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How to cite this publication

Please cite the final published version:

Pedersen, M. J. (2016). A 'Heart of Goal' and the Will to Succeed: Goal Commitment and Task Performance among Teachers in Public Schools. *Public Administration*, 94(1), 75-88. DOI: 10.1111/padm.12201

Publication metadata

Title:	A 'Heart of Goal' and the Will to Succeed: Goal Commitment and Task Performance among Teachers in Public Schools
Author(s):	Pedersen, M. J.
Journal:	<i>Public Administration</i> , 94(1), 75-88
DOI/Link:	http://dx.doi.org/10.1111/padm.12201
Document version:	Accepted manuscript (post-print)

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A 'HEART OF GOAL' AND THE WILL TO SUCCEED: GOAL COMMITMENT AND TASK PERFORMANCE AMONG TEACHERS IN PUBLIC SCHOOLS

ABSTRACT

Much research suggests that employee goal commitment is predictive of work behavior and performance. However, public administration research has yet to establish the linkage between goal commitment and task performance in the context of public service employees. Using survey data on school teachers with administrative data on students, this article employs within-student between-teachers fixed effects and shows how teachers' goal commitment affects their task performance. Moreover, the article shows how task difficulty moderates this relationship. The findings suggest that higher goal commitment promotes teacher task performance, in particular, at moderate to high levels of task difficulty.

Keywords: goal commitment, task performance, task difficulty, fixed effects, teachers

INTRODUCTION

How to ensure and improve the public services performance is a theme at the heart of public administration research. Nevertheless, our knowledge about the determinants of public organizations' performance is incomplete (Boyne *et al.* 2006; O'Toole and Meier 1999).

A specific set of unresolved questions relates to the consequences of public employees' goal commitment, defined as 'a volitional psychological bond reflecting dedication to, and responsibility for, a particular target' (Klein *et al.* 2013, p. 67). Based on goal setting theory (GST), several studies emphasize the importance of goal commitment to performance (Erez and Judge 2001; Klein *et al.* 1999, 2013; Latham and Locke 2007; Latham *et al.* 2008a; Locke and Latham 1990, 2004, 2013; Schweitzer *et al.* 2004; Seijts and Latham 2000a). Yet research that specifically examines the linkage between goal commitment and performance among public service employees is needed. A review by Latham *et al.* (2008b) on the applicability of GST in the practice of public sector management makes clear that far more GST research has been conducted in the private than in the public sector. Empirical studies that test the assertions of GST in public service settings are relatively sparse. Exceptions include Selden and Brewer (2000). Using a sample of federal executives, they find support for Locke and Latham's (1990) 'high performance cycle' model (for other exceptions, see Chun and Rainey 2005; Rutherford and Meier 2015; Wright 2007). Moreover, commitment research within public administration scholarship has focused primarily on organizational commitment (Balfour and Wechsler 1996; Moldogaziev and Silvia 2014; Moon 2000). Public administration scholars have thus called for greater attention to GST processes in public organizations (Perry *et al.* 2006) and to the correlates of public employees' goal commitment (Wright 2007).

This article examines how the goal commitment of public service employees relates to their task performance at work: Do public service employees with a 'heart of goal' exhibit

higher task performance? Using survey data comprising 382 Danish school teachers with administrative data on 3,621 of their students, the article estimates the relationship between teachers' goal commitment and their task performance in educating their students (measured by the students' test scores achievements). The main estimation strategy is a within-student between-teachers fixed effects (henceforth SFE) approach (Wooldridge 2013, pp. 481-2). This estimator is used by a recent study on the effects of teachers' public service motivation (Andersen *et al.* 2014) and other studies of teacher effects (Aslam and Kingdon 2011; Dee 2007; Klaveren 2011). While not providing the same potential for causal inference as the randomized experiment (Margetts 2011; Schlotter *et al.* 2011), the SFE estimator provides relatively robust estimates. The article elaborates the estimator and its merits later on.

The article thus complements Selden and Brewer's (2000) study in several ways: In line with GST, they find a positive association between commitment and performance. However, their structural equation modelling estimator provides limited safeguard against confounding, their commitment measure appears more related, if anything, to organizational/supervisor commitment than goal commitment¹, and they measure commitment and performance by self-reports, thus raising concerns about common source bias (Favero and Bullock 2015; Jakobsen and Jensen 2015).

Moreover, the present article examines how the relationship between goal commitment and task performance is moderated by task difficulty; the extent to which a task is discrepant (either positively or negatively) from an individual's capacity to accomplish that task. Goal difficulty along with goal specificity are core tenets of GST (Locke and Latham 2013) – and a central GST hypothesis is that goal difficulty and goal commitment interact in relation to task performance effects. GST expects that high performance comes about when goal difficulty and goal commitment are both high (Klein *et al.* 1999; Latham and Locke 2007; Locke and Latham 1990, 2013). However, 'a critical distinction must be made between *task*

difficulty and *goal difficulty*' (Pinder 2008, p. 393). GST defines a goal 'as the object or aim of an action' (Locke and Latham 2013, p. 4). Two people could be faced with the same task, but one person could be given a more difficult goal, such as being given half as much time to as the other to attain the goal (Pinder 2008). Similarly, employees can face the same goal but different task difficulty in attaining that goal. This article examines the role of goal commitment on task performance in a school setting characterized by the latter: same goal, different task difficulty. In Denmark, student attainment of subject learning is a main goal of schooling (Danish Law on Public Schools, §1). The transmission of subject knowledge and ability is thus a salient teacher job goal in general. Yet while all teachers face this particular goal, some teachers experience greater task difficulty in goal attainment than others. In particular, a teacher's work task in relation to ensuring students' subject learning becomes increasing difficult when the average socioeconomic status (SES) of that teacher's class is weaker (Björklund and Salvanes 2011; Black and Devereux 2011). No public sector study has yet examined how the relationship between goal commitment and task performance differs across similar organizations with differing task difficulty in relation to the same goal.

DRAWING INFERENCE FROM EXTANT STUDIES: SOME PROBLEMS

That goal commitment is a contributing factor to public service effectiveness is not a new idea in public administration scholarship. For example, Wilson (1887) calls for a technically schooled civil service, emphasizing how the people who staff the public organizations should be motivated and committed to act in service of the public interest. Similarly, Weber's (trans. 1978) argument for obtaining a well-functioning bureaucracy relates to the advocacy of public servants working hard and committed to support the organizational goals in a professional and politically neutral manner.

Yet, empirical evidence on the role of goal commitment to task performance in public service organizations is sparse and widely uninformed by rigorous methodological approaches. This is not to say that no research has examined the association between goal commitment and performance. A meta-review by Klein *et al.* (1999) identifies 66 studies that explore the performance consequences of goal commitment and goal acceptance. However, two factors limit the potential for extrapolating the results of extant studies to the area of public service. First, nontrivial methodological caveats mark the far majority of them. For example, most studies in Klein *et al.*'s (1999) review use cross-sectional observational data and basic estimators providing no or only limited safeguard against confounding.² In addition, many studies measure goal commitment by a single item, task performance by self-reports, or both – thus raising concerns about measurement error and common source bias (Favero and Bullock 2015; Jakobsen and Jensen 2015).

Second, the far majority of goal commitment-performance studies use private sector data – and findings on the relationship between goal commitment and task performance among private employees may not be generalizable to public service settings. For example, public organizations may attract a certain types of ‘public service motivated’ individuals (Perry and Wise 1990; Vandenabeele, Brewer, and Ritz 2014). Research finds that students with high public service motivation have preferences for public employment (Pedersen 2013; Vandenabeele 2008), and other studies (Perry and Hondeghem 2008; Steijn 2008; Taylor 2010) support that public employees are marked by a distinct ‘public service ethos’ (O’Toole 2006). Inasmuch as distinct motivational dispositions characterize public service employees, the relationship between goal commitment and task performance may differ across private sector and public service settings. For other differences between public and private employees, see Buelens and Van den Broeck (2007), Lyons *et al.* (2006), and Willem *et al.* (2010).

Similarly, public service employees experience high levels of discretionary authority in performing their job (Lipsky 1980). Compared to their private sector counterparts, a large part of the public employees' work behavior is a product of their personal work preferences and moral judgment (Maynard-Moody and Musheno 2003). Moreover, public administration scholars have long emphasized that employees in public organizations operate in different structural settings than employees in private firms (Allison 1983; Lynn 1981).

Inasmuch as public service employees and their work contexts differ from private sector employees and organizations in one or more of the abovementioned respects, the results of extant goal commitment studies using – the far majority based on private sector data – may not be generalizable to public service settings. To the very least, the potential for such cross-sector inference remains empirically unsubstantiated. Research that examines how goal commitment influences task performance in the context of public service employees, such as teachers, is therefore warranted.

Moreover, empirical research that examines the task performance consequences of interaction between goal commitment and task difficulty is needed. GST suggests that the relationship between goal commitment and task performance is stronger for difficult goals relative to easy ones (Klein *et al.* 1999, 2013). However, as GST deals primarily with goal difficulty, few empirical studies have focused on the moderating role of task difficulty. Notable exceptions include a classic psychological study by Campbell and Ilgen (1976). Emphasizing how researchers may confound the setting of difficult goals with the difficulty of the task, they conduct a set of chess matches experiments among undergraduate student. They find that goal difficult is positively related to performance, as per GST, but that task difficulty contributed positively as well (see also Huber 1985).

GOAL COMMITMENT AND PERFORMANCE

Most research on the role of goal commitment to employee task performance draws on GST (Pinder 2008). While GST is best known for emphasizing the importance of goal difficulty and goal specificity to work behavior and performance (Latham and Locke 2007; Locke and Latham 1990, 2004, 2013), goal commitment has been a central concept in GST since its inception (Locke 1968; Locke and Latham 2004).

Perceiving goal commitment as a behavioral motivator, GST suggests that goal-committed individuals tend to perform better (Latham and Locke 2006). Goal commitment relates to task performance in two ways. First, goal commitment may have a direct effect on an individual's work behavior and performance (Klein *et al.* 1999, 2013; Latham and Locke 2007; Locke and Latham 1990, 2004, 2013; Seijts and Latham 2000a). High goal commitment is expected to reflect positively on goal attainment (e.g., results in high task performance) by directing behavior and attention to a course of action (Parish *et al.* 2008; Seijts and Latham 2000b). Similarly, highly goal-committed individuals exert greater effort and persistence toward goal attainment than individuals who are less committed to a goal (Erez and Judge 2001; Latham and Locke 2006; Seijts and Latham 2000a; Wright 2007). Finally, goal commitment is positively related to development of task-relevant strategies for goal attainment (Earley *et al.* 1992).

Second, goal commitment may affect task performance in terms of an interactive relationship with goal difficulty. GST expects that high performance comes about when goal commitment and goal difficulty are both high (Latham and Locke 2007; Locke and Latham 1990, 2013). In GST literature, this interaction is often stated in terms of goal commitment moderating the relationship between goal difficulty and performance (Locke and Latham 1990, 2013). Importantly, however, all interactive variable relationships are symmetrical (Cohen and Cohen 1983). Thus, 'the idea that goal commitment moderates the goal

difficulty-performance relationship necessarily substantiates the idea that goal difficulty moderates the goal commitment-performance relationship' (Klein *et al.* 1999, p. 887).

Based on GST, the article thus tests the following hypothesis (H1): *higher goal commitment is associated with higher task performance.*

This hypothesis is based on the GST notion of a direct effect of goal commitment. While goal commitment may also affect task performance in terms of an interactive relationship with goal difficulty, this article operates with largely constant level of goal difficulty: As mentioned, the Danish Law on Public Schools specifies student attainment of subject learning as a main goal of schooling, but teachers in Denmark are not facing any specified performance targets or benchmarks in relation to this goal. While the successful transmission of subject knowledge and ability is thus a salient teacher job goal, this goal is effectively the same for all teachers. Goal difficulty in procuring students' attainment of subject learning is therefore alike across schools and teachers. Importantly, however, some teachers still experience greater task difficulty in goal attainment than others. For example, students' SES conditions the hardship in ensuring their attainment of subject learning (Björklund and Salvanes 2011; Black and Devereux 2011). The task of procuring students' attainment of subject learning is more difficult for teachers with low-SES students than for teachers with comparable high-SES students.

Task difficulty may thus moderate the relationship between goal commitment and task performance. In particular, the positive association between teachers' goal commitment and task performance may be stronger in contexts of greater task difficulty, e.g., when the average SES of teachers' students is lower. Task difficulty may contribute positively to higher task performance, because it instigates exploration and learning (Campbell and Ilgen 1976). Moreover, a sense of challenge is the basis for feelings of accomplishment when a task is completed – a source to sustained behavioral effort. Difficult tasks may engender higher self-

efficacy, that is, confidence in one's own abilities (Bandura 1986), and self-efficacy influences an individual's propensity to exert the work effort necessary for high task performance (Bandura and Cervone 1983).

In addition, task difficulty may moderate the goal commitment-task performance relationship via psychological mechanisms similar to those set forth by GST for explaining the task performance effect of interaction between goal commitment and goal difficulty (Locke and Latham 1990, 2006, 2013). In particular, task difficulty may regulate task performance because difficult tasks stimulate effort and persistence in relation to goal attainment. In other words, difficult tasks may produce a gap between a person's desired goal and current performance, in turn, arousing work effort and focusing behavior.

With a focus on the moderating effect of task difficulty, this article thus tests the following hypothesis (H2): *The goal commitment-task performance relationship is stronger in organizational contexts where the task in relation to goal attainment is more difficult (as opposed to less difficult).*

In relation to H2, motivation theory that concerns itself directly with task difficulty (e.g., McClelland 1987) suggests that individual work effort toward goal attainment is maximized when the task is of a moderate level of difficulty. The moderating effect of task difficulty on the goal commitment-task performance relationship may thus take the form of an inverted U-shape. As tasks become extraordinarily difficult, the positive marginal moderation effect of task difficulty diminishes and, at some point, may become negative. In the attempt to account for such curvilinear trend, the article will estimate its interaction analyses on subsamples excluding observations marked by the highest levels of task difficulty.

DATA AND DESIGN

The article uses survey data on Danish school teachers with administrative data on students. The Danish National Centre for Social Research (SFI) collected the survey data in spring 2011. 2,612 teachers lecturing one or more ninth-grade classes in either Danish language skills or math were invited to participate. 1,592 teachers responded (60.4 percent). Previous sample analyses indicate acceptable sample representativeness (Mikkelsen and Lynggaard 2013). The survey data contains information on a rich set of teacher characteristics, including items capturing goal commitment. UNI-C, an agency under the Danish Ministry of Children and Education, provided the administrative data. It contains information on Danish lower secondary schools, including student-level measures of students' test scores and SES.

The administrative data was merged with the survey data. The resulting dataset is structured at the student level, with each student represented twice: with one row for a student's Danish test score achievements, matching the survey data on that student's Danish teacher, and another row for that same student's math achievements, matching the survey data on that student's math teacher.

Information on each student's Danish and math achievements and identification of each sample Danish and math teacher allows for SFE estimation. However, the SFE approach necessitates the survey response of *both* the Danish and math teacher of each student. Teacher observations that could not be matched to another (i.e., opposite subject) sample teacher observation in a school class were therefore dropped. Additional elimination of 444 incomplete teacher observations left data on 382 teachers in 171 schools.³ This procedure could reduce the representativeness of the sample, but attrition analyses do not reveal any significant differences between the final 382 teachers and the 1,210 excluded teachers: Two-group *t*-tests for gender, ethnicity, age, level of education, and years of school tenure reveal no significant differences in means. Similarly, the 171 schools of the sample teachers are not statistically distinct from the full population of Danish lower secondary schools with respect

to average student test scores, student socioeconomic background, and school size. In sum, the final dataset consists of 7,242 data rows comprising 3,621 students in 191 classes with 382 teachers (191 Danish, 191 math).

Measures

Task performance. In line with other studies (e.g., Aaronson *et al.* 2007; Pitts 2005; Rivkin *et al.* 2005; Rockoff 2004), this article operationalizes teacher task performance by the test score achievements of the teachers' students, that is, their test scores at the final ninth-grade exams in summer 2011 (after collection of the teacher survey data). The test scores come from nationally standardized written tests that 98 percent of all ninth-grade students take (Andersen 2005). All scores are given by an external third party. The student test scores thus constitute a non-perceptual indicator of teacher task performance, in turn, minimizing risks of social desirability and common source bias (Favero and Bullock 2015; Jakobsen and Jensen 2015). In line with Aslam and Kingdon (2011) and Klaveren (2011), the mean test score in Danish and math are standardized (mean = 0, standard deviation = 1) to ensure a similar normal distribution across the two subjects.

Goal commitment is measured by three Likert type scale items: 'I agree on the established school goals and values'; 'In decisions on teaching planning and methods, I put emphasis on the goals and instructions established by the school management'; 'I try hard to meet the school goals and values'. While the items are specific to the context of schools, their basic content domains are similar to those of Klein *et al.*'s (2014) four-item scale that addresses inconsistency in previous scales by Hollenbeck *et al.* (1989) and Klein *et al.* (2001). See Klein *et al.* (2013) for a review of measurement. The goal commitment scale was constructed by the mean sum of the three items. The individual items and descriptive statistics appear in the appendix (with similar information for the task difficulty measure).

Cronbach's alpha is .66. Principal component analysis identifies a single factor and acceptable factor loadings.

Task difficulty is measured by a scale capturing the average SES of the teachers' class students. The basic intuition is that students' attainment of subject learning is a main teacher goal, but that the teacher task of ensuring students' subject learning becomes increasingly difficult, *ceteris paribus*, when the average SES of a teacher's class is weaker (Björklund and Salvanes 2011; Black and Devereux 2011). The article's SFE approach plays a significant role to the validity of this conceptual linkage. The estimator implicitly computes how goal commitment differences between student *i*'s Danish teacher and math teacher predict student *i*'s achievement in Danish relative to math. The SFE approach therefore allows for an interaction effect estimate – on how the relationship between teachers' goal commitment and task performance differs across *classes* marked by similar goal difficulty but different average task difficulty – while simultaneously taking account of confounding at the *individual* student level, e.g., unobserved effects of the individual student's SES. In other words, the SFE approach helps establish the '*ceteris paribus*' notation of intuition underlying the conceptual linkage between SES and task difficulty.

The task difficulty scale comprises four SES indicators measuring, respectively, the proportion of students in the class who are ethnic Danes, whose mothers hold an undergraduate degree or higher, whose fathers hold an undergraduate degree or higher, and who live with both parents. The four indicators were selected based on studies that identify these variables as key SES predictors of student achievement in the area of Danish schooling (Andersen 2008; Andersen and Winter 2011; see also Rivkin *et al.* 2005). The scale is generated by the predicted factor scores on the basis of confirmatory factor analysis of the four indicators. The scale is thus standardized (mean = 0, standard deviation = 1), with lower scores signifying higher task difficulty. Cronbach's alpha is .75. Confirmatory factor analysis

reveals significant item loadings and acceptable goodness-of-fit statistics (CFI = .997; RMSEA = .039; SRMR = .015; TLI = .991; $X^2(2) = 3.190, p > X^2 = .203$).

Controls. The main estimation models include a set of teacher control variables, thereby, minimizing omitted variable bias from unobserved teacher heterogeneity. The control variables include gender, ethnicity, age, completion of a master's degree, whether the teacher majored in the subject (Danish or math) that he or she is teaching, whether the teacher holds a pedagogical diploma degree, years of school tenure, and years as a teacher in the specified subject (Danish or math) for the specified class. As student, class, and school characteristics are constant for the individual student in the SFE estimations, the statistical models do not contain any student, class, management, or school controls.

Estimation Strategy

The following production function denotes the within-student between-teachers fixed effects approach:

$$\Delta Y_i = (\beta_{0,d} - \beta_{0,m}) + U'_i(\beta_{1,d} - \beta_{1,m}) + T'_{i,d}\beta_{2,d} - T'_{i,m}\beta_{2,m} + S_i(\beta_{3,d} - \beta_{3,m}) + X'_{i,d}\beta_{4,d} - X'_{i,m}\beta_{4,m} + \epsilon_i \quad (1)$$

Which is equivalent to:

$$\Delta Y_i = \delta + \Delta T'_i\beta_2 + \Delta X'_i\beta_4 + \eta_i \quad (2)$$

Subscript d (m) relates an observation to subject Danish (math), ΔY_i represents the difference between the Danish and the math achievements of student i , while δ refers to $\beta_{0,d} - \beta_{0,m}$. Student i 's achievement (ΔY_i) depends on a range of school and class (U), teacher (T), and student (S) characteristics, including teacher goal commitment (X). Given that school, class, and student characteristics have the same impact on student i 's achievement across subjects ($\beta_{1,d} - \beta_{1,m} = \beta_{3,d} - \beta_{3,m} = 0$), these effects fall out of equation 2. Similarly, unobserved effects of school and student characteristics are removed

from the error term, η_i , leaving only the effects of unobserved teacher characteristics and stochastic error. In contrast to basic OLS procedures, the SFE approach thus offers relatively robust estimates because it accounts for all subject-invariant effects at the student, class, and school levels that could otherwise bias the goal commitment estimate (β_4). Most notably, the approach substantially diminishes the risk of omitted variable bias. Wooldridge (2013, pp. 466-83) provides more detailed information about the estimator (for empirical studies, see Andersen *et al.* 2014; Aslam and Kingdon 2011; Dee 2007; Klaveren 2011).

That said, the article's SFE approach does not offer the same potential for causal inference as the randomized experiment (Margetts 2011; Schlotter *et al.* 2011). The article thus discusses and performs robustness tests in relation to three potential biases: subject-variant effects, unobserved teacher heterogeneity, and reverse causation. The procedures are elaborated in the appendix. In sum, the robustness analyses yield no substantial motive for rejecting the article's finding.

The article tests the interaction hypothesis in the SFE framework, that is, by model inclusion of an interaction term, Z ('goal commitment $\times$ task difficulty'), which is equivalent to adding ' $+\Delta Z'\beta_5$ ' in equation 2.

RESULTS

Table 1 reports the relationship between goal commitment and task performance, without and with teacher controls (models 1 and 2). Both models include a subject dummy. All estimations are based on standard errors, adjusted for school-level clustering.

[TABLE 1]

In support of H1, goal commitment is positively related to task performance in both models. The goal commitment scale has a standard deviation of .619; the task performance measure a standard deviation of 1. Given the model 2 goal commitment coefficient ($\beta =$

.050), a one standard deviation increase in goal commitment thus appears associated with an increase in task performance of 3.1 percent of a standard deviation.⁴

Table 2 reports the results for goal commitment-task difficulty interaction, without and with teacher controls (models 1 and 2). Because of the SFE, task difficulty is constant across subjects (and within students and classes). Neither model therefore includes the main effect of task difficulty. Because goal commitment varies by subject for each student, estimation of goal commitment-task difficulty interaction is still possible and valid.

[TABLE 2]

The insignificant interaction term coefficients suggest that task difficulty does not moderate the goal commitment-task performance relationship *on average*. However, as Table 3 shows, the marginal effect estimates reveal that the positive association of teacher goal commitment is significant *only* for classes marked by a moderate to weak SES composition (moderate to high task difficulty). The analyses thus provide some, although weak, support for H2: Higher teacher goal commitment is positively associated with task performance, but only where the teachers are exposed to a moderate to high level of task difficulty.

[TABLE 3]

As mentioned, the task difficulty-performance relationship may be curvilinear (inverted U-shape). The results of the interaction analyses could thus be biased toward zero (i.e., the coefficient estimates could be smaller than their ‘true’ value). In the attempt to check for such downward bias, the interaction estimations were repeated on subsamples excluding observations marked by the highest levels of goal difficulty (the bottom 10 and 20 percentile value of average SES). The results reveal no statistically significant differences in coefficient estimates between the full and the subsample models, thus providing no substantial evidence for downward bias.

Per suggestion by an anonymous reviewer, the interaction analysis was also repeated using a binary task difficult measure (cut at the median value of the continuous measure). The results are similar to the main results: Goal commitment is positively associated with task performance at moderate to high task difficulty ($\beta = .061$; $p = .049$), not at moderate to low difficulty. This analysis was also performed using a binary goal commitment measure (cut at the median value of the continuous measure). Again, goal commitment appears positively associated with task performance at moderate to high task difficulty ($\beta = .086$; $p = .017$), but not at low to moderate difficulty.

DISCUSSION AND CONCLUSION

The article offers new evidence on the relationship between teachers' goal commitment and task performance. The findings are in line with the GST expectation of a positive link between goal commitment and task performance, but the estimated coefficient is relatively small in magnitude. What may possibly explain that the observed association is relatively modest in size? While empirically unsubstantiated, potential main explanations relate to the ways in which both public employees and jobs may differ from private employees and jobs. For example, relatively vague, hard-to-measure, and ambiguous goals in public service settings (Chun and Rainey 2005; Rainey 2014) may dilute the positive effect of goal commitment on task performance. In addition, the findings may also be a consequence of low to moderate goal difficulty. As mentioned, school teachers in Denmark face the same goal of ensuring student attainment of subject learning, but the teachers are not facing any specified performance targets or benchmarks in relation to this goal. Goal difficulty in relation to ensuring student attainment of subject learning is thus largely constant across teachers and schools and not particularly high. The findings are thus in line with GST suggesting that high commitment to goals with low to moderate goal difficulty may fail to engender large task

performance improvements. Finally, an anonymous reviewer correctly suggests that the modest size of the observed association could be a consequence of weakness in the article's goal commitment measures. Use of previously validated scales may yield large coefficient estimates than the ones observed in this study.

Irrespective of the relatively modest strength of association and the potential explanation hereof, the findings suggest that higher goal commitment is related to higher task performance: Employees with a 'heart of goal' appear to exhibit better task performance. To the very least, public managers should therefore not diminish their current efforts in cultivating employee commitment to the goals of the organization.

Moreover, the article shows how teacher goal commitment interacts with task difficulty in predicting task performance. The evidence – although thin – suggests that goal commitment has a positive effect on task performance when the task in relation to goal attainment is difficult, as opposed to less so. This result supports and underscores why continued attention to goal commitment in the area of public service is important. In the aftermath of the financial crisis of 2007-2008 and an increasingly competitive labor market, modern public service organizations are not facing fewer or any easier-to-achieve performance goals. To the contrary, elected officials continue to specify performance objectives requiring public organizations to improve their public service delivery while spending less. In an era of increasingly effort-demanding task goals, this article's findings suggest that goal commitment may be a factor of increasing salience and value to public service organizations.

NOTES

¹ Brewer and Selden (2000) use the following 'commitment' indicators: 'I have confidence and trust in my second-level supervisor'; 'Employees in my work unit are encouraged to

participate in decisions affecting their work'; 'In my work unit, employees' personal development is encouraged'.

² While GST literature comprises numerous experimental studies (Latham and Locke 2007), experimental research specifically focused on goal commitment is very sparse at best (this author has been unable to identify an experimental study or a study operating with 'as good as random' variance in its goal commitment measure).

³ The 444 eliminated observations had 'missing data' in relation to one or more of the main variables. The extent of missing data is a product of several factors: Key items were stated in the last part of the survey; the respondents were allowed to skip a question; and as the survey contained 220 items, it is characterized by some extent of partial responses (attrition).

⁴ For an average student at the 50th percentile rank, an increase of 3.1 percent of a standard deviation corresponds to a 1.25 percentile rank increase.

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APPENDIX

[TABLE 4]

Are the Results Robust?

This section discusses and tests the robustness of the article's results in three respects. First, the SFE approach accounts for student, class, and school effects that are subject invariant (affect students' Danish and math performances similarly). Examining potential bias caused by subject-variant effects, analyses were performed as to how student, class, and school characteristics impact the students' achievements in Danish relative to math. Variables included student gender, ethnicity, age, family type, parents' age, parents' education, and

class and school size. Subsequent to ‘seemingly unrelated regressions’ – in this case, across model specifications, regressing, respectively, Danish and math achievements on the same set of student, class, and school characteristics – the coefficient difference for each variable was tested. The analyses revealed a gender difference: Girls appear to outperform comparable boys in Danish, while the reverse holds for math. Moreover, the tests show a negative effect of being older at the time of testing that is larger for Danish than for math, and a negative effect of living in a non-nuclear family setting that is smaller for Danish than for math. On this basis, the SFE estimations were repeated with inclusion of interaction terms for each individual student, class, and school variable multiplied by the goal commitment measure. The results suggest that the positive effect of teacher goal commitment on task performance is stronger for girls than for boys and for younger students.

Second, the SFE approach does not eliminate bias caused by unobserved teacher characteristics. However, two factors work together to diminish the risk of bias: (1) Because of the SFE, all differences in teacher characteristics that are not systematically related to being a Danish or math teacher are filtered out. Any association between goal commitment and an unobserved teacher characteristic affecting task performance is thus problematic *only* if Danish and math teachers are heterogeneous on that characteristic. (2) The goal commitment coefficient is similar across models without and with the teacher controls. The goal commitment-task performance relationship thus appears to be largely unbiased by observable teacher characteristics, in turn lessening the concern of bias from unobserved characteristics.

Third, the SFE estimates are vulnerable to reverse causation bias. For example, low-ability students may reduce a teacher’s goal commitment. Still, the SFE approach diminishes the risk of reverse causation bias. In theory, a student with low Danish ability and high math ability may diminish the Danish teacher’s goal commitment while increasing the math

teacher's. In practice, however, any reverse causation effect is likely a product of more than a single student: *If* a teacher's goal commitment is affected by student performance, the moving cause is likely the aggregated performance of the students. As the SFE approach accounts for class and school effects, reverse causation is thus a concern only inasmuch as the students in a given class are systematically different in their average Danish and math abilities. Such instances are likely uncommon. Additionally, any reverse causation bias engendered by such exceptions is diluted because the teachers are exposed to students across multiple classes and subjects. For example, Danish administrative data shows that the average weekly teaching time per teacher is 16 hours. Based on the average number of Danish and math lessons per class in 2011, a rough calculation suggests that each teacher taught between three to five classes and/or subjects.

Moreover, the SFE estimations were repeated with employment of subject placebo substitution, once by replacing each student's Danish achievement with that student's English achievement, and once by replacing each student's math achievement with that student's physics achievement. Assuming that Danish and English (math and physics) achievements refer to a somewhat comparable ability skill sets at the student level, any findings of significant goal commitment effects would endorse the concern of reverse causation bias. However, employee goal commitment was not significantly related to task performance in either of the two subject placebo tests, thus, minimizing concerns about reverse causation.

TABLE 1 *Fixed effects regression estimates for goal commitment*

	Model 1 (no controls)	Model 2 (with control)
Goal commitment	.054* (.025)	.050* (.025)
Gender	-	.018 (.034)
Ethnicity	-	-.003 (.064)
Age	-	.008 (.014)
Age, squared/100	-	-.006 (.016)
Master's degree	-	-.054 (.048)
Main subject	-	.002 (.036)
Pedagogical diploma degree	-	-.029 (.061)
Years of school tenure	-	.001 (.002)
Years as class teacher	-	.018 [†] (.010)
Student fixed effects	Yes	Yes
Adj. R^2 (OLS, student dummies)	.649	.651
R^2 (within student)	.026	.101

Note: [†] $p < .1$, * $p < .05$, ** $p < .01$. Standard errors, adjusted for school-level clustering, in parentheses. Teachers' reference group is men of ethnic Danish origin with a medium higher education (3-4 years) or less, having neither a main subject education in subject [Danish/math] nor a pedagogical diploma degree. $n = 7,242$.

TABLE 2 *Fixed effects regression estimates for goal commitment-task difficulty interaction*

	Model 1 (no controls)	Model 2 (with controls)
Goal commitment	.058* (.025)	.053* (.025)
Goal commitment $\times$ task difficulty	-.022 (.028)	-.015 (.027)
Student fixed effects	Yes	Yes
Teacher controls	No	Yes
Adj. R^2 (OLS, student dummies)	.649	.650
R^2 (within student)	.029	.103

Note: [†] $p < .1$, * $p < .05$, ** $p < .01$. Standard errors, adjusted for school-level clustering, in parentheses. $n = 7,242$. For brevity, the coefficients for the teacher control variables are not reported.

TABLE 3 *Marginal effects for goal commitment at different levels of task difficulty*

Effect of goal commitment at the ...	$\Delta y / \Delta x$
...10 percentile value of avr. SES (high task difficulty)	.065* (.032)
...20 ————— (high task difficulty)	.058* (.026)
...30 ————— (high task difficulty)	.055* (.025)
...40 ————— (moderate task difficulty)	.052* (.025)
...50 ————— (moderate task difficulty)	.049 [†] (.026)
...60 ————— (moderate task difficulty)	.047 [†] (.026)
...70 ————— (low task difficulty)	.044 (.030)
...80 ————— (low task difficulty)	.042 (.032)
...90 ————— (low task difficulty)	.040 (.036)

Note: [†] $p < .1$, * $p < .05$, ** $p < .01$. Standard errors, adjusted for school-level clustering, in parentheses.

TABLE 4 *Descriptive statistics, scales and items*

	Mean	S.D.	Min	Max
Goal commitment (scale, mean sum):	3.91	.619	1.33	5
1. 'I agree on the established school goals and values'	4.00	.778	1	5
2. 'In decisions on teaching planning and methods, I put emphasis on the goals and instructions established by the school management'	3.45	.867	1	5
3. 'I try hard to meet the school goals and values'	4.27	.767	1	5
Task difficulty (scale, standardized):	0	1	-2.66	1.48
Proportion of students in the teacher's class...				
1. ...who are ethnic Danes	.93	.104	.50	1
2. ...with a mother having completed a higher education	.74	.130	.29	1
3. ...with a father having completed a higher education	.66	.141	.21	.92
4. ...who are living in nuclear family setting	.80	.117	.32	1
<i>Note:</i> Teacher $n = 382$. 158 of the 191 classes (83 percent) are marked by teacher differences in the goal commitment (S.D. = .786; Min/Max = -2.667/2.333).				