

How Client Characteristics Cause Extra-Role Behaviors in Public Service: Uncovering Invisible Frontline Work

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Frontline workers have the discretion to extend public services beyond their formal job requirements, yet little is known about the influence of client characteristics on this behavior. Using a large-scale conjoint design with 1,507 Danish high-school teachers, we uncover how teachers willingly exceed their job expectations when encountering students who demonstrate effort (e.g. handing in assignments) or low well-being (e.g. feeling lonely). However, their willingness diminishes as requested behaviors deviate further from job expectations. Our study highlights the factors driving extra-role behaviors and underscore the importance of recognizing "invisible frontline work".

Keywords: extra-role behaviours; client characteristics; frontline work; deservingness; conjoint experiments

Introduction

Frontline workers are each entrusted with the discretion to administer a small part of society's aggregate public service pool. For example, the individual teacher has only a finite amount of time to spend with students. As a result, *how* frontline workers distribute public services and prioritize between citizens has a significant impacts on citizens' lives since some citizens will receive less service when others receive more (Lipsky 2010, Tummers et al. 2015).

A major theme in the scholarly literature on frontline workers' use of their discretion has been the impact of various client attributes (Hill and Hupe 2009; Meyers et al. 2007). Research has shown that client attributes affect not only the *access* to public service (Hansen 2022; Kullberg 2005; Pedersen, Stritch, and Thuesen 2018; Schram et al. 2009) but also how public service is *prioritized between particular clients* (Hagen and Owens-Manley 2002; Jilke and Tummers 2018; Maynard-Moody and Musheno 2003; Tummers 2017). In brief, the literature offers rigorous accounts of how client characteristics affect the administering of frontline workers' individual service pool.

Our focus here is on a previously overlooked aspect: how client characteristics can make frontline workers *expand* the service pool. Although not part of formal job descriptions, "going above and beyond" is far from uncommon among public servants (de Geus et al. 2020). For example, frontline workers frequently use their own personal resources to help their clients: Nurses may stay after a shift to care for their patients; caseworkers occasionally use some of their own money to help clients buy food; and teachers make themselves available after hours to accommodate student needs (Tummers et al. 2015). These "extra-role behaviours" are essential to study because

they are an unavoidable part of how public service delivery takes place in practice.

Moreover, because they are not formally recognized, any distributional consequences risk falling under the radar.

To date, extra-role behaviours have occupied scholars within (e.g. Caillier 2016; Piatak and Holt 2020) and outside the public management literature (e.g. Podsakoff et al. 2009). Strikingly, however, the relationship between client characteristics and extra-role behaviors remains somewhat in the dark. Although a growing strand of qualitative research (e.g. Dubois 2016; Lavee 2021, 2022) has begun addressing the need for knowledge on client characteristics and their relationship with extra-role behaviors, hardly any research has been done focusing on causal inference or using experimental designs (for a recent systematic literature review, see de Geus et al. 2020).

To remedy this, we conducted a large-scale experimental study on how client characteristics relate to the extra-role behaviour of frontline workers ($n = 1,507$ with 5,998 observations). Specifically, we asked the research question: *How do client characteristics relate to frontline workers' willingness to engage in extra-role behaviors?* To address the need for further *theory development*, we bring multiple strands of research together from public administration, psychology, and management; providing the first theoretical account of how client characteristics may shape extra-role behaviours. To address the need for *empirical work* on extra-role behaviour among frontline workers, we tested our theoretical account using an extensive conjoint survey experiment among Danish high school teachers

Our results confirm that client characteristics *significantly impact* frontline worker willingness to engage in extra-role behaviour and provide beyond-the-job public service to clients. In particular, teachers were responsive to students who signaled either

low well-being (feeling lonely, having problems at home) or working hard in class (handing in assignments, participating actively in class). Interestingly, our results also show that teachers generally become less willing to “go above and beyond” their job requirements, the further the requested behaviours are from what is expected as part of the job role.

Our study advances scholarly understanding of how client characteristics affect discretionary decision-making among frontline workers. One contribution lies in providing a novel theoretical account of the relationship between client characteristics and extra-role behaviors. As an example, our study adds to the existing theory of the argument that frontline workers may be willing to extend themselves toward clients to provide meaningful public service — but that this willingness depends on how far from in-role expectations the requested behavior is. Another contribution is that our study is the first to directly engage with a type of behaviour known to exist but largely overlooked in experimental research (de Geus et al. 2020). By providing both a theoretical account together with empirical scrutiny of the phenomena, we expand our shared knowledge on frontline work and everyday public service provision.

The remainder of this article is structured as follows. Next, we turn to discuss the literature on extra-role behaviours, which is mainly rooted in business administration and psychology. Bridging these insights with what is known about client characteristics, we present a theoretical model suited to address the research question. We then present our conjoint experimental setup, present our results and conclude with a discussion of how our findings augment the existing literature on frontline work and point researchers to other areas that could advance the field further.

A theoretical account on extra-role behaviours

The term “extra-role behaviour” stems from the business administration and management literature, usually referring to any kind of behaviour that goes beyond what is considered ‘part of the job’. Although not part of any formal job description, extra-role behaviours play an essential role in helping the day-to-day operations of any organization run smoothly (Van Dyne and LePine 1998). Moreover, extra-role behaviours have been linked to a wide range of desirable outcomes at both the *individual level* (e.g. better managerial ratings of employee performance, reward allocation decisions, employee turnover intentions, actual turnover, and absenteeism) and the *organizational level* (e.g. productivity, efficiency, reduced costs, customer satisfaction, and unit-level turnover) (Podsakoff et al. 2009, de Geus et al. 2020).

Conceptualizing extra-role behaviour in public service provision

For our purpose, we focus exclusively on extra-role behaviours that are directly related to providing public service to clients. In that context, extra-role behaviours can be understood as a coping mechanism resulting from inadequate resources: To make the day-to-day operations of their organization run smoothly, frontline workers may decide to engage in extra-role behaviours, hereby ‘moving towards clients’, for example by contributing their own personal resources such as time or money (Tummers et al. 2015). In doing so, doctors, teachers, and others go beyond what is formally part of their job role.

Specifically, we draw on Van Dyne and LePine’s (1998) classic definition of extra-role behaviours as:

- not specified in advance by role prescriptions

- not recognized by formal reward systems
- not a source of punitive reward systems when not performed by job incumbents

The distinction between in-role and extra-role behaviours is not always easily made.

Although some behaviours are clearly distant from the job description (e.g. a caseworker having a homeless client sleep on one's sofa for the night) and some are clearly within it (e.g. a teacher showing up to teach a class), many behaviours lie somewhere in between. For instance, a teacher may decide to remain after class to discuss a question with a student, despite their workday officially being over. While not part of their job description, this behaviour is different from a teacher who, say, lends a student money from their own pocket so the student can join a class excursion.

To adequately capture the different forms of extra-role behaviors related to frontline work, we propose the following two qualifications to our general definition (as sketched in Figure 1):

- *In-role proximity*: The *degree* from which the behavior departs from what is considered part of the job. Some extra-role behaviors are relatively close to the frontline worker's job description, while others are further away. Thus, in-role proximity is continuous in nature and relates to the question of 'how extra' the requested behavior is.
- *Type of behaviour*: The specific *type* of behavior requested. For example, frontline workers may be asked to spend their own time or money, or they may be asked to accept various types of inconvenience beyond what is expected as part

of the job. These types of behavior are qualitative in nature as they cannot be placed on any continuum.

Concerning the degree of in-role proximity, we should expect that generally frontline workers will be more prone to engage in extra-role behaviours falling closer to what is part of the job description, as opposed to more ‘distant’ forms of behaviours. This is because extra-role behaviours are neither expected, evaluated, nor rewarded, and so frontline workers will tend to focus on solving the tasks that are actually part of their job. After all, engaging in extra-role behaviours may be onerous or costly.

Concerning the types of behavior, matters are more complicated. For one thing, there may be an indefinite number of different types of requests coming from clients. Which ones should we expect to be more likely to animate frontline workers to engaging in extra-role behavior? Further, while in-role proximity can serve as a general yardstick for different professions, the types of behaviors that are relevant in different professional settings are likely to differ. In our study, we take on an exploratory approach: focusing on two core types of behaviors particularly relevant to the study of frontline work (for a discussion, see Tummers et al. 2015):

- *Availability*, which we use to describe the common phenomena that frontline workers will make themselves available to clients at odd hours, often using personal time
- *Flexibility*, which we use to describe the phenomena that frontline workers will accept onerous burdens or inconveniences to accommodate clients’ requests.

Again, both of these types represent extra-role behaviors only insofar that they fall

outside of what is expected, evaluated and rewarded. Further, these two types of behaviors do not provide an exhaustive list; rather, we consider them a useful starting point. In the Discussion, we point future researchers to further types of extra-role behaviors that would be relevant to engage with.

[Figure 1 about here]

The missing link between client characteristics and extra-role behaviors

Given the importance of extra-role behaviour in organizations, scholars have invested significant effort in mapping its antecedent. These generally group into two major clusters of explanations. On the one hand, extra-role behaviour is influenced by *individual employee characteristics*, including organizational identification (Kane, Magnusen, and Perrewé 2012; van Dick et al. 2008), self-efficacy (Somech and Drach-Zahavy 2000), work engagement (Demerouti, Bakker, and Gevers 2015), and perceived occupational stress (Nisar and Rasheed 2020). On the other hand, *organizational characteristics* have also been shown to affect extra-role behaviour, such as organizational culture (Wollan, de Luque, and Grunhagen 2009), accountability measures (Hall and Ferris 2011), and human resource management practices (Fajar and Soeling 2017). The Human Resource Management tradition has had a particular focus on the leadership type in the organization, including ethical (El-Gazar and Zoromba 2021) and transformational leadership (Srithongrung 2011), type of feedback from managers (Belschak and Den Hartog 2009), as well as how employees think and feel

about their managers (Albrecht 2005).

Surprisingly, while explanations take into account the characteristics of employees, jobs, and organizations, few explicitly deals with the role of *client characteristics* (see de Geus et al. 2020 for a systematic review). This exclusion is stunning all the while public administration research is full of examples of how client characteristics may affect a whole array of behaviours. Scholars have revealed in detail how client characteristics affect both *access* to the public service pool (Hansen 2022; Kullberg 2005; Pedersen, Stritch, and Thuesen 2018; Schram et al. 2009) and the *prioritization* of public service between clients (Hagen and Owens-Manley 2002; Jilke and Tummers 2018; Maynard-Moody and Musheno 2003; Tummers 2017). These combined efforts have significantly advanced our knowledge of how frontline workers administer their part of the aggregate public service pool but the literature leaves unanswered how client characteristics can cause frontline workers to *expand* the public service pool via extra-role behaviours. Consequently, public administration research is left with an impaired understanding of extra-role behaviours among frontline workers¹.

Importantly, the implications of extra-role behaviours in the context of public service provision are quite different from those in a private sector setting. Specifically, a key tenet of public service provision is that of equal treatment. Whereas going ‘above and beyond’ to favour certain customers or co-workers is not problematic from a social equity perspective, favouring certain *clients* may be exactly that. This basic insight should cause Public Administration scholars to consider which clients may be favoured when frontline workers engage in extra-role behaviours: Specifically, which *client characteristics* may animate frontline workers to step outside of their formal roles and provide extra public service?

How do client characteristics shape extra-role behaviours?

For developing a theoretical account of how client attributes relate to extra-role behaviours, we draw from multiple strands of literature from public administration, psychology, and other fields. Underlying these is the notion of *deservingness*, which has proven useful for studying public service encounters in other contexts (e.g. Guul, Pedersen, and Petersen 2021; Jilke and Tummers 2018). Essentially, to navigate through the complexities of their work, frontline workers will classify clients into social or professional categories ('deserving of help'), and certain client characteristics will tend to trigger such categorizations (Jilke and Tummers 2018).

Focusing on our test case of students, we expect teachers to engage in extra-role behaviours in favour of students perceived as worthy or deserving. In the following section, we discuss in turn four major types of characteristics expected to matter:

- student effort,
- student motivation,
- student academic performance, and
- student well-being.

Student effort

Beginning with student effort, our first expectation is for teachers to be more likely to extend themselves beyond their job description in favour of students who show effort (e.g., handing in assignments, participating actively in class). Our reasoning is guided

by political psychology research, which has shown that people instinctively think in terms of effort when observing another person in distress; observing someone deemed lazy generates feelings of anger, whereas someone displaying effort triggers sympathy and compassion (Petersen et al. 2011; Weiner 1980).

This heuristic also seems salient in the public service provision context:

Frontline workers tend to prefer clients who take responsibility for themselves (Hagen and Owens-Manley 2002; Jilke and Tummers 2018); for example, when sorting students into learning tracks, teachers rely on the same heuristic (Cohen Zamir, Lefstein, and Feniger 2022). In doing so, frontline workers act in accordance with recent developments in most Western welfare state's ideological underpinnings: that the 'good client' is one that is cooperative, active, and responsible (e.g. Mik-Meyer 2017).

For our purpose, we understand effort not in general terms, but as related specifically to bureaucratic success criteria. For students, this means complying with teacher demands, such as class participation and handing in assignments.

Student motivation

Second, we expect teachers to be more favourable toward students who seem motivated to do well academically. The underlying mechanism is similar to that of student effort: Students who seem motivated are willing to put in the effort and are therefore worthy of help, even in ways that are beyond the call of duty. Although somewhat intertwined, we distinguish between effort and motivation for subtle but important reasons; whereas student effort reflects something *previous* that has already manifested, student motivation is a signal of willingness to showcase real effort *in the future*. Again, we

define motivation in terms of bureaucratic success criteria, which could be to learn, to do well academically, etc.

Numerous studies support the notion that signaling motivation is key to evoking goodwill from frontline workers (Maynard-Moody and Leland 2000; Tummers 2017). For example, studies have found that signaling motivation increases caseworker willingness to spend extra time and effort on clients (Guul, Pedersen, and Petersen 2021) and, conversely, that teachers will not be “wasting energy on kids who don’t care” (Anagnostopoulos 2003, 305). Further, teachers themselves also depend on student motivation, because student compliance and cooperation are prerequisites for success (Alford 2002); the co-production and co-creation literature underscores this point heavily (Alford 2009; Voorberg, Bekkers, and Tummers 2015). Thus, another reason for teachers to favour motivated students is that they are more likely to succeed.

Student academic performance

Our third type of client characteristic concerns academic performance. For this attribute, we mainly draw from cream-skimming studies: Teachers consider if helping a student yields a satisfactory “return on investment” in terms of time and effort. Because students who perform well academically already fulfil bureaucratic success criteria, frontline workers often opt for such “low-hanging fruits” when choosing between clients (Baviskar 2019; Lipsky 2010; Tummers 2017). This behaviour can have unwanted distributional consequences, but cream-skimming can be reasonable for the individual frontline worker since prioritizing strong students is likely an optimal use of scarce resources (Lipsky 2010; Winter 2012).

For academic performance, an important caveat applies: Poor-performing students may *also* trigger a sense of deservingness but for different reasons (Jilke and Tummers 2018). This could mean that teachers could “swing both ways”: moving toward *either* high-performing (who signal effort) *or* low-performing students (who signal need).

Student well-being

Finally, we expect teachers to be more willing to perform extra-role behaviours in favour of students with low well-being. This is no different from how people act in general: When seeing others in distress, humans are “hardwired” to feel empathic concern, which triggers helping behaviour (Batson et al. 2007; Dovidio 2017). Further, public administration research further stresses how the degree of empathy with clients affects frontline worker decision-making, and that bureaucrats generally prefer “pitiable” clients (Goodsell 1981; Jensen and Pedersen 2017; Lipsky 2010).

At a general level, well-being refers to “a state of happiness and contentment, with low levels of distress” (American Psychological Association n.d.). For our context of students, we expect low well-being to be apparent to teachers when student are not doing well socially in class, for instance because they are not getting along with the other students. Another aspect could be when students seem to be having trouble at home. For both examples, we expect students to signal distress, which in turn should make teachers more willing to ‘go above and beyond’. Our expectations are in line with the various literatures on prosocial motivation and Public Service Motivation: Public service employees want to make a positive difference in other people’s lives, and high-compassion frontline workers prefer to help clients who need their help the most

(Andersen and Serritzlew 2012). Relatedly, welfare workers often prioritize underperforming and vulnerable clients (Glyniadaki 2021; Marston and McDonald 2006).

Importantly, low well-being and poor academic performance may be conflated because poor performance may be interpreted by teachers as a cue that something ‘is not right’ with the student. As will be discussed in detail in the subsequent section, studying multiple types of student characteristics therefore requires a design capable of disentangling these multiple, and potentially contradictory effects.

To sum up, we hypothesize that:

(1) frontline workers will be more willing to engage in extra-role behaviours when they fall closer to what is already part of their job description than more distant extra-role behaviours, and

(2) any of the following four client attributes will increase frontline worker willingness to engage in extra-role behaviours: effort, motivation, performance, and wellbeing.

Materials and methods²

An ideal test case for studying the causal effect of client attributes on frontline worker willingness to engage in extra-role behaviours should satisfy two main criteria. First, it should provide a sizeable number of frontline workers with the discretion to engage in extra-role behaviours. Second, it should make a substantial difference to clients whether frontline workers decide to exercise these extra-role behaviours or not. To fulfil both

criteria, we chose to focus on high school teachers. Teachers have substantial discretion over how and to what extent they aid students, yet only some of these actions are within the formal job description. For example, research suggests that teachers occasionally draw on their own personal resources or bend formal rules in students' favour (Tummers et al. 2015). Concerning our second criterion, teachers have a significant influence on the individual student. Because of their direct day-to-day interaction with students, teachers are an essential public service provider in most welfare systems (Maynard-Moody and Musheno 2003) and have been shown to affect student outcomes long into adulthood, including college attendance, salary levels, and even the probability of teenage pregnancy (Chetty, Friedman, and Rockoff 2014).

Teaching within the Danish high-school (“gymnasium”) entails specific formal prerequisites to ensure a high standard of education. Prospective teachers are required to hold a relevant master's degree, typically in the subject they intend to teach, to demonstrate their expertise in the field. Additionally, pedagogical training is mandatory, often attained through specialized teacher education programs. Danish high-school teachers assume multifaceted roles that extend beyond traditional classroom instruction. Day-to-day tasks encompass planning and delivering lessons, designing curriculum content, and evaluating student performance through assessments and examinations. They provide individualized guidance and support, aiding students in their academic pursuits and personal development.

Research Design: A Large-Scale Conjoint Survey Experiment

As our overall research design, we opted for a conjoint survey experiment, since this design type is well suited for disentangling the individual causal effect of multiple client

characteristics (Hainmueller, Hopkins, and Yamamoto 2014). The following section outlines the experimental procedure.

To gauge teacher willingness to perform extra-role behaviour, we presented teachers with four distinct dilemmas, each comprising a scenario involving a help-requesting student. Accepting the student's request entailed going beyond the teacher's job description but was still a form of providing public service to the student. As we needed dilemmas to be comparable, the dilemmas all revolved around the same basic scenario: A student must deliver an important assignment but has started late and therefore needs the teacher's help.

To enhance the reliability of our conclusions, we wanted to test our theory on multiple observable implications (King, Keohane, and Verba 1994). We therefore made the dilemmas vary, both in terms of their *degree* of in-role proximity and the specific *type* of extra-role behaviour they entailed. To provide evidence of the influence of role proximity, we designed dilemmas so that some required behaviors far vis-à-vis close to in-role expectations. To vary the type of extra-role behavior, two dilemmas required *availability* at odd hours, while the remaining two required teachers to exhibit *flexibility* by accepting onerous rescheduling beyond their formal job requirements. Thus, the experimental design represents a two-by-two. Table 1 showcases the variation, and Supplementary Information S2 provides the full wording for all dilemmas.

[Table 1 about here]

Outcome: Extra-Role Behaviour Ratings in Four Dilemmas

The first two dilemmas required teachers to use make themselves available by using personal resources to help the student—a form of extra-role behaviour not unfamiliar to frontline workers (Tummers et al. 2015). Dilemma 1 required teachers to use personal resources but in a manner that was not very “costly”; specifically, a student approaches the teacher a few days before an assignment deadline, asking the teacher *to stay half an hour, after class, to discuss the assignment*. To make sure the dilemma represented extra-role behaviour, the wording made it explicit that the teacher’s workday was supposed to be over by then.

In Dilemma 2, the teacher is again required to sacrifice their leisure time, but this time in a way that is arguably much further from their job description: The student asks for help, *discussing the assignment over the phone during the upcoming weekend*. Hence, instead of merely asking the teacher to stay after class, this time the teacher would need to make time on a non-work day.

For Dilemmas 3 and 4, we changed the type of extra-role behaviour to instead require flexibility in the form of extra-role onerous rescheduling. While this does not require any time or money from the frontline worker, it captures the psychological costs of having to change plans or routines to accommodate students (see also Moynihan, Herd, and Harvey 2015). We expect this to be an onerous burden on teachers since routines are important for frontline workers to cope with stressful demands and high workloads (Tummers et al. 2015).

In Dilemma 3, this onerous rescheduling is minor and close to what one might expect: The student has completed the assignment, albeit a few days late. The student, therefore, approaches the teacher and asks *to hand in the assignment even though the*

deadline has passed. In contrast, Dilemma 4 represents a case in which the teacher must move the deadline entirely just to accommodate a single student; specifically, the student has not started working on it and asks the teacher to *push the deadline by one week*.

As our outcome measure, teachers rated the likelihood that they would help the student in each dilemma, using a 10-point scale ranging from “1: Definitely not” to “10: Definitely”. We constructed the outcome measure in a generic way to make it comparable across dilemmas. For example, teachers in Dilemma 1 rated their willingness to help from “1: Do not stay half an hour after class, definitely” through “10: Stay half an hour after class, definitely”. Using a rating-based outcome provided us with finely-grained information about the willingness to help in each dilemma. Moreover, having teachers rate individual students was arguably more realistic and closer to everyday decision-making than, say, a more stylized forced-choice design between pairs of student profiles.

[Figure 2 about here]

Treatment: Randomly Assigned Student Attributes

To estimate the individual impact of student attributes, we presented teachers with a brief, randomized description of the student requesting help in each dilemma. Each of these student profiles comprised a number of attributes covering the four groups of characteristics presented in the theory section.³ Figure 2 provides an example of a

student profile, and Table 2 gives an overview of the attributes and their corresponding levels.

Again, to bolster our conclusions, we designed treatments as consisting of “increasing doses”; that is, for all attributes, levels could be arranged in increasing or decreasing order in terms of expected treatment effect. Using *student effort* as an example, we included information on the number of previous assignments the student had failed to deliver during the school year, as well as how frequently the student had participated in class. The baseline category then read “Has during the school year missed some assignments and hardly ever participates in class.” This was the lowest dose, as this student was clearly not very effortful. Increasing the dose slightly, the next level read “Has during the school year missed one assignment and rarely participates actively in class.” As the maximum dose, the level read “Has during the school year never missed an assignment and participates actively in class.” All other attributes were designed using the same principle, putting our theory under severe scrutiny.

For *student motivation*, we provided a more subjective measure in the form of an overall statement about the student’s recent motivation to perform well academically. We did so in line with similar operationalizations (e.g. Guul, Pedersen, and Petersen 2021) and because motivation is difficult to measure objectively without conflating with effort. For example, a student with low motivation read, “Has recently seemed unmotivated to do well academically.”

Regarding *student academic performance*, we provided information about how the student ranked comparatively in class. For instance, a high-performing student was “academically among the best in class.” This operationalization is very similar to the one used by Jilke and Tummers (2018).

Finally, to provide information about *student well-being*, we focused on how well the student was doing socially. For example, the baseline category read, “Seems to do really well in class and to be among the most popular students.” In contrast, information about a student with lower well-being read: “Does not seem to be doing well in class and might be feeling lonely.”⁴

[Table 2 about here]

We performed a number of test to ensure that randomization worked as intended. Following Leeper (2020), we first made a simple display of frequencies of each of the conjoint features (to ensure equal - or unequal - display frequency. Second, to test for balance between treatment and controls, we compare all five covariates across feature levels. Diagnostics plots are available in the supplementary appendix and indicate that randomization was successful.

Sampling Procedure

We sent out our survey via email to a large sample of Danish high-school teachers (approximately 10,000 teachers from 145 schools). The survey went out in mid-April 2020, with respondents having about two weeks to complete it before we closed the data collection. In total, 1,507 teachers from 131 high schools responded, resulting in a response rate of roughly 15 per cent. Testing among a large and diverse sample of the target population is important because it allows us to closely generate externally valid conclusions about real-world behaviour (Hainmueller, Hangartner, and Yamamoto

2015). Table 3 shows descriptives for the sample. Descriptives are similar to those of a recent large-scale study on the same sample (Petersen, Laumann, and Jakobsen 2019), which should give us some confidence that our sample reflects the population of interest.⁵

[Table 3 about here]

Findings

To examine the overall difference in willingness to engage in extra-role behaviour for dilemmas with close and far in-role proximity, Figure 3 graphs teachers' willingness ratings for the four dilemmas. Each point represent a rating with bold dots and vertical lines marking the dilemma mean and standard deviation, respectively.

In line with theoretical expectations, teachers are generally more willing to accommodate student requests in the two low-proximity dilemmas than their far-proximity counterparts. For onerous burdens, teachers rate their mean willingness to accept a hand-in after the deadline at 9.2, whereas pushing the deadline entirely only yields an average of 6.8 (difference = 2.3, t-test, $p < 0.001$). Similarly, the dilemmas concerning the use of personal resources hold up against expectations. Teachers seem quite willing to stay half an hour after the end of their workday (mean = 7.9) but rather unwilling to accept a phone call during the weekend (mean = 6.1, difference = 1.9, t-

test, $p < 0.001$). Because student attributes are randomly assigned, these numbers provide a good estimate of the overall willingness to help in each dilemma.

[Figure 3 about here]

The Causal Effect of Student Attributes on Extra-Role Behaviours

We now turn to estimating the individual causal effect of each student attribute. For that purpose, we calculated the average marginal component effect (AMCE), which represents the causal effect of each treatment averaging over all other treatments. Figure 4 presents the results across all dilemmas. The figure uses dots to indicate point estimates and lines to illustrate 95% confidence intervals for the AMCE of each attribute level on the willingness to perform extra-role behaviour as indicated by our 10-point scale. Dots without horizontal lines mark the reference categories for each attribute.

As an example, the second line in the first panel shows the estimate for a student who missed one assignment during the school year and rarely participates in class. The estimate is 0.09, meaning that teachers rated their extra-role behaviour 0.09 points higher for that student compared with the baseline student, who also missed an assignment but *never* participates in class. Importantly, though, as indicated by the horizontal line, the estimate is not distinguishable from zero (S.E. = 0.11, $p = 0.4$). The full regression model is shown in Table S3a.

We find evidence of student *effort* affecting extra-role behaviour to a large degree. While a student who has worked slightly harder than the baseline student only causes a minor increase in extra-role behaviour of .09 points (S.E. = 0.11, $p = 0.4$), a student who has never missed an assignment and participates actively in class is rated 0.61 points higher on average than the baseline category (S.E. = 0.11, $p < 0.001$). Furthermore, looking at the figure, we also note that the effect sizes increase as the “dose” goes up: the more effortful the student, the greater the willingness to help. This is a strong indication that the hypothesized relationship holds up against the data.

Surprisingly, for student *motivation*, we find little evidence of any effect. Although effect sizes seem to increase with the “dose,” the magnitude of these increases is small and not distinguishable from zero at $\alpha = 0.05$.

Likewise, student *academic performance* does not seem to affect extra-role behaviour. Although all four estimates go in the hypothesized direction, effect sizes are small and not statically distinguishable from zero. This is true both for high-performing (AMCE = 0.12, $p = 0.11$) and low-performing students (AMCE = 0.07, $p = 0.54$).

Finally, we observe that student *well-being* triggers higher extra-role behaviour ratings, teachers being more willing to help students who do not seem to be doing well and who might be feeling lonely (AMCE = 0.31, S.E. = 0.1, $p < 0.001$) and students who seem to be experiencing trouble at home (AMCE = 0.46, S.E. = 0.1, $p < 0.001$).

To summarize, our findings confirm our first expectation: Frontline workers *are* more willing to engage in extra-role behaviours when they fall closer to what is already part of their job description, as opposed to more distant extra-role behaviours.

Furthermore, our findings confirm expectations concerning two of the four student

attributes: student effort and well-being both has an effect on willingness to engage in extra-role behavior, whereas student motivation and academic performance do not.

[Figure 4 about here]

The online Supplementary Information contains further analyses not shown here; for example, we show that female teachers are on average significantly more willing to engage in extra-role behaviours (Figure S5a), but not because they respond stronger to any of the student attributes studied here (Figure S5b). We also present exploratory evidence of how teachers with higher levels of prosocial motivation are generally more prone to engage in extra-role behaviour. This is true regardless of whether we conceptualize prosocial motivation as “user orientation” (Figure S5c-d) or “Public Service Motivation” (Figure S5e-f).

Discussion and Conclusions

Frontline workers have each been delegated the discretion to administer part of the state’s aggregate public service pool, and a large body of research has been occupied on how frontline workers exercise this discretion in practice (Lipsky 2010; Tummers et al. 2015). This study has taken a novel view on public service provision, focusing not on how frontline workers “distribute the pie” but on how client characteristics can make them go beyond formal job roles in order to “grow it”. Specifically, we asked: *How do*

client characteristics relate to frontline workers' willingness to engage in extra-role behaviors?

Using a large-scale conjoint survey design set among Danish high-school teachers, we found that teachers willingly exceed their job expectations when encountering students who signal *effort* (e.g. by handing in assignments) or *low well-being* (e.g. by feeling lonely). Contrary to our theoretical expectations, neither student *motivation*, nor *academic performance* increased the teacher willingness. Furthermore, we found that teachers' willingness diminished as requested behaviors deviated further from job expectations.

Our findings both aligns with and contradict previous studies on the impact of client characteristics. On the one hand, several studies on frontline work now show that frontline workers are generally responsive to client efforts (Cohen Zamir, Lefstein, and Feniger 2020; Hagen and Owens-Manley 2002; Jilke and Tummers 2018; Petersen et al. 2010). Similarly, frontline workers tend to favour clients who are "pitiful" or in need (Andersen and Serritzlew 2012; Glyniadaki 2021; Goodsell 1980; Jensen and Pedersen 2017; Lipsky 2010). On the other hand, our findings run counter to studies demonstrating effects of client motivation (Anagnostopoulos 2003, 305; Guul, Pedersen, and Petersen 2020; Maynard-Mooney and Leland 2000; Tummers 2017) and academic performance (Baviskar 2013; Lipsky 2010; Tummers 2017).

We suspect that our deviations from previous research has to do with the virtues of the conjoint design, which has allowed us to empirically disentangle the effect of several characteristics that are often conflated (see also Jilke and Tummers 2018). In particular, both student motivation and academic performance may be correlated with effort. We believe our findings augment previous studies by suggesting that motivation

and performance may not be as significant as previously believed—at least not when effort cues are also present.

Although well suited for answering the research question, the conclusions we can draw from such a design should be interpreted in light of some limitations.

One reasonable concern has to do with measurement validity: how well do the conclusions we can draw from a conjoint survey design capture real-world behaviours and attitudes? This concern speaks both to accurately estimating (a) the treatment effect, and (b) teachers' true willingness to engage in extra-role behaviors. After all, fictive client descriptions are different from real-world clients, and social desirability considerations might cause teachers to systematically overstate their willingness to engage in extra-role behaviors.

Although such concerns can never be fully mitigated, the conjoint design has proven particularly well-suited for capturing respondents' attitudes (Hainmueller, Hangartner, and Yamamoto 2015), precisely because it can be an effective instrument for alleviating social desirability bias (Horiuchi, Markovich, and Yamamoto 2022). Furthermore, while any systematic over-reporting of willingness to engage in extra-role behavior will produce bias on the dependent variable, that bias would apply systematically to all four dilemmas, and so there would still be no bias in any of the estimated treatment effects. Using the language of King, Keohane, and Verba (1994), our design provides us with confidence in making *causal inference* (estimating the treatment effect of student characteristics), whereas we should be more careful in making *descriptive inference* (estimating teachers' true willingness to help).

Another concern is the extent to which our conclusions also apply to other frontline workers. On the one hand, previous research shows that the impact of client

characteristics spans several frontline work professions and therefore seems robust across different frontline-worker types (e.g. Hansen 2022; Jilke and Tummers 2018; Kullberg 2005; Maynard-Moody and Musheno 2003; Pedersen, Stritch, and Thuesen 2018; also Schram et al. 2009). Hence, we should have some confidence in the generalizability of our conclusions.

On the other hand, we contend that generalizability is perhaps not the most productive way of thinking about our results. Rather, we believe that further research should be done to uncover the unavoidable heterogeneity inherent in our conclusion (Bryan, Tipton, and Yeager 2021). Some suggestions would be to study the natural heterogeneity caused by professions, countries, or sectors with comparable types of frontline workers (e.g., teachers in public and private schools). In addition, researchers should look into additional types of extra-role behaviors since we have only studied two here. For inspiration, scholars could look to the coping literature (e.g. Lipsky 2010; Tummers et al. 2015) or that of invisible work done by women (e.g. Einat, and Kaplan 2022; Kaplan 2022). In doing so, further studies would help define the exact nature of any heterogeneity, which could then be leveraged to build more complete theories of how client attributes relate to frontline workers' extra-role behaviours (Bryan, Tipton, and Yeager 2021).

Despite its limitations, our study advances the literature on frontline work and street-level discretion. First, providing a novel theoretical account of how client characteristics shape extra-role behaviour, our findings underscores the importance of public service provision that goes outside of formally defined boundaries. Hence, parallel to how feminist theories have importantly recognized that a significant part of society's total efforts consists of "invisible work" (Daniels 1987; Cherry, Crain, and

Poster 2016, Kaplan 2022), our study highlights the existence and importance of “invisible frontline work.”

Second, our study adds to previous studies focusing on the antecedents of extra-role behaviours in the context of public organizations. Our findings empirically validate that extra-role behaviors are not only a product of, say, goal clarity (Caillier 2016), Public Service Motivation (Piatak and Holt 2020; van Loon, Vandenabeele, and Leisink 2017), organizational image (Rho, Yun, and Lee 2015), and types of leadership (Srithongrung 2011). In the context of frontline work, client characteristics matter, too. In addition, our study indicate that although client characteristics clearly matter, the degree of in-role proximity may serve as a soft constraint of what extra-role behaviors frontline workers are willing to engage in.

We believe our study complements the existing literature and leaves public administration research with a more nuanced understanding of public service provision dynamics. For practitioners, our study highlights that public managers should not only pay attention to public service provisions explicitly mentioned by policy rules, but also to extra-role behaviours since these may have unintended distributional consequences falling under the radar.

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< Figure and Tables >

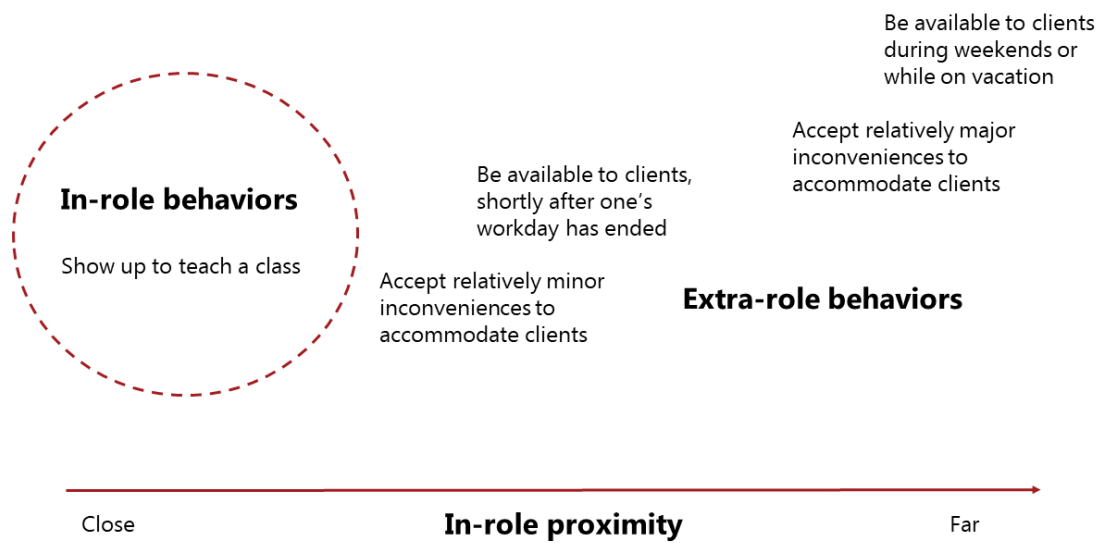


Figure 1. Two aspects of extra-role behaviors. This figure sketches how extra-role behaviors vary both in terms of the *degree* of in-role proximity (i.e. a quantitative distinction) and the specific *type* of requested behavior (i.e. a qualitative distinction).

Dilemma B: Weekend phone call?

Your students have an important assignment due Monday, which they have been working on for weeks. However, the preceding Friday, one of your students, Anna, comes to you. She hasn't really started working on the assignment and asks if you **could discuss it on the phone over the weekend**.

About the student:

- Has never missed an assignment during the school year and participates actively in class
- Has recently seemed unmotivated to do well academically
- Is academically slightly above average in class
- Does not seem to be doing well in class and might be feeling lonely

How likely is it that you will let the student call during the weekend?

1: Do not let the student call, definitely	2	3	4	5	6	7	8	9	10: Let the student call during the weekend, definitely
--------------------------------------------	---	---	---	---	---	---	---	---	---------------------------------------------------------



Figure 2. The experimental design. The figure shows an example of a student profile for Dilemma 2 in which a student requests the teacher to discuss an assignment over the phone during the weekend.

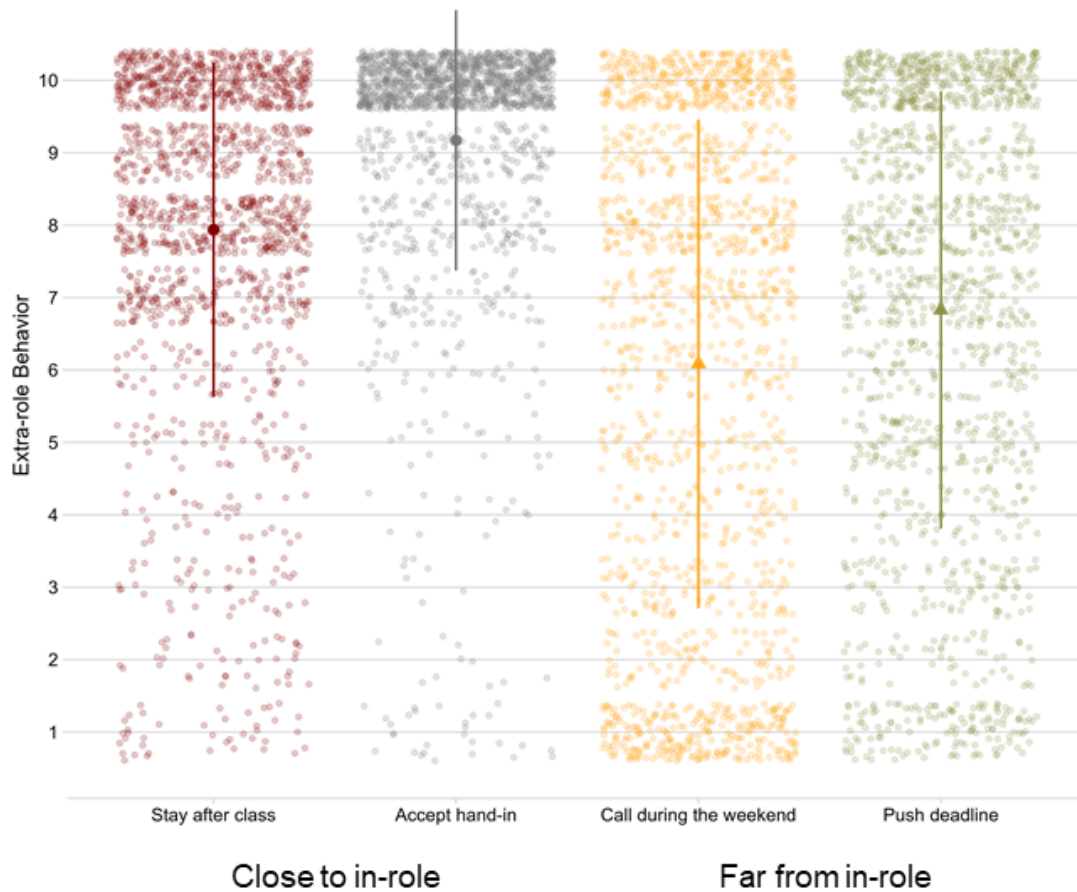


Figure 3. The influence of in-role proximity. The figure shows respondent willingness to engage in extra-role behaviour on a 10-point scale (Lower willingness – Higher willingness) using jittered points. For each dilemma, bold dots/triangles are mean ratings with vertical lines illustrating plus/minus one standard deviation.

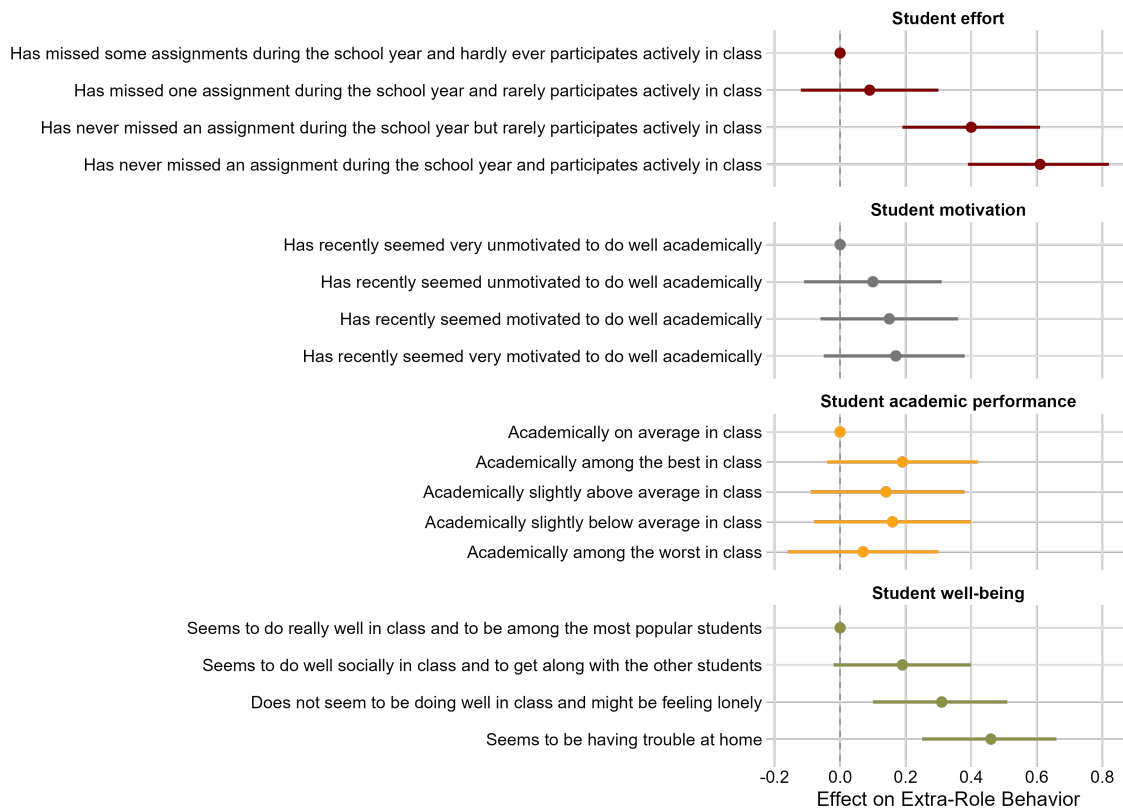


Figure 4. Effects of student attributes on extra-role behaviour among teachers. The figure shows estimates (dots) and corresponding cluster-robust 95% confidence intervals (horizontal lines) from ordinary least squares regression. The dots on the zero line without confidence intervals mark the reference category for each student attribute.

Table 1. The four types of dilemmas in the experiment

		Type of extra-role behaviour	
		Availability <i>Using personal time to be available to clients at odds hours</i>	Flexibility <i>Accept inconveniences to accommodate clients' requests</i>
In-role proximity	Relatively close to in-role expectations	Dilemma 1: Accept to stay half an hour extra	Dilemma 3: Accept hand-in just after the deadline has passed
	Relatively far from in-role expectations	Dilemma 2: Accept a call during the weekend	Dilemma 4: Accept to push the deadline by a whole week

Table 2. Attributes and levels for student profiles

Attribute	Levels
Student effort	During the school year missed some assignments and hardly ever
	During the school year missed one assignment and rarely participates
	During the school year never missed an assignment but rarely participates
	During the school year never missed an assignment and participates actively in class
Student motivation	Has recently seemed very unmotivated to do well academically (baseline)
	Has recently seemed unmotivated to do well academically
	Has recently seemed motivated to do well academically
	Has recently seemed very motivated to do well academically
Student academic performance	Academically among the best in class
	Academically somewhat above class average
	Academically on average in class (baseline category)
	Academically somewhat below the class average
	Academically among the worst in class
Student well-being	Seems to do really well in class and to be among the most popular students
	Seems to do well socially in class and gets along with the other students
	Does not seem to be doing well in class and might be feeling lonely
	Seems to be having trouble at home

Note. The attributes are theoretical constructs. Levels are the specific wordings in the vignettes. Treatment doses signify the strength of the deservingness cue.

Table 3. Sample Descriptives

Variable		Mean	Std. Dev.
Age		45.9	10.5
Work experience		15.5	9.4
Tenure		12.1	8.6
		N	Pct.
Sex	Female	642	52.4
	Male	584	47.6
Both parents born in Denmark	No	115	9.4
	Yes	1111	90.6

n = 1,226 respondents with a least one entry on the outcome variable. Because background questions were placed at the end of the survey, n is slightly lower for the sample descriptives than subsequent analyses.

Supplementary Information for *How Client Characteristics Cause Extra-Role Behaviors in Public Service: Uncovering Invisible Frontline Work*

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S1. Attributes, Levels, and Treatment Doses

Attribute	Levels
Student effort	<p>During the school year missed some assignments and hardly ever</p> <p>During the school year missed one assignment and rarely participates</p> <p>During the school year never missed an assignment but rarely participates</p> <p>During the school year never missed an assignment and participates actively in class</p>
Student motivation	<p>Has recently seemed very unmotivated to do well academically (baseline)</p> <p>Has recently seemed unmotivated to do well academically</p> <p>Has recently seemed motivated to do well academically</p> <p>Has recently seemed very motivated to do well academically</p>
Student academic performance	<p>Academically among the best in class</p> <p>Academically somewhat above average in class</p> <p>Academically on average in class (baseline category)</p> <p>Academically somewhat below average in class</p> <p>Academically among the worst class</p>
Student well-being	<p>Seems to do really well in class and to be among the most popular students</p> <p>Seems to do well socially in class and to get along with the other students</p> <p>Do not seem to be doing well in class and might be feeling lonely</p> <p>Seems to be having trouble at home</p>

Note. Attributes are the theoretical constructs. Levels are the specific wordings in the vignettes. Treatment doses signify the strength of the deservingness cue.

S2. Full Text of All Dilemmas

Dilemma A: Stay half hour extra?

Your students have an important assignment due Monday, that they have been working on for weeks. However, **the preceding Friday** one of your students, [student name], comes to you. [Student name] has not really started the assignment and asks if you could discuss the assignment, **hereby staying half an hour extra – after your workday was supposed to end.**

About the student:

[Student's historic effort]

[Student's motivation]

[Student's academic performance]

[Student's social need]

How likely is it that you will stay the extra half hour?

[Rating scale 1-10, with “1: Do not stay half an hour extra, definitely” – “10: Stay half an hour extra, definitely”]

Dilemma B: Call during the weekend?

Your students have an important assignment due Monday, that they have been working on for weeks. However, **the preceding Friday** one of your students, [student name], comes to you. [Student name] has not really started the assignment and asks if you could **discuss the assignment over the phone during the weekend.**

About the student:

[Student's historic effort]

[Student's motivation]

[Student's academic performance]

[Student's social need]

How likely is it that you will let the student call during the weekend?

[Rating scale 1-10, with “1: Do not let the student call during the weekend, definitely” – “10: Let the student call during the weekend, definitely”]

Dilemma C: Hand in after deadline?

Your students have had a deadline on an important assignment Friday afternoon. However, **the following Monday**, one of your students, [student's name], comes to you and apologizes for not having handed in. [Student's name] has been busy and forgot all about the assignment and asks you if it is possible to **hand in today, even though the deadline has passed**.

About the student:

[Student's historic effort]

[Student's motivation]

[Student's academic performance]

[Student's social need]

How likely is it that you will let the student hand in today, even though the deadline has passed?

[Rating scale 1-10, with "1: Will not let the student hand in, definitely" – "10: Will let the student hand in, definitely"]

Dilemma D: Push deadline by one week?

Your students have had a deadline on an important assignment Friday afternoon. However, **on the very day they were supposed to hand in**, one of your students, [student's name], comes to you and apologizes for not having completed the assignment. [Student's name] has been busy and forgot all about the assignment and asks you if it is possible to **push the deadline by one week**.

About the student:

[Student's historic effort]

[Student's motivation]

[Student's academic performance]

[Student's social need]

How likely is it that you will push the deadline by one week?

[Rating scale 1-10, with "1: Do not push the deadline by one week, definitely" – "10: Push the deadline by one week, definitely"]

S3. Full regression models for all analyses

Table S3a. Effects of student attributes on teacher extra-role behavior across all dilemmas.

Estimates are the Average Marginal Component Effect.

feature	level	esti	std.	z	p	low	upp
Student effort	Has missed some assignments during the school year and	0.00					
Student effort	Has missed one assignment during the school year and	0.09	0.11	0.83	0.40	-0.1 2	0.30
Student effort	Has never missed an assignment during the school	0.40	0.11	3.79	0.00	0.19	0.61
Student effort	Has never missed an assignment during the school	0.61	0.11	5.60	0.00	0.39	0.82
Student motivation	Has recently seemed very unmotivated to do well	0.00					
Student motivation	Has recently seemed unmotivated to do well	0.10	0.11	0.96	0.34	-0.1 1	0.31
Student motivation	Has recently seemed motivated to do well academically	0.15	0.11	1.41	0.16	-0.0 6	0.36
Student motivation	Has recently seemed very motivated to do well	0.17	0.11	1.54	0.12	-0.0 5	0.38
Student academic	Academically on average in	0.00					
Student academic	Academically among the best in	0.19	0.12	1.58	0.11	-0.0 4	0.42
Student academic	Academically slightly above	0.14	0.12	1.20	0.23	-0.0 6	0.38
Student academic	Academically slightly below	0.16	0.12	1.35	0.18	-0.0 6	0.40
Student academic	Academically among the worst	0.07	0.12	0.61	0.54	-0.1 7	0.30
Student well-being	Seems to do really well in class and to be among the most	0.00					
Student well-being	Seems to do well socially in class and to get along with the	0.19	0.11	1.74	0.08	-0.0 2	0.40
Student well-being	Does not seem to be doing well in class and might be feeling	0.31	0.10	2.93	0.00	0.10	0.51
Student well-being	Seems to be having trouble at	0.46	0.10	4.36	0.00	0.25	0.66

Table S3b. Marginal Means of student attributes on teacher extra-role behavior for each of the four dilemmas.

Dilemma	Attribute level	Estimate	Std. error	p-value	95 pct. confidence
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					Lower	Upper bound
Accept hand-in	During the school year missed some assignments and hardly ever participates actively in class	9.15	0.08	0	8.99	9.31
	During the school year missed one assignment and rarely	8.97	0.11	0	8.76	9.18
	During the school year never missed an assignment but	9.24	0.09	0	9.06	9.42
	During the school year never missed an assignment and	9.35	0.08	0	9.19	9.51
	Has recently seemed very unmotivated to do well	9.15	0.1	0	8.96	9.34
	Has recently seemed unmotivated to do well academically	9.07	0.1	0	8.88	9.26
	Has recently seemed motivated to do well academically	9.29	0.08	0	9.12	9.45
	Has recently seemed very motivated to do well	9.18	0.09	0	9	9.36
	Academically on average in class	9.23	0.1	0	9.04	9.41
	Academically among the best in class	9.18	0.1	0	8.99	9.38
	Academically somewhat above average in class	9.21	0.12	0	8.98	9.44
	Academically somewhat below average in class	9.24	0.1	0	9.05	9.43
	Academically among the worst in class	9.01	0.11	0	8.8	9.22
	Seems to do really well in class and to be among the most	9.11	0.09	0	8.93	9.3
	Seems to do well socially in class and to get along with	9.18	0.1	0	8.99	9.37
Stay after class	Do not seem to be doing well in class and might be	9.18	0.09	0	9	9.36
	Seems to be having trouble at home	9.21	0.09	0	9.04	9.39
	During the school year missed some assignments and hardly ever participates actively in class	7.63	0.13	0	7.39	7.88
	During the school year missed one assignment and rarely	7.68	0.13	0	7.44	7.93
	During the school year never missed an assignment but	8.1	0.12	0	7.88	8.33
	During the school year never missed an assignment and	8.35	0.1	0	8.16	8.55
	Has recently seemed very unmotivated to do well	7.88	0.12	0	7.64	8.13
	Has recently seemed unmotivated to do well academically	7.94	0.13	0	7.69	8.19
	Has recently seemed motivated to do well academically	7.97	0.12	0	7.74	8.2
	Has recently seemed very motivated to do well	7.96	0.11	0	7.75	8.18
	Academically on average in class	7.59	0.14	0	7.31	7.87
	Academically among the best in class	7.96	0.13	0	7.7	8.21
	Academically somewhat above average in class	7.8	0.14	0	7.53	8.07
	Academically somewhat below average in class	8.13	0.12	0	7.89	8.36
	Academically among the worst in class	8.19	0.13	0	7.92	8.45
Seems to do really well in class and to be among the most	7.69	0.12	0	7.44	7.93	
Seems to do well socially in class and to get along with	7.8	0.13	0	7.56	8.05	

	Do not seem to be doing well in class and might be	8.14	0.11	0	7.93	8.35
	Seems to be having trouble at home	8.15	0.12	0	7.92	8.37
Push deadli ne	During the school year missed some assignments and hardly ever participates actively in class	6.22	0.16	0	5.91	6.53
	During the school year missed one assignment and rarely	6.9	0.15	0	6.61	7.19
	During the school year never missed an assignment but	6.94	0.16	0	6.63	7.25
	During the school year never missed an assignment and	7.32	0.16	0	7.01	7.63
	Has recently seemed very unmotivated to do well	6.51	0.16	0	6.19	6.82
	Has recently seemed unmotivated to do well academically	6.83	0.16	0	6.52	7.14
	Has recently seemed motivated to do well academically	6.98	0.15	0	6.69	7.28
	Has recently seemed very motivated to do well	6.99	0.16	0	6.68	7.29
	Academically on average in class	6.98	0.18	0	6.62	7.34
	Academically among the best in class	6.86	0.18	0	6.52	7.21
	Academically somewhat above average in class	6.89	0.16	0	6.57	7.21
	Academically somewhat below average in class	6.5	0.18	0	6.14	6.86
	Academically among the worst in class	6.9	0.17	0	6.57	7.22
	Seems to do really well in class and to be among the most	6.51	0.16	0	6.2	6.82
	Seems to do well socially in class and to get along with	6.67	0.16	0	6.35	6.98
	Do not seem to be doing well in class and might be	7.14	0.15	0	6.85	7.43
Seems to be having trouble at home	7	0.16	0	6.7	7.3	
Call during weeke nd	During the school year missed some assignments and hardly ever participates actively in class	5.85	0.18	0	5.5	6.2
	During the school year missed one assignment and rarely	5.67	0.18	0	5.32	6.02
	During the school year never missed an assignment but	6.34	0.17	0	6.01	6.66
	During the school year never missed an assignment and	6.46	0.17	0	6.13	6.8
	Has recently seemed very unmotivated to do well	6.17	0.17	0	5.83	6.5
	Has recently seemed unmotivated to do well academically	6.11	0.17	0	5.78	6.44
	Has recently seemed motivated to do well academically	6.06	0.17	0	5.73	6.39
	Has recently seemed very motivated to do well	6	0.19	0	5.64	6.37
	Academically on average in class	5.9	0.19	0	5.52	6.28
	Academically among the best in class	6.23	0.19	0	5.86	6.61
	Academically somewhat above average in class	6.4	0.2	0	6	6.8
	Academically somewhat below average in class	6.11	0.2	0	5.72	6.49
	Academically among the worst in class	5.84	0.19	0	5.47	6.21
	Seems to do really well in class and to be among the most	5.75	0.17	0	5.42	6.09
Seems to do well socially in class and to get along with	6.16	0.18	0	5.8	6.51	

Do not seem to be doing well in class and might be	6.07	0.17	0	5.74	6.41
Seems to be having trouble at home	6.4	0.17	0	6.06	6.74

Table S3c. Formal test of preference heterogeneity across dilemmas.

Model	Resid. Df	Resid. Dev	Df	Deviance	F	Pr (>F)	
1	5984	51117.80	-	-	-	-	
2	5942	42486.06	42	8631.74	28.74	0.00	***

Note. Analysis of variance (ANOVA). Model 1 is the basic model with only attribute levels. Model 2 is the interaction model in which all terms interact with dilemma. Outcome is marginal means.

Table S3d. Formal test of preference heterogeneity across proximities.

Model	Resid. Df	Resid. Dev	Df	Deviance	F	Pr(>F)	
1	5984	51117.80	-	-	-	-	
2	5970	44393.73	14	6724.07	64.59	0.00	***

Note. Analysis of variance (ANOVA). Model 1 is the basic model with only attribute levels. Model 2 is the interaction model in which all terms interact with proximity. Outcome is marginal means.

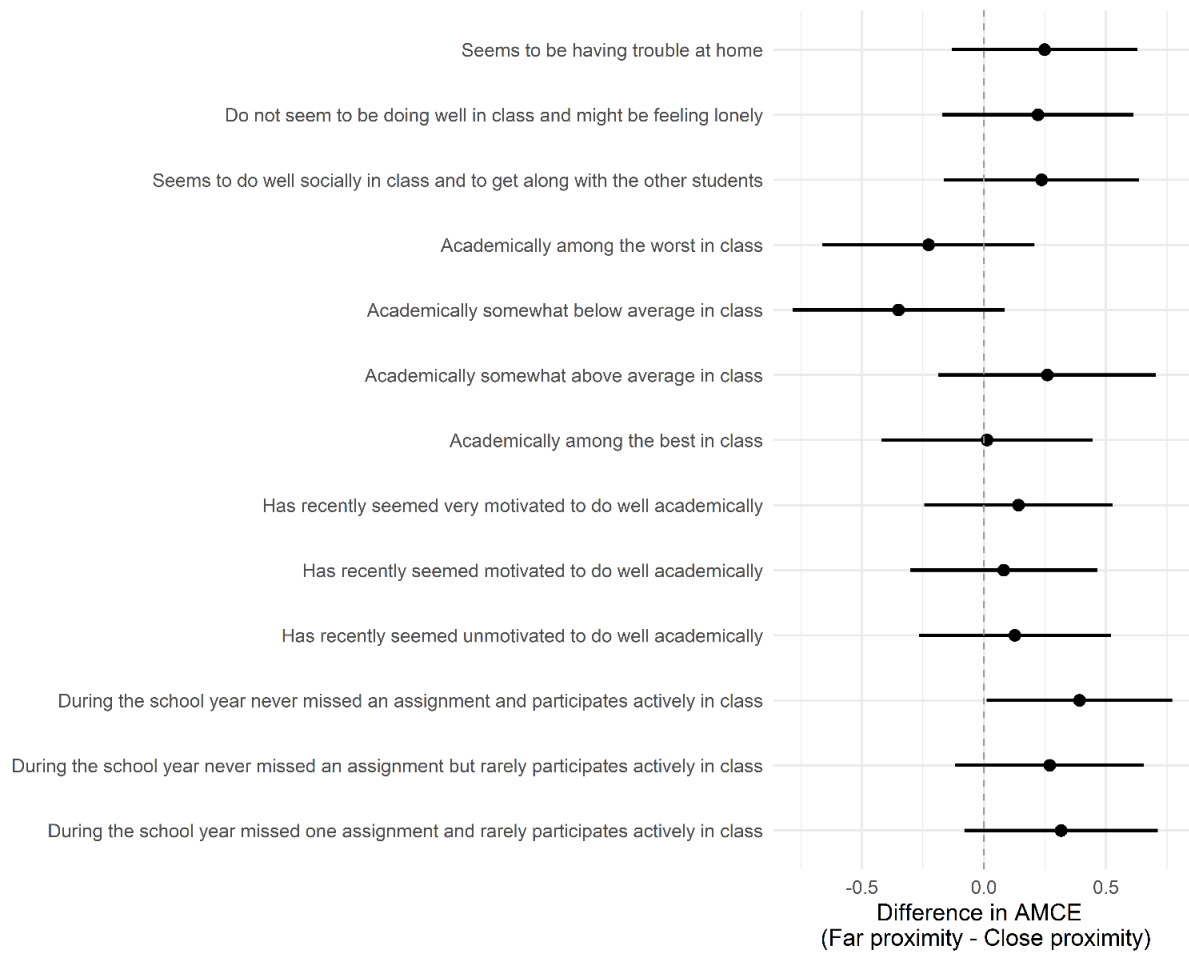


Figure S3a. Difference in conditional average marginal component effects for close and far proximity. Positive estimates indicate that the AMCE is greater for far proximity dilemmas. The figure shows that only one of the effects are statistically distinguishable from zero across role proximity.

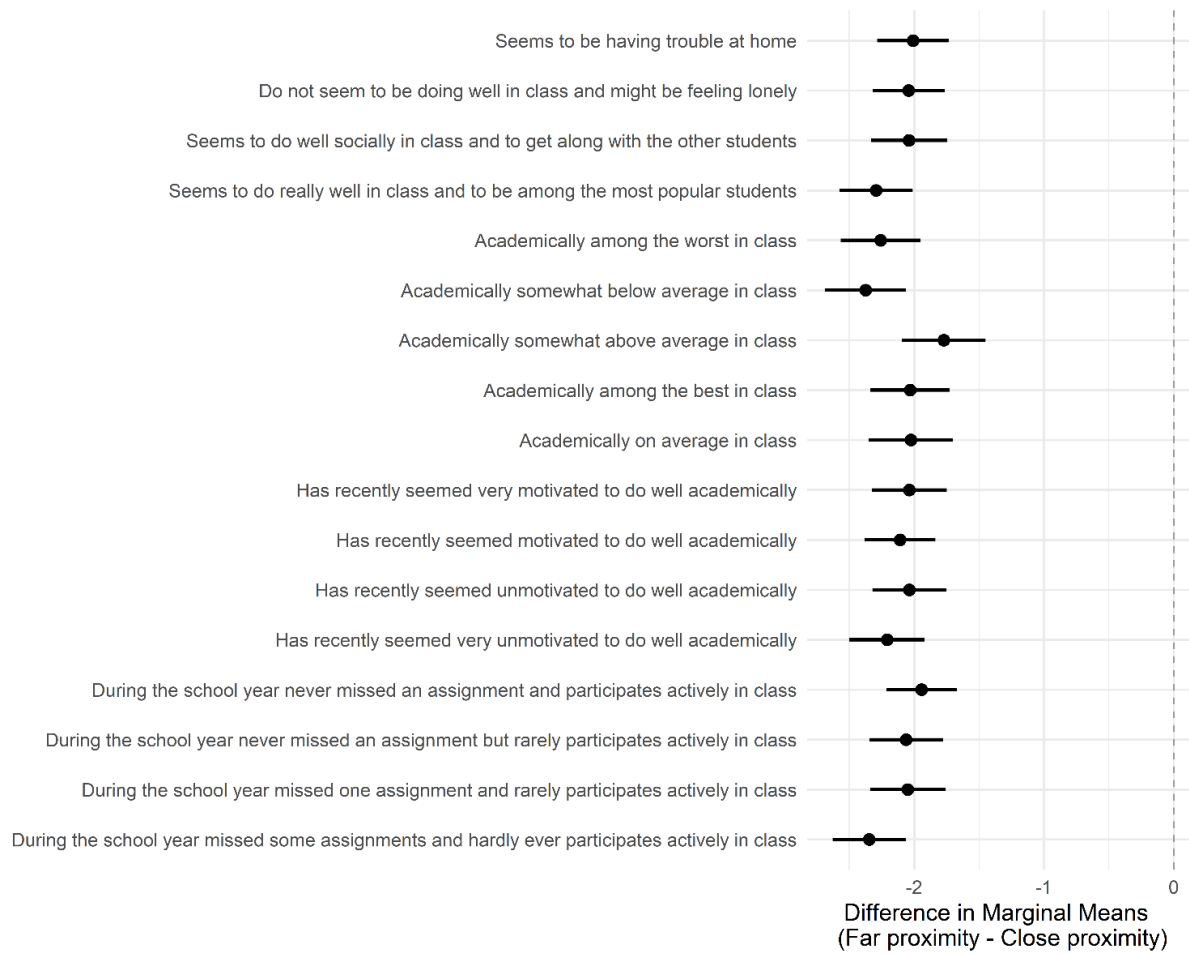


Figure S3b. Difference in conditional marginal means for close and high proximity. Positive estimates indicate that the marginal mean is greater for far proximity dilemmas. The figure shows that across attribute levels, the influence of role proximity is statistically distinguishable from zero.

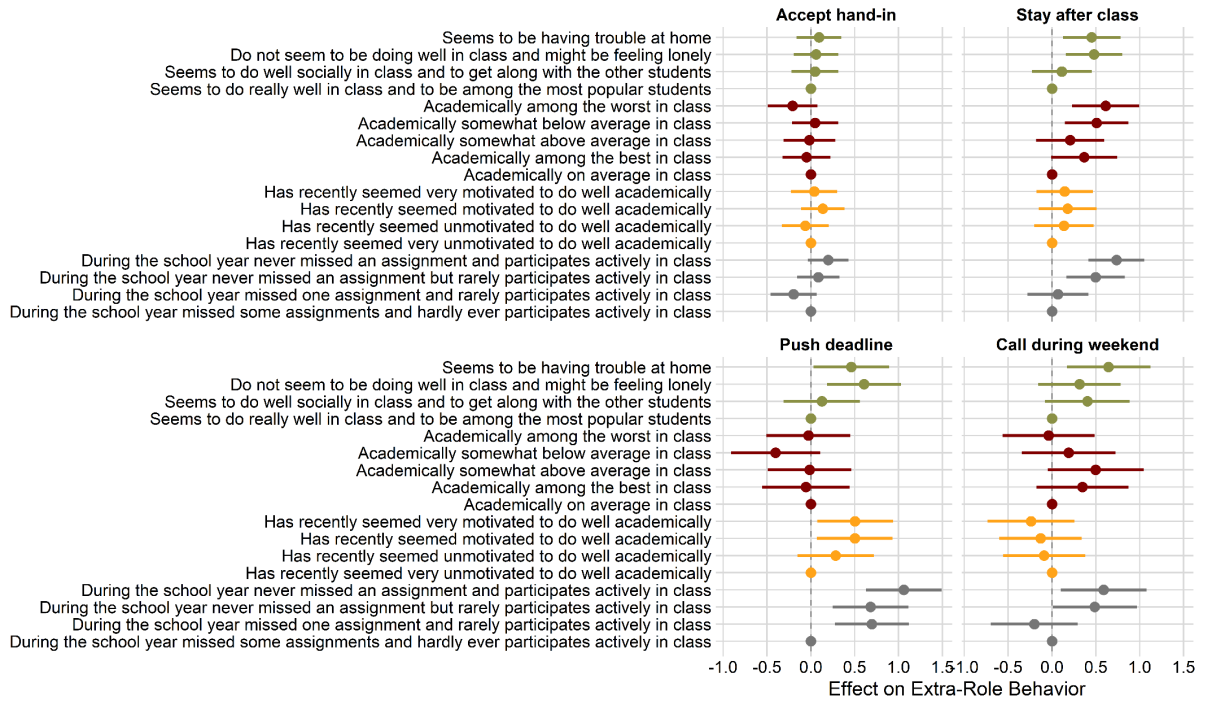


Figure S3c. Conditional average marginal component effects for each of the four dilemmas.

S4. Diagnostics



Figure S4a. Frequencies of conjoint features. Within each attribute, levels are distributed with roughly equal frequencies indicating successful randomization.

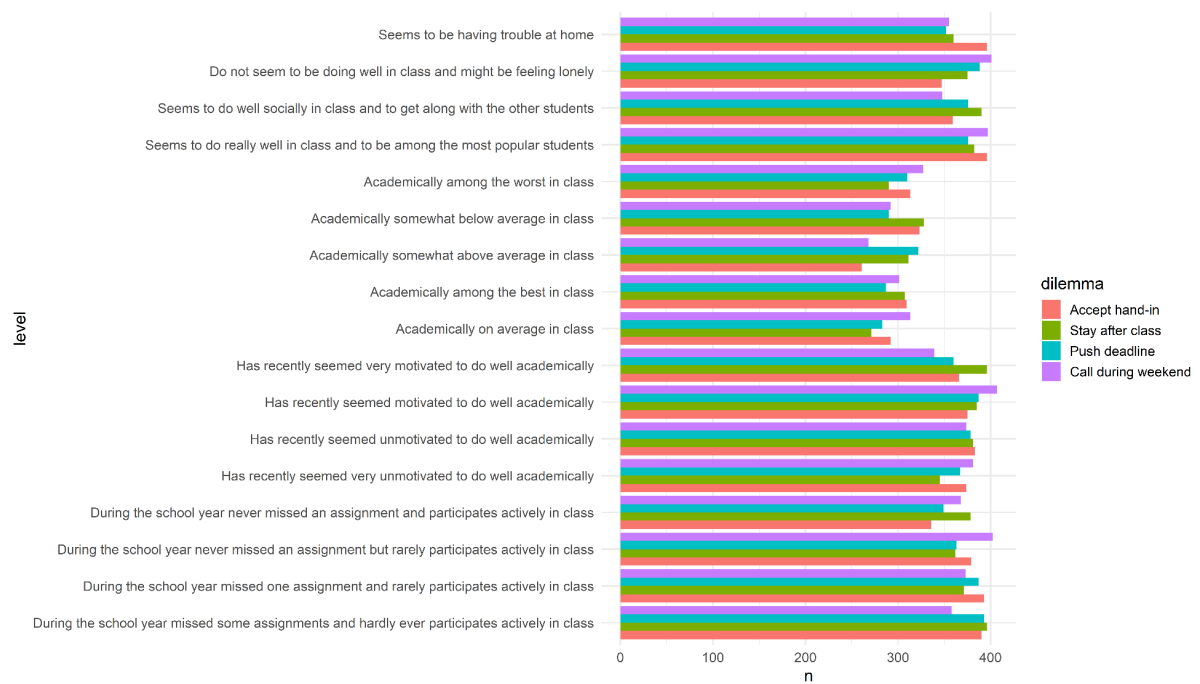


Figure S4b. Frequencies of conjoint features by dilemma. Within each dilemma and each attribute, levels are distributed with roughly equal frequencies indicating successful randomization across dilemmas.

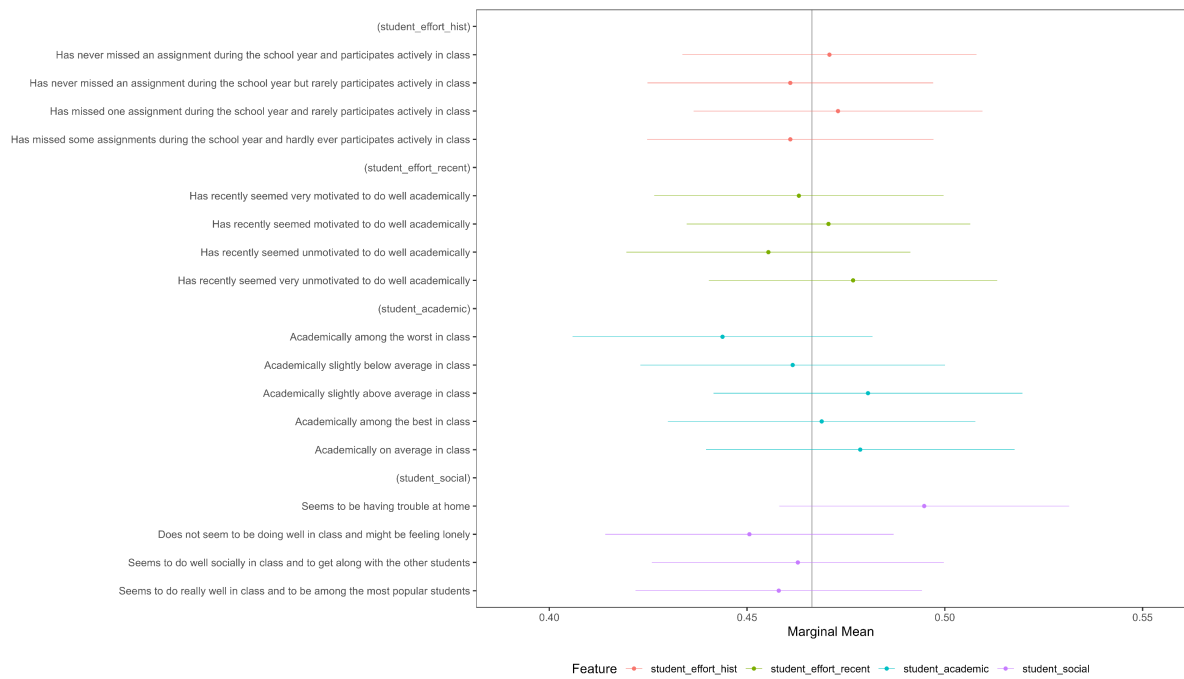


Figure S4c. Comparing respondent sex across feature levels (1 = “Male”, 0 = “Female”). Confidence intervals for each feature hover closely around the sample sex mean (vertical line), indicating that respondents are balanced in terms of sex across feature levels.

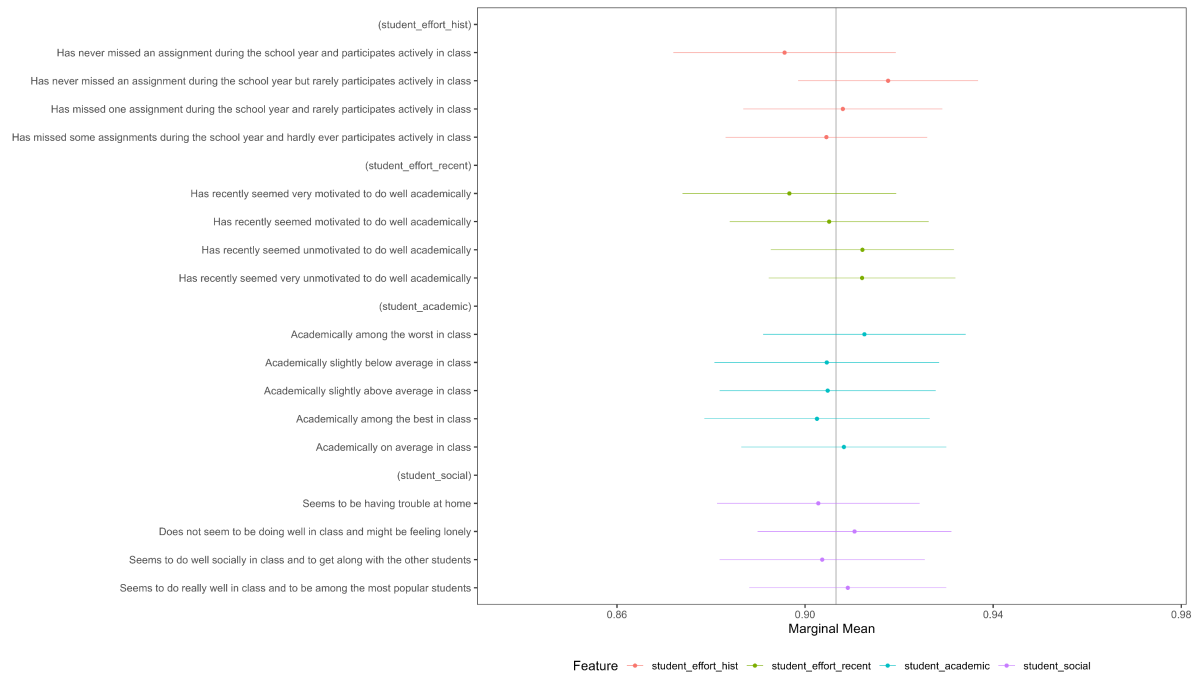


Figure S4d. Comparing respondent origin across feature levels (1 = “Danish”, 0 = “Non-Danish”). Confidence intervals for each feature hover closely around the sample origin mean (vertical line), indicating that respondents are balanced in terms of origin across feature levels.

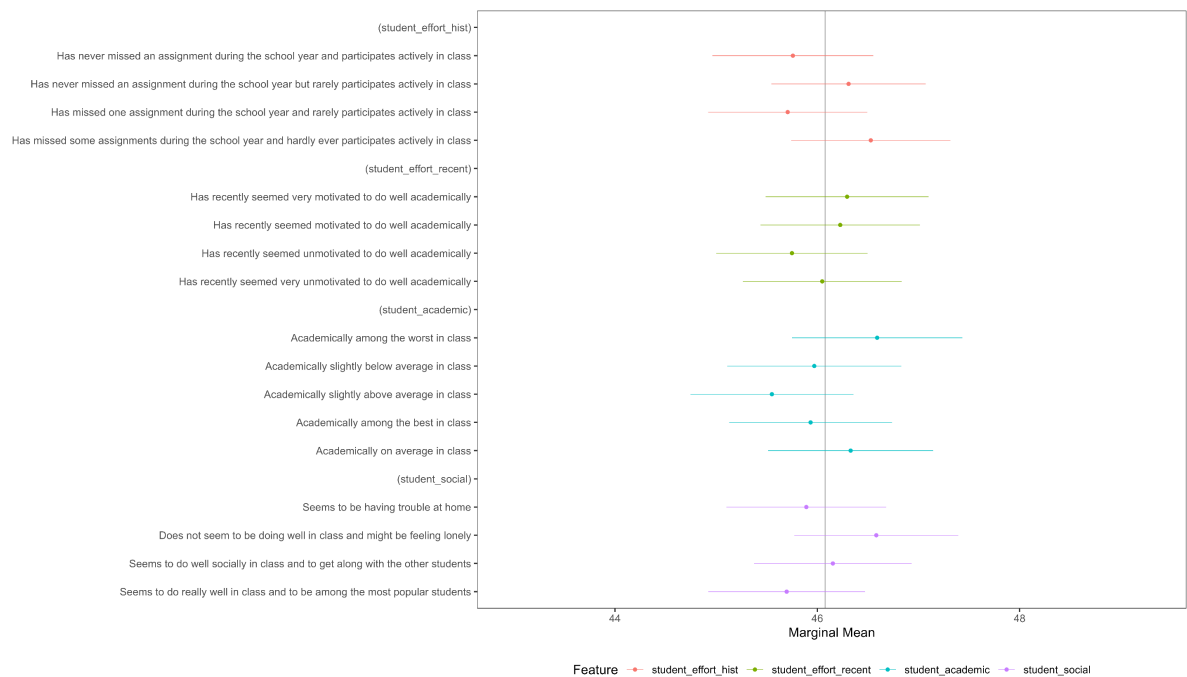


Figure S4e. Comparing respondent age across feature levels. Confidence intervals for each feature hover closely around the sample age mean (vertical line), indicating that respondents are balanced in terms of age across feature levels.

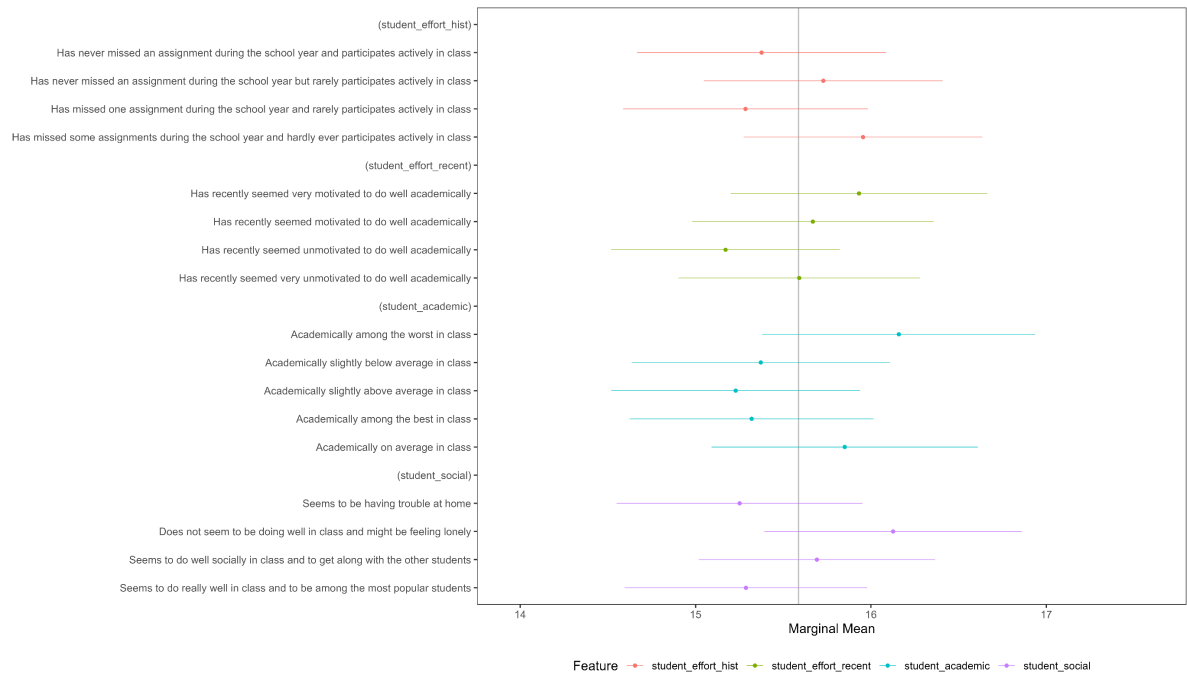


Figure S4f. Comparing respondent work experience across feature levels. Confidence intervals for each feature hover closely around the sample work experience mean (vertical line), indicating that respondents are balanced in terms of work experience across feature levels.

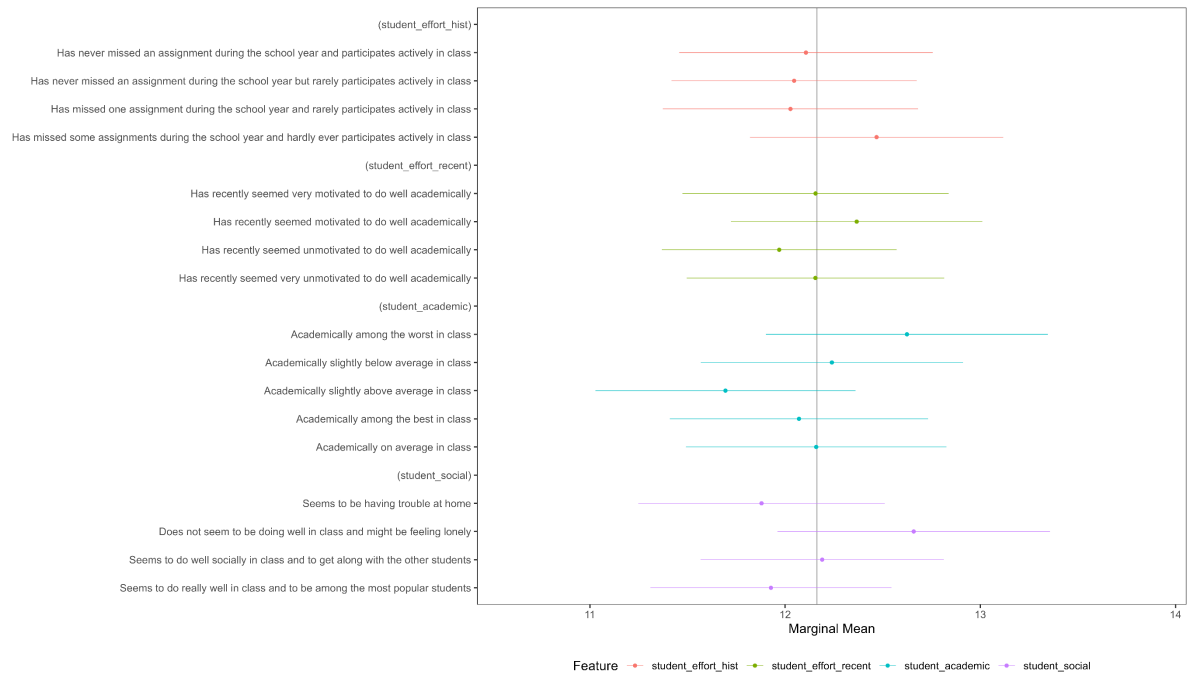


Figure S4g. Comparing respondent tenure experience across feature levels. Confidence intervals for each feature hover closely around the sample tenure mean (vertical line), indicating that respondents are balanced in terms of tenure across feature levels.

S5. Ancillary Analyses

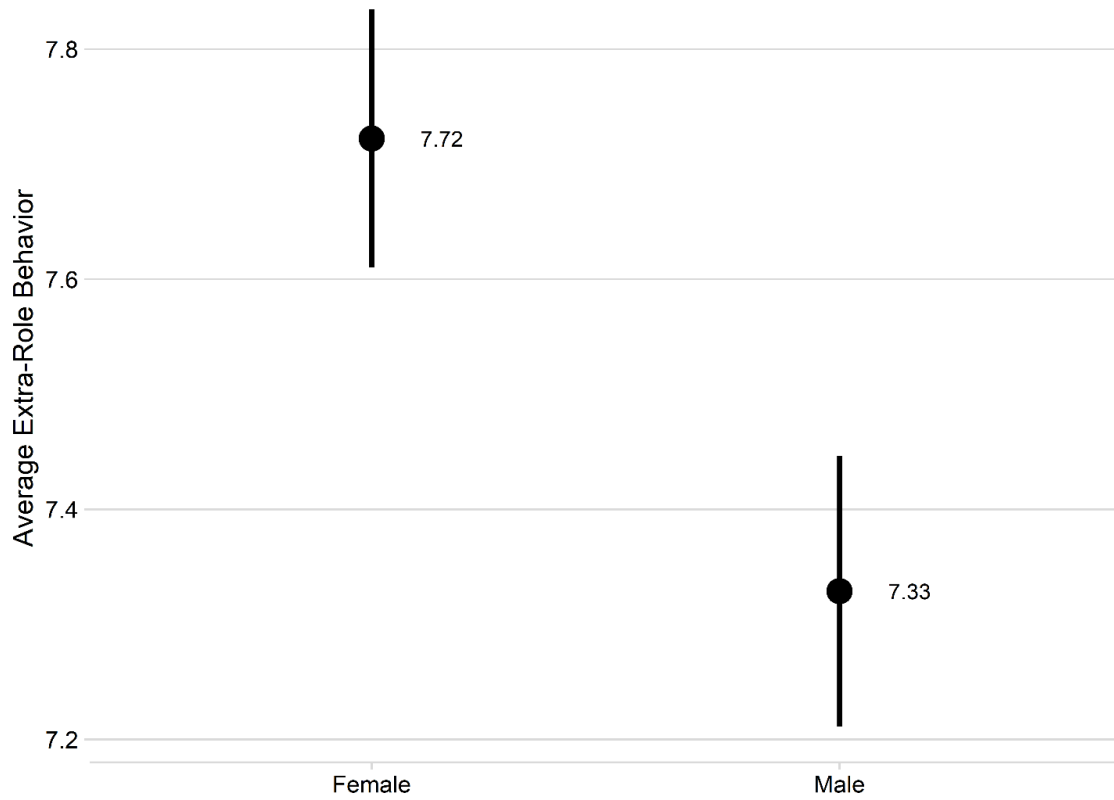


Figure S5a. Average extra-role behavior for female and male frontline workers. The figure shows averages calculated using OLS. Differences are statistically significant ($p < 0.001$).

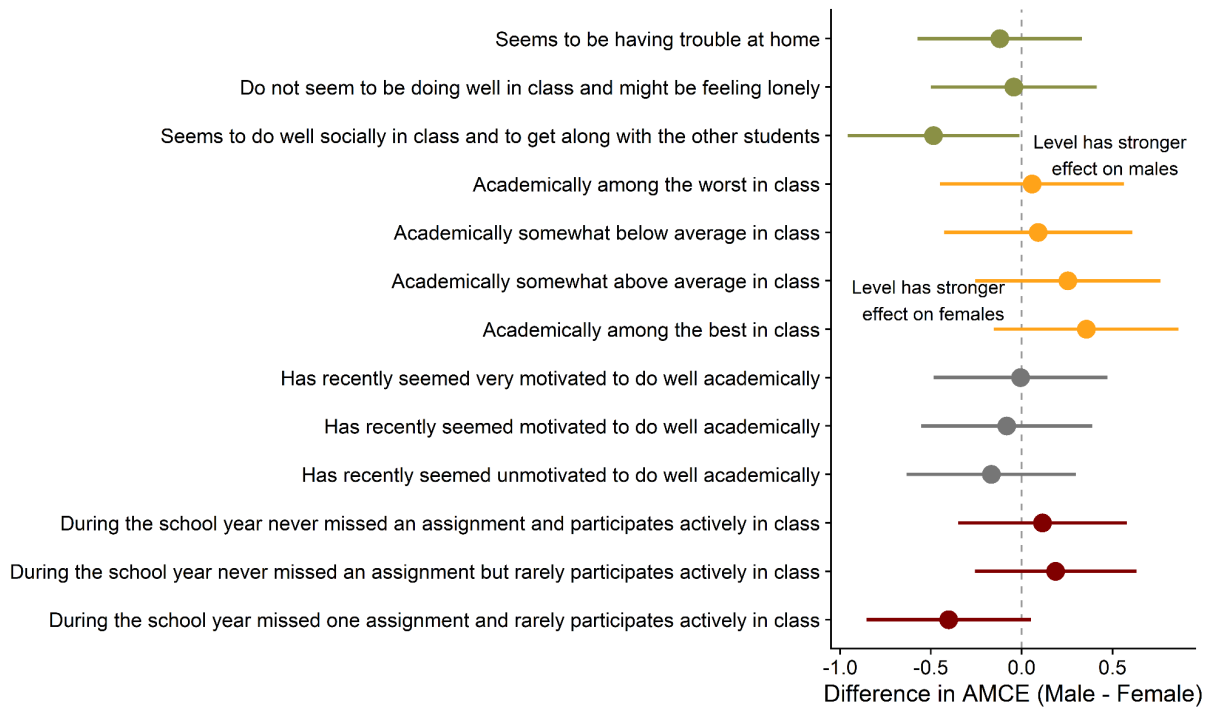


Figure S5b. Difference in AMCEs for female and male frontline workers. The figure shows the difference in average marginal components effects of student attributes on extra-role behaviors between male and female teachers. Horizontal lines are 95 percent confidence intervals.

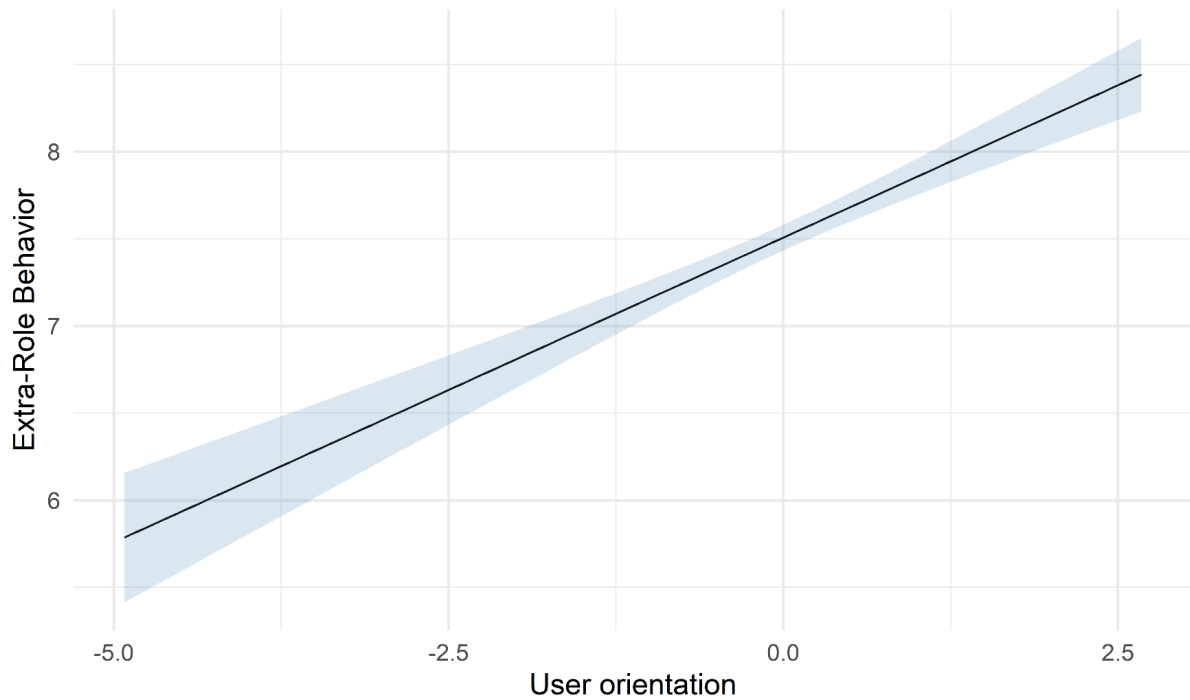


Figure S5c. Extra-Role behavior across levels of user orientation. The interaction term is statistically significant at $p < 0.001$. Calculated using OLS. Blue ribbon is the 95 percent confidence interval. User orientation has been centered and standardized (hence 0 represents the sample mean).

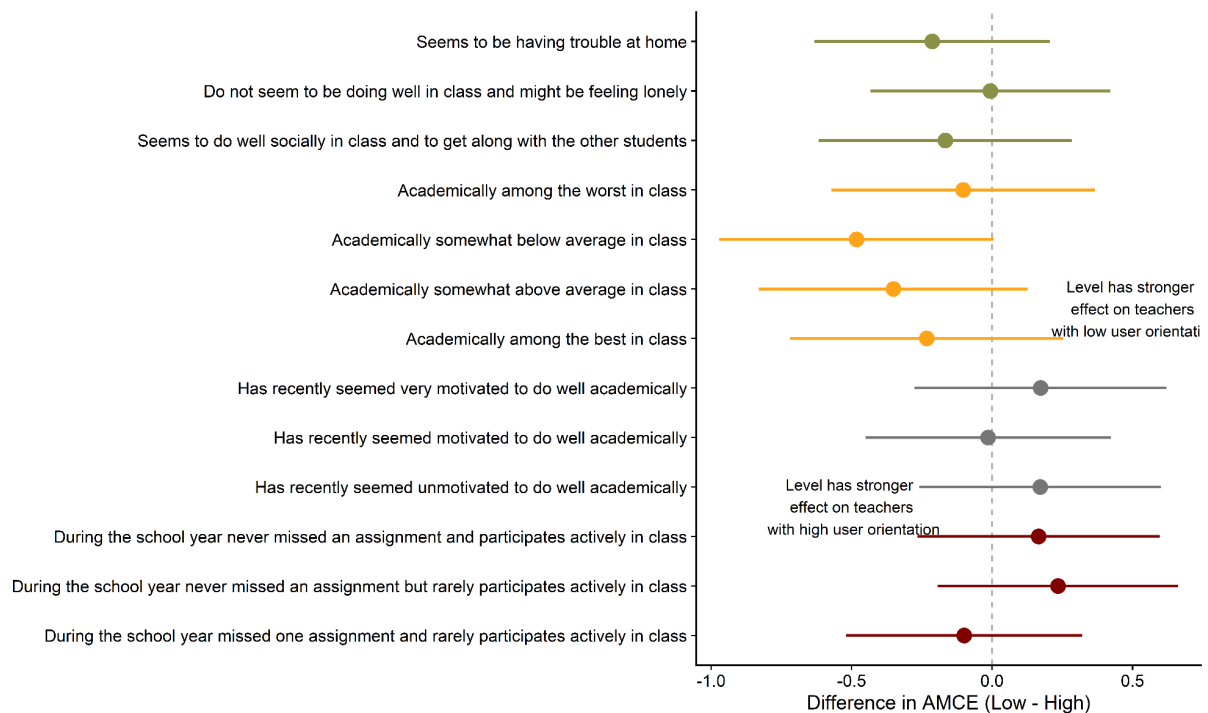


Figure S5d. Difference in AMCEs for teachers with low and high levels of user orientation. The figure shows the difference in average marginal components effects of student attributes on extra-role behaviors between teachers with low and high levels of user orientation. Teachers were divided into “Low” and “High” using the median. Horizontal lines are 95 percent confidence intervals.

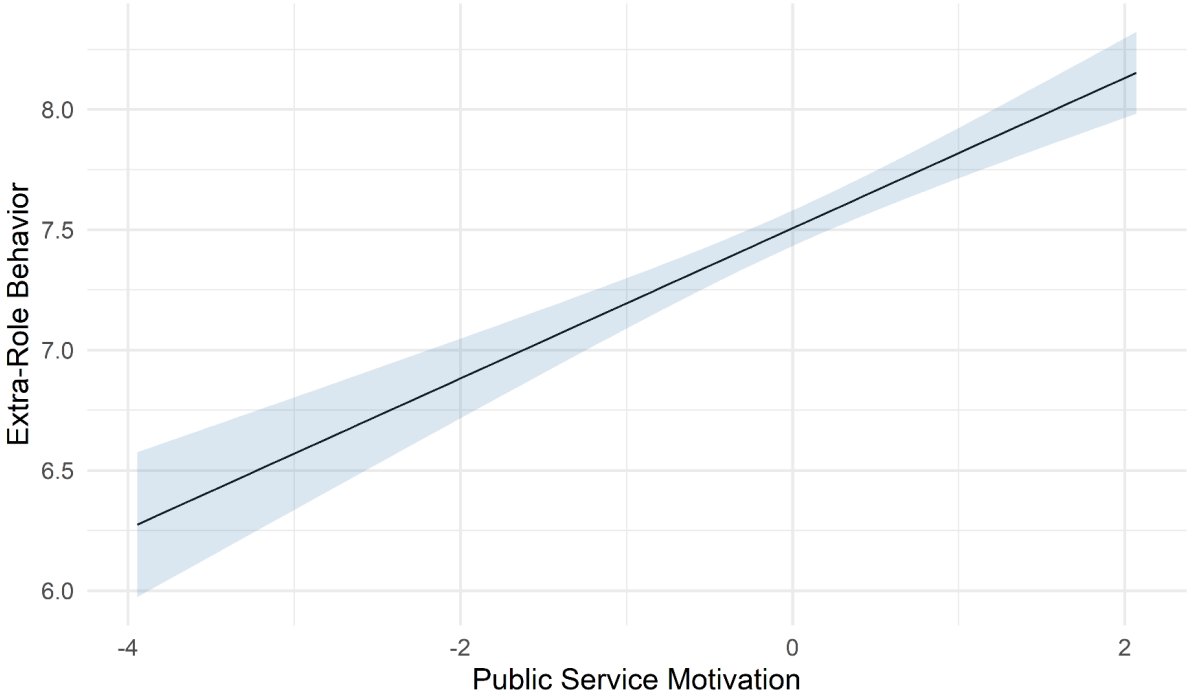


Figure S5e. Extra-Role behavior across levels of Public Service Motivation (PSM). The interaction term is statistically significant at $p < 0.001$. Calculated using OLS. Blue ribbon is the 95 percent confidence interval. PSM has been centered and standardized (hence 0 represents the sample mean).

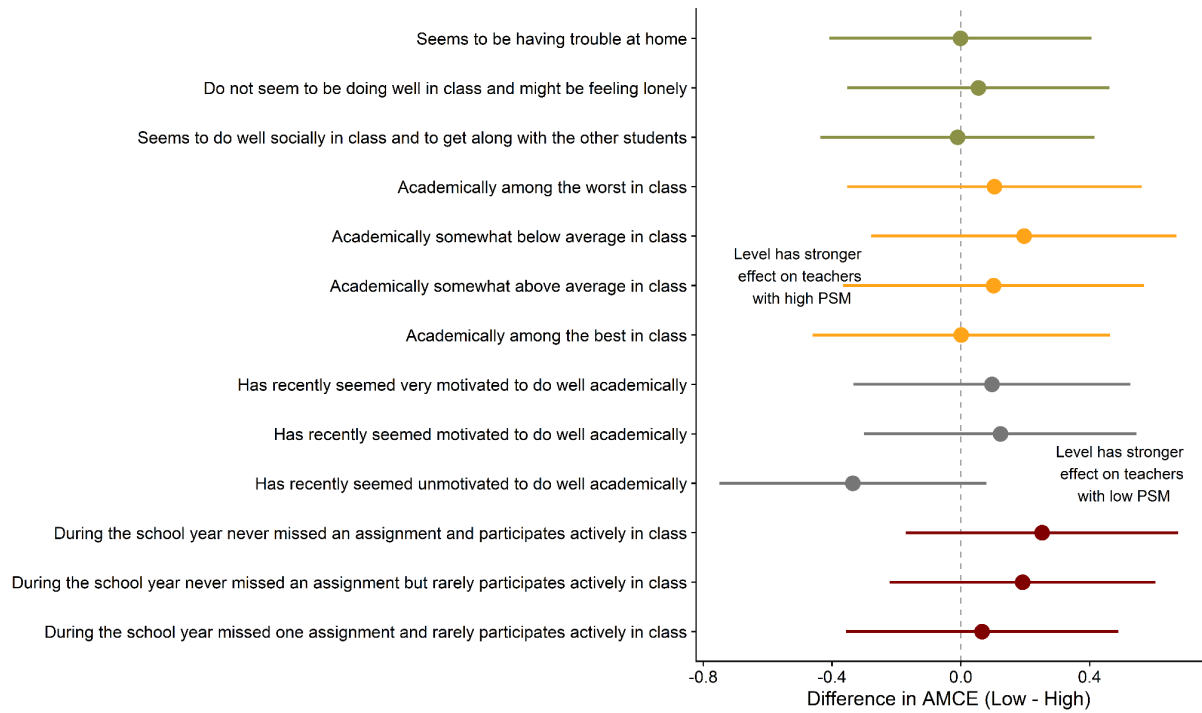


Figure S5f. Difference in AMCEs for teachers with low and high levels of Public Service Motivation (PSM). The figure shows the difference in average marginal components effects of student attributes on extra-role behaviors between teachers with low and high levels of (PSM). Teachers were divided into “Low” and “High” using the median. Horizontal lines are 95 percent confidence intervals.

- ¹ A likely explanation for this omission, we suspect, is the fact that most of the research investigating extra-role behaviours is found in the neighbouring fields of organizational psychology and business administration, focusing on employees in more general terms and customers, respectively.
- ² All data, syntax, and materials are publicly available through the Open Science Framework at: [insert link].
- ³ In addition to the information of direct theoretical interest to our study, we provided each student with a randomly assigned name to ensure realism. To avoid any confounding with the experiment, we picked the ten most popular names in Denmark within four strata: Danish-sounding male names, Danish-sounding female names, ethnic-sounding male names, and ethnic-sounding female names. Because we assigned names randomly and with equal probability, information about gender and ethnicity could not contaminate the experiment.
- ⁴ For well-being, we also added one cue stating that the student "seems to be having trouble at home". Arguably, this cue is more difficult to rank in terms of 'well-being dose' but was included because their close and long-term relationship with students means that teachers are sometimes confronted with out-of-class well-being problems as well (see, e.g. Davies and Berger 2019).
- ⁵ The survey went out to teachers during April 13 2022. At this point, the COVID-19 pandemic still affected the extent to which high-schools could provide in-class teaching. At April 13, all teachers were allowed to work from their shared offices. Further, all students were allowed to meet-in at least 50 percent of the time. The particular implementation varied from school to school but one prominent way of organizing teaching was to have one half of the class come in one week and then following the classes from home the next (i.e. classes took place as hybrid format). Additionally, from April 21st, students outside the Capital Region, who were in their final year could meet in 80 percent of the time. For all students, a number of precautionary measures still applied, including the frequent use of hand sanitizers