



A study of the validity and reliability of the Teacher Homework Involvement Scale: A psychometric evaluation



Jianzhong Xu

Counseling, Educational Psychology, and Foundations, P.O. Box 9727, Mississippi State University, Mississippi State, MS 39762, United States

ARTICLE INFO

Article history:

Received 27 February 2016
Received in revised form 11 May 2016
Accepted 4 July 2016
Available online 5 July 2016

Keywords:

Autonomy support
Feedback quality
Quality homework
Math
Secondary school
Teacher involvement

ABSTRACT

The aim of the present investigation is to validate the Teacher Homework Involvement Scale (THIS) based on the data from 918 secondary school students. Using a randomized split of the sample, we performed exploratory factor analysis (EFA) on Group 1 ($n = 459$) and confirmatory factor analysis (CFA) on Group 2 ($n = 459$). The results indicated that the THIS consisted of three distinct yet related subscales: Homework Quality, Feedback Quality, and Autonomy Support. In addition, the present investigation found an adequate level of factor loading invariance across gender. Results further revealed that, in line with theoretical expectations, the THIS were positively related to motivational belief (value belief and expectancy belief), homework behavior (effort, management, and completion), and math achievement.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Defined as “tasks assigned to students by school teachers that are meant to be carried out during non-school hours” [4, p. 7], homework is a well-known educational activity of everyday importance for many teachers, students, and parents across nations, ages, and ability levels [7,10,37]. It is increasingly viewed as an important instructional strategy by teachers, parents, and policy makers to promote desirable self-regulatory behavior and academic achievement [7,9]. Reviews of empirical findings (e.g., [4,7,35]) provide generally consistent evidence for a positive effect of homework on academic achievement [43].

Yet, homework is a “complicated thing” [8], influenced by more factors than any other instructional activities [4,5]. For example, Cooper [4], in his model of factors influencing the effect of homework, conceptualized student characteristics, subject matter, and grade level as exogenous factors. The endogenous factors include homework characteristics (e.g., homework purpose), initial classroom factors (e.g., suggested approaches), home-community factors (e.g., family involvement), and classroom follow-up (e.g., teacher feedback).

Despite the importance of teachers’ influences on the homework process, little attention has focused on the effect of their homework practices on academic achievement [13,26,33]. For example, Núñez et al. [26] stated that “research on the importance

of the teacher’s role in the relationship between students’ HW [homework]-related behaviors and academic achievement is still scarce” (p. 204). Two possible explanations for the lack of research on teachers’ homework practices are: (a) homework has been conventionally viewed as an out-of-school activity over which teachers have no direct control [26] and (b) partly due to this reason, little attention has been devoted to the measurement of teacher involvement in the homework process. The current investigation attempts to bridge this critical gap in homework research, by developing and validating a scale for the measurement of teacher homework involvement.

Teacher involvement with homework typically takes place at two moments: (a) when they design homework and (b) when they provide homework feedback [26]. The importance of paying more close attention to design quality homework (instead of time or quantity of homework) has been called for by a number of researchers [11,12,30,37]. More than a decade ago, Warton [37] argued that “the quality and type of homework tasks vary to such an extent both within and between subject areas, ability, and grade level that to focus on time variables alone seems an oversimplification” (p. 157). Similarly, Epstein and Van Voorhis [12] argued that “all teachers should strive to design high-quality homework so that students who complete their assignments will, in fact, benefit from their efforts” (p. 185).

Empirical research, however, is lacking in this area. The few available empirical studies show that homework quality does matter [11,32]. For example, using the data from 511 students in

E-mail address: jx18@colled.msstate.edu

grades 8–9, Trautwein and Ludtke [32] found that homework quality as perceived by students (Cronbach's α 's ranging from .76 to .83; e.g., “our teacher knows what homework to give us so that we understand the material covered in the lesson”) was positively associated with homework motivation and homework effort. Similarly, another study by Dettmers et al. [11] examined the role of designing quality homework based on data from 3483 German students in grades 9–10. The study found that homework quality as perceived by the students ($\alpha = .83$; e.g., “our mathematics homework assignments really help us to understand our mathematics lessons.”) was positively associated with homework motivation and academic achievement.

Another important aspect of teacher homework involvement is related to the role of teacher feedback on students' homework. Previous studies pertaining homework feedback have largely focused on (a) teacher control or homework control (e.g., “I often ask students to hand in their homework so that I can check their work;” [32,34]) or (b) the amount of homework feedback (e.g., the amount of homework is checked and discussed; [23,45]).

Yet, feedback quality – the quality of homework control [32] or the quality of homework supervision [26] – is likely to play a more powerful role in homework motivation, effort, and completion than the frequency of homework control or the amount of homework feedback. This is because the amount of homework feedback or homework control “cannot be entirely sure that students really do the assignments themselves and do not just copy from their classmates. Moreover, students might experience a teacher who supervises homework completion strictly as ‘controlling,’ which might undermine their intrinsic motivation” [32, p. 255]. Not surprisingly, Trautwein and Ludtke [32] have recommended that “researchers should bear this point in mind when constructing assessment instruments for future research” (p. 255).

In addition, students who perceive their teachers to be autonomy-supportive tend to show increased motivation toward and effort invested in schoolwork, and consequently earn better grades [15,16,22]. Thus, it would be intriguing to examine whether teachers' autonomy support regarding homework can be conceptualized as another important aspect of teacher involvement with homework (i.e., in addition to homework quality and feedback quality). This proposition is, to some extent, alluded to in one study [15] based on the data from 1601 students aged 9–17 years. The study showed that autonomy support was positively associated with students' intrinsic motivation toward school activities, in which doing one's homework was conceptualized as one of the three school activities in their scale (the other two activities included going to school and listening to the teacher in class).

This proposition is further substantiated by the findings from another study [16], which has more explicitly linked autonomy support to homework behavior and homework grades. Using the data from 220 high school students, the study indicated that students' perceived autonomy support for math class activities was positively related to autonomous motivation toward math class activities, which, in turn, was positively related to autonomous motivation, the frequency of doing homework, homework completion, and homework grades. Taken together, it would be important to study whether teachers' autonomy support regarding homework can be empirically distinguished from other two aspects of teacher involvement with homework (i.e., homework quality and feedback quality).

The aim of the present investigation is to evaluate the psychometric properties of the Teacher Homework Involvement Scale (THIS) in math homework. The justification for focusing on math homework is that math has been viewed as critically important in many countries (e.g., due to the importance of math competency in STEM subjects; [16,36]). Not surprisingly, math is a major school subject with high homework demands; students typically spend

20%–40% of homework time on math assignments [24,39]. Yet, at the same time, doing math homework in particular is often viewed as a major challenge for many teachers, students, and their families (e.g., math frustration and math anxiety; [14,25]).

In addition, females (compared with males) across different countries tend to exhibit more positive homework attitudes and display greater efforts in doing homework [17,40,42,48]. Meanwhile, teachers tend to view males as having more negative homework attitudes and more homework problems than females (e.g., “don't pay attention when homework assignments are presented or discussed” and “don't understand homework instructions”; [20]). Consequently, it would be important to further assess factor invariance across gender.

Particularly, the purposes of the current investigation are four-fold: (a) to study the factor structure of the THIS, by examining whether three aspects of teacher homework involvement (i.e., Homework Quality, Feedback Quality, and Autonomy Support) are factorially distinct; (b) to assess factor invariance across gender; (c) to evaluate internal consistency for the THIS; and (d) to assess the concurrent and predictive validity of the THIS by measuring the relationships among the THIS and multiple theoretically grounded measures, including motivational belief (value belief and expectancy belief), homework behavior (homework effort, homework management, and homework completion), and math achievement.

2. Method

2.1. Participants and procedures

A total of 918 students (59.3% male) from Grade 7 (29.6%), Grade 8 (40.2%), and Grade 9 (30.2%) participated in the present investigation. These students were recruited from three urban public schools in southeastern China. The average education for parents was 10.56 ± 2.72 years.

Concerning math assignments, 78.2% of participants received math homework five or more days per week. On average, participants spent 35 ± 24 min on math assignments daily. The frequency and amount of math assignments from the current investigation are comparable with relevant results from previous research with Chinese students (e.g., [44]).

We secured the permission from the school administrators, math teachers, and parents for administering the instrument. A trained research assistant administered the instrument during typical school days, and math teachers were not present during the administration. Participants were assigned an identification number, which was then used to link their standardized math test scores at the end of school semester (approximately three months following the administration of the instrument). The participation rate was above 90% in all schools.

2.2. Instrument

The THIS is comprised of twelve items, in which participants responded using a 4-point format: (1) *strongly disagree*, (2) *disagree*, (3) *agree*, or (4) *strongly agree*. It consists of three subscales: homework quality, feedback quality, and autonomy support.

2.2.1. Homework quality

As discussed above, several researchers [11,32] have tapped into homework quality (e.g., in terms of helping students to better understand their math lessons). Adapted from the work by these researchers, this subscale included four items to assess the quality of math homework assignments (e.g., the extent to which math

Download English Version:

<https://daneshyari.com/en/article/7122516>

Download Persian Version:

<https://daneshyari.com/article/7122516>

[Daneshyari.com](https://daneshyari.com)