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Post-Secondary Educators' Perceptions of Students' Test Anxiety

Abstract

Student test anxiety (TA) is a far-reaching concern in many post-secondary institutions as it can have a negative impact on student performance and retention. Educator perceptions of TA may influence the incidence of TA as well as treatment success. As such, we surveyed educators at a medium-sized Canadian university about their perceptions and experiences with TA. In total, 90% of surveyed educators (n=50) were willing to accommodate students with TA, and 69% of educators were aware of TA support services on campus, whereas only 40% could identify symptoms of TA. Two principal components were extracted from survey responses: the importance of TA on campus, and the importance of institutional commitment to managing TA. Perceived importance of TA varied by educator age and sex, with female and older educators perceiving TA as a more serious condition than male and younger educators. Educators that were aware of TA services had a more positive view of institutional commitment to TA. In addition, 42% of educators felt limited in their ability to assist students with TA, and only 40% believed their classes were structured in such a way as to minimize or address TA. Providing information to educators about the symptoms and treatability of TA, as well as available support services is recommended.

L'anxiété des étudiants face aux examens est une préoccupation qui a des implications importantes dans de nombreux établissements d'enseignement post-secondaire car elle peut avoir des effets négatifs sur les résultats des étudiants et sur leur rétention. Les perceptions des éducateurs concernant l'anxiété face aux examens risquent d'influencer l'incidence de l'anxiété ainsi que la réussite du traitement. C'est pourquoi nous avons fait un sondage auprès d'éducateurs dans une université canadienne de taille moyenne à propos de leurs perceptions et de leurs expériences concernant l'anxiété face aux examens. Au total, 90 % des éducateurs qui ont participé au sondage (n=50) étaient disposés à répondre aux besoins des étudiants souffrant d'anxiété et 69 % des éducateurs connaissaient l'existence des services de soutien disponibles sur le campus, alors que 40 % d'entre eux pouvaient identifier les symptômes de l'anxiété. Deux composantes principales ont découlé des réponses au sondage : l'importance de l'anxiété face aux examens sur le campus et l'importance de la volonté de l'établissement à gérer cette anxiété. L'importance perçue de l'anxiété variait d'un éducateur à l'autre selon l'âge et le sexe : les femmes et les enseignants plus âgés percevaient l'anxiété comme une condition plus grave par rapport aux hommes et aux enseignants plus jeunes. Les éducateurs qui connaissaient l'existence des services de soutien avaient une perception plus positive de la volonté de l'établissement à gérer l'anxiété. De plus, 42 % des éducateurs se sentaient limités dans leur aptitude à aider les étudiants qui souffraient d'anxiété et seulement 40 % d'entre eux pensaient que leurs cours étaient structurés de manière à minimiser l'anxiété ou à y remédier. Il est recommandé de fournir aux éducateurs l'information pertinente sur les symptômes et le traitement de l'anxiété ainsi que sur les services de soutien disponibles.

Keywords

educator, exam anxiety, faculty, perceptions, test anxiety

Cover Page Footnote

We would like to thank the Center for Enhanced Teaching and Learning for funding this project, as well as the educators who gave up their time for our survey.

Grade-related anxiety is a prevalent concern among students given the increased use of entrance exams, standardized testing, and more frequent student assessment (Furr, Westefeld, McConnell, & Jenkins, 2001). Debilitating levels of anxiety regarding performance on examinations is referred to as test anxiety (TA; Zeidner, 1998) and is characterized by negative feelings towards assessment situations, as well as concomitant physiological (e.g., sweating, muscle tension, increased heart rate), psychological (e.g., catastrophic thoughts about failure), and behavioural responses (e.g., avoidance, procrastination) (Sieber, O'Neil, & Tobias, 2013; Zeidner, 1998). In contrast to TA, a moderate amount of non-debilitating, exam-related, anxiety has produced the best performance in statistics, where moderate levels of exam-related anxiety acts as a motivator for sufficient preparation (Keely, Zayac, & Correia, 2008). Level of accompanying distress or impairment is often the characteristic used to differentiate TA from exam-related anxiety.

Test anxiety is a prevalent concern on university campuses with as many as 15-40% of post-secondary students experiencing TA during their academic career (Gerwing, Rash, Allen Gerwing, Bramble, & Landine, 2015; Hill, 1984; Szafranski, Barrera, & Norton, 2012; Vitasari, Wahab, Othman, Herawan, & Sinnadurai, 2010; von der Embse, Barterian, & Segool, 2013). As a result, TA may be negatively affecting the academic performance of a substantial proportion of post-secondary students, specifically in the areas of GPA and test performance (Cassady & Johnson, 2002; Chapell et al., 2005; Hembree, 1988; Szafranski et al., 2012). In addition, TA can be detrimental to the successful pursuit of career paths and aspirations, particularly in stringent programs such as nursing, where students must perform well on all assessments (Cassady & Johnson, 2002; Gregor, 2005; Khalaila, 2015). Moreover, TA has been associated with increased rates of student withdrawal from post-secondary education in rigorous programs, where as many as 15-20% of students withdraw in the first two years (Ruthig, Perry, Hall, & Hladkyj, 2004; Spielberger, 1962). On the positive side, TA is generally highly treatable and the associated negative consequences can often be circumvented (Egbochuku & Obodo, 2005; Ergene, 2003; Handelzalts & Keinan, 2010; von der Embse et al., 2013). Up to 75% of individuals who suffer from TA exhibit improvements upon seeking treatment (Ergene, 2003). The most successful treatment option includes psychological treatment combined with study-skill and exam-writing training (Ergene, 2003). TA, then, can be seen as a common, but treatable, condition within post-secondary institutions, and one that warrants broader investigation. Nevertheless, the intention when addressing TA should be to minimize the negative consequences caused by it (Cassady & Johnson, 2002; Chapell et al., 2005; Hembree, 1988; Szafranski et al., 2012), not to remove it completely as this is likely not achievable.

The existing research has mainly examined demographic factors of students associated with the incidence and prevalence of TA, such as sex, ethnicity, and socio-economic status (Putwain, 2007). From this research, we know that higher prevalence of TA is commonly reported in females (Chapell et al., 2005; Egbochuku & Obodo, 2005; Hannon, 2012; Putwain, 2007) and in students who come from lower socio-economic backgrounds (Hembree, 1988; Putwain, 2007; Szafranski et al., 2012). Putwain (2007) observed that students from Asian, black, or other ethnic minorities exhibit a higher prevalence of TA when compared to Caucasian students. Despite numerous investigations of these contributing factors, as little as 9% of the variance in TA can be explained by demographic variables (Putwain, 2007; Sena, Lowe, & Lee, 2007), while other potentially important issues, such as perception of TA, have been largely overlooked. For instance, students suffering from TA must often contend with the negative stigma that accompanies the condition. Stigma has also been interpreted as stereotype threat, whereby individuals who are

stereotyped experience increased performance pressure (Steele, 1997). The effect of gender stereotyping in areas such as mathematics negatively affects the math performance of females (Brown & Josephs, 1999; Brown & Pinel, 2003). In the instance of TA, students would be stereotyped as potentially weak or lazy, consequently having a negative impact on academic performance. Supporting this finding, Gerwing et al. (2015) observed that 32.2% of surveyed post-secondary students held negative views of TA, endorsing beliefs such as test anxiety is due only to being lazy or unprepared. The stigma associated with TA was also observed to deter students from seeking help, as it was perceived that seeking assistance would make students appear weak in the eyes of their colleagues (Gerwing et al., 2015). More importantly, 20.5% of the students surveyed would not seek help for TA as they felt that educators would be unable or unwilling to assist (Gerwing et al., 2015). Clearly, the stereotype threat regarding TA, and student perceptions of TA influence the probability of a student seeking help.

In addition to the negative effect of TA on test performance, GPA, and retention (Cassady & Johnson, 2002; Chapell et al., 2005; Hembree, 1988; Szafranski et al., 2012), the existence of negative perceptions of TA amongst educators, similar to those observed amongst undergraduate students (Gerwing et al., 2015), may deter students from seeking treatment and further impact academic performance. While educators' perceptions of TA have been understudied, educators' attitudes can affect several aspects of the student experience, such as academic motivation (Eccles et al., 1993) and perceptions of competence and autonomy (Vallerand, Fortier, & Guay, 1997). As such, gaining insight into educator perceptions of TA, and more specifically whether educators are willing to accommodate TA, would be advantageous. In many instances TA is relatively simple to accommodate, as many effective treatment options are available (see Ergene, 2003 and von der Embse et al., 2013 for a detailed review of TA treatments) including study skills training, desensitization, and talk therapies (Egbochuku & Obodo, 2005; Ergene, 2003; Handelzalts & Keinan, 2010; von der Embse et al., 2013; Zurrif, 1997). Further, students who receive treatment become less test anxious than 75% of students who did not receive treatment. If educators are willing to accommodate for TA, then communicating this understanding to students may increase the number of students seeking help for TA.

The Present Study

In order to quantify educator perceptions of TA, we circulated a survey assessing knowledge and perceptions of TA to educators at a medium-sized Canadian university. Specifically, we attempted to elucidate the significance of TA in the eyes of educators, their perceptions of institutional commitment to addressing TA, and their perceptions of the treatability of TA. Understanding how educators perceive TA, and those who suffer from this condition, will contribute to our general understanding of TA at post-secondary institutions and is a crucial first step in the effort to see more effective practices to address TA implemented at post-secondary institutions.

Method

Questionnaire packages were distributed to all educators on a campus of approximately 11,000 undergraduate students via email, faculty mailboxes, and by hand. The institution's Research Ethics Board approved protocols, educator participation was voluntary, and all participants provided written consent. The *Perceptions of Test Anxiety Survey* (PTAS) was created by the authors for this study, and a similar survey was distributed concurrently to collect data on

the prevalence and perception of TA among students (Gerwing et al., 2015). Educators were asked to respond to 22 items using a 1 ("strongly disagree") to 7 ("strongly agree") Likert scale. The PTAS was found to be reliable in the present sample, $\alpha = .70$. Ratings on the PTAS were subjected to a principal components analysis to extract latent components underlying the survey and the results are described below. The PTAS also contained a written section asking about experiences with TA (e.g., What TA services are available on campus? Is your class structured to minimize TA? Have you felt limited in assisting students with TA?). As part of the survey package, educators also completed a *demographics* questionnaire asking for information about age, sex, ethnicity, level of education, and faculty.

Data Analysis

Data screening. With an $\alpha = .001$ cut-off, there were no univariate outliers. Multivariate outliers were evaluated using Mahalanobis distances. No multivariate outliers in excess of $\chi^2(22) = 48.27, p < .001$, were identified.

Perceptions of TA. A principal components analysis was performed on the 22 item PTAS to derive the latent constructs underlying educator perceptions. Several iterations of principal components analysis were performed until the best solution was uncovered. Participant scores on the components extracted were generated using regression in SPSS Factor, and these scores were used as dependent variables in subsequent analyses. Independent samples *t*-tests were used to assess if perceptions of TA varied by sex, awareness of TA services and ability to identify symptoms of TA. Independent hierarchical linear regressions were used to assess whether age, and years of teaching experience were predictors of perceptions of TA after controlling for sex. Given the small sample size, no corrections were made for the inflation of Type I error due to conducting multiple tests.

Results

Sample Characteristics

A total of 50 educators (31 male, 17 female, 2 did not disclose) elected to participate in the study from a possible pool of 886 (515 full-time and 371 part-time educators) resulting in a response rate of 5.6%. The sample had an average age of 46.76 ($SD = 11.45$) years with 14.43 ($SD = 10.73$) years teaching at the post-secondary level. Participating educators came from 16 different departments on campus (Table 1).

Table 1

Summary of departmental affiliations of the post-secondary educators who voluntarily completed a survey quantifying their perceptions of TA

Department	N
Biology	11
Sociology	4
Education	5
Kinesiology	3
Business	1
Center for Enhanced Teach and Learning	1
Physics	2
French	1
Engineering	9
Language and Cultural Studies	1
Anthropology	1
History	2
Nursing	2
Chemistry	1
Philosophy	1
Psychology	1

Identification of Services and Symptoms and Test Anxiety Perceptions

As part of the written component on the PTAS, educators were asked to identify TA support services on campus, signs and symptoms of TA, whether they felt limited in their ability to assist students with TA, and whether or not their classroom was structured to address the symptoms of TA. Forty-five (90%) of the educators surveyed indicated that they would be willing to accommodate students with TA, and thirty-three (69%) educators were aware of TA support services on campus. However, nineteen (40%) educators were familiar with the symptoms of TA, twenty-one (42%) educators reported feeling limited in their ability to assist students with managing TA, and twenty (40%) educators believed that their classes were structured to address the incidence of TA.

Principal Components Extraction

Several iterations of principal components extraction were performed on items from the PTAS to determine the combination of items, extraction, and rotation procedures that yielded the solution with the greatest scientific utility, consistency, and meaning. The final principle components extraction included 11-items from the PTAS. Sampling was adequate and inter-correlations were strong enough to merit extraction, Kaiser-Meyer-Olkin measure of sampling adequacy = .68. Further, the null hypothesis that variables are uncorrelated was rejected, Bartlett's test of sphericity $\chi^2(55) = 243.06$, $p < .001$. Two principal components were extracted. Communality values (h^2), as seen in Table 2, were moderate and ranged between .38 and .79, indicating that 38% to 79% of item variability was predicted by the components. Component one

(Importance of TA) displayed good reliability ($\alpha = .83$) and was composed of seven items that captured educator perceptions about the legitimacy of TA as a disorder, consequences of TA, and need to accommodate TA. Component two (Institutional Commitment to TA) displayed good reliability ($\alpha = .80$) and was composed of four items that captured educator perceptions about institutional commitment towards raising awareness about TA, accommodating TA, and providing training to identify TA. Oblique rotation was chosen because of inter-component correlation. Results of component extraction are shown in Table 2. Loadings under .33 (10% variance) were suppressed.

Thirty-three (69%) educators were aware of TA support services on campus. Scores on component two varied by knowledge of TA services $t(46) = 2.37$, $SE = 0.30$, $p < .05$, $d = 0.77$ [95%CI 0.10 to 1.35]. Educators who correctly identified TA support services, $M = .24$, $SD = 1.02$, perceived greater institutional commitment to TA than those who could not correctly identify services, $M = -.47$, $SD = 0.82$. Scores on component one did not vary significantly by knowledge of TA services, $t(46) = 0.53$, $SE = 0.31$, $p > .05$, $d = 0.20$ [95%CI -0.80 to 0.42]. Nineteen (40%) educators were aware of TA symptoms. Scores on component one, $t(46) = 0.67$, $SE = 0.30$, $p > .05$, $d = 0.13$ [95%CI -0.45 to 0.70] and component two, $t(46) = 0.69$, $SE = 0.30$, $p > .05$, $d = 0.12$ [95%CI -0.46 to 0.70] did not vary significantly by awareness of symptoms of TA.

Twenty-one (42%) educators reported feeling limited in their ability to assist students with TA. Scores on component two varied by educators' perceived ability to assist students with TA, $t(48) = 2.90$, $SE = 0.27$, $p < .01$, $d = 0.85$, [95%CI 0.24 to 1.42]. Educators who felt limited in their ability to assist students with TA, $M = -.45$, $SD = 0.77$, perceived lower institutional commitment to TA than those who did not feel limited in their ability, $M = .33$, $SD = 1.03$. Scores on component one did not vary significantly by perceived ability to assist students with TA, $t(48) = 1.61$, $SE = 0.28$, $p > .05$, $d = 0.47$ [95%CI -0.11 to 1.03]. Twenty (40%) educators believed that their classes were structured to address TA. Scores on component one, $t(48) = 0.04$, $SE = 0.29$, $p > .05$, $d = 0.03$ [95%CI -0.59 to 0.54], and component two, $t(48) = 1.94$, $SE = 0.28$, $p > .05$, $d = 0.66$ [95%CI -0.08 to 1.24], did not vary significantly by educator beliefs about whether their classrooms were structured to address TA.

Demographic Predictors of Test Anxiety Perceptions

Scores on component one (Importance of TA) varied by sex, $t(46) = 2.22$, $SE = 0.29$, $p < .05$, $d = 0.69$, [95%CI 0.05 to 1.26]. Females, $M = .44$, perceived more severe consequences of TA than males, $M = -.20$. Perceptions about institutional commitment to TA did not vary significantly by sex, $t(46) = 0.26$, $p > .05$, $d = 0.08$ [95%CI -0.52 to 0.67]. Age was a significant unique predictor of component one (Importance of TA) $\Delta F(1, 45) = 4.08$, $SE = .87$, $p < .05$ $\Delta R^2 = .075$, after adjusting for sex. Older educators scored higher on component one, $\beta = .024$, $t = 2.02$, $p < .05$, indicating that older educators perceived TA to be a more serious condition accompanied by greater consequences. Age was not a significant unique predictor of component two, $\Delta F(1, 45) = 0.40$, $SE = 1.10$, $p > .05$ $\Delta R^2 = .01$, after adjusting for sex. Finally, years of education was not a significant unique predictor of component one, $\Delta F(1, 43) = 0.27$, $SE = .83$, $p > .05$ $\Delta R^2 = .005$, or component two, $\Delta F(1, 43) = 0.80$, $SE = 1.10$, $p > .05$ $\Delta R^2 = .02$ after adjusting for sex and age.

Table 2.

Factor loadings for items included in the principal component analysis of the perceptions of test anxiety survey

Item	Factor 1 Importance of TA	Factor 2 Institutional Commitment to TA	h^2
4) Test anxiety should be considered a true anxiety disorder	.77		.60
5) Test anxiety deserves a high level of attention from the university and its professors	.84		.72
6) Test anxiety may prompt students to leave post-secondary education	.69		.49
8) Individuals with a comprehensive understanding of course material may perform poorly during exam situations due to feelings of anxiety related to testing	.78		.64
9) Professors should go out of their way to identify students with test anxiety?	.64		.42
12) People who identify themselves as suffering from test anxiety should be accommodated in some manner (i.e., given additional time to write, write the test in a separate room)	.59		.38
13) Test anxiety causes individuals to perform poorly during academic testing	.71		.51
3) Students can feel confident that the university has a policy surrounding test anxiety		.81	.67
16) The university raises adequate awareness into the services available for test anxiety		.89	.79
18) Professors are adequately trained to identify test anxiety.		.72	.53
21) The university has adequate services to accommodate test anxiety		.70	.51
% of Variance	36.90	19.99	

Discussion

In this study, a survey assessing perceptions of TA was administered to post-secondary educators in order to better understand educator perceptions of TA. While the majority of surveyed educators (90%) were willing to accommodate for TA, their knowledge regarding TA was mixed. Over two thirds (69%) of educators were aware of the TA services available on campus, but only 40% were aware of TA symptoms. In comparison, Gerwing and colleagues (2015) reported that 20.5% of surveyed undergraduate students at the same institution perceived educators as unable or unwilling to aid with TA. Contrary to student perceptions, the majority of educators (90%) said that they were willing to assist students with their TA. Students at this institution have been observed to hold a negative stigma towards TA (Gerwing et al., 2015), yet educators showed no

evidence of replicating these negative views. These results raise the possibility that publicly disclosing educator willingness to help with TA may increase the number of students who seek assistance for TA via a more clear perception of educators' readiness to provide help. While only 40% of the educators surveyed were aware of the symptoms of TA, and 31% were unaware of available services on campus, the vast majority were willing to offer accommodations for the condition. As such, disseminating information about TA symptoms and available support services may better equip educators to effectively support students in the management of TA.

Educator perceptions of the importance of TA varied by sex, with female educators perceiving TA and its consequences as more severe than their male counterparts. It is unclear as to why sex differences exist in perceptions of TA importance among educators but a similar trend was observed at the same institution wherein female undergraduate students also perceived the consequences of TA to be more severe than male students (Gerwing et al., 2015). Female educators and female students appear to perceive the severity of TA similarly, which raises the possibility that experiences with TA early in life may impact perceptions of TA later in life.

Observations supporting this hypothesis include, the elevated incidence of TA among females (Ferrando, Varea, & Lorenzo, 1999; Zaheri, Shahoei, & Zaheri, 2012), and the increased perception of TA severity by those that had experienced it at some point in their lives (Gerwing et al., 2015). Further, females undergo greater amounts of stereotype threat than males in subjects such as mathematics (Brown & Josephs, 1999; Brown & Pinel, 2003), and may have a greater fear of failure due to increased pressure to succeed in academics (Rezazadeh & Tavakoli, 2009).

Educator perceptions of the importance of TA also varied by age, with older educators considering TA to be a more severe condition. The number of years teaching at the post-secondary level did not influence educators' perceptions above and beyond sex and age, suggesting the potential for cohort effects (Cozby, 2009). To clarify, older educators may perceive TA differently due to changes in post-secondary education over time, such as increases in class size, greater student diversity, and greater use of part-time lecturers, and sessional teachers (Crocker & Usher, 2006).

Age and sex also did not predict educators' perceptions of the institution's commitment to TA. Educators who were aware of TA services on campus, however, felt more positively about the institution's commitment to TA. In an applied sense, this suggests that providing educators with more information regarding TA and available support services could also increase their positive regard for the institution's commitment toward TA.

Many educators (42%) felt limited in their ability to support students with TA, and just 40% considered their classes to be structured towards addressing TA. This contrasts with the majority of educators being willing to help with TA (90%) and being aware of support services (69%). Unsurprisingly, educators who felt limited in assisting students also perceived lower institutional commitment to TA. We suggest that the dissemination of information regarding the symptoms of TA and available support services, may serve to raise the level of educator self-efficacy in terms of assisting students and, subsequently, increase positive regard felt by educators towards the institution's commitment to TA. Further, openly disclosing educator willingness to help with TA may increase student utilization of available services, thus improving the manner in which TA is dealt with at post-secondary institutions.

Limitations

There are several limitations to the present investigation. First, the sample size of 50 educators constitutes a very poor sample size for principal components analysis which reduces statistical power and the confidence that the observed solution will generalize to other samples (Tabachnick & Fidell, 2012). Yet, the principal components replicated those observed in the student version of the PTAS (Gerwing et al., 2015), and variable loadings onto the extracted components ($>.80$) were high enough that, under some circumstances, 50 cases may be sufficient (Tabachnick & Fidell, 2012). Second, convenience sampling was implemented for this investigation, allowing for the potential of self-selection bias; attitudes held towards TA may have affected the choice to participate or not in the study (Thomas, Silverman, & Nelson, 2015). With only 5.6% of the educators approached electing to participate in this study, the results may not be representative of the population. In addition, this study only includes educators from one institution, therefore the institutional commitment to TA reported may not be an accurate representation of all institutions in Canada. Despite these limitations, this study is the first that we are aware of to examine the perceptions of educators towards TA. As such, this study provides valuable insight into the previously overlooked issue of educator's perceptions of TA and a good starting point for future research.

Conclusions

The majority of educators surveyed at a medium sized Canadian university were aware of TA services on campus (69%), but only 40% could identify symptoms of TA. Further, 90% of surveyed educators were willing to accommodate students with TA, indicating that surveyed educators did not exhibit a negative stigma towards TA. Disseminating information regarding TA, symptoms, and available support services to educators may assist with the management of TA. In addition, dissemination may be particularly effective for educators who do not perceive TA to be a severe condition (i.e., educators who are younger or who are male). Lastly, by increasing educator perceptions of the significance of TA, the potential for successful treatment may be increased, leading to a more positive outlook for students suffering from TA.

Future Research

To our knowledge, this is the first investigation of educator perceptions' of student TA. Future research is needed to replicate the observed perception in a larger, nationally representative sample of educators across diverse faculties. More practically, it would be advantageous to develop and pilot-test interventions targeting educator perceptions of TA. Given that stigma can influence student performance (Brownell & Pajares, 1999; Kershaw & Blank, 1993; Sirey et al., 2001), such targeted interventions may influence student's experience of TA.

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