UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

BUILDING A LINE OF INQUIRY INTO STUDENT PSYCHOLOGICAL NEED FRUSTRATION AND RELATED SCHOOL-SOCIAL CONDITIONS

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

Degree of

DOCTOR OF PHILOSOPHY

By

OLAJUMOKE BEULAH ADIGUN

NORMAN, OKLAHOMA

2020

Downloaded from SHAREOK. Persistent Handle URL: https://hdl.handle.net/11244/325394

BUILDING A LINE OF INQUIRY INTO STUDENT PSYCHOLOGICAL NEED FRUSTRATION AND RELATED SCHOOL-SOCIAL CONDITIONS

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF EDUCATIONAL LEADERSHIP AND POLICY STUDIES

BY THE COMMITTEE CONSISTING OF

Dr. Curt M. Adams, Chair

Dr. Ken Randall

Dr. Patrick B. Forsyth

Dr. Beverly Edwards

Dr. Daniel Hamlin

© Copyright by OLAJUMOKE BEULAH ADIGUN 2020
All Rights Reserved.

DEDICATION

I dedicate this work and the journey it represents to Jesus Christ my Savior, my Love, and my Lord. For He is my strength, my healing, my reason, and my hope.

To my late Father - James Olayide Adigun who as a lawyer and professor fought the good fight of serving and liberating the oppressed with the power of knowledge. You ran well father and I am honored to have received this baton of legacy from you.

To my mother - Grace Oluwayemisi Adigun. You, amongst all women, are the most resilient and faithful! It is because of your presence, strength, and support that I have made it this far. You are the real deal Mother!

Thank you!

Acknowledgements

First, I would like to express my deep gratitude to all my committee members: Dr. Curt Adams, Dr. Ken Randall, Dr. Patrick Forsyth, Dr. Beverly Edwards, and Dr. Daniel Hamlin. Thank you for your direction, constructive feedback, and mentorship. It is because of your unreserved support and availability that I was able to realize this dream especially in the face of much struggle, which characterized this season of my life. Further, I want to especially acknowledge Dr. Curt Adams who served as both committee chair and advisor. Thank you for believing in me and helping me find my unique voice as a scholar in this field. Thank you for the countless hours of instruction and thorough editing.

It is said that learning is what you do after you leave the classroom. As a scholar and researcher, this is especially true because most of the learning comes from a keen examination of the world beyond the classroom. As a result, I would be remiss not to acknowledge my mentors and colleagues at the Oklahoma Center for Education Policy (OCEP) who have taught me how to be a learner and a diligent steward of knowledge. Dr. Curt Adams, Dr. Patrick Forsyth, Dr. Timothy Ford, Dr. Jordan Ware, Dr. Jentre Olsen, Dr. Ashlyn Fiegner, and Dr. Daniel Hamlin – Thank you all for teaching and showing me that our work is made complete not by papers and verbose expressions, but by changing lives and formatively affecting our communities.

Dr. Ashlyn Fiegner, I'm grateful that it was you and not any other that I got to do this journey with as a colleague and friend. You my dear friend, do not leave one behind and it is hearts like yours that make it easy for others to joyfully embrace the unique pace of their individual journeys. Thank you for teaching me so much, for faithfully checking on me, sending me notes of encouragement, brining me food, coffee, cards, and so much more. Thank you for

taking the time to review my work so I did not have to feel alone in this journey and thank you for sharing the Gilbert and Fiegner family love.

Anna Catherine Lukes, you lead with a deep sweetness of heart, wisdom, and grace! I could not have asked for a better community than the one the Lord has made possible through you. Thank you for showing up, above and beyond! At the ER, at my surgeries, at the hospital, at the office with food and love while I was writing this dissertation, and at my defense! Thank you for sharing your family with me to love and pray me through this very trying page of life.

Crystal Dubose, thank you for being there this past year and for giving me a safe place of respite through the quarantine period. It was at this place that I began to regain my strength and inspiration to return to writing after such a long but necessary break from the process.

Mama Corina, fondly known as my American Mom. Thank you for many years of sweet friendship and familyship. 8 birthdays, 3 graduations, 3 surgeries, 2 apartment moves, and so much more. You have never stopped showing up! I started my journey of schooling in the United States in your home and it was a beautiful coincidence that through providence, I got to defend my final degree from the same room where I studied for many years.

And now, to my everyday heroes who are hardly seen but ALWAYS present. My siblings – Olanrewaju Adigun, Olatoro Adigun, and Oluwasegun Adigun – Thank you! My ever-faithful, ever-loving, ever-steady mother – Grace Adigun – Thank you! My dear Aunty – Oluwafunmilayo Ore-Irawo – Thank you! My faithful friend and sister – Adaeze Emeurude – Thank you! You have all supported me from far and wide with your presence, gifts, encouragement, prayers, and in many more ways than I have room to recount. Thank you for over 3 decades of loving and supporting me through my crazy wild adventures.

Table of Contents

Acknowledgements iv

Table of Contents vi

List of Tables x

List of Figures xii

Abstract xiii

INTRODUCTION 1

Research Problem 3

Progression of Inquiry 4

MANUSCRIPT I 8

Student Psychological Need Frustration in School: 9

Basic Psychological Needs Theory: A Central Dimension of Self-Determination Theory 11

Connecting Psychological Need Frustration with the Social Environment 14

Present Study - Restatement of Purpose and Research Questions 16

Method 16

Study Context 16

Procedure 18

Measures 18

Analyses 19

Limitations 21

Results 22

RQ1: What percentage of students endorse experiencing psychological need-frustration? 22

RQ2: What school-related social conditions are associated with student need frustration? 24

RQ3: Is there any difference in student perception of the school relational environment based on the degree of need frustration at the school level? 26

Discussion 28

Descriptive evidence around Student Psychological Need Frustration 29

Faculty Relational Conditions 31

Peer Relational Conditions 31

Policy Implications of the Exploration of Psychological Need Frustration 32

MANUSCRIPT II 35

Conceptualization and Measurement of a Need-Thwarting School Environment 36

Basic Psychological Needs Theory and a Need Thwarting Environment 38

Conceptualization and Operationalization of Psychological Need Thwarting in the General School Context 40

Method 44

Participants and Data Collection 44

Content Validity 45

Structural Validity 45

Convergent Validity 48

Divergent Validity 50
Reliability 53
Analysis of Variance Components 53
Limitation 54
Results 55
Structural Validity 55
Convergent Validity 58
Divergent Validity 59
Discussion 60
GC-PNTS: An Extension of Scholarship 60
GC-PNTS: Consequence for Practice 62
MANUSCRIPT III 64
Explaining Student Disengagement 65
Student Disengagement – More than the Opposite of Engagement 67
Student-Teacher Dialectical Framework of Self Determination Theory 69
Rationale and Hypotheses 71
Methods 74
Participants and Procedure 74
Measures 74
Data Analysis 76

Limitations 77

Results 77

Discussion 82

Conclusion 86

CONCLUDING REMARKS 88

References 92

Appendix A 107

Appendix B 108

Appendix C 111

List of Tables

Manuscript I

Table 1.1 Student Demographic Information 17

Table 1.2 Percentage of High NF based on Student Demographics 23

Table 1.3 Item Level Descriptives of High NF 24

Table 1.4 Bivariate Correlation between NF and School Relational Environment 25

Table 1.5 Student Perception of Relational Environment based on School-Level NF 27

Manuscript II

Table 2. 1 Autonomy Need Thwarting (5 Items) 42

Table 2. 2 Competence Need Thwarting (6 Items) 43

Table 2. 3 Relatedness Need Thwarting (5 Items) 44

Table 2. 4 Student Alienation Scale 50

Table 2. 5 Psychological Need Support Scale (PNSS) 52

Table 2. 6 Descriptive Statistics and Internal Reliability 53

Table 2. 7 Variance Components for GC-PNTS 54

Table 2. 8 Model Fit Indices for Initial GC-PNTS (16-items) with Second and First-Order Specifications. 55

Table 2. 9 Model Fit Indices of final GC-PNTS (9-items) with Second and First-Order Specifications. 56

Manuscript III

Table 3.1 Descriptive Statistics and Factor Correlations among Study Variables 78

Table 3.2 Student Disengagement Regressed on NS (Model 1) and NT (Model 2) 80

Table 3.3 Output for Mediation Analysis 82

Table 3.4 Completely Standardized Indirect Effects of X on Y 82

List of Figures

Manuscript I

Figure 1.1 Scatterplot for School-Level Need Frustration based on Standardized Scores (N=70) 20

Manuscript II

Figure 2. 1 Hypothesized Second-Order Factor Model Specification of GC-PNTS. 46

Figure 2. 2 Alternative First-Order Factor Model Specification of GC-PNTS. 47

Figure 2. 5 CFA Model Results for the Test of Convergent Validity..... 58

Figure 2. 6 CFA Model Results for the Test of Divergent Validity. 59

Manuscript III

Figure 3.1 Conceptual Model 70

Abstract

According to Gallup data, U.S. public school students increasingly endorse disengagement from school and hopelessness about the future. Over the years, research around student psychological ill-being has focused on it as a condition that students bring to school. Nevertheless, what is often omitted is the fact that the school environment also accounts for a significant amount of the frustration experienced by students in its environment. International research in sports and physical education has demonstrated that the proximal relational environment plays a pivotal role in determining outcomes of ill-being. However, there is currently no scholarship assessing the trajectory of influence of the general school environment on student ill-being in U.S. public schools. Therefore, as an extension of scholarship in such an understudied area of importance, this dissertation builds a line of inquiry around student psychological ill-being and related school social conditions.

Using the framework of self-determination theory, this study conceptualizes student psychological ill-being and organizes its investigation in three stages. First, a foundation for the larger inquiry is established through the exploration of psychological ill-being operationalized as psychological need frustration. Secondly, this study conceptualizes a general school need thwarting environment by advancing a new measure and conducting a series of validation tests. Lastly, the study establishes need thwarting as a substantive predictor of student disengagement through the mediating role of need frustration.

INTRODUCTION

"I started realizing it just wasn't working. I can't send my child somewhere every day and ignore the fact that it's having a negative impact on her mental health"

(Gold, 2016, para. 28).

The above quote comes from a News Hour documentary by Jenny Gold (2016) on student mental health. The quote is a remark from a concerned parent, Selena, who after trying her best to help her 7-year-old daughter Sydney fit into school, gave up and eventually pulled her from school to reduce the mental and emotional frustration Sydney experienced. However, according to this report, giving up was not Selena's first choice. Selena is a school counselor who knew that it was necessary to advocate for her daughter at every possible juncture. Before pulling Sydney out of school, Selena sought medical help for Sydney's mental health diagnosis, joined a support group for parents with children experiencing mental health challenges, and advocated with the school to have an individualized education plan for Sydney. Unfortunately, all was to no avail. Sydney shut down in class, was unable to make friends, mostly only made it through half of the school day, and continued to fall behind – all of which warranted the need for Selena to act by withdrawing Sydney from school before things got worse (Gold, 2016). Sydney's account is only one story of many other untold accounts of children struggling in the school environment due to psychological adversity. According to the National Center for Children in Poverty (NCCP, 2010), children and youth with mental health problems struggle to succeed in school and fail or drop out by the time they get to high school.

Further, in a more recent and more heartbreaking account by Billy Kobin for the Louisville Courier Journal (2019), a 10-year-old boy, Seven Charles-Thomas Bridges, took his own life after being constantly bullied in school. In the news account about his struggle, Seven's

experience with bullying lasted for several months and though his parents advocated for him at the school and in the community, it was reported that this only made the staff treat him differently. After several attempts for advocacy and several nights of tears, Seven decided to relieve himself of his earthly torture. He took his own life at age 10 by hanging himself in his closet on the 19th of January 2019 (Kobin, 2019). Unbelievable as it sounds, emotional and behavioral problems can make school-aged children feel overwhelmed and resort to measures such as the one described in Seven's story. Evidenced by the suicide risk data from the Center for Disease Control and Prevention (CDC, 2018), 1 out of 6 youths reported seriously considering suicide.

Suicide, school dropout, absenteeism, emotional dysregulation, behavioral disturbances, and student disengagement – these are only a few of many outcomes of unaddressed psychological adversities in school-age children that affect their education (Hein et al., 2015; Pellerin, 2000; Wolke & Lereya, 2015). Each social unit in communities has a part to play in addressing student mental health and positive adaptive functioning. In thinking of how the school can respond to this reality, a few important questions emerge: To what extent is student psychological ill-being associated with school contextual influences? What are some of the school-related social conditions associated with this psychological state? What specific inhibitory social conditions characterize a relational environment that generates the psychological state of ill-being in students? And, how does student psychological ill-being affect student disengagement? The issues raised by these questions set both the direction and parameters for this dissertation.

Research Problem

Research shows that mental health plays a significant role in regulating the growth and decline of the overall development and learning potential of students (Washor & Mojkowski, 2014; NCCP, 2010). According to Schulte-Körne (2016), psychological ill-being in students increases student risk for truancy, falling behind in grade level, and eventually dropping out of school. Invariably, due to the high cost of student psychological ill-being on the overall learning experience, the need to pay attention to this phenomenon cannot be overemphasized.

That said, it appears that the school response to this phenomenon is often limited owing partly to the fact that schools are usually seen as being on the receiving end of the adversities children bring *into* the learning environment (Murphey et al., 2014). The problem with this one-sided view is that the contribution of schools to student ill-being is not accounted for and without proper acknowledgment and exploration of this contribution, efforts and reform towards improving learning conditions for students will remain constrained. Extant research in self-determination theory (Deci & Ryan, 2008a, 2008b; Reeve, 2002, 2012) provides robust evidence for the direct role of proximal school-related conditions in influencing student motivations and psychological states. This line of reasoning has been well investigated and used to explain the brighter side generative aspects of how schools support and facilitate the well-being of students (Adams & Khojasteh, 2018; Cheon et al., 2018; Reeve et al., 2004). However, very little is known about how school relational conditions contribute to the darker side experiences of ill-being in students, especially in the United States (U.S.) K-12 school context.

As a result, the primary goal of this dissertation is to engage a line of inquiry that examines how schools contribute to student psychological ill-being. Broadly speaking, this will be achieved in three distinct but related papers that 1) Explore the prevalence and school-related

influences around student psychological ill-being, conceptualized as need frustration, 2) Conceptualize and measure a psychologically undermining school environment as a psychological need thwarting environment, and 3) Test the fundamental role of need thwarting and need frustrating on student disengagement.

Progression of Inquiry

In all three papers, this study maintains a unified approach by using the framework of self-determination theory (SDT) to conceptualize student psychological ill-being and to answer study questions. In the first paper, this study uses the framework of SDT to conceptualize student psychological ill-being within the U.S. K-12 school context using the SDT phenomenon of psychological need frustration as a marker. Thereafter, an exploratory method of analysis was used to examine the following research questions:

1. What percentage of students endorse experiencing psychological need-frustration?
2. What school-related social conditions are associated with student psychological need frustration?
3. Are there any differences in student perception of the school relational environment based on the degree of need frustration at the school level?

With data collected from a large urban school district in the U.S., study results showed that need frustration – used as a marker for school-related student psychological ill-being – is a significant occurrence in U.S. schools with an incident rate of 21 percent. Further, consistent with extant research on psychological needs (Bartholomew et al., 2011a; Bartholomew et al., 2011b; Chen et al., 2015), study results showed that while need frustration was related to several faculty and peer relational conditions, need frustration had no significant relationship with autonomy and competence support. This finding strengthens the argument that because need

frustration is a different phenomenon from need satisfaction, it should be examined through a dedicated exploration process. Finally, study outcomes revealed that students in high need frustration schools perceived their school relational environment more negatively than their counterparts in low need frustration schools. This suggests that need frustration is a phenomenon that not only affects individual students but when experienced as a school-level phenomenon, it is one that can potentially define the general relational experiences of students.

Building on the outcome of paper one, paper two extended the inquiry by conceptualizing and measuring a psychologically undermining school environment with a newly developed general classroom psychological need thwarting scale. Psychological need thwarting was defined as a set of general student-teacher relational conditions that directly and actively suppress the inherent motivation of students for curiosity, learning, and growth in the classroom. Thereafter, the proposed scale items were empirically tested for content validity, structural validity, divergent validity, convergent validity, and reliability. For content validity, the theoretical foundation upon which items were derived and developed is discussed. Additionally, expert researchers who served as reviewers for the scale development process, provided feedback that helped make the scale items well suited for the general U.S. public school environment. Subsequently, a series of confirmatory factor analyses showed that the theoretically proposed three-dimensional structure for need thwarting is a superior fit to a tested alternative model of a single dimension. Finally, correlational evidence and model fit indices were used to establish divergent and convergent validity for the developed scale. Together, findings from this second study met the standards for evaluating the validity of a construct (Messick, 1989, 1995), thereby confirming the newly developed measure of psychological need thwarting in the school environment as a valid scale.

The third and final paper of this dissertation combined the findings from the first two by using the examined phenomena of need frustration and need thwarting to test a model of the influence of psychological needs on the maladaptive outcome of student disengagement. Student disengagement according to this study is defined as an independent and multidimensional negative affective state that emerges when students perceive the learning environment as need neglecting and as a result, students become disconnected from the learning process and more vulnerable to disruptive behavior. Further, the newly developed scale of need thwarting from paper 2 was used as a substantive predictor of student ill-being while examining the mediating effect of student psychological need frustration. The study tested two hypotheses as follows:

H1: Student perception of psychological need thwarting will be a stronger predictor of student disengagement than student perception of the lack of psychological need support.

H2: The predictive effect of student perceived psychological need thwarting on student disengagement is mediated by student psychological need frustration.

Using data collected from a large urban school district in the U.S., mediation analysis results showed that after controlling for student grade level, psychological need thwarting was found to be a stronger predictor of student disengagement than student perception of psychological need support. This finding is in line with scholarship investigating the darker side experiences of athletes in the sports context (Bartholomew et al., 2011; Gunnell et al., 2013; Quested & Duda, 2010). According to these studies need thwarting predicted maladaptive outcomes of ill-being, over and above need support and satisfaction. Further, consistent with the proposition of this study, the psychological state of need frustration did absorb a good amount of variance from psychological need thwarting and therefore supported the hypothesized mediation. Together, results from this third study showed that psychological need thwarting substantively

predicts disengagement for multi-grade level public school students through the mediating role of need frustration.

MANUSCRIPT I

Student Psychological Need Frustration in School: Exploring its Characteristic Occurrence and Association with School-Related Social Conditions.

Student Psychological Need Frustration in School: Exploring its characteristic occurrence and association with school-related social conditions

Historically, education has been considered a positive and necessary part of proper and healthy child development. However, recent data trends show that United States (US) public school students are increasingly endorsing experiences of psychological adversity in school (Gallup, 2015, 2018). Psychological adversity affects the mental health of students and based on the National Center for Children in Poverty report (2010), mental health is an essential component of child development and learning. According to this report, mental health does not only affect educational outcomes but also appears to have implications for student behavior and involvement with the justice system (NCCP, 2010). This is also supported by the finding of Schulte-Körne (2016) who reported that psychological adversity increased student risk for truancy, falling behind in grade level, and eventually dropping out of school. Therefore, based on the potentially far-reaching consequences of student psychological adversity, a proper exploration and understanding of the phenomenon cannot be overemphasized.

Of the studies that have examined components of psychological adversity- in US students, most have focused on aspects of ill-being that are beyond the direct influence and control of the school environment, such as poverty, adverse childhood experiences, and trauma (Cortina et al., 2013; Hirst, 2019; Martineli et al., 2018; Murphey & Sacks, 2019). In these cases, schools are assumed to victims of external social factors, not institutions that may in reality be contributing to psychological adversity. Nevertheless, a response that mainly glorifies schools as ameliorating student distress, without examining the unique contribution of schools to student ill-being, has significant leadership and policy implications. This is because a positive, treatment framing of school role in student mental health represents an incomplete picture as it associates

manifestations of student psychological ill-being to distal influences, which in turn limits the extent to which the school can manage these conditions to reactive, rather than proactive stance. Such a posture will not only continue to rub schools of seeing the generative outcomes of their efforts but, will also invariably undermine school effectiveness in helping students develop as holistic people.

Self Determination Theory (SDT), while largely used to explore social determinants of student well-being, affords a unique look into student ill-being. Specifically, Basic Psychological Needs Theory (BPNT), which is a mini theory of SDT has become popular among social scientists because of its applicability for conceptualizing and understanding how proximal social contextual factors are directly associated with brighter side human experiences of well-being and darker side human experiences of ill-being. Based on this theory, research shows that while the BPNT phenomenon of psychological need satisfaction is uniquely associated with the brighter side human experience of well-being, a separate and distinct BPNT phenomenon of psychological need frustration is uniquely associated with darker side human experiences of ill-being (Chen et al., 2015; Cheon et al., 2016; Vansteenkiste et al., 2020).

This theory has been successfully applied and used to understand ill-being across domains such as the parenting (Costa et al., 2016; Mabbe et al., 2018), workplace (Bartholomew et al., 2014b; Vander Elst et al., 2012), couple relationships (Vanhee et al., 2016a, 2016b), and sports (Balaguer et al., 2012; Felton & Jowett, 2015). However, in educational research, virtually all of the studies that have explored the social determinants of student demotivation and ill-being, have done so focusing primarily on the sub-context of physical education and sports (Cheon et al., 2016; De Meyer et al., 2016; Haerens et al., 2015; Liu & Chung, 2015). The limitation of using a sub-domain such as sports or physical education is that it does not include

other forms of student social interactions beyond the athletic experience thereby limiting the applied significance of findings to the general student experience.

According to the renowned proponent of self-determination theory (Ryan, 1995), a domain is not solely defined by setting, but it is also defined in terms of activity and process. He argued that specifying domain is important because such an approach helps generate insight on how psychological needs uniquely apply and function, which in turn helps reduces error variance, maximize reliability, and increases the practical significance of findings. Therefore, as an extension of scholarship, this study uses basic psychological needs theory to establish a foundation for a line of inquiry into student psychological ill-being by examining school relational conditions related to psychological need frustration in U.S. public school students.

To achieve this, the study discusses basic psychological needs theory as a central dimension of SDT with emphasis on the significance of distinguishing between need satisfaction and need frustration. Secondly, the study examines psychological needs frustration and its relatedness to the social-relational environment. And finally, the study presents a foundation for the inquiry into student need frustration in three steps of 1) describing the percentage of students reporting need-frustration together with a description of differences in reported need-frustration by student characteristics, 2) testing the correlation between need-frustration and school relational conditions, and 3) exploring how student experiences of the school relational environment vary based on school-level psychological need frustration.

Basic Psychological Needs Theory: A Central Dimension of Self-Determination Theory

Ryan and Deci (2000) proposed an empirically based approach to understanding human behavior and motivation called Self-Determination Theory (SDT). At its core, SDT is a meta-theory of human motivation that explains the inherent human predisposition to engage ones

physical and social context in a way that facilitates learning and growth (Bartholomew et al., 2011; Ryan & Deci, 2000a). This process requires ongoing social support which when absent produces a different outcome of ill-being (Bartholomew et al., 2011; Teixeira et al., 2018). In this regard, a particularly relevant framework within the meta-theory of SDT is the Basic Psychological Needs Theory (BPNT). BPNT posits that humans tend towards well-being or ill-being depending on the experiences of satisfaction or frustration of their basic psychological needs (Niemiec & Ryan, 2009).

According to BPNT, there are three basic human psychological needs. These include the need for autonomy, competence, and relatedness (Deci & Ryan, 2002, 2016). This theory proposes that when humans are situated in a social context that supports these basic needs, there is a resultant motivational effect that facilitates human creativity and well-being (Ryan & Deci, 2000c). In other words, when people perceive that their actions are self-endorsed and volitional (autonomy), feel sufficient in their capacity to accomplish a set task (competence), and have a sense of safe belonging (relatedness), they enjoy a state of flourishing which is otherwise referred to as - psychological need satisfaction (Niemiec & Ryan, 2009). This will be referred to as need satisfaction in the rest of the paper.

The antithesis to this position argues that humans tend toward ill-being and psychopathology when they experience the inhibition or thwarting of their basic need for autonomy, competence, and relatedness (Bartholomew et al., 2011; Vansteenkiste et al., 2020). In essence, when people feel coerced towards action (thwarted autonomy), feel stifled in their capacity to accomplish a set task (thwarted competence), and feel rejected (thwarted relatedness), they suffer a languishing psychological state, which is otherwise known as psychological need frustration (Niemiec & Ryan, 2009). This will also be referred to as need frustration in the rest of

the paper. Given the consequentiality of basic psychological needs in contributing to flourishing or floundering outcomes, proponents of BPNT consider it to be as important as the basic physiological needs for air, water, food, and shelter (Deci & Ryan, 2008a).

Having established the importance of psychological needs, researchers began to explore how the satisfaction or frustration of basic psychological needs affects human motivation (Amoura et al., 2015; Deci & Ryan, 2008a; Ryan & Deci, 2020). Specifically, research in the sports-related setting of the educational domain report that while need satisfaction is directly associated with vitality and well-being, the entirely different negative experience of need frustration is a more substantive predictor of maladjustment and ill-being (Adie et al., 2012; Cheon et al., 2018; Haerens et al., 2015). According to Adie and colleagues (2012), even though need support positively predicted need satisfaction in elite soccer players, the lack of need satisfaction did not predict ill-being. Similarly, Cheon et al. (2018) in their study of amotivation in PE students reported that a decrease in need frustration substantively decreased student amotivation, over and above the effect of increased need satisfaction. Finally, Haerens and colleagues (2015) in their study aimed at distinguishing the bright and dark side of motivation with physical education students reported that the bright path of teacher autonomy support and thus, need satisfaction related distinctively to the generative outcome of autonomous motivation. Whereas the dark path of controlling teaching and thus, need frustration related distinctively the outcome of oppositional defiance. They concluded that the dark path of need frustration along with controlling teaching must be studied in their own right to accurately capture their negative effect on students.

Collectively, these findings foreground this study by establishing the justification for its unique contribution in presenting a dedicated exploration of student psychological need frustration in the U.S. public school general classroom context.

Connecting Psychological Need Frustration with the Social Environment

Psychological Need Frustration can be defined as a psychologically degenerative state in which the satisfaction of basic human psychological needs for autonomy, competence, and relatedness are "actively blocked or thwarted," thereby inducing ill-being and maladjustment (Chen et al., 2014, p. 217). In existing literature about the phenomenon, some of the terms associated with the phenomenon of need frustration include punishment, failure, doubt, exclusion, alienation, and coercion, just to mention a few (Bartholomew et al., 2011; Bartholomew et al., 2014; Chen et al., 2015; Jang, Kim, & Reeve, 2016; Vansteenkiste & Ryan, 2013). Additionally, research shows that where low levels or absence of need satisfaction did not provide sufficient explanation for outcomes of ill-being, psychological need frustration was found to be a main underlying factor as determined by the undermining effect of a need thwarting environment (Bartholomew et al., 2011a, 2011b; Cheon et al., 2016).

Though there is no current research on the association of need frustration with the social contextual conditions in U.S. public schools, international studies show that student experiences of psychological needs frustration are related to controlling teaching styles (Cheon et al., 2016; De Meyer et al., 2016; Haerens et al., 2015; Jang et al., 2016). When studying amotivation in physical education (PE) students in Korea, Cheon and colleagues (2016) found that implementing a teacher-focused intervention successfully moderated PE teacher motivating style which in turn regulated students need satisfaction and need frustration. This associative pattern is also consistent with the finding of the Belgian observational study with secondary school

students in a PE class (De Meyer et al., 2014), which found that controlled forms of motivation in students were prompted by controlling teacher behaviors which were positively associated with student's perception of need thwarting. Finally, in a study with Korean high school students, Jang and colleagues (2016) found that while student perception of teacher need support was related to student engagement, student disengagement was related to student perception of their teachers to be controlling and need frustrating.

Together, these studies suggest that like need satisfaction, need frustration does not occur in isolation. Instead, it is a contextually determined occurrence, which means that any thorough investigation of this phenomenon in the general educational context cannot be done without accounting for school-related social conditions. Among several factors that can affect student motivation and demotivation, the student-teacher relational dynamic has been singled out as one of the most important factors (Forsyth et al., 2011; Gunnell et al., 2013; Hein et al., 2015; Reeve, 2012). Secondly, peer interaction has also been shown to be associated with outcomes of psychological ill-being in students (Abry et al., 2017; Bond, Butler, et al., 2007; Bond, Wolfe, et al., 2007). Therefore, based on the outcome of these studies, school-related social conditions are accounted for in this study based on two categories:

i. Faculty Relational Conditions: defined as conditions that can affect the sense of closeness, safety, and trust within the student-faculty relational context.

ii. Peer Relational Conditions: defined as conditions that can affect the sense of closeness, safety, and trust within the student-peer relational context.

Additionally, this study also examines how students need frustration varies based on student demographic variables of gender, grade, ethnicity, and student free-reduced lunch status.

According to the National Center for Education Statistics (2019), free-reduced lunch status is a proxy measure for the concentration of low-income students within a school.

Present Study - Restatement of Purpose and Research Questions

The purpose of this study is to extend scholarship in understanding the school-related social determinants of student psychological ill-being in U.S. public schools by building a foundation for the line of inquiry into ill-being, conceptualized as psychological need frustration. According to Yin (2017), an exploratory research design is used to identify research questions that will aid further investigation of an identified phenomenon. Therefore, since this study is the first to investigate student need frustration outside the sports context in U.S. public schools, the study advances three research questions to frame its investigation:

1. What percentage of students endorse experiencing high psychological need-frustration?
2. What school-related social conditions are associated with student psychological need frustration?
3. Are there any differences in student perception of the school relational environment based on the degree of need frustration at the school level?

Method

Study Context

As part of a larger non-experimental research project that studies school climate, data were collected from a sample of elementary, middle, and high school students within a single urban school district serving over 40,000 students in a Southwestern city of the United States. Like many other school districts in the nation, this district is a majority-minority school district with 84 percent economically disadvantaged students. Student demographics are as follows: 35 percent Hispanic, 24 percent African American, 24 percent Caucasian, 3 percent Asian, 5 percent

Native American, and 0 percent Multi-racial/Other. For the purpose of this study, data from a random sample of 895 teachers and 2,522 students from 70 schools within the district was used. A summary of the sample demographic information is presented below (Table 1.1).

Table 1. 1

Student Demographic Information

	Number	**% of Sample**
Gender		
Female	1282	50.4
Male	1264	49.6
Grade		
Elementary School (5th Grade)	1185	46.5
Middle School (8th Grade)	815	32.0
High School (11th Grade)	546	21.4
Ethnicity		
African American	668	26.2
Hispanic	864	34.0
White	621	24.4
Native American	136	5.3
Multi-Racial	206	8.1
Asian	42	1.6
Pacific Islander	8	0.3
FRL Status		
Non-FRL	1040	40.8
FRL	1506	59.2

Procedure

Teacher and student surveys were administered in the spring semester of 2017. This gave teachers and their students a significant amount of the school year experience (over 6 months) to reflect upon as they responded to survey items. Of the teacher and student participants that received the survey, there was a 78 percent response rate that provided data for this study. Teachers received a unique survey link electronically and student participants received a paper and pencil survey. Participation was voluntary for all with the option of declining the surveys without suffering any consequence for that decision. Both teacher and student indicators were assessed using a 4-point Likert scale. Once collected, survey results were uploaded into SPSS where the data set underwent a five-step data cleaning process using factor analysis for missing data.

Measures

Below is an overview of the items used for this survey. Due to limited space, a more comprehensive description and an itemization of each measure can be found in the Appendix A.

The Psychological Need Frustration Scale

The Psychological Need Frustration Scale (Appendix B1) was adapted by the author from the Basic Psychological Need Satisfaction and Frustration Scale (Chen et al., 2015). This scale measures the extent to which students' feelings of autonomy, competence, and relatedness are repressed within the school environment. All need frustration items were rated on a Likert Scale of 1 to 4 as follows: 1 = Rarely, 2 = Sometimes, 3 = Often, 4 = Very Often. The scale has also been used in multiple studies and demonstrated good construct and predictive validity. A test of reliability produced a Cronbach Alpha value of .84, demonstrating strong internal consistency and reliability.

School-Related Social Conditions

Ten measures were grouped into two school-related social conditions as follows:

Faculty Relational Conditions (Appendix B2): 1) Faculty Trust in Students (FTS); 2) Faculty Trust in Parents (FTP); 3) Faculty Autonomy Support of Students (AS); 4) Faculty Competence Support of Students (CS); and 5) Faculty Perception of Student Readiness to Learn (SRTL).

Peer Relational Conditions (Appendix B3): 1) Student Engagement (ENG); 2) Peer Academic Emphasis (PAE); 3) Bullying (BUL); 4) Student Perception of Safety (SA); and 5) Student Trust in Students (STS) scales.

Analyses

To address the first research question, descriptive statistics were used to present the percentage of student endorsement of psychological need frustration. Due to the fact that the study was on a Likert scale range of 1 to 4 (Rarely to Very Often), the mid-point value of 2.5 was used as the cut-off point. For conservative purposes, students with need frustration aggregates of less than 2.5 (1 = Rarely and 2 = Sometimes) were reported as students with no need frustration. While students with need frustration aggregates above 2.5 (3 = Often and 4 = Very Often) were reported as students with need frustration. Additionally, descriptives for individual scale items (Table 1.3) were generated to identify specific items with a high percentage of student endorsement for need frustration. Finally, variation in psychological need frustration based on gender, grade, ethnicity, and free-reduced lunch status were also analyzed using Pearson's chi-square to determine the statistical significance of differences observed. Results are presented in Table 1.2.

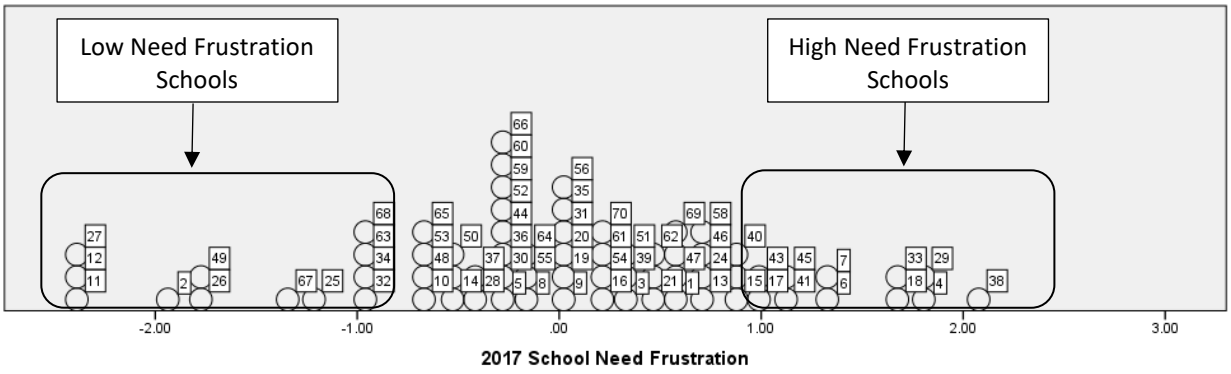
For the second research question exploring school-related social conditions associated with students need frustration, a bivariate correlation analysis was used. The analysis found in Table 1.4 shows the relationship between student need frustration and school relational environment. Ten different measures belonging to the earlier identified school-related social condition clusters are individually correlated with student psychological need frustration. Pearson's correlation coefficient is used as the test statistic to measure these associations.

Lastly, for the third research question investigating variability in student perception of relational environment based on school-level psychological need frustration, a scatterplot, and analysis of variance is used as follows:

1. The scatterplot is used to identify school level concentration of psychological need frustration. To achieve this, all student psychological need frustration scores were aggregated to the school level. Secondly, the aggregate scores were standardized into z-scores in order to allow for comparison. Finally, school-level psychological need frustration (high or low) was assigned based on the standard deviation of schools from the mean. Schools were defined as High Need Frustration Schools (HNFS) if they fell about one standard deviation above the mean, and schools were defined as Low Need Frustration Schools (LNFS) if they fell about one standard deviation below the mean.

Figure 1. 1

Scatterplot for School-Level Need Frustration based on Standardized Scores (N=70)



2. Following the differentiation in school-level need frustration, a bivariate correlation of faculty conditions, student conditions, and two additional variables of one home and one neighborhood condition was used to determine factors that are associated with need frustration in the identified schools. The addition of home and neighborhood characteristics was used to determine which significant covariates will be relevant for inclusion in the Multiple Analysis of Covariance (MANCOVA), which will be used to determine variability in student perception of their relational environment while controlling for significant covariates. The additional variables are home academic emphasis (HAE) and community relational support (CRS). Pearson's correlation coefficient is used as the test statistic to measure the degree and significance of association in the correlation analysis, and eta squared values are reported to account for effect size in the MANCOVA.

Limitations

Since data for this study was collected as part of a larger school climate study, the types of variables included are limited to those of interest to the stakeholders of the larger study. The constraint of this is that the family and neighborhood conditions accounted for in this study were limited and based on only the statistically significant correlates. Therefore, while this study was able to reduce error by controlling for this covariate, it is possible that the addition of more covariates could have yielded different results. Further, according to Basow & Martin (2012), student evaluations such as the ones used in this study could carry more meaning than just the focus of the instrument. This is attributed to the fact that biasing factors such as instructor gender, attractiveness, as well as the course difficulty level could all potentially confound student responses. Thus, the results reported below should be interpreted with these limitations in mind.

Results

RQ1: What percentage of students endorse experiencing psychological need-frustration?

The descriptive analysis results (Table 1.2) shows student need frustration based on a cut-off point of 2.5. Of the 2,522 usable students need frustration data, 545 had an aggregate mean score above 2.5. This shows that approximately one out of every five students reported experiencing psychological need frustration. Further, percent need frustration reported based on student demographics, are as follows: 28.1 percent of female participant, 25.7 percent of male participant, 28.8 percent of elementary school participants, 25.4 percent of middle school participants, 25.9 percent of high school participants, 31.3 percent of Asian participants, 27.2 percent of African American participants, 25.9 percent of Hispanic participants, 26.2 percent of Native American participants, 32.2 percent of Multiracial participants, 60 percent of Pacific Islander participants, 25.9 percent of White participants, 22.3 percent of non-free reduced lunch status participants, and 30.4 percent of free reduce lunch status participants.

Based on the chi-squared test for association, the p-values for gender, grade level, and ethnicity were all greater than .05, showing that there is no significant association between student endorsement of psychological need frustration and their gender, grade level, or ethnicity. However, this was not the case for FRL status. With a Pearson chi-square value of 9.31 and a $p < .001$, the result shows that there is a significant association between student endorsement of psychological need frustration and their FRL status. In other words, student endorsement of psychological need frustration for this sample was partially dependent on their FRL status.

Finally, need frustration items 1 and 3 (Table 1.3) which comprise of one autonomy frustration item and one competence frustration item respectively, showed high percentages of endorsement of need frustration. For item 1, 57.7 percent of participants reported experiencing it

often or very often. And, for item 2, 37 percent of participants reported experiencing it often or very often.

Table 1. 2

Percentage of High NF based on Student Demographics

Student Characteristics	Population (N)	Low (N)	High (N)	Percent High (%)	Chi-Square
All Students	2522	1986	536	21.3	
Gender					0.84
Female	1275	995	280	28.1	
Male	1246	991	255	25.7	
Grade					1.84
Elementary School	1175	912	263	28.8	
Middle School	806	645	164	25.4	
High School	540	429	111	25.9	
Ethnicity					2.99
Asian	42	32	10	31.3	
African American	660	519	141	27.2	
Hispanic	859	682	177	25.9	
Native American	135	107	28	26.2	
Multi-Racial	201	152	49	32.2	
Pacific Islander	8	5	3	60	
White	616	489	127	25.9	
FRL Status					9.31**
Non-FRL	1031	843	188	22.3	
FRL	1490	1143	347	30.4	

Note. **p<.01. *p<.05

Table 1. 3

Item Level Descriptives of High NF

	Need Frustration Items	Min	Max	M	SD	%
1	The things I do feel like "I have to"	1	4	2.7	0.9	57.7
2	I feel excluded from the group I want to belong to	1	4	1.9	1.0	26.1
3	I have serious doubts about whether I can do things well	1	4	2.2	1.1	37.0
4	I feel forced to do many things I wouldn't choose to do	1	4	1.9	1.0	25.4
5	People who are important to me are cold and distant toward me	1	4	1.7	0.9	19.8
6	I feel disappointed with many of my performances	1	4	1.9	0.9	23.7
7	I feel pressured to do too many things	1	4	1.9	1.0	28.8
8	I think that the people I spend time with dislike me	1	4	1.7	0.9	18.2
9	I feel insecure about my abilities	1	4	1.9	1.0	25.0

RQ2: What school-related social conditions are associated with student need frustration?

Bivariate correlations showed statistically significant relationships between student need frustration and variables across both clusters of school-related social conditions – Faculty Relational Conditions and Peer Relational Conditions (Table 1.4).

Table 1. 4

Bivariate Correlation between NF and School Relational Environment

Clusters	Measures	r	p
Faculty Relational Conditions	Faculty Trust in Students	-.35**	p < .001
	Faculty Trust in Parents	-.49**	p < .001
	Competence Support	-.00	ns
	Autonomy Support	-.05	ns
	Faculty Perception of Student Readiness to Learn	-.56**	p < .001
Peer Relational Conditions	Student Engagement	-.42**	p < .001
	Peer Academic Emphasis	-.31**	.01
	Bullying	.61**	p < .001
	Perception of Safety	-.45**	p < .001
	Student Trust in Students	-.38**	p < .001

Note. Full correlation table in Appendix C; **Correlation is significant at the 0.01 level (2-tailed);
* Correlation is significant at the 0.05 level (2-tailed)

For the faculty relational condition measures, three statistically significant variables had a negative relationship with student need frustration. Faculty perception of students' readiness to learn showed the strongest statistically significant relationship (r = -.56, p < .001). The other two statistically significant variables – faculty trust in students and faculty trust in parents – both showed moderate correlation with student need frustration (r = -.35 and r = -.49 respectively, p < .001).

For the peer relational condition measures, a strong and positive statistically significant relationship was found between student need frustration and bullying (r = .61, p < .001). Student engagement, peer academic emphasis, student perception of safety, and student trust in students all showed statistically significant relationships with need frustration with moderate effect sizes (r = - .42, r = -.31, r = -.45, and r = -.38 respectively, p < .001).

Altogether, the bivariate correlation result (Table 3) showed that at the school level, student psychological need frustration had a significant correlation with eight of the 10 identified measures: Faculty Trust in Students, Faculty Trust in Parents, Teacher Perception of Student Readiness to Learn, Student Engagement, Peer Academic Emphasis, Bullying, Safety, and Student Trust in Students.

The remaining two measures – Teacher Competence Support of students and Teacher Autonomy Support of students – had no significant correlation with student psychological need frustration.

RQ3: Is there any difference in student perception of the school relational environment based on the degree of need frustration at the school level?

This question was used to evaluate how school-level need frustration might be associated with student perception of their school relational environment. It was analyzed based on the earlier identified school relational factors of faculty relational conditions and peer relational conditions. A summary of the relational differences across schools and their corresponding effect sizes are presented in Table 1.4 which reports MANCOVAs testing the significance of differences between need frustration and school dichotomized means.

Table 1. 5

Student Perception of Relational Environment based on School-Level NF

Clusters	Variables	r	Low (M)	High (M)	F-ratio	Partial η^2
Faculty Conditions	Faculty Trust in Students	-.57*	4.6 [a]	4.0 [a]	5.49**	.27
	Faculty Trust in Parents	-.74**	4.4 [a]	3.4 [a]	11.17**	.43
	Competence Support	.01	--	--	--	--
	Autonomy Support	.03	--	--	--	--
	Faculty Perception of Student Readiness to Learn	-.84**	4.2 [a]	2.8 [a]	17.33**	.54
Peer Conditions	Student Engagement	-.64**	3.1 [a]	2.8 [a]	28.59**	.66
	Peer Academic Emphasis	-.46	--	--	--	--
	Bullying	.86**	1.7 [a]	2.3 [a]	28.88**	.66
	Perception of Safety	-.54*	3.4 [a]	3.2 [a]	1.32	.08
	Student Trust in Students	-.58*	2.9 [a]	2.6 [a]	4.40	.23
Family Condition	Home Academic Emphasis	.16	--	--	--	--
Neighborhood Condition	Community Relational Support	-.48*				

Note. a. Covariates appearing in the model are evaluated at the following values: CRS = 3.57; The F tests the effect of School Need Frustration Level. This test is based on the linearly independent pairwise comparisons among the estimated marginal means. **p<.01. *p<.05

There was a significant difference between low need frustration schools and high need frustration schools when considered jointly on the faculty condition variables and student condition variables while controlling for the neighborhood condition covariate: Wilks' Lambda = .16, F (7,9) = 6.96, p = .005, partial η^2 = .84 . The MANCOVA result (Table 1.4) for faculty relational conditions showed that there was a statistically significant difference between low need frustration schools and high need frustration schools on faculty trust in students F (1,15) =

5.49, $p < .05$, partial $\eta^2 = .27$, faculty trust in parents F (1,15) = 11.17, $p < .05$, partial $\eta^2 = .43$, and faculty perception of student readiness to learn F (1,15) = 17.33, $p < .05$, partial $\eta^2 = .54$. Further, in the student relational conditions cluster, results show that there was a statistically significant difference between low need frustration schools and high need frustration schools on student engagement F (1,15) = 28.59, $p < .05$, partial $\eta^2 = .66$ and bullying F (1,15) = 28.88, $p < .05$, partial $\eta^2 = .66$. There was no statistically significant difference between low need frustration schools and high need frustration schools on student competence support, student autonomy support, perception of safety, and student trust in students.

Collectively, of the eight significantly correlated measures, the largest amount of variance in the faculty condition cluster was found in faculty perception of student readiness to learn (F (1,15) = 17.33, $p < .05$, partial $\eta^2 = .54$). And, in the student condition cluster, the largest amount of variance was found in student bullying (F (1,15) = 28.88, $p < .05$, partial $\eta^2 = .66$).

Discussion

National research data show that over the past decade, there has been a steady rise in the negative outcomes of student psychological ill-being such as student disengagement and student feeling of hopelessness about the future (Gallup, 2011, 2015, 2018). This pattern makes it imperative to probe conditions that surround student ill-being in schools. Thus far, research has established that need frustration is a unique and important psychological state that has the potential to provide explanation outcomes of ill-being in individuals over and above need support (Adie, Duda, & Ntoumanis, 2012; Balaguer et al., 2012; Bartholomew et al., 2011). However, little is known about the social contextual conditions related to this phenomenon, particularly in US public schools. Therefore, as an extension of scholarship in the study of student psychological ill-being, the purpose of this study was to build a foundation for a line of

inquiry into student psychological need frustration as a marker for the psychological state of ill-being. The study achieved this firstly, by describing the percentage of students reporting need-frustration together with a description of differences in reported need-frustration by student characteristics. Secondly, the study tested for correlation between need-frustration and the school relational conditions. Finally, the study examined the degree to which student experiences of the school relational environment varies based on school-level psychological need frustration.

Descriptive evidence around Student Psychological Need Frustration

This research began with the question: What is the prevalence of student psychological need frustration? The purpose of this question was to ground the exploration by establishing that psychological need frustration is in fact a phenomenon experienced by students within the US public school context. To this end, the finding from this study showed that similar to nationwide estimates of children experiencing mental, behavioral, and developmental adversity (CDC, 2020; Rossen & Cowan, 2014), about 1 out of 5 students reported experiencing psychological need frustration in school. So, with an incident rate of 21 percent coupled with extant evidence on psychological need frustration (Bartholomew et al., 2011a; Chen et al., 2015; Ryan & Deci, 2000c; Vansteenkiste & Ryan, 2013), the results from the initial finding of this study strengthen the rationale for building a line of inquiry into student psychological ill-being in the U.S. K-12 context.

Further, based on the description of differences in reported need-frustration by student characteristics, though there were surprisingly no significant associations between student need frustration and student demographic characteristics of gender, grade, and ethnicity, this was not the case for free-reduced lunch status. The study sample showed that students with free-reduced lunch status reported experiencing need frustration more than their counterparts with non-free-

reduced lunch status. Consequently, even though there can be no conclusions drawn on the causal nature of this relationship due to the exploratory nature of this study, this finding features an important marker for consideration when trying to understand ill-being in students. This outcome also supports research (Varga et al., 2014) showing that students from low socioeconomic backgrounds are a higher risk group than their counterparts from more affluent backgrounds.

Additionally, the correlational evidence in this study strengthens the proposition for turning toward school-related social conditions for a more complete understanding of ill-being in students. As expected, all faculty and student relational conditions tested had moderate to strong correlation with student need frustration except student perception of faculty support of their competence and autonomy. Interestingly, the absence of a significant association between need frustration and competence or autonomy support suggests that psychological need support – a predictive correlate of well-being (Adams & Khojasteh, 2018) – does not provide any explanation for the mechanisms that drive need frustration and ill-being. This further supports the theoretical argument for the separation of the two experiences (Bartholomew et al., 2011a; Cordeiro et al., 2016; Cuevas et al., 2016).

Finally, two sub-domain items of autonomy frustration and competence frustration stood out as the most experienced subdomains. Item 1, an autonomy frustration item that reads "the things I that I do feel like 'I have to'" shows that teacher's controlling behavior of rigidity and restricting student choice may have consequences for their experiences of ill-being. Further, item 2, which is a competence frustration item reads "I have serious doubts about whether I can do things well" also shows that student feelings about their capacity to excel in the classroom also has a bearing on the experience of ill-being (Earl et al., 2017).

Faculty Relational Conditions

For the purpose of this study, faculty relational conditions were defined by conditions that can affect the sense of closeness, safety, and trust within the student-faculty relational context (Forsyth et al., 2011; Tschannen-Moran et al., 2014; Assor et al., 2002; OCEP, 2017). This cluster was made up of half of the measures used to examine the school relational conditions associated with student psychological need frustration. The moderate to strong negative correlations observed with the three statistically significant measures indicate that the relational environment of faculty perceptions and trust are substantially associated with student psychological need frustration. This outcome confirms the theoretical proposition of researchers (Beard et al., 2010; Deci & Ryan, 2002; Forsyth et al., 2011; Lee, 2007; Tschannen-Moran, 2014) who showed that student-teacher relational factors carry consequence for student psychological motivations and achievement. In Lee's research (2007), he found that the student-teacher trust relationship was the main predictor of student school adjustment and motivation. Similarly, teacher trust in parents was also shown to affect how likely teachers are to set high and realistic expectations for their students (Tschannen-Moran, 2014), a condition that is predicted to reduce the experience of frustration and enable student success. Collectively, the outcomes demonstrate that when considering the association between the school relational environment and student psychological ill-being, the student-teacher relationship is a significant area to direct reform.

Peer Relational Conditions

For the purpose of this study, peer relational conditions were defined by conditions that can affect the sense of closeness, safety, and trust within the student-peer relational context. This cluster was made up of the remaining half of the measures used to examine the school relational

conditions associated with student psychological need frustration. In this cluster, all measures had a statistically significant relationship with student need frustration indicating that the relational environment of peer interaction is associated with psychological need frustration in students. Additionally, an important feature of this portion of the analysis is seen in the association between bullying and need frustration. The findings showed that need frustration amongst all variables used in the study, the strongest correlation was seen with bullying, which is a theoretically established correlate of ill-being (Bond, Wolfe, et al., 2007a; Hein et al., 2015; Wolke & Lereya, 2015). According to Bond and colleagues (2007a), bullying is a significant source of physical and emotional disturbance that creates both immediate and lasting effects. Further, Hein and colleagues (2015) found that student perception of teacher's controlling behavior had an indirect effect on student feelings of anger and bullying, which suggests that even though the majority of scholarship ascribe the effect of bullying exclusively to peer-induced circumstances, this is not always the case. Indicating that there is a possibility that some directly observable peer influences could also be facilitated by the student-teacher relational environment.

Policy Implications of the Exploration of Psychological Need Frustration

Based on the book – The Moral Imperative of School Leadership (Fullan, 2003), one of the primary functions of school leadership is changing the context. In this book, Fullan argued that school reform is all about changing the context in a way that moves elements of the school environment to better influence behavior. The findings of this study support this claim with evidence showing that the school relational environment not only affects behavior by improving it but also affects behavior by frustrating it.

According to Murphey and colleagues (2014), the major failure of the current system to address student psychological ill-being is evident in the absence of proactive measures. However, this cannot be achieved without proper identification of the proximal conditions directly associated with ill-being in this context. At the moment, it appears that there is still much work to be done in identifying the role schools play in undermining student potential. Therefore, in this regard, the identification of school-related conditions as achieved by this study sets a good foundation for a proactive response by identifying important proximal conditions associated with student ill-being in schools.

Further, though free and reduced lunch (FRL) status is a contested measure of poverty, it is arguably one of the most viable proxies currently available for measuring relative poverty in schools (*Digest of Education Statistics, 2018*). Therefore, the significant difference in the experience of need frustration found between FRL students and their Non-FRL counterparts strengthens the argument for prioritizing action towards bridging the economic gap between U.S. families as poverty appears to not only affects the larger economic landscape of the nation but also directly affects student maladjustment in schools (Berliner, 2013; McGuire, 2014). In addition, findings comparing student perception of their relational environment based on need frustration at the school-level revealed that students in high need frustration schools perceived their school relational environment more negatively than their counterparts in low need frustration schools. This suggests that need frustration is a phenomenon that not only affects individual students but at the school level, it is one that can potentially define the general relational experience of students.

In conclusion, this study fulfills its aim to explore student psychological need frustration in the general U.S. public school context. The results show that the phenomenon affects a good

number of students and strengthens the argument for a more direct exploration of the darker side correlate of ill-being – need frustration. Further, this study shows that the school environment contributes to the experience of psychological ill-being in students based on the associations found. Together, with the outcomes of this study, school leadership researchers can observe specific areas within the school environment related to the experience of psychological ill-being and as a result, more nuanced assessments of the phenomenon can be developed.

MANUSCRIPT II

Conceptualization and Measurement of a Need-Thwarting School Environment

Conceptualization and Measurement of a Need-Thwarting School Environment

Self Determination Theory is a macro theory of human motivation and development that has been around for almost four decades (Deci & Ryan, 2008b). The six mini theories derived from this framework have been widely used by researchers to explain forces behind autonomous motivation, controlled motivation, and amotivation in humans across several domains and cultures (Costa et al., 2018; Cuevas et al., 2016; Deci & Ryan, 2008a; Joussemet et al., 2008; Kanat-Maymon et al., 2015; Niemiec & Ryan, 2009; Rocchi et al., 2017). The mini-theory of Basic Psychological Needs has been especially instrumental as it is considered a unifying principle that explains the mechanisms through which social forces affect human motivation (Costa et al., 2018; Deci & Ryan, 2008a; Felton & Jowett, 2015; Kanat-Maymon et al., 2015; Niemiec & Ryan, 2009).

In the educational context, basic needs theory has been used to explain motivation, well-being, and ill-being in students and teachers (Amoura et al., 2015; Balaguer et al., 2012; Cuevas et al., 2016; Hein et al., 2015; Kanat-Maymon et al., 2015; Rocchi et al., 2017). From this research, we learn that generative psychological states and pro-social behavior are evoked or constrained by relational conditions that would be experienced as need-supportive or need-thwarting. However, there is still much to uncover within this domain need-thwarting conditions, particularly with regards to the psychological correlates of ill-being. Psychological Need Thwarting has been empirically and theoretically established as a substantive predictor of ill-being (Bartholomew et al., 2014b; Liu & Chung, 2015; Vansteenkiste et al., 2020) but it has been explored in very limited educational settings. To date, there have been studies that have studied this phenomenon with student-athletes (Balaguer et al., 2012; Bartholomew et al., 2011a; Bartholomew et al., 2011b; Felton & Jowett, 2015; Martinent et al., 2015), physical education

students (Berghe et al., 2016; Hein et al., 2015; Liu & Chung, 2015; Van den Berghe et al., 2013), and college students (Amoura et al., 2015; Kanat-Maymon et al., 2015; Rocchi et al., 2017), yet there are currently no studies investigating need-thwarting conditions in the general non-sport, K – 12 school context.

One factor limiting the study of need-thwarting conditions in K – 12 school contexts is the lack of a validated measure for classroom contexts. Such an omission cannot be overlooked because the small number of existing studies in this area have shown that need-thwarting actions differ by context and circumstances. In other words, what a coach does to thwart the autonomy of an athlete (e.g. "I feel prevented from making choices with regard to the way I train") (Bartholomew et al., 2011b), is not identical to what a college psychology professor does to thwart the autonomy of college students (e.g. "In my studies at the university, I feel forced to be in agreement with the organization of the work which is proposed to me") (Amoura et al., 2015). Likewise, what a college psychology professor does to thwart the autonomy of her college students may not be identical to what an elementary school teacher does to thwart the autonomy of an elementary school student. For this reason, in order to account for the variation in age and context, measures need to be attuned appropriately in a way that will reduce variance error, establish the validity of findings, and enhance their practical significance (Ryan, 1995).

According to Ryan (1995), domain specificity in social research is important because of its applied significance in differentiating how general principles work in a specific sphere. He particularly underscored that psychological needs are "differentially facilitated or undermined within different contexts" therefore, warranting the need for context-specific examination (p. 412). Consequently, in response to the practical and empirical importance of context-specific assessment of psychological needs, the purpose of this study was to extend scholarship in

psychological need thwarting by 1) conceptualizing psychological need thwarting in a general school context; 2) advancing a set of items that measure general school psychological need thwarting; and 3) empirically testing the validity and reliability of the new scale.

Basic Psychological Needs Theory and a Need Thwarting Environment

Over the past two decades, Basic Psychological Needs Theory (BPNT) has held significant appeal for investigating the effects of the social contextual environment on well-being and ill-being (Cuevas et al., 2016; Gunnell et al., 2013; Kanat-Maymon et al., 2015; Ryan & Deci, 2000c; Ryan & La Guardia, 2000; Sheldon & Gunz, 2009; Vansteenkiste et al., 2020). As a mini theory derived from the macro framework of Self-Determination Theory (SDT), it is considered a unifying principle particularly because of its explanatory power for understanding people's healthy tendencies towards growth and their vulnerabilities to ill-being (Vansteenkiste & Ryan, 2013). According to the BPNT, there are three essential psychological needs instrumental for regulating a person's proclivity towards well-being or ill-being (Chen et al., 2015; Deci & Ryan, 2008a, 2008b), this variable tendency towards well-being or ill-being is made possible because the human "self is fluid and emergent" (p. 79). In other words, the self is not always in a steady objective state, rather the self is a vulnerable process comprised of action regulation and adaptation to circumstances. Based on this premise of the responsive self, BPNT posits that when the psychological needs of autonomy, competence, and relatedness are supported and satisfied, a person's innate capacity for well-being is sustained and nourished for growth. On the flip side, BPNT also puts forward that when these psychological needs of autonomy, competence, and relatedness are thwarted and frustrated, the human innate tendency for growth and well-being is inhibited and a resultant inclination towards ill-being and psychopathology emerges (Ryan & Deci, 2000b).

The need for autonomy as a psychological nutrient describes the human desire for ownership of action and self-regulation. It explains the aspect of being that promotes psychological health through the maintenance of volition and self-governance (Niemiec & Ryan, 2009). According to research, when the need for autonomy is supported and satisfied, it facilitates the thriving potential of an individual and allows for authenticity and active engagement in social processes. On the other hand, when this need for autonomy is thwarted and frustrated, it inhibits growth and predisposes individuals to maladaptive behaviors like defiance and opposition (Vansteenkiste et al., 2020; Vansteenkiste & Ryan, 2013). Like autonomy, the need for competence is also considered a psychological nutrient that points to the longing for self-efficacy. It describes the need for mastery and skill to manage one's environment (Niemiec & Ryan, 2009). Evidence around the investigation of this psychological need shows that when it is supported and satisfied, humans tend to engage their context with confidence and creativity (Felton & Jowett, 2015; Niemiec & Ryan, 2009). On the other hand, when this need for competence is thwarted and frustrated, humans have the psychological experience of anxiety and tend towards compensatory behaviors such as disengagement (Bartholomew et al., 2011b). Finally, the need for relatedness describes the innate human desire to feel valued and to have a sense of belonging within one's social context (Vansteenkiste & Ryan, 2013). Together, these three needs are considered essential dimensions of human psychological nutriments that draw diverse phenomena together in a parsimonious way (Ryan & Deci, 2000b).

According to Ryan and Deci (2000a), the three psychological needs as specified above do not necessarily represent a rigid exhaustive list of essential human psychological nutriments. However, they argue that the currently identified needs have emerged from exhaustive research and serve in 3 major ways. 1) Optimized Utility: they argue that the number of dimensions of a

phenomenon is critical to determining its practical significance. According to them, “as the number of needs grows, the utility of the approach diminishes” (p. 324); 2) Generalizability: they suggest that though the three needs as identified in the BPNT are broad and general, they serve an important purpose of integrating important common conditions in a way that makes them generalizable across several domains and human experiences; 3) Parsimony: they argue that because the BPNT needs as currently specified as growth needs, they capture derivative motives and need substitutes thereby, increasing parsimony without sacrificing coverage.

Together, based on these arguments and the lack of any substantive objection to the theoretically posited dimensionality of basic psychological needs, this study will maintain the use of the three dimensions of autonomy, competence, and relatedness in its conceptualization of the General Classroom Psychological Need Thwarting Scale (GC-PNTS).

Conceptualization and Operationalization of Psychological Need Thwarting in the General School Context

According to Ryan (1995), “domain-specific research is a method of focusing one’s measurements (constraining generalizability) in accord with a priori categorizations in order to cut down on error variance” (p. 412). In other words, when assessment is narrowed to account specifically for the unique characteristics that define a domain, general formulations are better differentiated in a way that increases the reliability of the measurement and invariably, the practical utility of its associated findings. To this end, this study specifically uses the general school classroom environment to operationalize autonomy, competence, and relatedness thwarting. To do this, the study adapts the language, activity context, and referent of the scale items specifically for utility in the general classroom context.

Consequently, for the context-specific purpose of this study, psychological need thwarting is defined as a set of general student-teacher relational conditions that directly and actively undermine the inherent motivation of students for curiosity, learning, and growth in the classroom. This definition is grounded in BPNT research, which argues that need thwarting is uniquely differentiated from need support because it involves more than just the low level of support, or the lack thereof (Vansteenkiste et al., 2020; Vansteenkiste & Ryan, 2013). In this regard, the conceptualization of need thwarting acknowledges how hierarchy and power impose unconscious ways of thinking and being that create pressure, undermines individuality, and neglects others' need for belonging (Bartholomew et al., 2011a). Therefore, to fully capture this distinction in a measure, we advance that a general school need thwarting scale should have four basic characteristics. First, items should capture an active and direct student-teacher relational process (Vansteenkiste et al., 2020; Vansteenkiste & Ryan, 2013). Secondly, items should capture teacher action or attitude of indifference or antagonism that directly undermines inner student motivation (Rocchi et al., 2017; Van den Berghe et al., 2013; Vansteenkiste et al., 2020; Vansteenkiste & Ryan, 2013). Thirdly, items should be worded to directly capture negative interactional processes rather than just variation in positive experiences (Vansteenkiste et al., 2020). Finally, items should be positively associated with the psychological state of need frustration.

To develop the initial pool of items for the general school psychological need thwarting scale, the first psychological need thwarting measure developed for youth in the sports context (PNTS: Bartholomew et al., 2011bs) was used as a guide. Further, the nomological network was established using self-determination theory (SDT) and scholarship on controlling teacher styles and psychological need frustration (Cheon et al., 2016, 2016; Reeve, 2002). Moreover, the SDT

theoretically determined dimensions of autonomy need thwarting, competence need thwarting, and relatedness need thwarting were also carefully represented to produce an initial set of 16 original items for empirical testing. Finally, for general school applicability, the common referent for all items was teachers in the school. To reflect this, each statement started with "In this school, my teachers…".

Autonomy need thwarting: Items in this subdomain measure specific teacher actions/attitudes that actively suppress student agency and sense of volition. Items in this category capture teacher use of punishment, coercion, threats, and shaming as a means of regulating how students work or behave in the classroom. A total of five items were used to capture this subdomain (Table 2.1).

Table 2. 1

Autonomy Need Thwarting (5 Items)

In this school my teachers:
1. Punish me if I do not behave how they want me to behave.
2. Ignore my ideas about how I want to do my work.
3. Insist on only one way to do my work.
4. Use threats to make me do work even when I do not understand it.
5. Raise their voice to make me do my work.

Note. Items were measured using a 6-point Likert scale with a range as follows: 1 – Never, 2 – Very Rarely, 3 – Rarely, 4 – Sometimes, 5 – Often, 6 – Very Often.

Competence need thwarting: Items in this subdomain measure specific teacher actions/attitudes that actively undermine student confidence in their ability to excel in the classroom. Items in this category capture teacher direct antagonism, restriction of student

expression of individuality and talent, and condescending posture towards students. A total of six items were used to capture this subdomain (Table 2.2).

Table 2. 2

Competence Need Thwarting (6 Items)

In this school my teachers:
1. Expect me to do poorly in my work.
2. Do not give me enough opportunity to show what I can do.
3. Talk to me in ways that make me feel like I am not smart.
4. Make me feel I am not as good as other students.
5. Reward/praise me only when I am doing well.
6. Do not give me enough time to do my work.

Note. Items were measured using a 6-point Likert scale with a range as follows: 1 – Never, 2 – Very Rarely, 3 – Rarely, 4 – Sometimes, 5 – Often, 6 – Very Often.

Relatedness need thwarting: Items in this subdomain measure specific teacher action/attitudes that diminish student capacity to feel free and connected in the classroom. Items in this category capture teacher neglect of student's need to be known, use of shaming and guilt, inaccessibility for genuine connection with students. A total of five items were used to capture this subdomain (Table 2.3).

Table 2. 3

Relatedness Need Thwarting (5 Items)

In this school my teachers:
1. My teachers make no effort to get to know me.
2. My teachers are hard to talk to about my problems.
3. My teachers pick on me.
4. My teachers embarrass me in front of other students.
5. My teachers do not have time for me.

Note. Items were measured using a 6-point Likert scale with a range as follows: 1 – Never, 2 – Very Rarely, 3 – Rarely, 4 – Sometimes, 5 – Often, 6 – Very Often.

Method

Participants and Data Collection

Data were collected as part of a longitudinal project in a large, urban district serving over 19,000 students in a metropolitan city in a southwestern state of the United States. The sample included 6,341 students from 21 schools within the district. Student data were collected from a random sample of students in the fifth through twelfth grade. Surveys were administered in February 2019, which gave students a significant amount (over 6 months) of school-year experience to reflect upon as they responded to survey items. All indicators were assessed using a 6-point Likert scale. All students received a unique survey link electronically and completed the survey in the classroom. Participation was voluntary and each student had the option of declining to take the surveys without suffering any consequences for the decision. Once collected, survey results were uploaded into SPSS where the dataset underwent a five-step data cleaning process using factor analysis for missing data.

Content Validity

After the initial set of General Classroom Psychological Need Thwarting Scale (GC-PNTS) items were developed, they were submitted for review to a team of expert researchers in the field of education with published works using Self Determination Theory. Based on their feedback, the language used for items was adapted for age appropriateness and more nuanced utility for the intended population. Further, the selected Likert scale format was determined using evidence-based recommendation and prevalent standard in children behavioral scales, which suggests that children from as young as 6 years old can use graded scales to make a judgement using formats from 3-points upward (Chambers & Johnston, 2002; Greca & Stone, 1993; Mellor & Moore, 2014, 2014). For the GC-PNTS, the 6-point response format was chosen in order to keep with this standard while giving enough range of options to prevent obscuring response distinctiveness. Lastly, a team of former elementary school, middle school, and high school teachers reviewed the items, and based on their feedback, two relatedness items were reviewed to reflect the practical connection opportunities that classroom teachers have given their busy teaching schedule.

Structural Validity

The GC-PNTS is considered a latent construct because it is constructed from a set of observed variables. Measurement is indirectly achieved by noting the effects of this latent condition on other representative observable factors. When testing relationships between observed and latent variables, the factor analytic model of assessment is recognized as the gold-standard procedure (Byrne, 2005). As a result, Confirmatory Factor Analysis (CFA) is used for the construct validity of GC-PNTS. The CFA is a method of factor analysis grounded in theory which explains the rational consistency between a tested measure and what is theoretically

established about its inherent structural relations (Byrne, 2005). Since GC-PNTS is a measure developed a priori, the CFA is rightly applicable and used to assess the consistency of the tested measure with the SDT theoretically established internal structure. For the purpose of structural validity of this measure, a hypothesized a second-order factor (Figure 2.1) is tested against an alternative first-order specification (Figure 2.2).

Figure 2. 1

Hypothesized Second-Order Factor Model Specification of GC-PNTS.

CT = Competence Thwarting; AT = Autonomy Thwarting; RT = Relatedness Thwarting

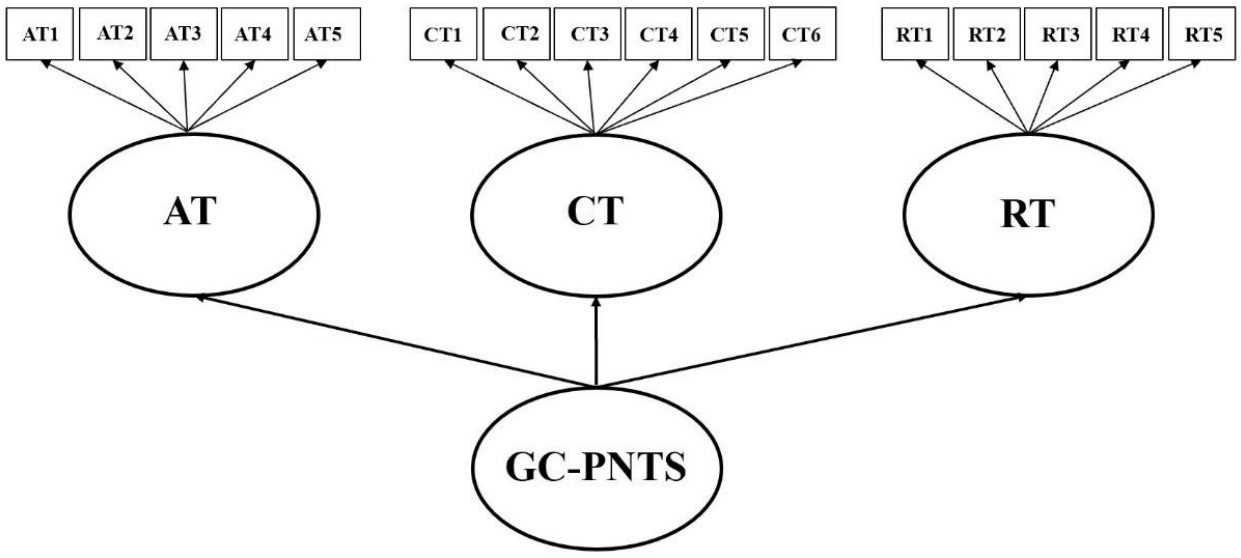
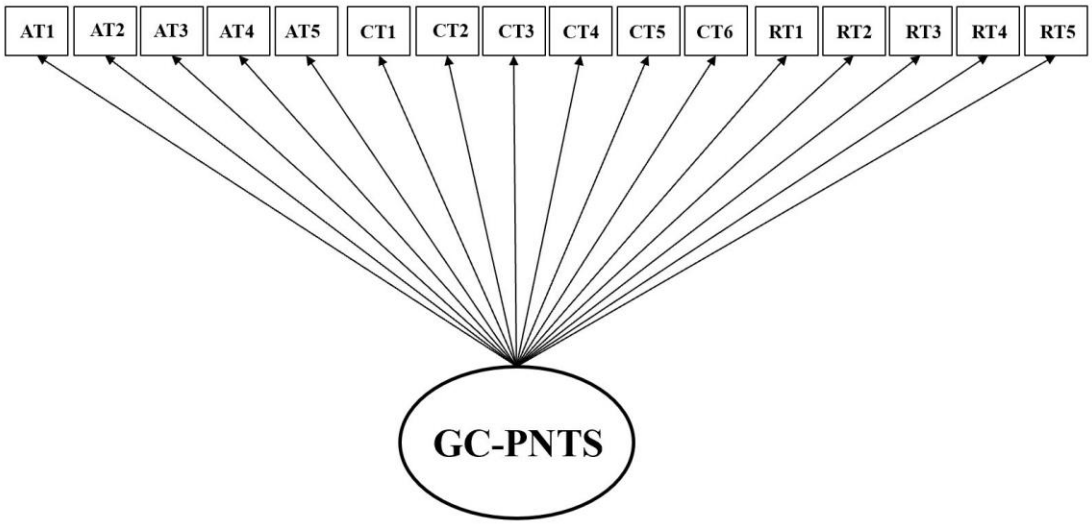


Figure 2. 2

Alternative First-Order Factor Model Specification of GC-PNTS.

CT = Competence Thwarting; AT = Autonomy Thwarting; RT = Relatedness Thwarting



To run the CFA, the Mplus software (Version 8.4) was used with full information maximum likelihood estimation to correct the observed non-normality of the variables (Muthen & Muthen, 2017). Firstly, the second-order model (figure 1), which is comprised of three distinct but, theoretically related dimensions was estimated and tested. Secondly, the alternative first-order model (figure 2) with all 16 items loading on GC-PNTS was also estimated and tested. This second step was considered vital as the testing of a comparable rivalry model is noted as a plausible and efficient way to evaluate structural validity (Moss, 1995). Lastly, to evaluate which model is the better parsimonious approximation to real-world phenomena, three types of fit indices were used. The first fit index used is the Root Means Square Error of Approximation (RMSEA), which is an absolute fit index that compares the fit of the estimated model to a saturated (perfect) model. Secondly, the Comparative Fit Index (CFI) is used, which is a relative

fit index that shows the amount of improvement of a predicted model to a null model. Thirdly, the Standardized Root Mean Square Residual (SRMR) is used, which is also an absolute fit index and is used to estimate the standardized difference between the observed and model-implied covariances. This fit index is especially noted for its usefulness for 1-group, 1-time-point models (Brown et al., 2013). Assessment of model fit was determined using Hu and Bentler's (1999) recommendations as follows: RMSEA < 0.08, CFI > 0.95, and SRMR < 0.06.

Convergent Validity

An exploration of convergent validity is used to evaluate the extent to which a measure is similar or correlated with another measure that is theoretically similar to it (Hinkin, 1998). In this study, the Student Alienation Scale was used to provide correlational evidence for this purpose. The Student Alienation Scale assesses the dimensions of student perceptions of normlessness, meaninglessness, powerlessness, and social isolation (Mau, 1992). This scale was adapted from Rafalides and Hoy (1971) and Kolesar (1967). The alienation scale used for this study is a 9 – item measure and sample items include: *There just aren't any rules to live by. Students have the right to cheat if it keeps them from failing.* The measure response was on a Likert scale similar to the 6–point Likert response format of the GC-PNTS. The 9 items on the scale can be found in Table 2.4.

Student alienation was chosen as a fitting theoretical correlate of student psychological need thwarting based on evidence from extant literature (Bartholomew et al., 2011b; Costa et al., 2016; Earl et al., 2017). According to proponents SDT, a need thwarting social context leads to the experience of the psychological state of need frustration (Bartholomew et al., 2011b; Ryan & Deci, 2000c) and based on the undermining nature of this experience, Costa et al., (2015) argued that when frustrated, people tend towards loneliness and alienation. Additionally, Earl and

colleagues (2017) buttressed this point by describing the mechanism through which alienation derives. According to them, alienation is a compensatory behavior that develops out of the maladjusted coping with need frustration. Together, a close look at some alienation items gives logical credibility to these claims. For example, it makes sense that when a student's competence is thwarted based on being constantly compared with their peers in a way that makes them feel inferior about their ability, then a possible maladjusted coping could be that the student resorts to copying the peer they feel receives more validation (Alienation scale item 4). Further, if a student feels inhibited and out of place in the school environment, then it also makes sense that a potential maladjusted coping will be to skip school altogether (Alienation scale item 6).

Therefore, based on the established theoretical similarity between the two constructs, it is expected that the general classroom psychological need thwarting scale will have a moderate to strong positive correlation with student alienation. It is also expected that this correlation will be modest enough to demonstrate similarity while maintaining that reasonable distinction between the two measures.

Table 2. 4

Student Alienation Scale

Item	Likert Scale
1. There just aren't any rules to live by	1 (strongly disagree) to 6 (strongly agree)
2. Students have the right to cheat if it keeps them from failing	1 (strongly disagree) to 6 (strongly agree)
3. In order to be successful, sometimes you have to do things that are not right.	1 (strongly disagree) to 6 (strongly agree)
4. Copying another student's homework is okay	1 (strongly disagree) to 6 (strongly agree)
5. Sometimes I feel school is like a jail.	1 (strongly disagree) to 6 (strongly agree)
6. Usually I'd rather be absent from school than be there.	1 (strongly disagree) to 6 (strongly agree)
7. The problems of life are sometimes too big for me.	1 (strongly disagree) to 6 (strongly agree)
8. It is hard to know what is right and wrong because the world is changing so fast.	1 (strongly disagree) to 6 (strongly agree)
9. I often feel left out of things that others are doing.	1 (strongly disagree) to 6 (strongly agree)

Divergent Validity

Divergent validity is another form of construct validity that is used to evaluate the extent to which a measure is dissimilar from another measure that assesses a theoretically different dimension (Hinkin, 1998). In this study, the Psychological Need Support Scale (PNSS) was used to provide correlational evidence for the divergent validity of the primary measure of interest – GC-PNTS. The PNSS assesses the degree to which students' psychological need for autonomy, competence, and relatedness is facilitated by the school environment. The Autonomy Support subscale measures the degree to which students perceive that teachers allow criticism, encourage independent thinking, foster relevance, and provide choice. Items were extracted from the Autonomy-Enhancement Scale (Assor, Kaplan, & Roth, 2002). The Competence Support

subscale measures students' views of their teachers' support for their academic performance and teachers' expectations of student effort and participation. This survey was adapted from the Consortium on Chicago School Research (n.d.). The Relatedness Support subscale measures the students' report about the reliability of their teacher actions, concern for students, willingness to help, and teacher dependability. Items were derived from the Omnibus Trust Scale (Forsyth, Adams, & Hoy, 2011). PNSS was well suited for the assessment of divergent validity since the GC-PNTS measures the contrasting relational environment to need support. The PNSS used is an 18-item measure and sample items include: *Teachers in this school really make students think. Teachers in this school expect students to work hard.* The measure response was on a Likert scale similar to the 6-point Likert response format of the GC-PNTS. The 18 items on the Psychological Need Support Scale can be found in Table 2.5.

Based on the fact the measuring need thwarting will to a degree capture the absence of need support, it is expected that there will be a moderate but negative correlation between the two measures. Further, to establish the GC-PNTS as a distinct scale that captures a need thwarting environment over and above what the absence of need support can explain, it is expected that the amount of in need thwarting explain by need support will be small.

Table 2. 5

Psychological Need Support Scale (PNSS)

Item	Likert Scale
1. I feel excluded from a group I want to belong to.	1 (strongly disagree) to 6 (strongly agree)
2. I have serious doubts about whether I can do things well.	1 (strongly disagree) to 6 (strongly agree)
3. I feel forced to do many things I wouldn't choose to do.	1 (strongly disagree) to 6 (strongly agree)
4. People who are important to me are cold and distant toward me.	1 (strongly disagree) to 6 (strongly agree)
5. I feel disappointed with many of my performances.	1 (strongly disagree) to 6 (strongly agree)
6. I feel pressured to do too many things.	1 (strongly disagree) to 6 (strongly agree)
7. I think that the people I spend time with dislike me	1 (strongly disagree) to 6 (strongly agree)
8. I feel insecure about my abilities	1 (strongly disagree) to 6 (strongly agree)
9. Teachers in this school really make students think.	1 (strongly disagree) to 6 (strongly agree)
10. Teachers in this school expect students to work hard.	1 (strongly disagree) to 6 (strongly agree)
11. Teachers in this school help students with difficult assignments.	1 (strongly disagree) to 6 (strongly agree)
12. Teachers in this school celebrate the achievement of students.	1 (strongly disagree) to 6 (strongly agree)
13. Teachers in this school challenge students to achieve academic goals.	1 (strongly disagree) to 6 (strongly agree)
14. Teachers listen to the opinions and ideas of students.	1 (strongly disagree) to 6 (strongly agree)
15. Teachers encourage students to work in their own way.	1 (strongly disagree) to 6 (strongly agree)
16. Teachers explain why it is important to study certain subjects in school.	1 (strongly disagree) to 6 (strongly agree)
17. Teachers show students how to solve problems themselves.	1 (strongly disagree) to 6 (strongly agree)
18. Teachers talk about the connection between what is studied in school and what happens in real life.	1 (strongly disagree) to 6 (strongly agree)

Reliability

Descriptive statistics and reliability data are presented in Table 2.6. Overall, the new measure – GC-PNTS, showed excellent reliability with alpha greater than .90 (Mallery & George, 2003). Further, to confirm the internal consistency of the instrument, Cronbach's alpha was calculated for each subscale. With Cronbach's alpha values of 0.82, 0.89, and 0.79, two of the subscales showed good reliability (Cronbach's alpha > .80), and the third subscale showed acceptable reliability (Cronbach's alpha > .70) (Mallery & George, 2003).

Table 2. 6

Descriptive Statistics and Internal Reliability

	Mean	SD	Min	Max	α
Autonomy Thwarting	2.7	1.4	1	6	.82
Competence Thwarting	2.4	1.5	1	6	.89
Relatedness Thwarting	2.8	1.3	1	6	.79
Autonomy-Competence-Relatedness	2.6	1.2	1	6	.91

Analysis of Variance Components

Within-group variability and between-school variability in the General Classroom Psychological Need Thwarting Scale confirm the specification of the scale at the individual student level. Intra Class Correlation (ICC) coefficients were calculated to show the amount of variation present at the student level and the school level. Approximately 99% of the variance in General Classroom Psychological Need Thwarting was explained at the individual student level and just about 1% was explained by school-level factors ($p < .01$). ICC results are presented in

Table 2.7. This finding suggests that in this sample, student psychological need thwarting has more to do with individual student experience than school membership.

Table 2. 7

Variance Components for GC-PNTS

Variable	Variance Within Schools ICC(1)	Variance Between Schools	Chi-Square
GC-PNTS (9 Item)	.99	.01	21.67***

Note. ***p < .001

Limitation

While this study conceptualizes and specifies important features of the student-teacher relational environment that suppress student motivation and thriving, certain issues that require additional empirical investigation should be noted. First, it would be useful to assess the interrelatedness of each type of need thwarting in order to establish how they influence one another. Further, this study was done with participants from a single school district in one metropolitan city of the U.S. therefore, future research can replicate the study to see how the results are reproduced in more schools across more U.S. regions. Finally, according to Basow & Martin (2012), student self-reports such as the ones used in this study could carry more meaning than the focus of the instrument. This is attributed to the fact that biasing factors such as instructor gender, attractiveness, as well as the course difficulty level could all potentially confound student responses. Thus, the results reported below should be interpreted with these limitations in mind

Results

Using a deductive approach to item generation, a valid and reliable scale for measuring student experiences of psychological need thwarting in the classroom was developed and tested.

Structural Validity

Results from the CFA confirmed that the *a priori* hypothesized specification for GC-PNTS as a second-order specification was a better fit than the alternatively tested first-order specification. However, given the fit indices of both specifications (Table 2.8). The superior hypothesized model still presented with a mediocre fit (RMSEA = .08 to .10, CFI = .85 to .90), warranting a post-hoc analysis.

Table 2. 8

Model Fit Indices for Initial GC-PNTS (16-items) with Second and First-Order Specifications.

Model	χ^2	*df*	RMSEA	CFI	SRMR
Hypothesized Model: Second Order	4977	101	0.09	0.89	0.08
Alternative Model: First Order	9564	104	0.14	0.79	0.07

For the post-hoc, the CFA model was inspected and 7 items (Items: 1, 3, 6, 10, 11, 13, 14) were removed due to low commonality (r-squared < 0.55). The remaining items shared at least 50% of the variance with their designated construct and therefore made up the final model (9 - items) scale that was tested. Once again, the optimized 9-item version of the scale showed that the a priori hypothesized specification for GC-PNTS as a second-order specification was a superior fit compared with the alternatively tested first-order specification (Table 2.9, Figure 2.3 & 2.4).

Table 2. 9

Model Fit Indices of final GC-PNTS (9-items) with Second and First-Order Specifications.

Model	χ^2	*df*	RMSEA	CFI	SRMR
Hypothesized Model: Second Order	720	24	0.08	0.97	0.03
Alternative Model: First Order	3381	27	0.16	0.87	0.06

Note. Modifications include: Removal of items 1, 3, 6, 10, 11, 13, 14

This final model for the second-order specification showed an acceptable fit (Hu & Bentler, 1999) based on the RMSEA specification (RMSEA = .05 to .08), and close fit (Hu & Bentler, 1999) based on the CFI and SRMR specifications (CFI = .95 to .99, SRMR = .01 to .05). Further, even though values were reported, the chi-square indices were not used for the model fit evaluation in this study based on the sensitivity of this test to sample size (Kline, 2010). Altogether, results from the CFA confirmed the a priori hypothesized specification for GC-PNTS as a second-order factor represented by three dimensions of autonomy thwarting, competence thwarting, and relatedness thwarting is structurally valid. This shows that there is an empirical relationship between the sample data and the underlying logic of the model.

Figure 2. 3

Results for the Alternative First-Order Factor Model.

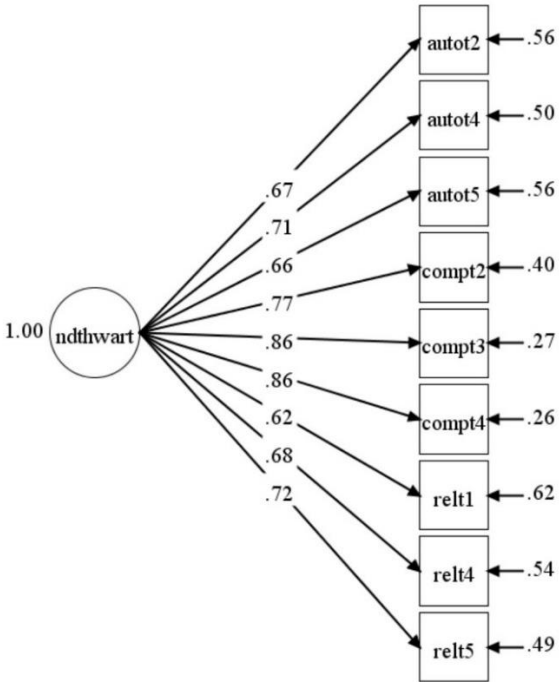
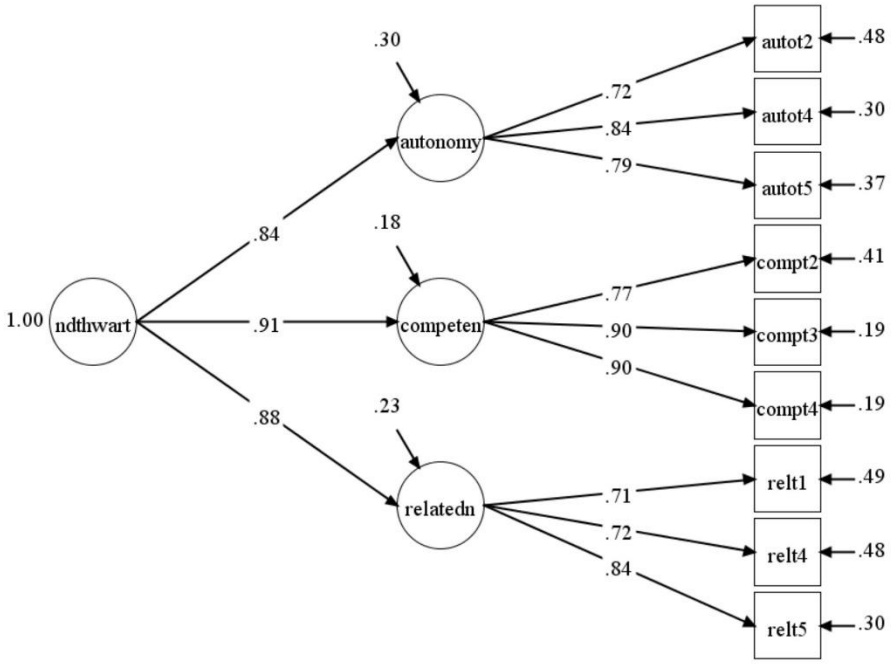


Figure 2. 4

CFA Results for the Hypothesized Second-Order Factor Model.

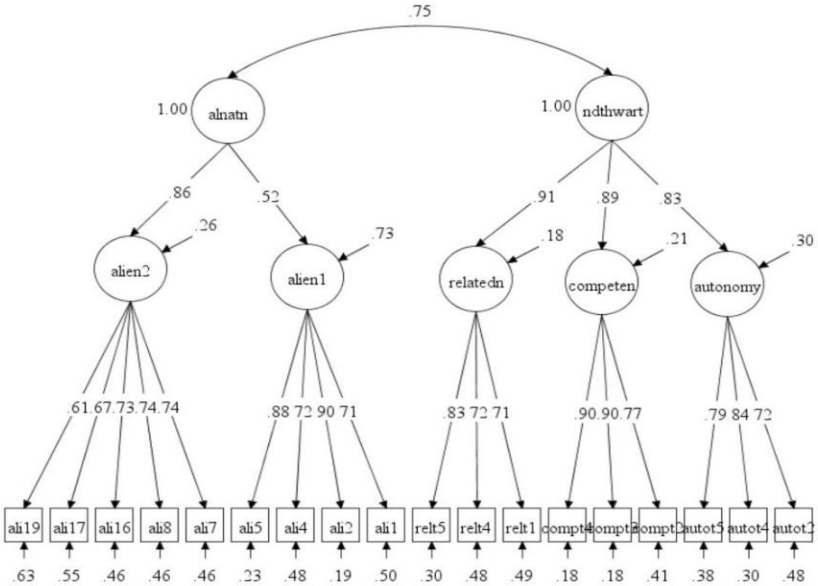


Convergent Validity

Results from the model testing the relationship between the General Classroom Psychological Need Thwarting Scale and the Student Alienation Scale showed an acceptable model fit (Figure 2.5). RMSEA, CFI and SRMR all fell within Hu & Bentler (1999) threshold of acceptable model fit (RMSEA = .08, CFI = .92, SRMR = 0.08). Further, the derived correlational coefficient confirmed the predicted strong positive relationship between the General Classroom psychological need thwarting scale and the student alienation scale ($\beta = .75$, $p<.01$). Approximately 56% of the variance in student alienation was explained by GC-PNTS, showing that though significantly similar, the two scales measure distinct dimensions. Altogether, the model fit estimates, the strong positive correlational evidence, and the amount of variance explained from this analysis provide empirical evidence to substantiate convergent validity for GC-PNTS.

Figure 2. 3

CFA Model Results for the Test of Convergent Validity.

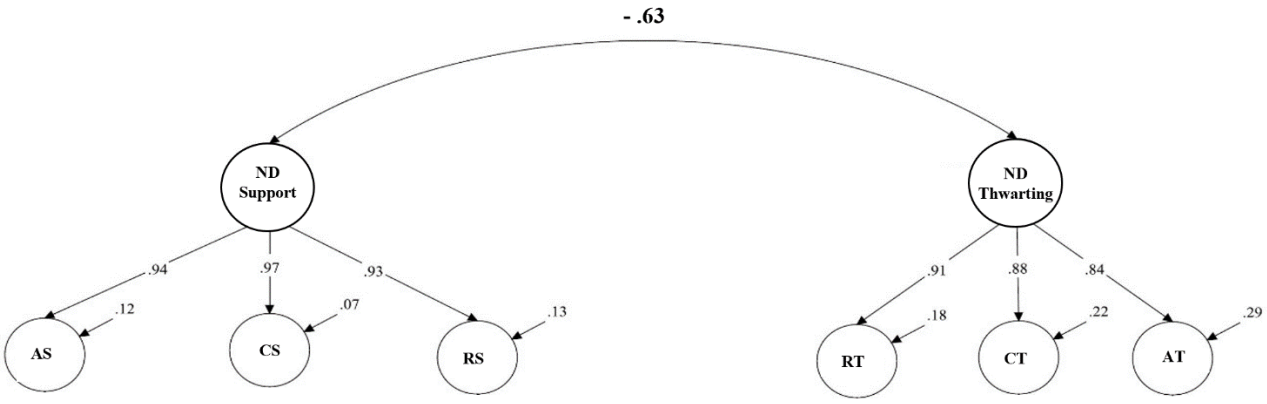


Divergent Validity

Results from the model testing the relationship between the General Classroom Psychological Need Thwarting Scale and the Psychological Need Support Scale showed a good model fit (Figure 2.6). RMSEA, CFI and SRMR all fell within Hu & Bentler (1999) threshold of acceptable model fit (RMSEA = .06, CFI = .94, SRMR = 0.04). Further, the derived correlational coefficient confirmed the predicted negative relationship between the General Classroom psychological need thwarting scale and the psychological need thwarting scale ($r = -.63$, $p<.01$). Additionally, as expected the GC-PNTS and PNSS shared variance (approximately 39 percent) small enough to show that while low need support captures some need thwarting, the GC-PNTS explains more variance over and above need support. Together, the model fit estimates, and the strong negative correlation from this analysis provides empirical evidence to substantiate divergent validity for GC-PNTS.

Figure 2. 4

CFA Model Results for the Test of Divergent Validity.



Discussion

The primary purpose of this study was to conceptualize and validate GC-PNTS using the theoretical framework of self-determination theory. This purpose was achieved in three parts: 1) conceptualizing psychological need thwarting in a general classroom context; 2) advancing a set of items that measure general classroom psychological need thwarting; and 3) empirically test the validity and reliability of the new scale. Findings from this study make major contributions that extend scholarship in SDT by aligning with the call to increase empirical work in the understudied yet, largely consequential darker side component of psychological needs - need thwarting (Bartholomew et al., 2011b; Costa, Ntoumanis, & Bartholomew, 2015). Further, by making the measure applicable to students within the general classroom context, GC-PNTS could be a viable instrument for supplementing and extending the investigation of student psychological ill-being, a phenomenon that currently pervades the school system.

GC-PNTS: An Extension of Scholarship

So far, research assessing need thwarting has been conducted in the physical activity context with students and teachers (Bartholomew et al., 2011b; Felton & Jowett, 2015; Martinent, Emma, & Moiret, 2015), or in the work environment and other non-academic interpersonal relationships (Bartholomew et al., 2014; Costa et al., 2016; Costa et al., 2015; Cuevas et al., 2016). All of these studies are unified in demonstrating that psychological need thwarting is an important phenomenon due to its unique ability to predict negative affect and ill-being over and above what is accounted for by need support. However, despite the prevalence of psychological ill-being in schools (CDC, 2020; Joyce, 2013), and the call for more empirical work in need thwarting (Bartholomew et al., 2011b), there is currently no measure or study that has investigated the phenomenon with students outside the physical activity context. Therefore, to fill this gap in

scholarship, this study conceptualized and developed a new measure of psychological need thwarting in students in the general school context. The derived empirical results show that the GC-PNTS is a viable and reliable scale for assessing general student experiences of psychological need thwarting in the classroom based on alignment with theory and existing scholarship in this domain. This claim is supported by the confirmatory factor analysis, which established that the newly developed GC-PNTS has the three-factor dimensionality proposed by the theoretical model of SDT. Further, while sufficiently meeting conditions for empirical validity, the derived fit indices were similar to the fit indices of the sports-context version of the scale (Bartholomew et al., 2011b), and that of the Spanish translation of the same (Cuevas et al., 2016) showing that even though the GC-PNTS is designed for a new demographic, the character and viability of the measure was in no way sacrificed.

Likewise, the correlational evidence for the convergent and divergent validity of this construct was consistent with scholarship on the relatedness of psychological need thwarting with other constructs. Specifically, in the convergent validity assessment, GC-PNTS showed a strong positive relationship with student alienation, which is consistent with outcomes from previous scholarship (Earl et al., 2017). Vansteenkiste and Ryan (2013) in their study of need frustration and vulnerability, demonstrated that need frustration in their participants (the psychological state induced by a need thwarting social context) provoked compensatory negative behaviors - part of which included alienation. Further, in the divergent validity assessment, GC-PNTS showed a strong negative relationship with psychological need support. This is also consistent with scholarship (Costa et al., 2016) where parental autonomy support (a dimension of need support) also showed a moderate to strong negative relationship with parental psychological control (an autonomy dimension of need thwarting).

Altogether, Schoenfeldt (1984) noted that a well-constructed measure is pivotal to the successful implementation of any research study. Therefore, in line with this claim, the empirical outcome of this study is instrumental for the extension of research in building a line of inquiry around student psychological need thwarting and its associated consequentiality for ill-being.

GC-PNTS: Consequence for Practice

As is the case in the sports context (Bartholomew et al., 2011a, 2011b; Berghe et al., 2016; Van den Berghe et al., 2013), it appears that a student-teacher relational environment that is actively inhibitory or thwarting could create a school climate that is frustrating, depressing, and impersonal for students. An examination of the items that make up the newly developed and validated GC-PNTS scale shed some light on exactly how this occurs. Within the sub-dimension of autonomy thwarting, it appears that both passive teacher posture such as neglecting student input to the learning process (item 1) and active action such as using threats to coerce compliance (item 2) add up to create a context that makes the student feel pressured and controlled. Similarly, within the sub-domain of competence thwarting, teacher practices of restricting student opportunity to demonstrate personal abilities (item 1) and the often overlooked action of comparing students within the classroom (item 3) also combine to create a milieu that represses student confidence in their ability and skills. Finally, though often neglected in other contexts (Amoura et al., 2015; De Meyer et al., 2014; Patall et al., 2018), it appears that belonging matters to students. According to the scale relatedness thwarting items, teacher unintentionality towards knowing students (items 1 and 2) and teacher response of shaming students in front of peers seems to create a social atmosphere where students find it hard to fit in. Together, consistent with SDT (Reeve, 2002; Ryan & Deci, 2002) these items add explanatory

detail to how the student-teacher dialectical process adds up to create a social environment within which student potential is suppressed.

From a practice standpoint, findings from this study demonstrate how instrumental instructional practices are in student disaffection and disconnection from the learning process. This argument is supported by a similar finding with high school athletes (Walters et al., 2017), which demonstrated that the thwarting of basic psychological needs led to rowing athlete resignation and general attrition in sports. Therefore, at the least, it appears that the items of this scale provide a specification for student-teacher relational *hot spots* that can be better managed to produce better outcomes for students. Further, this study introduces a framework for alleviating student ill-being that is not limited to the limited contribution of mental health professionals for which there is a current shortage in schools (NASP, 2017). With proper teacher sensitization and training, teachers can identify ways in which they can reduce maladjustment and compensatory behaviors from their students.

In sum, the conceptualization and validation of the GC-PNTS advances knowledge in understanding the darker side experience of ill-being by moving the body of literature into the general K-12 school context. All evidence in the assessment of psychological need thwarting has thus far focused on the sports context, the teaching faculty, and general adult interpersonal relationships (Bartholomew et al., 2011b; Costa et al., 2015; Liu & Chung, 2015; Rocchi et al., 2017). While these foci are important, they are limited in their utility due to the fact that psychological needs differ uniquely according to context, setting, and process (Ryan, 1995). To this end, this study advances research through the creation of a new important measure that holds some promise for uncovering school-related risk-factors that trigger and perpetuate student psychological ill-being.

MANUSCRIPT III

Student Disengagement and The Fundamental Role of Thwarting and Frustrating Psychological Needs

Explaining Student Disengagement: The fundamental role of student psychological need thwarting

"Disengaged pupils are one of the biggest difficulties that teachers face in school classrooms" (Earl et al., 2017, p. 82).

According to the annual Gallup student poll which surveys almost a million public school students from across the United States, student disengagement is a predominant phenomenon in schools with a persistent and rising pattern. In 2015, the Gallup student poll scorecard showed that half of the students surveyed from across the US reported being disengaged in school. Of these students, 29 percent reported not being engaged, and the remaining 21 percent reported being actively disengaged. By 2018, the same poll showed that student disengagement had increased to 53 percent with 30 percent reporting not being engaged, and 23 percent reporting being actively disengaged. This is 2020, and while it is yet to be determined how much more student disengagement might have increased, an outlook that presents over half of the students across US schools to be disengaged is one that warrants attention.

Based on research, student disengagement is related to pervasive outcomes such as poor academic performance, diminished motivation, increased discouragement, and school absenteeism (Jang et al., 2016; Gallup, 2016). Specifically, the Gallup OPINION report (Calderon & Yu, 2017) showed that when compared to engaged peers, actively disengaged students are two times more likely to be absent from school, nine times more likely to get poor grades, and seven times more likely to feel discouraged about their future. Further, Washor and Mojkoeski (2014) emphasized that the lifelong consequences of student disengagement go deeper than meets the eyes because it ends up affecting their preparedness for a meaningful and generative life after graduation. They argue that student disengagement calls for great attention

because the cost of disengaged students to society is significantly larger than the already enormous cost of dropouts. So, in light of the far-reaching implications of disengagement on both academic and life readiness, it is imperative to unpack and understand this growing phenomenon, particularly within the school context.

According to the student-teacher dialectical framework of self-determination theory (SDT), the classroom environment features conditions that can both support or neglect and frustrate the inner motivation of students (Jang et al., 2016; Reeve, 2006; Reeve, 2013). Specifically, Reeve (2013) stated that even though students have needs, goals, and other personal motivations that can be manifested in a context-free manner, "when students are in the classroom…context matters" (pg. 152). Washor and Mojkoeski (2014) share this perspective by stressing that student disengagement is a prevalent condition perhaps because schools do not do enough to respond to student expectations of the learning environment. Expectations such as relationship with teachers, teacher support of student play, and teacher regulation of student choice are 3 of 10 identified rules of engagement or perhaps – disengagement cite.

Even though there has been much attention given to how the school climate affects student engagement, very little is known about the ways in which classroom conditions constrain student inner motivation and lead to disengagement. Therefore, in response to the urgency induced by data trend and the theoretically established relationship between student disengagement and the classroom context, this study draws on SDT to hypothesize a model in which a need-thwarting classroom environment is a more substantive predictor of student disengagement over and above the lack of need support. Further, extant scholarship in SDT shows that the social condition of psychological need thwarting predicts ill-being through the psychological state of need frustration (Costa et al., 2016; Jang et al., 2016; Vansteenkiste &

Ryan, 2013). According to Costa and colleagues (2016), the psychological state of need frustration fully mediated the link between maternal parental control and maladjustment in study participants. Similarly, Vansteenkiste & Ryan (2013) argue that when needs are thwarted within the social environment, need frustration is experienced thereby leading to malfunctioning. Therefore, extrapolating from this knowledge, we propose that the role of need thwarting of the maladaptive state of student disengagement will be at least partially mediated by the psychological experience of student need frustration.

The study begins by describing student disengagement, its characteristics, effects, and social determinants. For this, the study uses the dialectical assumption of self-determination theory to construct a line of reasoning for the plausible effects of need-thwarting and need frustration on student disengagement. Hypotheses are tested and findings are discussed based on how they align or deviate from study propositions.

Student Disengagement – More than the Opposite of Engagement

One common agreement in the literature about student disengagement is that the phenomenon is often ill-defined and sometimes only captured in the shadows of its antithesis condition - student engagement (Balwant, 2018; Chipchase et al., 2017; Vallée & Ruglis, 2017). However, according to Chipchase and colleagues (2017) student disengagement is more complex than being just the neutral or opposite of student engagement. Nevertheless, despite the amount of attention that student engagement attracts in research and school practice, it is remarkable that empirical research focusing on student disengagement as a separate and uniquely consequential phenomenon is still scant.

Based on the work of Balwant (2018) who defined student disengagement using the framework of organizational behavior. Student disengagement can be defined as “students’

simultaneous withdrawal of themselves and defense of their preferred self in displaying low activation behaviors that are characterized by physical, cognitive and emotional absence and passivity" (p. 398). This conceptualization is considered meaningful to the extent that it captures disengagement as a multicharacteristic/multidimensional phenomenon. However, it is also deemed limited in scope because it captures disengagement only as an 'active' process of withdrawal or defense but does not account for passive disengagement. Further, Vallee and Ruglis (2017) defined student disengagement as a contextually situated affective phenomenon that is reflected in student disconnection from the learning process and grows in intensity as students progress from elementary school to higher grade levels. This conceptualization is also considered useful based on the emphasis on disconnection, which accounts for both active and passive disengagement. However, similar to Balwant (2018), it is limited in that it does not account for the multidimensionality of the phenomenon. Hence, to create a more comprehensive and coherent framing of the phenomenon, this study incorporates elements from the above conceptualizations (Balwant, 2018; Jang et al., 2016; Vallée & Ruglis, 2017) to advance its own definition. To this end, student disengagement according to this study is defined as an independent and multidimensional negative affective state that emerges when students perceive the learning environment as need neglecting and as a result, students become disconnected from the learning process and more vulnerable to disruptive behavior.

Additionally, to capture a more holistic perspective coupled with the fact that the multidimensional approach to operationalizing student disengagement is most commonly used school climate-related studies (Earl et al., 2017; Jang et al., 2016; Shafi, 2019), this study operationalizes student disengagement based the dimensionality laid out by Jang and colleagues (2016). The four dimensions of student disengagement based on their work are as follows: 1)

Agentic disengagement - a dimension that describes student passive acceptance of the learning process and explains the absence of initiative to act or reciprocate in the didactical rhythm of learning (Jang et al., 2016; Reeve & Shin, 2020); 2) Emotional disengagement - a dimension that reflects student response of suppression, denial, or separation of affect based on negative feelings (Ellison, 2017); 3) Behavioral disengagement – a dimension that captures low attention or disruptive student response to tasks related to their learning (Jang et al., 2016); and 4) Cognitive disengagement – a dimension that accounts for disorganized or confused student response to studying and course work (Jang et al., 2016).

Student-Teacher Dialectical Framework of Self Determination Theory

Self-determination theory is a macrotheory of human motivation made up of 5 minitheories that are unified in their common purpose of explaining motivational phenomena. Recognized as one of the most influential theories of motivation, SDT has been studied for over four decades and has been validated as being cross-culturally relevant and applicable across age, gender, and socio-economic status. The underlying assumption of SDT is that humans have the innate potential to be energized and fruitfully engaged with life (Reeve et al., 2004; Ryan & Deci, 2000c; Vansteenkiste & Ryan, 2013). Therefore, in an educational environment, the assumption is that regardless of varying backgrounds, all students possess a sense of wonder and intrinsic motivation to be positively and productively engaged in their learning process. Further buttressing this point, it is noted that the classroom context matters especially in this case (Reeve, 2012, Reeve, 2006; Reeve et al., 2004; Ryan & Deci, 2000).

According to the student-teacher dialectical framework, classroom conditions – especially the student-teacher relationship – drive the supportive or inhibitory effect of the learning climate. (Reeve & Shin, 2020b; Reeve, 2013). The main argument of this theory is that

there is an interactional effect between student inner motivational resource and their classroom conditions, which produce an effect on the regulation of student connectedness or disconnectedness to the process. The implication of this argument is that when students perceive the classroom context as supportive, they tend to be motivated and thus, engaged. On the other hand, when they perceive the classroom context as undermining, they tend to be disaffectionate and thus, disengaged. A conceptual trajectory of the proposed influence is represented below:

Figure 3. 1

Conceptual Model



In the student-teacher dialectical framework, the SDT minitheory of basic psychological needs contributes largely to the explanation of the trajectory of influence leading to student disengagement. Specifically, basic psychological needs theory is used as a conceptual lens to explore the important role of contextual conditions that energize or frustrate the inner motivational resource of students based on the satisfaction or frustration of their psychological needs. Needs in this regard are defined as social nutriments that support the natural organismic tendencies for growth and flourishing (Vansteenkiste & Ryan, 2013). There are three areas of psychological needs that are said to be affected by contextual conditions. They include autonomy, competence, and relatedness. In a classroom context, autonomy describes the extent to which classroom conditions nurture, neglect, or frustrate student personal sense of initiative and volition. Competence describes the extent to which classroom conditions nurture, neglect, or frustrate student ability to exercise their individual talents and capacities in the process of

learning and mastery. Relatedness describes the extent to which classroom conditions nurture, neglect, or frustrate student sense of authentic connection and belonging (Deci & Ryan, 2008; Reeve, 2006; Reeve, 2013). The primary argument of this framework is that the satisfaction of these needs are vital to the well-being of students and if any is neglected or frustrated, there will be definitive consequences of maladjustment and ill-being (Chen et al., 2015; Vansteenkiste et al., 2020).

Rationale and Hypotheses

A need thwarting classroom context can be defined as one in which students perceive their interactions with their teachers as autonomy-thwarting, competence-thwarting, and relatedness-thwarting (Vansteenkiste & Ryan, 2013). Teachers can thwart or inhibit the fulfillment of student need for autonomy by rigidly insisting on giving students redundant tasks for which there is no personal meaning or value. In such a context, teachers tend to be controlling and tend to make no room for students to use initiative during the learning process (Assor et al., 2002). A competence-thwarting student-teacher dynamic involves one in which students feel inhibited in their capacity to apply their talents in mastering learning tasks. In this type of situation, teacher feedback to students is more evaluative than constructive, with emphasis on test scores instead of personal improvement and learning (Adams & Khojasteh, 2018). Finally, a relatedness thwarting classroom environment is one in which students feel alienated as a result of their interactions with their teachers (Paper 2).

According to Costa et al. (2015), to understand the antecedent conditions of maladaptive outcomes of ill-being, a direct assessment of the darker side of human experience should be favored over the assessment of brighter side experiences. In other words, to evaluate the pathway of influence that leads to student disengagement, a direct assessment of the darker-side effect of

psychological need thwarting will be more appropriate. The argument in defense of this proposition is that brighter side measures such as need satisfaction only assess positive aspects of social relationships. However, realistically, the darker side experiences such as need thwarting involve more than the mere perception of low levels of need satisfaction. This inadequacy of using brighter-side measures to understand darker side experiences is demonstrated in research assessing the darker side of the athletic experience (Bartholomew et al., 2011a). According to this study, though there were small negative correlations between athletes' perceptions of psychological need thwarting and psychological need satisfaction, psychological need thwarting accounted for significant additional variance in the prediction of negative outcomes over need satisfaction. Similarly, Quested and Duda (2010) also reported that the brighter side experience of satisfaction of the three basic psychological needs was unrelated to darker side negative outcomes of emotional and physical exhaustion in dancers. Informative as these studies are in guiding the proper direction for examining the antecedent conditions to maladaptive outcomes, they are limited in one aspect that is especially relevant to this study. In the above studies, need thwarting, an active inhibitory process is compared to need satisfaction, a derivative affective motivational state.

Recall that according to the student-teacher dialectical framework (Reeve, 2013), the conceptual pathway to student engagement/disengagement proposes that student perception of their classroom environment (level 1), produces a derivative motivational affective state (level 2), which in turn produces outcomes of maladjustment – engagement/disengagement (level 3). Therefore, even though comparing the effect of need thwarting with need satisfaction rightly captures the separate aspects of the brighter side and darker-side of student experiences, such comparison falls short in the sense that it occurs at two different levels. The implication of this is

that in a pathway model such as the one in view in this study, need satisfaction will be more appropriately placed as a mediator rather than a predictor. Therefore, to properly evaluate the superior predictive value of the darker side need thwarting environment on student disengagement, this study uses the same-level brighter side predictor of psychological need support for comparison. To this end, grounded in the aforementioned argument in similar studies and using same-level indicators, this study advances hypothesis one as follows:

H1: Student perception of psychological need thwarting will be a stronger predictor of student disengagement than student perception of the lack of psychological need support.

Further, several studies show that need thwarting is not the only darker side factor that influences ill-being (Chen et al., 2015; Cheon et al., 2016; Mabbe et al., 2018; Teixeira et al., 2018). Specifically, Vansteenkiste et al (2020) identify basic psychological need frustration as a direct precursor of disengagement and other experiences of ill-being and maladjustment. This is similar to the findings of Jang et al (2016) who found that an increase in need frustration in Korean high school students predicted a simultaneous increase in student disengagement. Additionally, in a study examining the distinct psychological correlates of classroom disengagement, Earl and colleagues (2017) reported that competence frustration in students demonstrated an indirect but positive association with passive student disengagement, while autonomy frustration in students showed positive associations with both active and passive disengagement. In the above example autonomy and competence frustration were used as mediators with teacher control serving as the main predictor. Therefore, in light of the evidence around the possible mediating role of need frustration, and the application as used by Earl et. al (2017), this study proposed a second hypothesis as follows:

H2: The predictive effect of student perceived psychological need thwarting on student disengagement is mediated by student psychological need frustration.

The goal of this second hypothesis is to extend the first by seeking to answer not just 'what' predicts student disengagement, but also to examine the mechanism through which student engagement is produced.

Methods

Participants and Procedure

Data were collected in the Spring of 2019 from a sample of elementary, middle, and high school students in 18 schools within a single urban school district in a Southwestern city of the United States. The minority student enrollment for this district was reported as 39 percent and the average student to teacher ratio for this district was 18 to 1. As part of a larger non-experimental research project that studies school climate, survey responses from a sample of 6,341 students were collected. All students from the fifth through the twelfth grade had the option to voluntarily participate in the study. Surveys were administered through an electronic link that contained instructions for the students. All responses were deidentified to preserve the anonymity of participants and after eliminating unusable responses through data cleaning, 4,887 student responses from 18 schools were included in the analyses.

Measures

General Classroom Psychological Need Thwarting Scale (GC-PNTS)

Psychological need thwarting in the classroom beyond the sport or physical activity context was measured using the author developed General Classroom Psychological Need Thwarting Scale (GC-PNTS). The GC-PNTS contains nine items measuring the theoretically specified dimensions of autonomy thwarting, competence thwarting, and relatedness thwarting.

The item stem, "in this school, my teachers…" was used for all items in order to ensure specific applicability of results to the general classroom context. A test of reliability produced a Cronbach's Alpha value of .91. Confirmatory Factor Analysis for this scale confirmed that the theoretically proposed second-order structure was superior to an alternative first-order model.

Psychological Need Frustration Scale

The Psychological Need Frustration (PNFS) was derived from the Basic Psychological Need Satisfaction and Frustration Scale (Chen et al., 2015). This scale measures the extent to which students' feelings of autonomy, competence, and relatedness are repressed within the school environment. The original scale contains 20 items measuring both dimensions of Need Satisfaction and Need Frustration. The scale has also been used in multiple studies and demonstrated good construct and predictive validity. For this study, nine items from the Need Frustration portion of the scale were used. A test of reliability produced a Cronbach's Alpha value of .89, demonstrating strong internal consistency and reliability.

Psychological Need Support Scale

The psychological need support scale used in this study measures the degree to which students feel supported in their psychological need for autonomy, competence, and relatedness. The Autonomy Support (AS) subscale measures the degree to which students perceive that teachers allow criticism, encourage independent thinking, foster relevance, and provide choice. Items were extracted from the Autonomy-Enhancement Scale (Assor, Kaplan, & Roth, 2002). The reliability of the scale is strong with a Cronbach's alpha level of .89. The Competence Support subscale measures students' views of their teachers' support for their academic performance and teachers' expectations of student effort and participation. The reliability of this

subscale is also strong with a Cronbach's alpha level of .82. This survey was adapted from the Consortium on Chicago School Research (n.d.). The Relatedness Support (RS) subscale measures the students' report about the reliability of their teacher actions, concern for students, willingness to help, and teacher dependability. The Student Trust in Teachers scale (Adams and Forsyth, 2009) was used since the SDT research does not include a scale of relational support. A test of reliability produced a Cronbach's Alpha value of .86, which shows reliable internal consistency of the scale.

Student Disengagement Scale

The Student Disengagement Scale was derived from the 39-item, 8-scale engagement-disengagement questionnaire by Jang and colleagues (2016). Of the disengagement portion of this questionnaire, this study used 3 of the 4 disengagement subscales which comprised a total of 9 items. The scale measures the behavioral, emotional, and agentic disengagement of students in the classroom. A test of reliability produced a Cronbach's Alpha value of .89, showing strong reliability and internal consistency of the scale.

Data Analysis

As an initial step, descriptive analysis containing the mean, standard deviation, and factor correlations of the main study variables was calculated based on student grade level. Hypotheses were tested following the Baron and Kenny (1986) four-step approach to mediation analysis. The software used to carry out the analyses is the 'PROCESS' macro - version 3.5 in SPSS. A complete mediation analysis was carried out with the bootstrap procedure as outlined by Preacher and Hayes (2004, 2008). For the bootstrap procedure, the data were resampled 10,000 times to calculate the indirect effect. A bias-corrected (BC) confidence interval (CI) of 95% was obtained for the resamples. According to Preacher and Hayes (2004, 2008), there are significant

indirect effects when BC 95% CI does not contain zero. Two covariates – need support and grade level – were used for the analysis. For grade level, two levels were tested. X1, representing an elementary versus middle school comparison and X2, representing an elementary versus high school for effects.

Limitations

Due to the fact that data used for this study was part of a larger non-experimental research project, some desirable and potentially consequential variables were not captured and thus, unavailable for evaluation. For example, even though it is established that psychological needs are a global phenomenon applicable to people of all age, race, and economic background (Chen et al., 2015), it is unknown how these factors could have been reflected in the current findings because this study's dataset did not include these demographic variables. Further, the participants used for this study represent only one of five US regions. Finally, according to Basow & Martin (2012), student self-reports such as the ones used in this study could carry more meaning than that intended to capture by the instrument. This is attributed to the fact that biasing instructor and classroom factors could potentially confound student responses. Hence, the results reported below should be interpreted with these limitations in mind.

Results

Descriptive statistics comprising of the mean, standard deviations, and bivariate correlations for the study variables based on grade level are reported in Table 3.1. Consistent with the theoretical conceptualizations of this study, student disengagement had a stronger association with need thwarting than need support at all grade levels. Further, need thwarting had the anticipated moderate positive relationship with need frustration, and need frustration also showed the anticipated moderately strong positive relationship with student disengagement at all

grade levels. Interestingly, the mean of student disengagement increased with grade level, which is consistent with the Gallup finding that students in higher grade levels reported higher levels of disengagement compared to students in lower grade levels. Of the three variables of need thwarting, need frustration, and need support, need thwarting had the strongest correlation with student disengagement. All correlation coefficients were statistically significant at $p < .001$.

Table 3. 1

Descriptive Statistics and Factor Correlations among Study Variables

	M	SD	StuD	NT	NF	NS
Elementary School						
Student Disengagement (StuD)	2.6	1.1	1	.59**	.51**	-.41**
Need Thwarting (NT)	2.4	1.2		1	.42**	-.59**
Need Frustration (NF)	3.2	1.2			1	-.19**
Need Support (NS)	4.5	0.9				1
Middle School						
Student Disengagement (StuD)	3.1	1.1	1	.57**	.54**	-.37**
Need Thwarting (NT)	2.9	1.2		1	.39**	-.59**
Need Frustration (NF)	3.4	1.2			1	-.17**
Need Support (NS)	3.9	0.9				1
High School						
Student Disengagement (StuD)	3.3	1.1	1	.59**	.49**	-.38**
Need Thwarting (NT)	2.9	1.2		1	.39**	-.49**
Need Frustration (NF)	3.4	1.2			1	-.12**
Need Support (NS)	3.8	0.9				1

Note. Elementary School Listwise N = 857, Middle School Listwise N = 2241, High School Listwise N = 1788, ** Correlation is significant at the 0.01 level (2-tailed)

Evidence used to test hypothesis 1 is shown in Table 3.2. This hypothesis posits that student perception of psychological need thwarting will be a stronger predictor of student disengagement than student perception of psychological need support. This is done using a stepwise approach that compares two models. Model 1 regresses student disengagement on need support while accounting for the concurrent effect of grade level comparison. Model 2 regresses student disengagement on need thwarting while accounting for the concurrent effect of need support and grade level. Model 1 results show that when need support is used as the single predictor, the total effect on student disengagement is moderate and statistically significant ($b = -.39$, $p < .01$). Further, the model shows that there is a statistically significant difference in the endorsement of disengagement between students in elementary school and students in middle school (G1: $b = -.18$, $p < .01$). There is also a statistically significant difference in the endorsement of disengagement between students in elementary school and students in high school (G2: $b = -.27$, $p < .01$). Model 1 explained approximately 18 percent of the variance in student disengagement.

Model 2 results show that when need thwarting was added as a predictor in the model, the total variance explained increased to 36 percent. In other words, the addition of need thwarting improved the overall model by doubling the explained variance in student disengagement. Further, the addition of need thwarting changed the nature of relationships as need thwarting absorbed most of the effect from need support reducing its effect size from $b = -.39$ in model 1 to almost zero $b = -.09$ in model 2. Also, similar to model 1, model 2 shows that there were statistically significant differences in grade level G1 and G2. These effect sizes remained weak and only varied slightly (plus or minus .3).

Additionally, these model results also account for the first condition of Barron and Kenny's (1986) requirements for the establishment of a claim of mediation. This condition requires that the independent variable (IV) predicts the dependent variable (DV). In this case, the total effect of need thwarting (IV) on student disengagement (DV) was strong and statistically significant ($b = .52$, $p < .01$).

Table 3. 2

Student Disengagement Regressed on NS (Model 1) and NT (Model 2)

	Model 1 StuD	Model 2 StuD
R – Square	.18**	.36**
Need Support	-.39(.02)**	-.09(.02)**
Need Thwarting	----	.52(.01)**
G1	.18(04)**	.15(04)**
G2	.27(05)**	.29(04)**

Note. N = 4886 students. **p<.01. *p<.05. G1 = Elementary School vs. Middle School; G2 = Elementary School vs. High School. StuD = Student Disengagement. Variables were standardized to a mean of 0 and standard deviation of 1.

Evidence used to test hypothesis 2 is shown in Table 3.3. This hypothesis posits that the predictive effect of student perceived psychological need thwarting on student disengagement is mediated by student psychological need frustration. This analysis accounts for the remaining three conditions required to claim mediation as proposed by Barron and Kenny (1986). Condition two, which requires a prediction of the mediator (need frustration) using the independent variable is contained in model 1 (need support as IV) and model 2 (adding need thwarting as IV). In this model, even though student perception of psychological need support

showed a weak statistically significant effect on need frustration ($b = -.16$, $p < .01$), the model itself explained only 0.3 percent of the variance in student need frustration. Further, the model showed no statistically significant difference in the endorsement of need frustration based on grade level. In the comparative model 2, results showed that need thwarting absorbed most of the effect from need support, thereby reducing its effect size from $b = -.16$ in model 1 to almost zero: $b = -.09$ in model 2. Further, need thwarting showed a moderately strong statistically significant effect on need frustration ($b = .46$, $p < .01$) and also explained much more variance in need frustration (17 percent) implying that need thwarting is also a more substantive predictor of need frustration than need support.

Condition three requires that when the mediator is included in the model, the initial effect of the independent variable on the dependent variable should decrease as it is absorbed by the mediator (Barron & Kenny, 1986). This decrease in the predictive value of the independent variable is the proof of mediation and the result for testing this is reported in model 3. Based on the output of this model, need frustration was a significant predictor of student disengagement, controlling for need thwarting ($b = .35$, $p < .01$). Further, the mediation increased the explained variance from 36 percent, shown in model 2 (Table 3.2), to 46 percent as student perception of psychological need frustration accounts for the additional 10 percent in this model.

Altogether, because student perception of psychological need frustration did absorb some variance from psychological need thwarting, it can be considered a partial mediator in the relationship between student perception of psychological need thwarting and student disengagement.

Table 3. 3

Output for Mediation Analysis

	Model 1 NF	Model 2 NF	Model 3 StuD (Y)
R – Square	.03**	.17**	.46**
Need Support	-.16(.02)**	.09(.02)**	-.13(.02)**
G1	.05(05)	.03(02)	.14(.03)**
G2	.06(05)	.08(03)	.26(.04)**
X - Need Thwarting	----	.46(.02)**	.37(.01)**
M - Need Frustration	----	----	.35(.01)**

Note. N = 4886 students. **p<.01. *p<.05. G1 = Elementary School vs. Middle School; G2 = Elementary School vs. High School. StuD = Student Disengagement. Variables were standardized to a mean of 0 and standard deviation of 1.

A final test of mediation is shown in Table 3.4. According to Preacher and Hayes (2004, 2008) a 95% confidence interval which does not contain zero, implies that there was a significantly greater than zero indirect effect, demonstrating mediation in the model.

Table 3. 4

Completely Standardized Indirect Effects of X on Y

	Effect	Boot SE	Boot LLCI	Boot ULCI
Need Frustration	.16	.01	.1417	.1748

Discussion

National data on student disengagement show an increasing and pervasive trend that currently puts student disengagement in US public schools at 53 percent (Gallup, 2015, 2018). A

rising pattern as presented by these reports suggests that current strategies used to address this phenomenon are thus far insufficient in producing the necessary outcomes that will move the needle in a favorable direction. Inevitably, this becomes a salient call on researchers to investigate the phenomenon in ways that increase our understanding of it, and hopefully inform new policy. Therefore, in response to this reality, this study used self-determination theory to advance two hypotheses that examine the predictive role of the psychological correlates of student-teacher relationships on student disengagement.

First, it was hypothesized that student perception of psychological need thwarting would be a stronger predictor of student disengagement than student perception of psychological need support while controlling for grade-level. The findings of this study supported this hypothesis as need thwarting was found to be a better and more substantive predictor of student disengagement. This was particularly interesting because when used as a lone predictor, need support had a moderate negative association with student disengagement. However, this association became practically nonexistent after accounting for need thwarting. Based on this, it appears that when brighter-side psychological correlates such as psychological need support are used in isolation to predict negative outcomes such as disengagement, associations could be observed. Nevertheless, these associations are likely to be merely superficial as is the case in this study where the darker-side psychological correlate of need thwarting accounted for significantly more variation in the outcome of student disengagement. More importantly, this position is supported by existing literature on understanding the antecedent conditions that predict maladaptive outcomes of ill-being. According to Vansteenkiste and colleagues (2020), need thwarting involves more than the absence of brighter side correlates of need support and need satisfaction. To support this, they argue that the darker-side psychological state of "need

frustration predicted incremental variance in maladjustment *above and beyond* low need satisfaction" (p. 10).

Further, within the sports context, Quested and Duda (2010) reported that brighter-side psychological correlates of autonomy, competence, and relatedness satisfaction were unrelated to the negative outcomes of emotional and physical exhaustion of dancers in their study. Further, in a study directly assessing the darker side of the athletic experience, Bartholomew and colleagues (2011) reported that need thwarting predicted exhaustion and vitality over and above need satisfaction. Finally, in examining a sample of adult participants in a physical activity context, Gunnell and colleagues (2013) also found that psychological need thwarting accounted for additional variance over and beyond need satisfaction in predicting ill-being in their participants. Together, though none of these studies used non-athletic, multi-grade level public school participants, they support the claim that any comprehensive and meaningful examination of antecedent conditions that predict maladaptive outcomes of ill-being has to account for both brighter-side and darker-side correlates (Bartholomew et al., 2011a; Bartholomew et al., 2014; Costa et al., 2015). The findings of this study also strengthen and extend this claim by applying it to the public school, non-athletic students context where it was established that psychological need thwarting is an essential darker side psychological correlate that influences student presence and response to their learning process. This disconnection is likely to be created when experiences are perceived to be harmful and threatening.

In addition to establishing the relationship between need thwarting and student disengagement, this study sought to examine the mechanism through which a need thwarting environment might predict disengagement in students. To achieve this, a second hypothesis was put forward to examine the possible mediating role of need frustration in predicting student

disengagement. As predicted, the endorsement of a psychological state of need frustration did absorb a good amount of variance from psychological need thwarting and therefore supported the hypothesized mediation. Situated in the larger study objective of providing a model of the substantive effect of a need-thwarting classroom environment on student disengagement, this finding helps explain *why* and *how* this effect occurs.

According to the handbook of research on student engagement (Reeve, 2013), one of the important ways in which basic psychological needs theory contributes to the larger student-teacher dialectical framework is in explaining '*why*' students in certain instances show engagement, and in other instances show passivity or maladaptive reactivity to the learning process. This *why* was attributed to 'neglect and thwarting' which are said to trigger 'manifestations of disaffection" (p. 154). In other words, psychological need thwarting works through the affective state of disaffection to create disengagement in students. In this study, student perception of psychological need thwarting was positively related to student perception of psychological need frustration, which in turn was positively related to student disengagement. This suggests that the psychological experience of need frustration in this case functions as a type of manifestation of disaffection that predisposes students to be disengaged in school.

This is consistent with the finding from the work of Jang and colleagues (2016) who found that need frustration mediated the relationship between teacher control and disengagement in Korean high school students. Further, in another study investigating the influence of autonomy and competence frustration in young adolescent classrooms in the United Kingdom (Earl et al., 2017), authors reported that student endorsement of autonomy and competence frustration was related to teacher rating of student disengagement in the classroom. This means that when students feel like they do not have a choice and feel inhibited in applying their natural skills and

personal abilities to the learning process, they tend to respond with a passive withdrawal (disengagement). Earl and colleagues (2017) further explained that this withdrawal is indicative of students feeling the need to prevent attention on their self-perceived incompetence. Collectively, these studies validate the proposed path of influence as put forward by this study which is that psychological need frustration in its full dimensionality is a mediating mechanism through which student perception of psychological need thwarting predicts disengagement. Additionally, this study extends the scholarly repertoire by being the first to include the complete theoretically proposed three dimensions of need thwarting and need frustration while also accounting for the concurrent effect of grade level.

In the findings of this study, though weak, grade level was found to be a significant positive predictor of student disengagement both in the total effect and mediation model. In fact, in both cases, grade level accounted for more variation in student disengagement than the more popularly acknowledged variable of need support. This seems to support the Gallup data trend (2013, 2015) which showed that student disengagement was higher in upper-grade students than in lower grade students.

Conclusion

Indeed, schools are not the sole cause of ill-being and maladjustment in students. However, the findings from this study among others show that school-related contextual conditions play a large role in driving the outcome of maladjustment (Bartholomew et al., 2011a; Berghe et al., 2016; Felton & Jowett, 2015; Hein et al., 2015; Liu & Chung, 2015). Further, it is also important to note that while teachers do not create student motivation, they create an environment that drives the quality of affection or disaffection in students (Reeves, 2013). This

means that while teachers can create an environment that activates the generative potential of students, they can also create an environment that undermines and frustrates the same.

Further, a close examination of items of the need thwarting scale used in this study presents some practical pointers to ways in which need thwarting could potentially be reduced. For example, one autonomy thwarting items evaluates how the teachers use threats to make students do work even when they do not understand it. Based on this sample item, it will be interesting to see how differently students will perceive the thwarting of their autonomy if they are given more choice and encounter less use of threat to drive their compliance. Similarly, one of the items in the competence thwarting scale evaluates how teacher make students feel compared to their peers. Again, it will be interesting to observe the shift in student perception of competence thwarting when they are no longer being compared to peers and addressed as individuals with personal worth and value. Finally, a relatedness thwarting item examines how difficult it is for students to talk to their teachers about their problems. Therefore, should teachers present as more welcoming and approachable, how differently will students endorse neglect of the need for relatedness?

Together, as the first study to examine the substantive and essential contribution of psychological need thwarting in predicting student disengagement for multi-grade level public school participants, this paper extends scholarship by increasing the applicability and relevance of this contribution. Additionally, in a time where school improvement is heavily focused on mechanisms that add to the already over-burdened shoulders of teachers, this study introduces the opposite. This study advocates for the removal of undermining conditions that create noise and overwhelm the true impact of teacher supports in their students.

CONCLUDING REMARKS

The purpose of this three-study dissertation was to establish a line of inquiry into how school social conditions relate to student experiences of psychological ill-being within its walls. This focus emerged from identifying the need to extend ways in which schools can manage this undermining phenomenon as evidence shows that relying on the work of specialized mental health professionals in currently insufficient (NASP, 2017; Rossen & Cowan, 2014). For the most part, studies examining psychological adversity in students (Murphey & Sacks, 2019; Rossen & Cowan, 2014) have done a great job in examining how the adversities that children bring from their homes and communities undermine their thriving potential in school. However, despite the robust evidence (Deci & Ryan, 2008a, 2008b; Reeve, 2002, 2012; Vansteenkiste et al., 2020) on how proximal contextual conditions contribute to outcomes of ill-being in humans, very little is known about how this translates within the U.S. K-12 general school context.

The first study of this dissertation was dedicated to creating a foundation for the larger inquiry of this work by exploring the descriptive patterns around the psychological state of ill-being in students, operationalized as psychological need frustration. Further, this study also examined how the phenomenon of psychological need frustration is associated with the faculty and peer relational context. Findings from this study suggest that student psychological need frustration as a marker for ill-being is a prevalent phenomenon in this school context. Further, it appears that both the faculty and peer relational environmental conditions are significantly associated with the psychological state of need frustration in students. A not-too-surprising yet, important finding from this study is that among all the demographic variables tested, student socioeconomic status as measured by FRL status was the only condition that significantly reflected a difference in the experience of need frustration in students. While the causal nature of

this variation is not currently captured, the highlight serves as a potentially significant area to explore further in future research.

According to Rossen & Cowan (2014), schools are an integral part of creating the solution to meeting the mental health needs of students due to the fact that students spend more than half of their waking day in this environment and also have regular contact with adults. Yet, the flip side of this argument is also that the regular and extended contact with members of the school environment can also be used to explain why schools cannot be absolved from being potential contributors to student ill-being. Based on this, the second study of this dissertation advanced the inquiry into student ill-being by conceptualizing and validating a scale of psychological need thwarting, which accounts for specific student-teacher classroom dynamics that undermine student thriving potential within the school environment. The General Classroom Psychological Need Thwarting scale presents a promising extension to research in understanding how schools contribute to student psychological adversity. The measure provides an avenue for extending the effectiveness of school reform through the identification of more proximal risk factors contained within its environment. Future work may examine how specific student-peer dynamics also contribute to student psychological adversity. Perhaps a student-peer psychological need thwarting scale can be advanced to capture this aspect.

To connect the findings of the first and second studies, the third study of this dissertation advanced a model to test the fundamental role of need thwarting and need frustrating on the maladaptive outcome of student disengagement. As a way of distinguishing the additional substantive contribution of assessing directly for psychological need thwarting, this study also compared how need thwarting predicted student disengagement compared with its antithesis condition of need support. As expected, need thwarting accounted for substantial variation in

student disengagement over and above need support. This finding is consistent with similar studies in the sports context (Bartholomew et al., 2011b; Gunnell et al., 2013; Quested & Duda, 2010) and shows how much more important it is not to neglect the phenomenon of need thwarting. Further, the confirmation of the mediating role of need frustration explains the suppressing mechanism through which school milieu drives maladaptive outcomes of ill-being. Together, after controlling for need support and grade level, teacher-driven need thwarting accounted for about half of the variance in student disengagement.

It is important to note at this point that due to the correlational nature of the three studies, there is limited evidence to draw any conclusions on the causal nature and directionality of the relationships. Specifically, in study one, the evidence generated cannot be extended to specify whether high need frustration caused the more harmful relational conditions or if other factors explained that relationship. Additionally, the potential reciprocal effect between harmful relational conditions and high need frustration is not captured within the scope of this investigation. Also, in study three, even though it is established that need thwarting predicts student disengagement through the mediating role of need frustration, the study does not imply causation in this relationship. Further, study three does not examine the potential reciprocal effect between need thwarting and student disengagement. So, it is not specified whether student disengagement could be bidirectional in nature thereby predicting a need thwarting student-teacher relational milieu. Lastly, in study three, only half of the variation in student engagement was accounted for in the model. The other half of the variation in student disengagement is not accounted for, which creates an avenue for future investigation particularly one investigating the additional effect of the peer-relational environment, which was demonstrated to be significantly related to need frustration in study one.

In sum, this work demonstrates that inquiry into student psychological ill-being through the examination of the role of school contextual conditions is both a valid and important endeavor. With the outcomes of this study, it becomes obvious that limiting the responses of schools to reactive mechanisms that place the responsibility to managing student ill-being on the overwhelmed shoulders of school mental health professionals is not the only way to tackle the problem. Instead, the acknowledgment and assessment of the roles of schools in this process can greatly alleviate the burden of this phenomenon on both students and other members of the larger school environment. Specifically, the identification of antecedent conditions to student psychological ill-being as captured by need thwarting and need frustration can better inform schools on how to proactively align the learning environment to reduce and hopefully prevent the pervasive effects of student psychological adversities.

References

Abry, T., Bryce, C. I., Swanson, J., Bradley, R. H., Fabes, R. A., & Corwyn, R. F. (2017). Classroom-level adversity: Associations with children's internalizing and externalizing behaviors across elementary school. *Developmental Psychology*, *53*(3), 497.

Adams, C., & Khojasteh, J. (2018). Igniting students' inner determination: The role of a need-supportive climate. *Journal of Educational Administration*, *56*(4), 382–397. https://doi.org/10.1108/JEA-04-2017-0036

Adams, C. M., & Forsyth, P. B. (2009). The nature and function of trust in schools. *Journal of School Leadership*, *19*(2), 126-152.

Adie, J. W., Duda, J. L., & Ntoumanis, N. (2012). Perceived coach-autonomy support, basic need satisfaction and the well-and ill-being of elite youth soccer players: A longitudinal investigation. *Psychology of Sport and Exercise*, *13*(1), 51–59.

American Educational Research Association. (2013). Prevention of bullying in schools, colleges, and universities: Research report and recommendations. Washington, DC: American Educational Research Association

Amoura, C., Berjot, S., Gillet, N., Caruana, S., Cohen, J., & Finez, L. (2015). Autonomy-Supportive and Controlling Styles of Teaching: Opposite or Distinct Teaching Styles? *Swiss Journal of Psychology*, *74*(3), 141–158. https://doi.org/10.1024/1421-0185/a000156

Assor, A., Kaplan, H., & Roth, G. (2002). Choice is good, but relevance is excellent: Autonomy-enhancing and suppressing teacher behaviours predicting students' engagement in schoolwork. *British Journal of Educational Psychology*, *72*(2), 261–278.

Balaguer, I., González, L., Fabra, P., Castillo, I., Mercé, J., & Duda, J. L. (2012). Coaches' interpersonal style, basic psychological needs and the well-and ill-being of young soccer players: A longitudinal analysis. *Journal of Sports Sciences*, *30*(15), 1619–1629.

Balwant, P. T. (2018). The meaning of student engagement and disengagement in the classroom context: Lessons from organisational behaviour. *Journal of Further and Higher Education*, *42*(3), 389–401. https://doi.org/10.1080/0309877X.2017.1281887

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.

Bartholomew, K. J., Ntoumanis, N., Cuevas, R., & Lonsdale, C. (2014a). Job pressure and ill-health in physical education teachers: The mediating role of psychological need thwarting. *Teaching and Teacher Education*, *37*, 101–107.

Bartholomew, K. J., Ntoumanis, N., Cuevas, R., & Lonsdale, C. (2014b). Job pressure and ill-health in physical education teachers: The mediating role of psychological need thwarting. *Teaching and Teacher Education*, *37*, 101–107. https://doi.org/10.1016/j.tate.2013.10.006

Bartholomew, K. J., Ntoumanis, N., Ryan, R. M., & Thøgersen-Ntoumani, C. (2011a). Psychological need thwarting in the sport context: Assessing the darker side of athletic experience. *Journal of Sport and Exercise Psychology*, *33*(1), 75–102.

Bartholomew, K. J., Ntoumanis, N., Ryan, R. M., Bosch, J. A., & Thøgersen-Ntoumani, C. (2011b). Self-determination theory and diminished functioning: The role of interpersonal control and psychological need thwarting. *Personality and Social Psychology Bulletin*, *37*(11), 1459–1473.

Basow, S. A., & Martin, J. L. (2012). Bias in student evaluations. In *Effective evaluation of teaching: A guide for faculty and administrators* (pp. 40–49). Society for the Teaching of Psychology.

Beard, K. S., Hoy, W. K., & Woolfolk Hoy, A. (2010). Academic optimism of individual teachers: Confirming a new construct. *Teaching and Teacher Education*, *26*(5), 1136–1144. https://doi.org/10.1016/j.tate.2010.02.003

Berghe, L. V. den, Cardon, G., Tallir, I., Kirk, D., & Haerens, L. (2016). Dynamics of need-supportive and need-thwarting teaching behavior: The bidirectional relationship with student engagement and disengagement in the beginning of a lesson. *Physical Education and Sport Pedagogy*, *21*(6), 653–670. https://doi.org/10.1080/17408989.2015.1115008

Berliner, D. C. (2013). Effects of Inequality and Poverty vs. Teachers and Schooling on America's Youth. *Teachers College Record*, *115*(12).

Bond, L., Butler, H., Thomas, L., Carlin, J., Glover, S., Bowes, G., & Patton, G. (2007). Social and School Connectedness in Early Secondary School as Predictors of Late Teenage Substance Use, Mental Health, and Academic Outcomes. *Journal of Adolescent Health*, *40*(4), 357.e9-357.e18. https://doi.org/10.1016/j.jadohealth.2006.10.013

Bond, L., Wolfe, S., Tollit, M., Butler, H., & Patton, G. (2007a). A Comparison of the Gatehouse Bullying Scale and the Peer Relations Questionnaire for Students in Secondary School. *Journal of School Health*, *77*(2), 75–79. https://doi.org/10.1111/j.1746-1561.2007.00170.x

Bond, L., Wolfe, S., Tollit, M., Butler, H., & Patton, G. (2007b). A comparison of the Gatehouse Bullying Scale and the Peer Relations Questionnaire for students in secondary school. *Journal of School Health*, *77*(2), 75–79.

Brown, T. C., Fry, M. D., & Little, T. D. (2013). The Psychometric Properties of the Perceived Motivational Climate in Exercise Questionnaire. *Measurement in Physical Education and Exercise Science*, *17*(1), 22–39. https://doi.org/10.1080/1091367X.2013.741360

Byrne, B. M. (2005). Factor Analytic Models: Viewing the Structure of an Assessment Instrument From Three Perspectives. *Journal of Personality Assessment*, *85*(1), 17–32. https://doi.org/10.1207/s15327752jpa8501_02

Calderon, V. J., & Yu, D. (2017, June 1). *Student Enthusiasm Falls as High School Graduation Nears*. Gallup.Com. https://news.gallup.com/opinion/gallup/211631/student-enthusiasm-falls-high-school-graduation-nears.aspx

CDC. (2019, January 7). *Results | YRBSS | Data | Adolescent and School Health | CDC*. CDC Injury Prevention and Control. https://www.cdc.gov/healthyyouth/data/yrbs/results.htm

CDC. (2020, June 15). *Data and Statistics on Children's Mental Health | CDC*. Centers for Disease Control and Prevention. https://www.cdc.gov/childrensmentalhealth/data.html

Chambers, C. T., & Johnston, C. (2002). Developmental Differences in Children's Use of Rating Scales. *Journal of Pediatric Psychology*, *27*(1), 27–36. https://doi.org/10.1093/jpepsy/27.1.27

Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. L., Van der Kaap-Deeder, J., Duriez, B., Lens, W., Matos, L., Mouratidis, A., Ryan, R. M., Sheldon, K. M., Soenens, B., Van Petegem, S., & Verstuyf, J. (2015). Basic psychological need satisfaction, need frustration, and need strength across four cultures. *Motivation and Emotion*, *39*(2), 216–236. https://doi.org/10.1007/s11031-014-9450-1

Cheon, S. H., Reeve, J., & Ntoumanis, N. (2018). A needs-supportive intervention to help PE teachers enhance students' prosocial behavior and diminish antisocial behavior. *Psychology of Sport and Exercise, 35*, 74–88.

Cheon, S. H., Reeve, J., & Song, Y.-G. (2016). A teacher-focused intervention to decrease PE students' amotivation by increasing need satisfaction and decreasing need frustration. *Journal of Sport and Exercise Psychology*, *38*(3), 217–235.

Chipchase, L., Davidson, M., Blackstock, F., Bye, R., Colthier, P., Krupp, N., Dickson, W., Turner, D., & Williams, M. (2017). Conceptualising and Measuring Student Disengagement in Higher Education: A Synthesis of the Literature. *International Journal of Higher Education*, *6*(2), 31. https://doi.org/10.5430/ijhe.v6n2p31

Cordeiro, P., Paixão, P., Lens, W., Lacante, M., & Luyckx, K. (2016). The Portuguese Validation of the Basic Psychological Need Satisfaction and Frustration Scale: Concurrent and longitudinal relations to well-being and ill-being. *Psychologica Belgica*, *56*(3), 193–209.

Cortina, M. A., Fazel, M., Hlungwani, T. M., Kahn, K., Tollman, S., Cortina-Borja, M., & Stein, A. (2013). Childhood Psychological Problems in School Settings in Rural Southern Africa. *PLoS ONE, 8*(6). https://doi.org/10.1371/journal.pone.0065041

Costa, S., Cuzzocrea, F., Gugliandolo, M. C., & Larcan, R. (2016). Associations between parental psychological control and autonomy support, and psychological outcomes in adolescents: The mediating role of need satisfaction and need frustration. *Child Indicators Research*, *9*(4), 1059–1076.

Costa, S., Ingoglia, S., Inguglia, C., Liga, F., Coco, A. L., & Larcan, R. (2018). Psychometric Evaluation of the Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS)

in Italy. *Measurement and Evaluation in Counseling and Development*, *51*(3), 193–206. https://doi.org/10.1080/07481756.2017.1347021

Costa, S., Ntoumanis, N., & Bartholomew, K. J. (2015). Predicting the brighter and darker sides of interpersonal relationships: Does psychological need thwarting matter? *Motivation and Emotion*, *39*(1), 11–24.

Cuevas, R. P., Sánchez-Oliva, D., Bartholomew, K. J., Ntoumanis, N., & García-Calvo, T. (2016). *Assessing experiences of need thwarting in Spanish Physical Education teachers: Adaptation and validation of the Psychological Need Thwarting Scale*.

De Meyer, J., Soenens, B., Vansteenkiste, M., Aelterman, N., Van Petegem, S., & Haerens, L. (2016). Do students with different motives for physical education respond differently to autonomy-supportive and controlling teaching? *Psychology of Sport and Exercise*, *22*, 72–82. https://doi.org/10.1016/j.psychsport.2015.06.001

De Meyer, J., Tallir, I. B., Soenens, B., Vansteenkiste, M., Aelterman, N., Van den Berghe, L., Speleers, L., & Haerens, L. (2014). Does observed controlling teaching behavior relate to students' motivation in physical education? *Journal of Educational Psychology*, *106*(2), 541–554. https://doi.org/10.1037/a0034399

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum.

Deci, E. L., & Ryan, R. M. (2002). *Handbook of self-determination research*. University Rochester Press.

Deci, E. L., & Ryan, R. M. (2008a). Facilitating optimal motivation and psychological well-being across life's domains. *Canadian Psychology/Psychologie Canadienne*, *49*(1), 14–23. https://doi.org/10.1037/0708-5591.49.1.14

Deci, E. L., & Ryan, R. M. (2008b). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology/Psychologie Canadienne, 49*(3), 182–185. https://doi.org/10.1037/a0012801

Digest of Education Statistics. (2018). National Center for Education Statistics. Retrieved June 22, 2020, from https://nces.ed.gov/programs/digest/d18/

Earl, S. R., Taylor, I. M., Meijen, C., & Passfield, L. (2017). Autonomy and competence frustration in young adolescent classrooms: Different associations with active and passive disengagement. *Learning and Instruction, 49*, 32–40.

Ellison, L. L. (2017). Emotional Disengagement.

Felton, L., & Jowett, S. (2015). On understanding the role of need thwarting in the association between athlete attachment and well/ill-being. *Scandinavian Journal of Medicine & Science in Sports*, *25*(2), 289–298. https://doi.org/10.1111/sms.12196

Forsyth, P. B., Adams, C. M., & Hoy, W. K. (2011). *Collective Trust: Why Schools Can't Improve without It.* ERIC.

Fullan, M. (2003). *The Moral Imperative of School Leadership*. Corwin Press.

Gold, J. (2016, September 13). *One out of five children have mental illness, and schools often don't help*. PBS NewsHour. https://www.pbs.org/newshour/health/one-five-children-mental-illness-schools-often-dont-help

Greca, A. M. L., & Stone, W. L. (1993). Social Anxiety Scale for Children-Revised: Factor Structure and Concurrent Validity. *Journal of Clinical Child Psychology*, *22*(1), 17–27. https://doi.org/10.1207/s15374424jccp2201_2

Gunnell, K. E., Crocker, P. R. E., Wilson, P. M., Mack, D. E., & Zumbo, B. D. (2013). Psychological need satisfaction and thwarting: A test of Basic Psychological Needs

Theory in physical activity contexts. *Psychology of Sport and Exercise*, *14*(5), 599–607. https://doi.org/10.1016/j.psychsport.2013.03.007

Haerens, L., Aelterman, N., Vansteenkiste, M., Soenens, B., & Van Petegem, S. (2015a). Do perceived autonomy-supportive and controlling teaching relate to physical education students' motivational experiences through unique pathways? Distinguishing between the bright and dark side of motivation. *Psychology of Sport and Exercise*, *16*, 26–36.

Haerens, L., Aelterman, N., Vansteenkiste, M., Soenens, B., & Van Petegem, S. (2015b). Do perceived autonomy-supportive and controlling teaching relate to physical education students' motivational experiences through unique pathways? Distinguishing between the bright and dark side of motivation. *Psychology of Sport and Exercise*, *16*, 26–36. https://doi.org/10.1016/j.psychsport.2014.08.013

Hein, V., Koka, A., & Hagger, M. S. (2015). Relationships between perceived teachers' controlling behaviour, psychological need thwarting, anger and bullying behaviour in high-school students. *Journal of Adolescence*, *42*, 103–114. https://doi.org/10.1016/j.adolescence.2015.04.003

Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, *1*(1), 104-121.

Hirst, E. (2019). *Trauma, Resilience, and the Impact on Learning*. American Bar Association. https://www.americanbar.org/groups/litigation/committees/childrens-rights/articles/2019/summer2019-trauma-resilience-and-the-impact-on-learning/

Hu, L., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55.

Jang, H., Kim, E. J., & Reeve, J. (2016). Why students become more engaged or more disengaged during the semester: A self-determination theory dual-process model. *Learning and Instruction*, *43*, 27–38. https://doi.org/10.1016/j.learninstruc.2016.01.002

Joussemet, M., Landry, R., & Koestner, R. (2008). A self-determination theory perspective on parenting. *Canadian Psychology/Psychologie Canadienne*, *49*(3), 194.

Joyce, T. M. (2013). School Violence: Reimagining Schools as 'Safe Havens.' *Journal of Social Sciences*, *37*(3), 249–258. https://doi.org/10.1080/09718923.2013.11893223

Kanat-Maymon, Y., Benjamin, M., Stavsky, A., Shoshani, A., & Roth, G. (2015). The role of basic need fulfillment in academic dishonesty: A self-determination theory perspective. *Contemporary Educational Psychology*, *43*, 1–9. https://doi.org/10.1016/j.cedpsych.2015.08.002

Kolesar, H. (1967). An empirical study of client alienation in bureaucratic organization. Unpublished doctoral dissertation, University of Alberta.

Lee, S. J. (2007). The relations between the student–teacher trust relationship and school success in the case of Korean middle schools. *Educational Studies*, *33*(2), 209–216. https://doi.org/10.1080/03055690601068477

Liu, J. D., & Chung, P. (2015). Development and Initial Validation of the Chinese Version of Psychological Needs Thwarting Scale in Physical Education. *Journal of Teaching in Physical Education*, *34*(3), 402–423. https://doi.org/10.1123/jtpe.2014-0053

Mabbe, E., Soenens, B., Vansteenkiste, M., van der Kaap-Deeder, J., & Mouratidis, A. (2018). Day-to-day variation in autonomy-supportive and psychologically controlling parenting: The role of parents' daily experiences of need satisfaction and need frustration. *Parenting*, *18*(2), 86–109.

Mallery, P., & George, D. (2003). SPSS for Windows step by step: A simple guide and reference. *Allyn, Bacon, Boston,*.

Martineli, A. K. B., Pizeta, F. A., & Loureiro, S. R. (2018). Behavioral problems of school children: Impact of social vulnerability, chronic adversity, and maternal depression. *Psicologia: Reflexão e Crítica*, *31*(1), 11. https://doi.org/10.1186/s41155-018-0089-9

Martinent, G., Emma, G. descas, & Moiret, S. (2015). Reliability and validity evidence for the French Psychological Need Thwarting Scale (PNTS) scores: Significance of a distinction between thwarting and satisfaction of basic psychological needs. *Psychology of Sport and Exercise*, *20*, 29–39. https://doi.org/10.1016/j.psychsport.2015.04.005

Mau, R. Y. (1992). The validity and devolution of a concept: Student alienation. *Adolescence*, *27*(107), 731.

McGuire, K. (2014). *Time to Put Poverty Back on the Education Reform Agenda*. Philanthropy News Digest (PND). http://philanthropynewsdigest.org/commentary-and-opinion/time-to-put-poverty-back-on-the-education-reform-agenda

Mellor, D., & Moore, K. A. (2014). The Use of Likert Scales With Children. *Journal of Pediatric Psychology*, *39*(3), 369–379. https://doi.org/10.1093/jpepsy/jst079

Moss, P. A. (1995). Themes and variations in validity theory. *Educational Measurement: Issues and Practice*, *14*(2), 5-13.

Murdock, T. B. (1999). The social context of risk: Status and motivational predictors of alienation in middle school. *Journal of Educational Psychology*, *91*(1), 62.

Murphey, D., & Sacks, V. (2019, May 31). *Supporting Students with Adverse Childhood Experiences*. American Federation of Teachers. https://www.aft.org/ae/summer2019/murphey_sacks

Murphey, D., Stratford, B., Gooze, R., Bringewatt, E., Mae Cooper, P., Carney, R., & Rojas, A. (2014, July 8). *Are the Children Well?* RWJF. https://www.rwjf.org/en/library/research/2014/07/are-the-children-well-.html

Muthen & Muthen (2017). Retrieved December 6, 2019, from https://www.statmodel.com/download/usersguide/MplusUserGuideVer_8.pdf

National Center for Children in Poverty. (2017). Children's Mental Health. Retrieved June 22, 2020, from http://www.nccp.org/publications/pub_929.html

Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education*, *7*(2), 133–144. https://doi.org/10.1177/1477878509104318

Patall, E. A., Steingut, R. R., Vasquez, A. C., Trimble, S. S., Pituch, K. A., & Freeman, J. L. (2018). Daily autonomy supporting or thwarting and students' motivation and engagement in the high school science classroom. *Journal of Educational Psychology*, *110*(2), 269–288. https://doi.org/10.1037/edu0000214

Pellerin, L. A. (2000). *Urban Youth and Schooling: The Effect of School Climate on Student Disengagement and Dropout.*

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior research methods, instruments, & computers*, *36*(4), 717-731.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior research methods*, *40*(3), 879-891.

Quested, E., & Duda, J. L. (2010). Exploring the social-environmental determinants of well-and ill-being in dancers: A test of basic needs theory. *Journal of Sport and Exercise Psychology*, *32*(1), 39–60.

Rafalides, M., & Hoy, W. K. (1971). Student sense of alienation and pupil control orientation of high schools. *The High School Journal*, *55*(3), 101-111.

Reeve, J., & Sickenius, B. (1994). Development and validation of a brief measure of the three psychological needs underlying intrinsic motivation: The AFS scales. Educational and Psychological Measurement, 54, 506–515.

Reeve, J. (2002). *Self-determination theory applied to educational settings.*

Reeve, J. (2006). Teachers as Facilitators: What Autonomy-Supportive Teachers Do and Why Their Students Benefit. *The Elementary School Journal*, *106*(3), 225–236. https://doi.org/10.1086/501484

Reeve, J. (2012). A Self-determination Theory Perspective on Student Engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of Research on Student Engagement* (pp. 149–172). Springer US. https://doi.org/10.1007/978-1-4614-2018-7_7

Reeve, J. (2013). A Self-determination Theory Perspective on Student Engagement. In S. L. Christenson (Author), *Handbook of research on student engagement*. New York: Springer.

Reeve, J., & Shin, S. H. (2020). How teachers can support students' agentic engagement. *Theory Into Practice*, *59*(2), 150–161. https://doi.org/10.1080/00405841.2019.1702451

Reeve, J., Jang, H., Carrell, D., Jeon, S., & Barch, J. (2004). Enhancing students' engagement by increasing teachers' autonomy support. *Motivation and Emotion*, *28*(2), 147–169.

Rocchi, M., Pelletier, L., Cheung, S., Baxter, D., & Beaudry, S. (2017). Assessing need-supportive and need-thwarting interpersonal behaviours: The Interpersonal Behaviours

Questionnaire (IBQ). *Personality and Individual Differences*, *104*, 423–433. https://doi.org/10.1016/j.paid.2016.08.034

Rossen, E., & Cowan, K. C. (2014). Improving mental health in schools. *Phi Delta Kappan*, *96*(4), 8–13. https://doi.org/10.1177/0031721714561438

Ryan, R. M., (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality*, *63*(3), 397–427.

Ryan, R. M., & Deci, E. L. (2002). *An Overview of Self-Determination Theory: An Organismic-Dialectical Perspective,[in:] Handbook of Self-Determination Theory*. The University of Rochester Press, NY.

Ryan, R. M., & Deci, E. L. (2000a). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68.

Ryan, R. M., & Deci, E. L. (2000b). The Darker and Brighter Sides of Human Existence: Basic Psychological Needs as a Unifying Concept. *Psychological Inquiry*, *11*(4), 319–338. JSTOR.

Ryan, R. M., & Deci, E. L. (2000c). The Darker and Brighter Sides of Human Existence: Basic Psychological Needs as a Unifying Concept. *Psychological Inquiry*, *11*(4), 319–338. https://doi.org/10.1207/S15327965PLI1104_03

Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 101860. https://doi.org/10.1016/j.cedpsych.2020.101860

Ryan, R. M., & La Guardia, J. G. (2000). What is being optimized?: Self-determination theory and basic psychological needs. In S. H. Qualls & N. Abeles (Eds.), *Psychology and the*

aging revolution: How we adapt to longer life. (pp. 145–172). American Psychological Association. https://doi.org/10.1037/10363-008

Schulte-Körne, G. (2016). Mental Health Problems in a School Setting in Children and Adolescents. *Deutsches Ärzteblatt International*, *113*(11), 183–190. https://doi.org/10.3238/arztebl.2016.0183

Shafi, A. A. (2019). The Complexity of Disengagement with Education and Learning: A Case Study of Young Offenders in a Secure Custodial Setting in England. *Journal of Education for Students Placed at Risk (JESPAR)*. https://www.tandfonline.com/doi/abs/10.1080/10824669.2019.1613897

Sheldon, K. M., & Gunz, A. (2009). Psychological needs as basic motives, not just experiential requirements. *Journal of Personality*, *77*(5), 1467–1492.

Teixeira, D. S., Silva, M. N., & Palmeira, A. L. (2018). How does frustration make you feel? A motivational analysis in exercise context. *Motivation and Emotion*, *42*(3), 419–428. https://doi.org/10.1007/s11031-018-9690-6

Tschannen-Moran, M. (2014). *Trust matters: Leadership for successful schools*. John Wiley & Sons.

Tschannen-Moran, M., Salloum, S. J., & Goddard, R. D. (2014). Context matters: The influence of collective beliefs and shared norms. *International Handbook of Research on Teachers' Beliefs*, 301–316.

Vallée, D., & Ruglis, J. (2017). Student Disengagement in English-Speaking Montréal. *Educational Studies*, *53*(3), 285–314. https://doi.org/10.1080/00131946.2017.1303494

Van den Berghe, L., Soenens, B., Vansteenkiste, M., Aelterman, N., Cardon, G., Tallir, I. B., & Haerens, L. (2013). Observed need-supportive and need-thwarting teaching behavior in

physical education: Do teachers' motivational orientations matter? *Psychology of Sport and Exercise, 14*(5), 650–661. https://doi.org/10.1016/j.psychsport.2013.04.006

Van den Broeck, A., Vansteenkiste, M., De Witte, H., Soenens, B., & Lens, W. (2010). Capturing autonomy, competence, and relatedness at work: Construction and initial validation of the Workrelated Basic Need Satisfaction scale. Journal of Occupational and Organizational Psychology, 83, 981–1002.

Vander Elst, T., Van den Broeck, A., De Witte, H., & De Cuyper, N. (2012). The mediating role of frustration of psychological needs in the relationship between job insecurity and work-related well-being. *Work & Stress, 26*(3), 252–271.

Vanhee, G., Lemmens, G. M. D., & Verhofstadt, L. L. (2016). *Relationship satisfaction: High need satisfaction or low need frustration?* [Text]. https://doi.org/info:doi/10.2224/sbp.2016.44.6.923

Vanhee, G., Lemmens, G. M. D., Stas, L., Loeys, T., & Verhofstadt, L. L. (2016). Why are couples fighting? A need frustration perspective on relationship conflict and dissatisfaction. *Journal of Family Therapy, 40*(S1), S4–S23. https://doi.org/10.1111/1467-6427.12126

Vansteenkiste, M., & Ryan, R. M. (2013). On psychological growth and vulnerability: Basic psychological need satisfaction and need frustration as a unifying principle. *Journal of Psychotherapy Integration, 23*(3), 263–280. https://doi.org/10.1037/a0032359

Vansteenkiste, M., Ryan, R. M., & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions. *Motivation and Emotion, 44*(1), 1–31. https://doi.org/10.1007/s11031-019-09818-1

Varga, S., Piko, B. F., & Fitzpatrick, K. M. (2014). Socioeconomic inequalities in mental well-being among Hungarian adolescents: A cross-sectional study. *International Journal for Equity in Health*, *13*(1), 100. https://doi.org/10.1186/s12939-014-0100-8

Voelkl, K. E. (1997). Identification with school. *American Journal of Education*, *105*(3), 294–318.

Walters, S., Beattie, R., Oldham, A., & Millar, S.-K. (2017). *Attrition in School Rowing in New Zealand: A Qualitative Descriptive Study - ProQuest*. https://search.proquest.com/openview/32956906e1921f44d25e6131c4c6a033/1?pq-origsite=gscholar&cbl=55152

Wolke, D., & Lereya, S. T. (2015). Long-term effects of bullying. *Archives of Disease in Childhood*, *100*(9), 879–885. https://doi.org/10.1136/archdischild-2014-306667

Yin, R. K. (2017). *Case study research and applications: Design and methods*. Sage publications.

Appendix A

Psychological Need Frustration (NF)		This scale measures the extent to which students' feelings of autonomy, competence, and relatedness are repressed within the school environment. All need frustration items were rated on a Likert Scale of 1 to 4 as follows: 1 = Rarely, 2 = Sometimes, 3 = Often, 4 = Very Often. The scale has also been used in multiple studies and demonstrated good construct and predictive validity. A test of reliability produced a Cronbach Alpha value of .84, demonstrating strong internal consistency and reliability.
Faculty Relational Conditions	Faculty Trust in Students	Measures the quality of engagement between faculty and students. Questions from this scale ask faculty about their view of the openness, honesty, reliability, competence, and benevolence of students. The measure contains three subscales with reliabilities ranging from .90 to .98. Factor analytic studies of the Omnibus T-Scale support the construct and discriminant validity of the concept. (Forsyth et al., 2011; Tschannen-Moran et al., 2014).

	Faculty Trust in Parents	Measures the quality of engagement between faculty and the parents of their students. Questions from this scale ask faculty about their view of the openness, honesty, reliability, competence, and benevolence of the parents of their students. The measure contains three subscales with reliabilities ranging from .90 to .98. Factor analytic studies of the Omnibus T-Scale support the construct and discriminant validity of the concept. (Forsyth et al., 2011; Tschannen-Moran et al., 2014).
	Teacher Support of Students Autonomy	Autonomy Support measures the degree to which students perceive that teachers provide choice, encourage independence, and support individual preference. Using Cronbach's alpha test of reliability, a value of .77 with factor loadings ranging from .55 to .83 showed internal consistency among items. Items were derived from the Autonomy-Enhancement Scale (Assor, Kaplan, & Roth, 2002).
	Teacher Support of Students Competence	Competence Support measures students' perception of their teachers' support to help them attain higher levels of aptitude and achievement. High levels indicate that most teachers support and encourage students toward growth and

		achievement. Reliability, as measured by the Cronbach alpha ranged from .79-.93 suggesting strong internal consistency among the items. The survey was adapted from the Consortium on Chicago School Research available at http://ccsr.uchicago.edu/content/index.php (OCEP, 2017).
	Teacher Perception of Student Readiness to Learn	Measures teacher perception of the readiness of their students to learn in the classroom (OCEP, 2017).
Peer Relational Conditions	Student Engagement	Engagement of students was measured using the communication scale which assesses student perceptions of their own ability to remain tuned in to conversations, to listen with intent, and sustain inquiry while relating with others. Data were gathered using the Interaction Involvement Scale (Cegala, 1981). Responses to items fall within acceptable range of internal consistency. Factor analysis revealed a single eigenvalue over one. Cronbach's alpha was .84, indicating strong internal consistency.
	Peer Academic Emphasis	Peer Academic Emphasis refers to the extent to which a student's associative peer group demonstrate drive or the lack thereof, towards academic excellence. The measure includes three subdomains that include 1) Peer

		Academic Aspiration, 2) Peer Resistance to School Norms, and 3) Peer Academic Support. All factor solutions were established in a pilot study on an independent sample by Murdock (1994) and reconfirmed in Murdock (1999). Factor solutions for each of the scales were accepted provided they were conceptually consistent and had a sufficient number of uniquely loading items. Original Cronbach alphas (internal consistency) for the three subscales were .74, .73, and .70, respectively.
	Bullying	Bullying measures both explicit and non-explicit types of peer oppression. Students response represent the extent to which they observe other students being victimized. Four forms of bullying considered include: teasing, rumor spreading, exclusion, and threats of, or actual, physical harm. Reliability was explored through test-retest procedures and good agreement over time was stable (Bond, et. al., 2007).
	Perception of Safety	Safety measures the students' sense of security in their classrooms, hallways, restrooms, and when commuting to and from school. High levels represent high sense of security in all these areas. Reliability, as measured by

		Cronbach's alpha, ranged from .92-.99 for the Safety Scale, suggesting strong internal consistency. The survey was adapted from the Consortium on Chicago School research and can be found at http://ccsr.uchicago.edu/content/index.php.
	Student Trust in Students	Student Trust in Students measures the engagement between students, which includes the reliability of their peers, peers concern for other students, peer competence in learning, peer willingness to help, peer honesty, and peer openness. Higher student trust suggests that students perceive their peers as being open, honest, reliable, competent, and benevolent in their social interactions, and encourages students to build strong, lasting relationships with one another. Reliability, as measured by the Cronbach alpha, was .90 suggesting strong internal consistency among the items (Forsyth, Adams, & Hoy, 2011; Tschannen-Moran, 2014).

Appendix B

Appendix B1

Need Frustration Scale (NF)

9 items, 1-4 scale, *strongly disagree* (score 1) to *strongly agree* (score 4), student respondent
1. Most of the things I do feel like "I have to."
2. I feel excluded from a group I want to belong to.
3. I have serious doubts about whether I can do things well.
4. I feel forced to do many things I wouldn't choose to do.
5. People who are important to me are cold and distant toward me.
6. I feel disappointed with many of my performances.
7. I feel pressured to do too many things.
8. I think that the people I spend time with dislike me.
9. I feel insecure about my abilities.

Appendix B2

Faculty Relational Condition Measures (I – V)

I. Faculty Trust in Students (FTS)

5 items, 1-6 scale, s*trongly disagree* (score 1) to *strongly agree* (score 6), faculty respondent
1. Teachers in this school trust their students.
2. Students in this school care about each other.
3. Students in this school can be counted on to do their work.
4. Teachers here believe students are competent learners.
5. Students here tell the truth.

II. Faculty Trust in Parents (FTP)

5 items, 1-6 scale, s*trongly disagree* (score 1) to *strongly agree* (score 6), faculty respondent
1. Teachers in this school trust the parents.
2. Parents in this school are reliable in their commitments.
3. Teachers in this school can count on parental support.
4. Teachers think that most of the parents do a good job.
5. Teachers can believe what parents tell them.

III. Autonomy Support (AS)

7 items, 1-4 scale, *strongly disagree* (score 1) to *strongly agree* (score 4), student respondent
1. Teachers encourage students to work in their own way.
2. Teachers talk about the connection between what is studied in school and what happens in real life.
3. Teachers allow students to decide things for themselves.
4. Teachers listen to the opinions and ideas of students.
5. Teachers respect students when they share what they really think.
6. Teachers explain why it is important to study certain subjects in school.

7. Teachers show students how to solve problems themselves.

IV. Competence Support (CS)

7 items, 1-4 scale, *strongly disagree* (score 1) to *strongly agree* (score 4), student respondent

1. Teachers in this school really make students think.
2. Teachers in this school expect students to do their best all of the time.
3. Teachers in this school expect students to work hard.
4. Teachers in this school challenge students to achieve academic goals.
5. Teachers in this school help students with difficult assignments.
6. Teachers in this school celebrate the achievement of students.
7. Teachers in this school make learning interesting.

V. Student Readiness to Learn (SRTL)

6 items, 1-6 scale, *strongly disagree* (score 1) to *strongly agree* (score 6), faculty respondent

1. These students come to school ready to learn.
2. Home life provides so many advantages that students here are bound to learn.
3. Students here are motivated to learn.
4. The opportunities in this community help ensure that these students will learn.
5. Students at this school don't have to worry about their safety.
6. Drug and alcohol abuse in the community don't affect student learning here.

Appendix B3

Peer Relational Condition Measures (I – V)

I. Student Engagement (ENG)

9 items, 1-4 scale, *strongly disagree* (score 1) to *strongly agree* (score 4), student respondent

1. I am very observant during my conversations with others.
2. In conversations, I can think of the right things to say.
3. I pay close attention to what others say during conversations.
4. In conversations, I can pick up on other people's intentions.
5. I am aware of how others perceive me during conversations.
6. In conversations, I know how to relate to others.
7. My mind doesn't wander during conversations.
8. In conversations, I can pick up on what the other person is *really* saying.
9. I listen carefully to others during conversations.

II. Peer Academic Emphasis (PAE)

6 items, 1-4 scale, *strongly disagree* (score 1) to *strongly agree* (score 4), student respondent

1. Most of my good friends prefer to be around kids who study.
2. Most of my good friends won't drop out of school.
3. Most of my good friends plan to go to college.
4. Most of my good friends help each other study for tests.
5. I can call my friends for help with homework when I'm stuck.
6. Most of my good friends respect kids who are concerned about grades.

III. Bullying (BUL)

4 items, 1-4 scale, *rarely* (score 1) to *very often* (score 4), student respondent

1. Kids in this school are teased or called names.
2. Kids in this school are left out of things on purpose.
3. Kids in this school have rumors spread about them.
4. Kids in this school are physically threatened or hurt by other students.

IV. Safety (SA)

4 items, 1-4 scale, *not safe* (score 1) to *very safe* (score 4), student respondent

1. How safe do you feel outside or around the school?
2. How safe do you feel traveling between home and school?
3. How safe do you feel in the hallways and the bathrooms of this school?
4. How safe do you feel in your classes?

V. Student Trust in Students (STS)

10 items, 1-4 scale, *strongly disagree* (score 1) to *strongly agree* (score 4), student respondent

1. Students are ready to help each other at this school.
2. Students at this school are easy to talk to.
3. Students care for other students at this school.
4. Students at this school do what they are supposed to.
5. Students at this school really listen to other students.
6. Students at this school are honest.
7. Students at this school work hard on their schoolwork.
8. Students at this school can believe what other students tell them.
9. Students learn a lot from other students at this school.
10. Students at this school can depend on other students for help.

Appendix C

Full Correlation Table for Study Variables - Research Question 2, Manuscript I.

	M (*SD*)	1	2	3	4	5	6	7	8	9	10	11
Need Frustration	.00 (1.00)	-	-.42**	-.31**	.61**	-.45**	-.38**	-.35**	-.49**	-.00	-.05	-.56**
Engagement	2.92 (.15)		-	.46**	-.49**	.48**	.39**	.34**	.38**	.18	.22	.45**
Peer Academic Emphasis	2.96 (.16)			-	-.44**	.51**	.52**	.32**	.37**	.39**	.36**	.44**
Bullying	2.12 (.35)				-	-.75**	-.79**	-.45**	-.49**	-.42**	-.49**	-.54**
Safety	3.22 (.23)					-	.75**	.41**	.43**	.59**	.64**	.48**
Student Trust in Students	2.66 (.29)						-	.45**	.42**	.71**	.75**	.48**
Faculty Trust in Students	4.04 (.54)							-	.89**	.39**	.34**	.85**
Faculty Trust in Parents	3.59 (.71)								-	.23	.23	.89**
Competence Support	3.21 (.29)									-	.91**	.26**
Autonomy Support	2.98 (.25)										-	.22**
Student Readiness to Learn	3.17 (.86)											-

Notes. Sample size (N) alternates between from 69 and 70 due to occasional missing data.