provided with ETTA than when they are not, and gains made by students with disabilities should be significantly greater than those made by students without disabilities in ETTA settings.

Interpretation of Increased Gains for All Students Using ETTA

In framing this modification to the interaction theory, Sireci, et al. (2005) argued that the findings indicating that all students benefited from extended test time did not mean that ETTA is unfair. That is, it is not the case that ETTA is necessarily unfair when all students make gains, rather ETTA is viewed as unfair when all the students make *similar* gains. Fuchs and Fuchs (2001) clarified this position:

> When accommodations increase scores for students with learning disabilities no more than is expected for non-disabled students, then we might conclude that the test accommodation does not speak to the nature of the student's disabilities in any essential way. On that basis, we may also infer that the accommodation is not fair. (p. 176)

Other research has refuted that the intent of the modified interaction hypothesis and differential boost theory are accomplished through the use of ETTA. Recent research by Lewandowski, Lovett, and Rogers (2008), and Lewandowski, Lovett, Parolin, Gordon, and Codding (2007) showed that extended time provided even greater advantage to students without disabilities than it did to students with attention deficit hyperactivity disorder (ADHD) or reading disabilities. Likewise, Fuchs and Fuchs (2001) demonstrated that ETTA sometimes fails to result in better performance in students either with or without disabilities. Of the seven studies about ETTA that Thompson et al. (2002) reviewed, four showed positive effects of ETTA and three showed no effects of ETTA, again suggesting that the appropriateness of using ETTA to address students' testing needs is as yet inconclusive. However, even in studies that showed no *overall* differential boost favoring either students with disabilities or those without, there were still a minority of students with disabilities who demonstrated differential boosts: Fuchs and Fuchs (2001) showed that 23% of students with disabilities benefitted substantially more from ETTA than students without disabilities when extended time was provided on math and reading tests where no *overall* differential boost between groups was demonstrated. Medina (2000) had similar findings with the university students she studied using both course-based and standardized assessments. These finding suggest that attention must be paid to individual learning needs and accommodations, as opposed to group or standard practices of accommodation (Fuchs, Fuchs, & Capizzi, 2005). Considered together, the current research literature demonstrates that there is no consensus on the accuracy of the interaction hypothesis (Sireci, et al., 2005), nor on the differential boost theory (Fuchs & Fuchs, 2001), as they relate to ETTA and its effects on learners in groups or on individuals.

Other research gives some support to Bandura's social learning and self-efficacy theories as a means of understanding how ETTA may affect student performance. In addition to the cognitive benefits of providing opportunities for students with slower processing speeds to access more of the test content through ETTA, research with middle school children demonstrates that there are also potential psychological processes at work. Elliott and Marquart (2004) found that grade eight students with disabilities felt less frustrated, more relaxed, and more motivated than typical students or students "at risk" when all three groups were given ETTA. This finding is interesting in that the students with disabilities did not demonstrate a differential boost in their achievement when compared with the other groups in this study, but still experienced better affective outcomes (relaxation, motivation, less stress) in the ETTA condition. Research with university students with anxiety disorders (Sokal & Desjardins, 2016) found that students who were provided with ETTA felt calmer, and during testing time experienced fewer of the gastrointestinal problems that are often associated with high-stress events.

Criticisms Related to Fairness

Given the lack of consensus on whether providing ETTA results in a differential boost for students with disabilities, and also controversy on how to interpret the finding that other students sometimes also perform better when extra time is given to them in testing situations, it is not surprising that the use of ETTA as a common testing accommodation has been widely questioned and criticized. The arguments tend to fall into four categories: (1) unfairness to students without disabilities; (2) unfairness to students with disabilities; (3) unfairness to professors; and, (4) unfairness to pedagogical development.

Unfairness to students without disabilities. The finding that all students benefit from additional test time has been used to argue that providing ETTA only to students with disabilities gives them an unfair advantage over students in the same testing situation who are not given extra time (Lovett, 2011; Sireci, et al., 2006; Sireci, et al., 2005). Indeed, the burgeoning requests for ETTA on the Scholastic Aptitude Test (SAT) administration have resulted in more stringent documentation requirements and more students being denied accommodation (Moore, 2010), suggesting that this question of providing unfair advantage to students with disabilities is especially salient in high-stakes tests (Brinckerhoff & Banerjee, 2007).

Unfairness to students with disabilities. Unfairness to students with disabilities is claimed in two different ways. First, when ETTA is *not* provided, students perceive that they are being disadvantaged by their institution's reluctance to meet its legal obligations to accommodate:

> When students with learning disabilities tell us that some instructors engage in non-accommodation,

> there is an obvious challenge…. Denial of the existence of the learning disabilities or denying accommodation likely contributes to instructional and institutional environments that delay students' graduation, limit their academic success, and ultimately undermine their ability to use higher education as a stepping stone towards meaningful life goals. (Quinlan, Bates, & Angell, 2012, p. 230)

The corollary is that these needs are met when ETTA is provided. Sireci, et al. (2006) indicated that, "students with…disabilities demonstrate their true abilities more clearly when they are allowed accommodations" (p. 3). Lin (2010) therefore argued that accommodations increase test validity in that they allow students to demonstrate their skills and abilities in situations where standard testing procedures would prevent it.

Second, some critics view accommodations such as ETTA as a failure to meet individual student's needs in meaningful ways. ETTA, in particular, is viewed as a cost-effective, blanket accommodation that releases institutions from investigating student-specific, more suitable accommodations. According to Brinckerhoff, et al. (1992), it is essential that accommodations are developed in order to meet the learning needs of a specific student, rather than providing common accommodations to all students who identify with disabilities. Lovett (2011) argued that "easy fixes" such as ETTA take attention away from interventions that have been shown to increase student agency and decrease their dependence on accommodations, such as test-taking strategies and stress-reductions practices. "Accommodations are overly tempting," he said, "because they are easier than interventions" (p.2). Critics of ETTA suggest that students who are provided with these sorts of accommodations can become overly dependent on them and find that similar accommodations are not as readily available in work situations. Thus, these students enter the workforce less prepared than other students (Brinckerhoff, et al., 1992).

Unfairness to professors. Likewise, arguments that ETTA is unfair to professors follow two pathways. First, research shows that there are times when ETTA is inappropriate, such as in situations where speediness is a construct being evaluated (Brinckerhoff & Banerjee, 2007; Lovett, 2010; Phillips, 2002). When professors are told that they must provide ETTA to students, it can sometimes create a situation where the capability of the test to measure the construct under examination is compromised. Although a primary role of the professoriate is to work with accessibility services to ensure that both the fidelity of the test and the fairness to the student are maintained (Brinckerhoff, et al., 1992), professors are not always given this opportunity to collaborate but rather are simply instructed to provide ETTA (Sokal, 2016). Author showed that many professors question the use of ETTA privately, but simply comply when asked to provide it. Even when professors agree with the use of ETTA, Stretch and Osborne (2005) suggest that instructors who are not familiar with how validity is affected by ETTA may introduce error into the test process that in turn limits the use of the testing results.

The second way that ETTA is perceived to create unfairness to professors relates to their impression of the perceptions of students without disabilities. Research (Sokal, 2016; Bruder & Magro-Wilson, 2010; Izzo, Hertzfeld, Simmons-Reed, & Aaron, 2001) has shown that professors are very concerned, especially in competitive programs, that other students will perceive the accommodations provided to some students and not to others as unfair. While confidentiality prohibits professors from explaining why specific students are provided with longer test times, these professors, nonetheless, remain concerned that the other students will see them as giving some students an unfair advantage (Sokal, 2016).

Unfairness to pedagogical development. The last way that ETTA is perceived as unfair is that by accepting that some students need accommodations in order to provide valid test results, the professoriate is diverted from an examination of timed testing procedures per se. That is, in many tests, speediness is a factor that affects the students' performance. Yet, in very few situations is the intended construct being measured actually speediness. Considering the many ways to assess student learning as well as the limitations of testing, it seems counter intuitive that timed tests have become the default method in measuring student learning. Stretch and Osborne (2005) therefore suggested that timed tests should be a rare exception when choosing assessment practices. These authors, as well as Elliott, Braden, and White (2001), posited that using untimed testing is a more logical and less problematic choice, while at the same time recognizing that giving a prescribed time for a test provides a logistical scheduling benefit to schools.

How Much Time is "Reasonable?"

If the advice of Stretch and Osborne (2005) and Elliott, et al. (2001) were taken, the practical question would arise regarding how long an untimed test would typically take. As seen previously, it is common practice to allow students either 50% more time or 100% more time than the standard time allocated to students without disabilities who are writing the same test, a practice recommended by Ofiesh and Hughes (2002). It should be noted that Ofiesh and Hughes' recommendation was generated from an analysis of only seven quasi-experimental studies where the duration of time used by students with disabilities writing almost exclusively standardized tests under ETTA conditions were reported. Furthermore, these studies did not focus on the question of how much time was appropriate, but serendipitously reported these times as part of the data collected while examining other factors. In six of the studies, the students were given unlimited time to finish the tests and told that their time would be recorded, a design feature that Ofiesh and Hughes posited may have inflated the total time used. It is noteworthy that no empirical evidence exists to support these practices as *recommendations* for effective ETTA durations (Lewandowski, et al., 2013; Lovett, 2011), and the research literature, with a few exceptions such as Ofiesh and Hughes' work, is "silent on this issue" of what appropriate time allowances should be (Lewandowski, et al., 2013; Stretch & Osborne, 2005).

Some research has suggested that Ofiesh and Hughes' (2002) recommended allowances are far too generous. Cahalan-Laitusis, King, Cline, and Bridgeman (2006) posited that 25% more time is a more suitable allotment. These authors found that students with disabilities who were writing their SATs in untimed conditions needed only 8% to 14% more time in order to access the same number of questions as their peers without disabilities. Furthermore, Brooks, Case, and Young (2003) found that giving students with disabilities excessive time allotments did not result in higher test scores. Cahalan-Laitusis, et al.'s (2006) recommendations are bolstered by dated, yet relevant, research by Perlman et al. (1996) who found that most students provided with ETTA did not use all the additional time they were allocated. This finding was further supported by the perception of university students in a recent study by Author (in press a), and was also demonstrated by high school students in a study by Cahalan-Laitusis, et al. (2006).

It is therefore a challenge to determine a reasonable amount of time to allow when ETTA is used, being as there are no established processes to determine this answer. The Cahalan-Laitusis, et al. (2006) study showed that students with disabilities needed no extra time on some types of test questions but needed a small amount (4-18% more per section) on other types of questions, suggesting that the test design may also affect the appropriateness of time allotted (Ofiesh & Hughes, 2002). Research studies about the use of accommodations have further suffered from small sample sizes (Thompson et al., 2002). Moreover, research designs investigating this question have mainly been restricted to the study of the effects of ETTA on high-stakes tests such as SAT (Elliott & Marquart, 2004; Ofiesh & Hughes, 2002) in experimental settings, thus limiting what we know about the ETTA time used in day-to-day situations of students with disabilities writing real, course-based tests. Cahalan-Laitusis, et al. (2006) therefore have recommended "Future research may wish to examine time used by students with… disabilities during an operational administration" (p. 12). The purpose of the current study was to examine the duration of time used by students provided with ETTA Spin course-based tests administered in postsecondary settings. Specific research questions included:

1. Do students with disabilities who write their tests with ETTA use their full allotted time; and
2. Do students use longer durations of additional testing time relative to the maximum time provided to students without ETTA in lower level than in higher level courses?

Methods

Population

The data used in this study were taken from secondary data sets accessed through the student accessibility service offices at two mid-western, Canadian universities. Given that student records related to disabilities are protected under the Freedom of Information and Protection of Privacy Act (FIPPA), all identifying information was removed from the data before it was accessed by the researchers. Thus, it is impossible to report on the demographic information of the specific students whose testing data we accessed. However, general information about each university

can be used as a proxy to likely describe the representative participants. The smaller university offered mainly undergraduate programs, while the larger university provided undergraduate, graduate, and professional programs. While both universities provided data regarding the diversity of their students, the larger university published reports about the use of its services, and therefore those data regarding the students registered with Student Accessibility Services (SAS) during the study years were available to the researchers and are provided in Table 1.

Design

The current research study entailed a post-hoc analysis of data provided on exams written with ETTA by students registered with accessibility services. The exams were written during the years 2013-2014 and 2014-2015. After removing cases where no ETTA was provided and where students failed to report to the testing location, data from 2,414 exams were used from the smaller university and 6,443 exams were used from the larger university. After consulting with and obtaining the agreement of the coordinator of student accessibility services at each university, and obtaining approval of the representative research ethics boards, data were provided by both universities including: (1) year in the program to which each exam applied; (2) the standard exam time; (3) accommodated exam time under ETTA; (4) the time actually used to write the exam.

Findings

Given Aud et al.'s (2013) caution that contextual factors specific to individual settings recommend against collapsing data sets across settings, we began our analysis by examining each data set separately.

Descriptive Statistics

At the smaller university, 1,235 tests were analyzed from the 2013-2014 school year, and 1,179 tests were analyzed from the following year, for a total of 2,414 tests. At the larger university, 2,989 tests were analyzed from 2013-2014 and 3,454 tests were analyzed from the subsequent school year, comprising 6,443 tests in total from the larger university, and 8,857 tests in all. Given the differences in programming and graduate level courses offered at each university, the distribution of the level of each exam--corresponding to the year of the course in the program are--presented separately by university in Table 2.

Comparisons Between Universities

Three time durations were reported for each case by SAS. Table 3 reports the descriptive statistics of these data from each university: (1) The *Standard* test duration is the maximum duration of time in minutes provided to all members of the class who did not have ETTA provided; (2) The *ETTA* test duration is the maximum duration of time in minutes provided to a specific student writing that same test with ETTA; (3) The *Used* test duration is the actual duration of time in minutes used by a specific student writing that same test with ETTA.

Three additional variables were computed and reported in Table 4. The *ETTA/Standard score* (E/S score) represents the ETTA test duration divided by the Standard test duration, indicating the relationship between the time provided to the specific students under ETTA and to the other students without ETTA. For example, if the E/S score was 1.5, a particular student in the sample was given 1.5 times the duration of time provided to the students who did not qualify for ETTA on that particular test. The second computed variable was the *Used/Standard score* (U/S score) and represents the actual test duration used divided by the Standard test duration, indicating the relationship between the time used by the specific student under ETTA and the time maximum provided to other students without ETTA. For example, if the U/S score were 2, the student used double the duration of time provided to the students who did not qualify for ETTA on that particular test. The third variable computed was the *Used/ETTA score* (U/E score), and was derived from dividing the students' actual time used to complete the test by the maximum durations that were allowed under ETTA. Thus, if a student's U/E score was .5, it would indicate that the student completed the test in 50% of the time allotted under ETTA.

Although the values presented in Tables 3 and 4 appeared strikingly similar between the universities, a MANOVA was conducted with each of the six scores as dependent variables and the university as the independent variable. Results indicated that there were no significant differences between the universities in terms on the standard test durations provided, (f(1, 8,856)=1.25, p =.26) and the Used/Standard score [f(1, 8,856)=2.95, p=.09]. However, significant differences emerged between the two universities' samples in terms of ETTA provided [f(1, 8,856)=8.38, p=.01], the actual Used minutes [f(1, 8,856)=7.89, p=.01], the ETTA/Standard score [f(1, 8,856)=3.00, p

≤ .001], and the Used/ETTA score [f(1, 8,856)=29.68, $p \leq .001$]. Examination of the means previously presented indicated that the students at the smaller university were provided with an average of five extra minutes on exams under ETTA. In contrast, students at the larger university used an average 5 more minutes to complete their tests. In terms of the relationships between the ETTA durations compared to the standard test times at each university, the smaller university allowed on average an additional 62% of the standard test time while the larger university offered an additional 58% of the standard time. Finally, while the ETTA accommodations were slightly more generous at the smaller university, these students used only 72% of the ETTA allowance on average, compared with the students at the larger university who used an average of 75% of their ETTA.

Once it was established that the mean duration of Used/ETTA was .75 of the maximum for the larger university and .72 of the maximum for the smaller university, it was clear that the first research question was answered: Many students with disabilities who write their tests with ETTA do not use the full allotted time. We conducted follow-up analyses to tease out intricacies within this finding. First, through analysis of the Used/Standard data frequencies, we determined how much, if any, of the standard time was used by students who were provided with ETTA and reported the findings in Table 5. We chose to use the Used/Standard variable because it was not significantly different between the two universities and therefore allowed us to examine the large data set as one.

In order to investigate whether the ETTA times provided followed these trends, we used similar frequency analysis on the ETTA/Standard scores and reported the findings in Table 6. However, being as the ETTA/Standard scores were significantly different between the universities, we examined and have presented each university's frequencies separately.

We then turned our attention to the second research question: Do students use longer durations of testing time relative to the maximum time provided to students without ETTA in lower level than in higher level courses? In order to investigate this question, we had originally planned to use an ANOVA. However, Levene's Statistic indicated that the variances within the exam levels were not homogeneous [F(5, 8,774)=3.3, p= .01], even when we collapsed the graduate level courses from years five to nine where cell sizes were comparatively smaller (see Table 2). As a result, we chose to conduct a Kruskal-Wallis test, because it is recommended as an alternative to ANOVA procedures in cases with non-parametric variances (Lund Research, 2013a). Furthermore, the data satisfied the four assumptions of using this test: (1) the dependent variable was continuous; (2) the distribution of the data was not normal; (3) each case (i.e. exam) was represented in only one group; and (4) the groups of two or more were categorical and independent (Lund Research, 2013a). We maintained the collapsed category five, which represented graduate level courses, and therefore we examined exams across five categories (first year, second year, third year, fourth year, and fifth the ninth year). The Used/Standard score was used as the independent variable because this variable was not significantly different between the universities. The results indicated that there were significant differences between the Use/Standard scores of exams written at different course levels, H(4)=128.25, p. ≤ 001, with mean ranks of 4,058.32 for first year exams, 4,386.81 for second year exams, 4,741.41 for third year exams, 4,885.45 for fourth year exams, and 5,658.38 for exams from years five to nine. Follow-up Mann-Whitney tests were chosen to determine where the significant differences could be found, being as they are recommended as alternatives to t-tests when non-parametric groups are present and also because our data met the four assumption of using this test (Lund Research, 2013b). Results indicated that the mean rank was significantly higher in second-year tests than in first-year tests (U= 4,940,345.50, $p \leq .001$) and was also significantly higher in third-year tests than in second-year tests (U= 2,028,565.00, $p \leq .001$). The mean ranks were not significantly different between tests from year 3 and 4 (U= 425,397.00, p = .21) or between years 4 and 5 (U= 304, p = .23). Our second question was therefore answered, as students actually used increasingly more testing time relative to the maximum standard test time in third than first level courses. While this escalation stopped between year three and year four testing levels, it did not decrease.

Discussion and Implications

The findings of the current research contribute to the understanding of how ETTA is enacted in two universities of different sizes. Taking the advice of Aud et al. (2013), the two schools were initially examined separately, despite the impression that the data from

both universities appeared quite similar. Indeed, the average standard testing time, the average ETTA duration provided, and the average actual testing time used differed only five minutes or less across universities. However, when analyses were conducted on these variables as well as those derived from them (ETTA/Standard score, Used/Standard Score, and Used/ETTA score), significant differences emerged.

Three of the findings of the current study will be examined in greater depth in order to inform processes for supporting students who request ETTA. First, it is noteworthy that many students complete testing with only a small proportion of additional time compared to the standard. Of the sample of 8,857 exams, it was found that in 3,059 (35.5%) of exams, students did not use any ETTA, while in 5,798 (64.5%) exams, students used at least some of it. These findings support those of Cahalan-Laitusis et al. (2006), who conducted their research with high school students and showed that 8-14% additional time is usually sufficient for ETTA. They therefore recommended that the standard ETTA be set at 125% of the standard test time. Likewise, our data showed that while over 55% of the students complete their tests with an addition of 25% of the standard time of less (see Table 5), only 1.8% of students at the smaller university and 8.7% of students at the larger university were limited to this duration (see Table 6). Furthermore, 85% of students completed their tests with an additional 50% of the standard time or less (see Table 5), yet only 58% at the smaller university and 70.5% at the larger university were limited to this ETTA duration (see Table 6).

The second trend to be highlighted is that students used more ETTA as they moved through their first three years of university. It may be that these findings speak to the commensurate challenge level of increasing course levels, or it may be that students are failing to develop other strategies that allow them to either maintain or decrease their ETTA used.

The third trend is that the ETTA provided at both universities clusters around the time points recommended by Ofiesh and Hughes (2002). It is noteworthy that there is a clustering of scores at both universities within the range that includes 1.5 times the standard test time and a second cluster at the 2 times the standard testing time range at the larger university only. This finding suggests that some ETTA providers may have accepted the recommendations of Ofiesh and Hughes (2002) without examining their very weakly supported research origins.

Conclusions and Recommendations

Based on these three trends, it would seem logical to recommend that students be provided with both shorter ETTA as well as more supports for developing other strategies to use less ETTA as they progress throughout their studies. However, a blanket recommendation such as that suffers from the same limitation as those of Ofiesh and Hughes (2002) in that it ignores individual differences.

While increasingly tight university budgets make a "one-size-fits-all" approach to meeting students testing accommodation needs more attractive and while the current findings show that students rarely use more than 25% additional time when compared to the standard test times, therefore creating a temptation to endorse blanket decreases in ETTA, abruptly reducing ETTA would be a mistake. ETTA in many ways can be compared to home insurance or health insurance: Just because one does not use it does not mean that one does need it. Other research has shown that just the presence of the extra time is enough to decrease student stress so that they do not use the extra time allowed on a test (Sokal & Desjardins, 2016). For this reason, caution against drastically reducing ETTA even in the situations where it is not used is advisable. Students should be given the opportunity to gradually decrease their ETTA use in situations where that is possible and should be active agents in the goal-setting and discussions that lead to decisions about ETTA durations.

Furthermore, individual differences must be considered when setting goals around reduced ETTA. For example, it is possible that a student who experiences test anxiety may learn additional coping strategies and therefore use less ETTA over time. However, it is unlikely that a student who has permanent language production difficulties and uses a scribe will show the same trends. Indeed, although the frequency of students requiring more than twice the standard test time are rare, these students are present in our university populations and have equal rights to appropriate accommodations. Individual needs and capacities must be considered both in setting ETTA and considering whether reducing ETTA is a reasonable accommodation.

How then can the approach to ETTA honor individual differences and capacity at the same time as it fosters learner growth? Similar to school systems that require students with disabilities to have annual individual educational plans, universities are advised to meet annually with students to review progress including the students' Used/Standard scores and their

ETTA allowances. If students are given information about their own trends in use of ETTA, they will be able to set more accurate goals for their futures. This approach not only recognizes the efficacy needs of adult students (Bandura, 1997) but also fosters self-determination (Getzel, 2008), a main predictor of student success. Self-determination was described by Getzel as "acceptance of a disability and how it affects learning; understanding which support services are needed; knowing how to describe one's disability and the need for certain supports to service providers; and having the determination to overcome obstacles that may be presented" (p. 210). In addition, Getzel showed that student skills such as organizational skills, time management, goal setting skills, and an awareness of how technology can support their learning were predictive of success in students with disabilities. Of course, the goals set by students would need to be accompanied by supports from the universities such as those mentioned by Getzel as well as self-regulation strategies, stress reduction, test-taking strategies, and the like. In this way, students are supported to become self-determined, active agents in planning and enacting their growth and independence as students.

All research presents limitations, and the current project is no exception. The first limitation relates to the data set. Due to privacy laws, the data were cleaned of information about specific students and their disabilities before being provided to the researchers. If provided with this information and also provided with information about the same students' Used/Standard scores over time, it would be possible to make more specific recommendations about which students would benefit most from gradual decreases in ETTA accompanied by other skill training and which students would not. Kim and Lee (2015) showed that the influence of testing accommodations varies by disability, and having access to these data about the specific disabilities in the current study's sample would have allowed a more nuanced analysis. The second limitation is that the recommendations generated here infer allocation of funding in order to create individualized plans for each student. The limitation to this recommendation is the will of the policy-makers and university administrators who allocate budget dollars.

Overall, the current research findings suggest that adhering to allotments of 50-100% ETTA, while cost-effective and easily administered, is unsupported by research evidence and is insensitive to individual learning needs. Rather than focusing on the short-term, time-efficient means of providing accommodation through ETTA alone, we suggest that universities pay more attention to both the individual needs of students in testing situations as well as to goal setting and supports that foster greater learning independence whenever possible.

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About the Authors

Dr. Laura Sokal received her Bachelor of Education degree, Master of Education degree, and Ph.D in Educational Psychology from the University of Manitoba. Aside from working in schools, her experiences include working as a Child Life Therapist with hospitalized children and as a Director of Programming for students at risk in inner-city schools. She is currently a professor and award-winning teacher in the Faculty of Education at the University of Winnipeg. Her research interests include teacher education for inclusive practices in elementary and secondary schooling, and anxiety disorders in university students.

Laurie Anne Vermette received her B.A. from the University of Winnipeg, her certificates in Conflict Resolution and Mediation from Mediation Services, her BEd and PBDE from the University of Manitoba, and her certificates in Expressive Arts Therapy and Advanced Expressive Arts Therapy from WHEAT Institute. She is currently enrolled in a Master's in Educational Administration at the University of Manitoba. Her experience includes working as a school teacher at The Laureate Academy and serving students with diverse learning needs in multi-age grade 6-12 classrooms. She is currently a Faculty Specialist in the Centre for the Advancement of Teaching and Learning at the University of Manitoba. Her research interests include accessible post-secondary education, technology integration in education, and personnel management in education. She can be reached by email at: LaurieAnne.Vermette@umanitoba.ca.

Table 1

Description of Students at Participating Universities

Variable	Year	Smaller University	Larger University
Students Registered	2013	10,096	29,759
	2014	9,842	29,657
International Students	2013	5.5%	13%
	2014	6%	13.2%
Indigenous Students	2013	7.8%	7%
	2014	8.2%	7.2%
Female Students	2013	62%	53%
	2014	62%	53%
Students Registered with SAS	2013		1047
	2014		1,100
Mental Health Disabilities	2013		36%
	2014		37%
Learning Disabilities	2013		19%
	2014		19%
Physical Disabilities	2013		4%
	2014		4%
Deaf or Hard of Hearing	2013		4%
	2014		4%
Temporary Disabilities	2013		4%
	2014		2%
Blind	2013		4%
	2014		2%
Unclassified	2013		5%
	2014		8%
Multiple Disabilities	2013		15%
	2014		Data Unavailable

Table 2

Test Distribution by Level for the Smaller and Larger University

	Smaller University	Larger University
Level (Year in Program)		
0	34	39
1	921	26
2	980	1,983
3	319	1,170
4	4	508
5	2	0
6	0	14
7	0	24
8	0	4
9	0	15
Continuing Education	60	
Undisclosed	16	
Missing	1	

Table 3

Durations in Minutes by University

Interval Name	University	Mean	SD
Standard Time			
	Small	113.20	54.60
	Large	111.85	48.78
ETTA Time			
	Small	180.98**	87.75
	Large	175.32**	79.56
Used Time			
	Small	125.17**	72.23
	Large	130.02**	72.43

Note. ** indicates $p = .01$.

Table 4

ETTA/Standard, Used/Standard, and Used/ETTA scores by University

Interval Name	University	Mean	SD
ETTA/Standard Score			
	Smaller	1.62**	.27
	Larger	1.58**	.26
Used/Standard Score			
	Smaller	1.16	.43
	Larger	1.18	.41
Used/ETTA Score			
	Smaller	.72**	.24
	Larger	.75**	.23

Note. ** indicates $p = .01$.

Table 5

Used/Standard Score Ranges

Range	Frequency	Percentage	Cumulative Percentage
0.00-1.00	3,059	35.5	35.5
1.01-1.25	1,170	19.2	55.2
1.26-1.50	2,609	29.5	85.5
1.51-1.75	660	7.5	93.1
1.76-2.00	517	5.8	99.1
2.01-2.25	54	.6	99.8
2.26-2.50	11	.1	99.9
2.5+	10	.1	100.00

Table 6

ETTA/Standard Score Ranges

Range	Frequency	Percentage	Cumulative Percentage
	Small/Large	Small/Large	Small/Large
0.00-1.00	0	0	0
1.01-1.25	43/534	1.8/8.7	1.8/8.7
1.26-1.50	1,354/3,810	56.2/61.8	58.0/70.5
1.51-1.75	516/594	21.4/9.6	79.4/80.1
1.76-2.00	436/1,169	18.1/19	97.5/99.0
2.01-2.25	19/31	08./0.5	98.3/99.5
2.26-2.50	23/14	1.0/0.2	99.2/99.8
2.5+	19/14	.8/.2	100.0/100.0