



# WORKING PAPER

## Tackling School-Related Gender-Based Violence through Teacher Professional Development in Cambodia.

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## Abstract

This paper presents the evidence base on an innovative teacher professional development (TPD) project tackling school-related gender-based violence (SRGBV) in primary and lower secondary schools in Cambodia. The core activities of the TPD project are discussed, focusing on teachers' changes in attitudes and beliefs towards emotional abuse and physical violence against boys and girls and gender equity. Further, we conducted a baseline and post-intervention study in two provinces in Cambodia between 2018 and 2020. This indicates that teachers from primary schools seem to benefit the most of the TPD in terms of performing less SRGBV. In secondary schools, the effects on performing emotional abuse or physical violence are not significant.

**Keywords:** Cambodia; Gender Equity; Impact; School-Related Gender-Based Violence; Teacher Professional Development

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## **Declarations**

### **1. Funding**

European Union represented by the European Commission under grant agreement CSO-LA/2017/389-622 and the Belgian Development Cooperation.

### **2. Conflicts of interest**

The authors declare that they have no relevant material or financial interests that relate to the research described in this paper.

### **3. Availability of data and material**

The University of Leuven developed a survey and collected data using this survey in close collaboration with the Royal University of Phnom Penh. Data are available at DOI: 10.13140/RG.2.2.24833.58724.

### **4. Code availability**

The STATA-code is available at DOI: 10.13140/RG.2.2.24833.58724.

### **5. Ethics approval**

The study received prior approval from the Ministry of Education Youth and Sports in Cambodia. They carefully checked the ethical code of conduct of the research and gave written approval to proceed with this study.

### **6. Consent to participate**

All teachers were informed of the research goals and procedure. They could voluntarily participate in the study. We were given informed consent by the participating schools and the Ministry of Education Youth and Sports to anonymously process the data of the teachers as part of the research.

### **7. Consent for publication**

All stakeholders involved in this study, including the authors, gave informed consent to publish this manuscript without the inclusion of (identifiable) personal data. The data in this study were processed anonymously.

## 1. Introduction

Students often accept punishment by their teachers with the idea that teachers discipline children for students to perform well. Some teachers believe that only verbal assaults or physical punishment can make the students work harder. The way teachers, school leaders, and students conduct, perceive and/or experience violence at or on the way to school – generally defined as school related gender-based violence (SRGBV) – heavily depends on gender norms and beliefs, gender stereotypes, and perceived inequity between the sexes (Kelly, 1988; Foulds, 2013; Parkes et al., 2013; Hamili et al., 2016; UNGEI, 2018). Teacher professional development (TPD), regarding the knowledge acquisition and understanding of gender equity and unacceptable forms of discipline against boys and girls, may then be key to wishful changes in the behaviour of teachers and their students, that is rooted in (school) culture, and that require a whole-school turnaround (Ferreira et al., 2006; Le Mat et al., 2019).

Frequently used markers of SRGBV are the incidence of emotional abuse and physical violence performed by teachers and/or experienced and reported by their students (UNGEI, 2018). Isolation, verbal assault, humiliation and intimidation against boys and girls, are examples of emotional abuse, while hitting, beating, kicking or pulling hair are examples of physical violence. This paper focusses on these markers of SRGBV happening in a teacher-child relationship. In many countries, these forms of abuse (or violent) behaviour of teachers towards children are still used by some teachers in teaching practices as acceptable forms of discipline; as observed in Cambodia (Stoltenborgh et al., 2015; Parkes et al., 2016; Hillis et al., 2018; Cabus et al., 2019).

School leaders and teachers are frequently not equipped for tackling SRGBV. For example, the school curriculum includes a visualization of traditional gender roles in the students' learning materials, and schools still incorporate gender stereotypes. Furthermore, the ideas of parents on what kind of disciplinary measures at schools are tolerated often justify using SRGBV by teachers against children. This calls for effective, comprehensive, and innovative TPD.

Tackling SRGBV is subject in this paper of a recently implemented, innovative TPD approach in primary and lower secondary schools in Cambodia. The country suffers traditionally from high rates of SRGBV, with two-thirds of children in grades 4 to 9 reporting to have been confronted

with emotional abuse, and 50% of children with physical violence in a teacher-child relationships (Cabus et al., 2019). 45% of teachers believe that boys and girls should get a different disciplinary measure for the same misbehaviour. The TPD project “Teaching for Improved Gender Equity and Responsiveness” (TIGER) got implemented in Battambang province between 2017 and 2020. The project includes a whole range of professional development activities regarding gender equity and SRGBV for in-service teachers. This paper delivers the evidence base on the effectiveness of the TIGER project in changing beliefs and practices regarding SRGBV among teachers. Doing so, this paper contributes to the previous literature in at least two ways.

First, while there is ample evidence on the effectiveness of TPD in terms of improved teacher quality (or pedagogy) and/or increased student performance (Garet et al., 2001; Wayne et al., 2008; Avalos, 2011; Postholm, 2012; Van Veen et al., 2012; Kang et al., 2013; Darling-Hammond et al., 2017), there is much less evidence base on the effectiveness of TPD or policy in the field of SRGBV (Aldridge & McChesney, 2018; Bhana et al., 2011; Halimi et al., 2016; Parkes et al., 2016). We found one experimental study on teaching gender equity to pre-service teachers in Turkey (Erden, 2009) and one randomized controlled trial (RCT) that evaluated the effectiveness of a toolkit preventing students from violence in primary education in Uganda (Devries et al., 2015). Further, Baker-Henningham et al. (2009, 2012) evaluated the Incredible Years intervention that ran in Jamaica using an RCT, and Schwandt & Underwood (2016) conducted a process evaluation on a School Training Programme in Botswana, Malawi, and Mozambique. It appears that we could not retrieve an impact study for Asian countries.

As a second contribution of this paper to the previous literature, we generate evidence on the effectiveness of the three-year (longer duration) project tackling SRGBV, targeted at in-service teachers from primary and lower secondary schools, and using a larger sample size (than Erden, 2009) of more than 60 trained teachers.<sup>2</sup> Hereto, we rely on a baseline study conducted at the end 2018 in 20 intervention (CSO) schools in Battambang province and 20 control schools in Svay Rieng province, and on new data collection in October 2020 (post-intervention) in the same

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<sup>2</sup> We also collected data on students of a similar sample size as in Devries et al. (2015), but reporting on these findings at student-level are beyond the scope of this paper.

schools. To support causal claims on the impact of the TIGER project on SRGBV, we have compared the evolution of teachers' ratings regarding scales of emotional abuse and physical violence in Battambang province (the treatment group) with that of Svay Rieng province (the control group). We further apply propensity score matching techniques as to visualize and improve on the comparability of treated and untreated teachers.

This paper proceeds as follows. Section 2 gives an overview of the TIGER project. A theoretical framework on effective TPD applied to the TIGER project is discussed in Section 2. The empirical strategy is explained in Section 4. The data and the descriptive statistics are presented in Section 5. Results on the effectiveness of the TIGER project are discussed in Section 6. Section 7 concludes.

## **2. The TIGER project**

The overall objective of the TIGER project is to ensure that primary and lower secondary school children are protected from SRGBV, enabling their equitable participation in all spheres of life at school and at home. This overall objective contributes to the policy guidelines and strategic plans of the Ministry of Education, Youth and Sport (MoEYS) and the Ministry of Women's Affairs (MoWA) in Cambodia, that is: promoting gender equity and equity.<sup>3</sup>

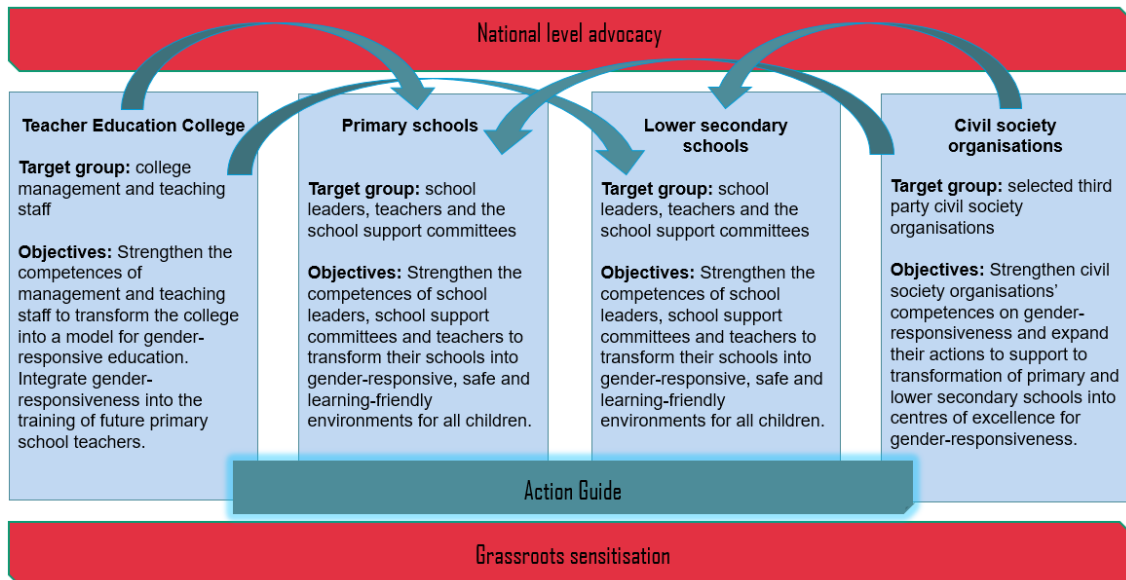
The TIGER project is confined to the province of Battambang, involving four stakeholders (see figure below): the local Teacher Education College (TEC), 40 primary and lower secondary schools and local civil society organisations – the latter were involved as trainers to ensure the sustainability of the project beyond project duration. Central to the implementation of the project was the development of the so-called Action Guide (blue bar in Figure 1). The Action Guide, which was officially endorsed by the MoEYS by the end of the project, served as a roadmap for the capacity building activities aimed at eliminating SRGBV in the target TECs and schools. The Action Guide is anchored in the daily school reality of Cambodia, offering relevant ideas, tools, and information to transform teaching practices and school leadership in a gender-responsive

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<sup>3</sup> Among others, including the Neary Rattanak Strategic Plan (2014-2018), the Teacher Policy Action Plan (TPAP), the Child Friendly School Policy, and the Gender Mainstreaming Strategic Plan (2016-2020) of MoEYS.

manner. In addition to a training guide, it includes tools for monitoring the level of gender-responsiveness of schools and Teacher Education Colleges (TECs) once in use.

*TIGER project: Implementation model for transforming the Teacher Education College and 40 primary and lower secondary schools in Battambang into gender-responsive schools*



**Source** Description of the TIGER project. (2017). VVOB - education for development

Based upon the Action Guide, a capacity development trajectory had been set up for 68 teaching and management staff of the Teacher Education College (TEC) and 480 teachers, school leaders and school support committee members of 40 primary and lower secondary schools in Battambang Province. Among these 40 schools, 20 pilot schools, usually model schools (that is, schools linked to the TEC), have been trained by VVOB staff and its consortium partners (further addressed as the TIGER team). In a second phase, the other 20 schools were trained by the staff of 5 local CSOs (further abbreviated by CSO schools). In this paper, we focus on the 20 CSO schools in Battambang province, and, as such, not on the pilot schools, because of their different characteristics as model schools – see Van Hooren (2019) for a discussion on baseline results of the 20 pilot schools.

Capacity development activities for in-service teachers and school leaders included trainings, individual coaching sessions, and peer discussions. Trainings (at the beginning of the project),



and refresher trainings (at the end of the project), focused on knowledge acquisition based on the Action Guide (e.g., strengthening school leaders' and teachers' knowledge and skills on gender in education, on how to apply gender-responsive pedagogy and on how to establish a gender-responsive school). Once trained, school leaders and teachers received coaching to ensure effective implementation and address potential challenges. To further strengthen implementation, coaches brought school leaders and teachers together for peer learning in a process of so-called learning cycles. Such learning cycles offer a platform to share experiences and further strengthen their competences in establishing gender responsive school environments.

To complement the professional development trajectories, the project also included a sensitization campaign at the grassroots-level, and an advocacy campaign at national and sub-national level.

### **3. Theory and practice**

Effective TPD acts at three levels (for a review, see Desimone, 2009): knowledge acquisition, changes in beliefs, and changes attitudes, practices, and instruction. Whereas exams were not executed to test teachers' knowledge acquisition, we assume an *"increased teachers' knowledge on SRGBV"* upon the observation of changes in beliefs, attitudes, and practices. Regarding changes in beliefs, we included the following questions in the teacher survey to examine teachers' beliefs regarding acceptable forms of discipline. For (un)acceptable forms of emotional abuse deals: *How acceptable are the following forms of discipline to you? Shout or curse at a child, call it names like "monkey" or "cow", laugh about a child. Deduct marks from tests or homework. Collect a fine from a child or make it buy things. Make a child stand in the front of the classroom or run rounds on the playground. Make a child do chores (E.g.: pick up rubbish, water flowers, clean toilets).* For (un)acceptable forms of physical violence: *How acceptable are the following forms of discipline to you? Hurt a child (E.g.: pull its ears, hit with your hand, a ruler, stick or rolled up paper). Make a child hurt itself (E.g.: by hitting its knuckles on the table, standing on one leg for a long time).* Respondents could using a 5-point Likert scale that assess the forms of discipline as 'very bad'; 'bad'; 'neutral'; 'good'; or 'very good'.

In terms of *teachers' changes in attitudes and practices*, we asked exactly the same questions as for (un)acceptable forms of discipline, but then starting with: *How often do you use the following forms of discipline yourself?* Respondents could answer on a 5-point Likert scale that assess the forms of discipline as 'never'; 'seldom'; 'sometimes'; 'often'; or 'very often'.

One may expect a higher impact of TPD on teachers' knowledge acquisition (layer 1) than on teachers' beliefs (layer 2) and then on teachers' practices and instruction (layer 3). Cobb (1994) introduces in this respect the word 'enculturation', meaning the gradual acquisition (by a group of teachers) of the learned knowledge and skills, a process necessary to adapt of the norms and values of (this group of teachers) with respect to gender equity and gender-based violence. Ideally, the group of teachers involved in the learning process, transfer knowledge and beliefs to other persons in the school community (for example, the students and their parents), in order to reach a true 'enculturation' that adapts norms and values of community members at large. A teacher development initiative that is able to reach enculturation, or, at least, has the intention to strive towards this goal, is referred to in the literature as a 'whole-school initiative' (or approach). Ferreira et al. (2006, p.16) write:

*"Whole-school approaches' involve schools (and/or institutions) tackling a range of complex and diverse issues such as school governance, pedagogy, resource consumption, community outreach, curriculum development, and landscaping that will assist schools to become more sustainable."*

There is a particular important role for school leaders in encompassing school-based problems with the ambition to underpin the whole school approach (Robinson et al, 2008; Leithwood et al, 2008). Ideally, school leaders lead teaching and learning, i.e., they promote the school as a learning organization and engage teachers in continuous professional development. To this end, the TIGER project involves the school leaders as well in the capacity development trajectory. However, it should be noted that we did not collect quantitative data on the school leaders, but only on the teachers.

If the TIGER project yields positive effects on knowledge acquisition and on the application of this knowledge into practice, ‘transfer effects’ from teachers to students can be observed. A transfer effect refers to knowledge and/or beliefs spill overs from teachers to students through teaching practices. A discussion of these transfer effects is beyond the scope of this paper; but can be found in Cabus et al. (2021).

#### 4. Empirical strategy

We wish to estimate the effects of the TIGER project on teachers’ beliefs, attitudes and practices towards gender equity and SRGBV. Therefore, we estimate the difference-in-differences model specified in Table 1. The empirical strategy corresponds to using pre- and post-intervention data on both treatment and control groups. The baseline study took place in October and November of 2018, while the post-intervention study in October 2020. The treatment group are teachers who participated in the TIGER project in Battambang province, and the control group consists of teachers in Svay Rieng province.

*Table 1: Treatment and control group over the period 2018-2020*

	Baseline study (October 2018)	Post-intervention study (October 2020)
Control group	D=0; T=0 (Cohort 1 of teachers in Svay Rieng province)	D=0; T=1 (Cohort 2 of teachers in Svay Rieng province)
Treatment group	D=1; T=0 (Cohort 1 of teachers in Battambang province)	D=1; T=1 (Cohort 2 of teachers in Battambang province)

Similarity between teachers of Svay Rieng and Battambang fosters the credibility of the empirical strategy. Svay Rieng and Battambang are both close to a neighbouring country – Battambang shares a border with Thailand, Svay Rieng shares a border with Vietnam. Parents living close to the neighbouring country often travel abroad for seasonal work. Children of migrant workers often grow up without one, or both, of the parents. They rely on care from the grandparents or other guardians. This is a common situation in Cambodia. At the same time, there is great similarity of students in both provinces in terms of (1) background characteristics of teachers; and (2) in terms of cultural traditions or ideas that underly the incidence of SRGBV (Cabus et al, 2019).

In summary, the chosen empirical strategy corresponds to the estimation of the following multivariate regression (Murnane & Willet, 2010):

$$Y_{is} = \alpha_0 + \beta_0 D_{is} + \delta_0 T_{is} + \theta_0 (D_{is} \times T_{is}) + \varepsilon_{is} \quad (1)$$

The variable  $D_{is} \in \{0,1\}$  denotes the treatment indicator, with the value of 0 equal to 'no participant in the TIGER project' (control group), and the value of 1 'participant in the TIGER project' (treatment group). The time indicator  $T_{is} \in \{0,1\}$  is a dummy variable that denotes the baseline study done in 2018 ( $T = 0$ ) and the post-intervention study done in 2020 ( $T = 1$ ). Subscript  $i \in \{1,2, \dots, N\}$  denotes the teachers, which are partly the same individuals pre- and post-intervention, but also partly other individuals, and subscript  $s \in \{1,2, \dots, S\}$  the schools. Further, the parameter of interest in Equation (1) is  $\theta_0$ . This parameter denotes the impact of the TIGER project on changes in beliefs and practices towards SRGBV. It is estimated by calculating the interaction effect between the treatment and time indicators. The estimate of  $\theta_0$  then reflects the average changes in beliefs, attitudes, and practices among teachers that participated in the TIGER project compared to the control group and the baseline study.

Equation (1) can be elaborated with several control variables to check for the robustness of the results. Apart from a vector of  $j$  demographic characteristics ( $X_{jis}$ ), like gender, age, household wealth, seniority, and educational level wherein the teachers teach, we also control for having had a training – before the baseline study took place, and, therefore, outside the scope of the TIGER project – on gender equity and/or gender-based violence ( $G_{is}$ ). Some teachers (22.5%) in Svay Rieng and Battambang province reported to have had previously a training on gender equity and/or gender-based violence.<sup>4</sup> From the data we cannot reveal when they have had such a training, or whether this fact is true. But having knowledge on previous trainings may be relevant for the empirics, because on the one hand, any other random training on gender-based violence and gender equity given by other (non-governmental) organizations could yield beneficial effects among its participants. Therefore, the effectiveness of TIGER could be underestimated without controlling for  $G_{is}$ . On the other hand, participants in both treatment and control groups are

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<sup>4</sup> There are 36.6% of the total number of teachers in the sample of Svay Rieng and 46.6% in the sample of Battambang that received 'a training' in the pre-intervention period.

explained the purpose of the questionnaire, so that having measured the variable  $G_{is}$ , we can (partially) control for possible socially desirable answers.

A final important caveat is that there were school closures due to the global COVID-19 pandemic in Cambodia between March 16 and September 7 in the year 2020. The school year ended in November 2020. The school closures did not influence the implementation of the TIGER project. To ensure a good and effective implementation of the remaining activities, the project switched their approach to online and/or phone activities (e.g., online training, phone and/or online coaching, webinar). When allowed, in line with the governmental instructions and rules, the project conducted in-person activities in small(er) groups.

However, there may be a significant impact of school closures on teachers' attitudes and beliefs towards SRGBV. There is indeed a potential relationship between the teaching method used, and the threat of emotional abuse or physical violence posed to children. For example, during online courses or home teaching, it is not possible to physically reach the children. This is not the case when children meet the teacher physically at the school. On the other hand, online courses facilitate the use of sending unwanted private messages to and between students. Bullying online (or cyberbullying) may increase, then. The observed differences between Battambang and Svay Rieng provinces may eventually impact teachers' rating post-intervention on the outcome variables dealing with performing emotional abuse or physical violence. Therefore, it is argued to include control variables in the empirical analysis.

We have included questions in the questionnaire dealing with the way how teachers could still reach their students during the school closures. In a similar way we asked the students how frequently they could still visit school or participate at home in lectures. We use these variables as control variables in the multivariate regressions. These questions on the influence of COVID-19 on the school closures in Cambodia are denoted by the variable  $C_{is}$ . Second, school closures struck all schools over the whole country of Cambodia. There is no reason to believe that these school closure would affect schools in Battambang province differently than in Svay Rieng province. Using a research design that compares the outcomes of teachers in Battambang with

Svay Rieng province over time, should then allow us to control for the impact of the school closures. We then may write:

$$Y_{is} = \alpha_1 + \beta_1 D_{is} + \delta_1 T_{is} + \theta_1 (D_{is} \times T_{is}) + \mu_1 G_{is} + \nu_1 C_{is} + \sum X_{jis} + \varepsilon_{is} . \quad (2)$$

Finally, on top of the difference-in-differences research design, we apply propensity score matching techniques. Thanks to the matching analysis we can create a balanced set of covariates which makes the empirical analysis more robust (Rosenbaum & Rubin, 1985). Further, matching allow us to identify teachers in the treatment group that differ a lot from the control group based on observed background characteristics. Only 2 teachers did not find a match with teachers in the control group and are dropped from the data. Section 6.2 discusses the application of the technique in more detail.

## 5. Data and descriptive statistics

Teachers in primary education (grade 4 to 6) and lower secondary education (grade 7 to 9) participated in this study. The initial target at baseline was to reach 160 teachers in 40 schools stratified by gender (80 female teachers and 80 male teachers). Schools included 23 primary schools and 17 lower secondary schools. Whereas the same schools got contacted in the post-intervention study, the final sample at end line consists partly of the same teachers as in the baseline study, 88.0% in primary schools, and 35.9% in secondary schools, and partly of different teachers. Table 2 summarizes the number of teachers we could reach with our questionnaire by province, and by pre- versus post-intervention study. We are not able to individual-level track the answers of teachers. However, in the post-intervention period, every teacher in the sample from the schools in Battambang (100%) has had the TIGER project. At the same time, 0% of teachers in Svay Rieng province got involved in the TIGER project. This still allows us to apply the difference-in-differences methodology as suggested in Section 4, whereas the methodology does not require having the same teachers tracked over time (Abadie, 2005; Hounbedji, 2016).

Table 2: Total sample size by study phase

	Baseline study	Post-intervention study
Control group: Svay Rieng province	89	70
Treatment group: Battambang province	58	73
Total sample size by study phase	151	149

In total 151 teachers responded to the questionnaire at baseline (October 2018) and 149 teachers in the post-intervention period (October 2020).<sup>5</sup> Table 3 summarizes teachers' characteristics. On average, 50 to 60% of teachers are teaching in primary education (grade 4 to 6). The other 40 to 50% of the teachers are teaching in lower secondary education (grade 7 to 9). An independent sample T-test is performed to indicate significant differences between the treatment group (Battambang) and control group (Svay Rieng). We observe no significant differences between Battambang and Svay Rieng regarding the share of female respondents in the teacher sample. There are, however, significant differences in age (teacher respondents in Svay Rieng are on average 4 years older than the teacher respondents in Battambang) and, relatedly, in years of work experience (seniority). To deal with significant differences between treatment and control group, we apply a matching analysis. Doing so, we create weights for the control group to resemble the treatment group using propensity score matching techniques. In particular, we perform a 'Kernel matching' on the set of demographic characteristics discussed in Section 6.1 and assign a positive weight ( $> 0$ ) to untreated teachers, accordingly.

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<sup>5</sup> We lost 16 potential respondents, mainly in the CSO schools from Battambang province during the baseline study. The main reason for losing these respondents was due to organizational issues. The CSO schools from Battambang province are situated in remote areas, and the schools were not sufficiently informed about the timing of our research visit. Consequently, some teachers were not present or not sufficiently prepared. We could avoid these issues in the post-intervention period.

Table 3: Descriptive statistics of the teacher sample (N=300)

	Battambang			Svay Rieng			Dif.	p-value	Sig.
	Obs	Mean	Std.Dev.	Obs	Mean	Std.Dev.			
<b>Pre-intervention</b>									
Female	58	0.500	0.504	93	0.398	0.492	0.102	0.223	
Age	58	33.2	8.5	93	37.1	9.1	-3.909	0.008	***
Household wealth	58	3.2	0.5	93	3.3	0.5	-0.017	0.837	
Seniority	58	10.9	8.3	93	16.2	9.4	-5.385	0.000	***
Primary vs. lower secondary schools	58	0.5	0.5	93	0.4	0.5	0.126	0.134	
<b>Post-intervention</b>									
Female	73	0.521	0.503	76	0.592	0.495	-0.072	0.383	
Age	73	33.4	8.3	76	36.3	8.5	-2.919	0.036	**
Household wealth	73	3.1	0.4	76	3.2	0.5	-0.114	0.114	
Seniority	73	10.9	7.9	76	13.8	8.6	-2.818	0.038	**
Primary vs. lower secondary schools	73	0.6	0.5	76	0.5	0.5	0.131	0.108	

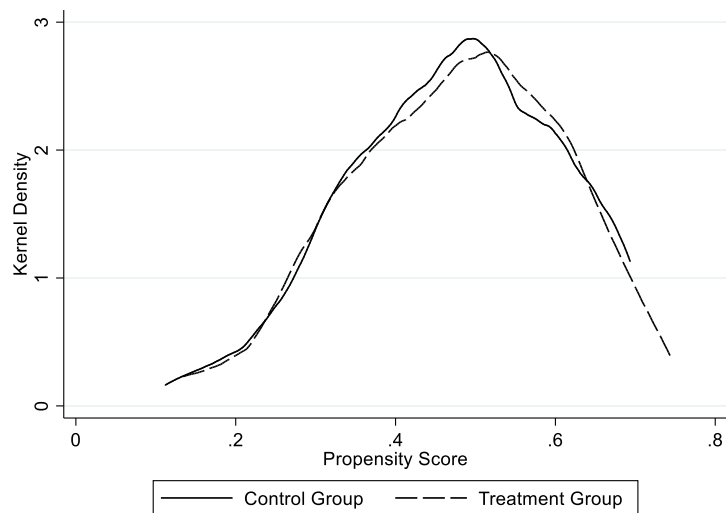
\* Sample averages (without weights). Significance at 1%-level (\*\*\*); 5%-level (\*\*); and 10%-level (\*).

Figure 2 shows an equal distribution of the propensity scores between the treatment and the control group upon using the weights of the Kernel matching. We also observe that 2 treated teachers cannot be matched to the control group (or 'off support').<sup>6</sup> These 2 teachers are left out the analysis, so that we count (N=298) observations in the final sample. Owing to the Kernel matching, there are no longer significant differences on the demographic characteristics between the Battambang, the treatment group, and Svay Rieng, the control group. These conclusions can be made based on Table 4.

<sup>6</sup> Teachers are 'off support' when beyond the value of the propensity score 0.75.



Figure 1: Balancing the covariates of the teacher sample using Kernel matching



\* Weights from Kernel matching assigned to the teachers in the control group.

Table 4: Descriptive statistics of the teacher sample with application of propensity score matching (N=298)

	Battambang			Svay Rieng			Dif.	p-value	Sig.
	Obs	Mean	Std.Dev.	Obs	Mean	Std.Dev.			
<b>Pre-intervention</b>									
Female	58	0.500	0.504	93	0.463	0.501	0.037	0.680	
Age	58	33.2	8.5	93	32.6	8.3	0.577	0.694	
Seniority	58	10.9	8.3	93	11.6	8.3	-0.699	0.624	
Household wealth	58	3.2	0.5	93	3.2	0.4	0.053	0.497	
Primary vs. lower secondary school	58	0.5	0.5	93	0.6	0.5	-0.016	0.854	
<b>Post-intervention</b>									
Female	71	0.521	0.503	76	0.561	0.500	-0.040	0.656	
Age	71	33.0	8.0	76	34.1	8.1	-1.078	0.447	
Seniority	71	11.2	7.9	76	10.7	7.5	0.439	0.733	
Household wealth	71	3.1	0.4	76	3.2	0.4	-0.069	0.332	
Primary vs. lower secondary school	71	0.6	0.5	76	0.6	0.5	0.025	0.768	

\* Averages calculated using the weights from the propensity score matching. Significance at 1%-level (\*\*\*)  
5%-level (\*\*); and 10%-level (\*).

Then again, Table 5 summarizes the mean and standard deviations of the outcome variables at baseline, and their underlying questions. We apply the weights created from the matching analysis to the variables included in Table 5. A few questions underlying the scales reveal that some practices are more common to use in Battambang province, for example, a teacher making a child do chores. Nonetheless, most significant differences between the two provinces are very small and disappear in the overall scale. Therefore, we can conclude that, except for the scale on performing emotional abuse, we find no significant differences between treatment and control groups at baseline on the scales rating the acceptable forms of discipline and the scale on performing physical violence.

Finally, the questionnaire included a question on how teachers could reach their students during school closures. These answers are summarized in Table 6. Significant differences between Battambang and Svay Rieng are observed in the way how teachers dealt with the challenge of school closures. For example, 83.1% of teacher respondents in Battambang taught frequently children at their home place, while this is only true for 50.7% of teacher respondents in Svay Rieng. It appears that 47.8% of the respondents in Svay Rieng more often asked the children to come frequently (i.e., 1 to 3 times) to the school site for teaching purposes. The Ministry of Education, Youth and Sport (MoEYS) set different schedules for different grade levels in Cambodia (e.g., two grade levels come to school 2 days, other grade levels come to school on other days). Schools were allowed to ask the students to visit the school site for lecturing on these assigned days. These frequent visits to the school did not occur at all in Battambang. As a valid alternative to home teaching, respondents in Battambang answered to provide online courses to their students. Only a minority of teachers (0.7%) did not teach during school closures in both provinces.

Table 5: The outcome variables regarding emotional abuse and physical violence at baseline

	Control group (N=93)		Treatment group (N=58)		Difference	
	Weighted Mean	Std.Dev.	Weighted Mean	Std.Dev.		Sig.
<b>Acceptable forms of discipline</b>						
<b>Questions related to emotional abuse</b>						
calling names	1.72	0.52	1.53	0.50	-0.19	*
fine	1.65	0.52	1.72	0.56	0.08	
deduct marks	2.43	0.79	2.55	0.73	0.12	
front of classroom	1.96	0.41	2.21	0.61	0.24	**
chores	3.24	0.76	3.14	0.78	-0.11	
Scale of rating emotional abuse as acceptable	2.20	0.33	2.23	0.37	0.03	
<b>Questions related to physical violence</b>						
hurt yourself	1.96	0.35	2.14	0.61	0.18	
hurting you	2.05	0.55	1.81	0.54	-0.24	**
Scale of rating physical violence as acceptable	2.00	0.35	1.97	0.48	-0.03	
<b>Performing forms of discipline</b>						
<b>Questions related to emotional abuse</b>						
calling names	1.01	0.16	1.07	0.32	0.06	
fine	1.00	0.00	1.05	0.29	0.05	
deduct marks	1.40	0.74	1.50	0.82	0.10	
front of classroom	1.06	0.25	1.16	0.45	0.10	
chores	2.15	0.90	2.64	0.81	0.49	**
Scale of performing emotional abuse	1.32	0.28	1.48	0.32	0.16	**
<b>Questions related to physical violence</b>						
hurt yourself	1.12	0.42	1.38	0.70	0.26	***
hurting you	1.57	0.81	1.45	0.68	-0.12	
Scale of performing physical violence	1.35	0.44	1.41	0.49	0.07	

\* Reported mean and standard deviations using the weights from the propensity score matching. Respondents could answer the questions dealing with acceptable forms of discipline on a 5-point Likert scale ranging from 1 'very bad'; 2 'bad'; 3 'neutral'; 4 'good'; or 5 'very good'. The questions regarding performing emotional abuse or physical violence are answered on a 5-point Likert scale ranging from 1 'never'; 2 'seldom'; 3 'sometimes'; 4 'often'; or 5 'very often'.  
Significance at 1%-level (\*\*\*); 5%-level (\*\*); and 10%-level (\*).

Table 6: School closures due to COVID-19 and alternative teaching methods post-intervention

	Battambang			Svay Rieng			Dif.	p-value	Sig.
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.			
<b>Alternative teaching methods</b>									
No teaching to children	71	0.070	0.258	76	0.000	0.000	0.070	0.024	**
Taught at children's home	71	0.831	0.377	76	0.507	0.503	0.324	0.000	***
Children visited school	71	0.000	0.000	76	0.478	0.503	-0.478	0.000	***
Online courses	71	0.113	0.318	76	0.023	0.152	0.089	0.035	**

\* Averages calculated using the weights from the propensity score matching. Significance at 1%-level (\*\*\*); 5%-level (\*\*); and 10%-level (\*).

## 6. Effects of TIGER on teachers

Table 7 summarizes the main results regarding the impact of TIGER on teachers' ratings regarding acceptable forms of discipline. The full estimation results are summarized in appendix A. Table 7 presents the estimated coefficients from four models in total. These coefficients are expressed as a change in points on the 5-point Likert Scale. In Model 1, we present the results without adding control variables. Then, in Model 2, we add the confounding variable G (previously received a training on gender equity and/or school-related gender-based violence) to the regressions. Model 3 further accounts for the demographic characteristics of the teachers. Owing to the matching (Section 6.2), these characteristics should not significantly change the estimated coefficient. Model 4 further accounts for the school closures due to COVID-19 by considering several questions related to the teaching method.

We draw at least four conclusions from Table 7. First, the TIGER project reduced the ratings of the teachers regarding all outcomes. In particular, compared to the control group and having had no training at baseline, participants in the TIGER project significantly rejected more forms of discipline, defined as emotional abuse or physical violence, as acceptable. The impact of TIGER on the ratings of the teachers regarding 'acceptable forms of discipline' can be considered large with an effect size of almost equal to 0.8 SD. As a rule of thumb, effect sizes equal to 0.8 units of

standard deviations (SD) can be considered large effects, while 0.5 SD correspond to moderate effects, and 0.2 to small effects.

Second, having had previously a training on gender equity and/or SRGBV has hardly any impact on the estimated coefficients in Model 2 compared to Model 1. Most coefficients go up, which confirms our assumption that previously having had a training (before introduction of TIGER) underestimates the true impact of TIGER.

*Table 7: Impact of the TIGER project on teachers' ratings of acceptable forms of emotional abuse and physical violence and performing it*

	Model 1		Model 2		Model 3		Model 4		Effect Size (SD)	
Acceptable forms of emotional abuse	-0.8174	***	-0.8738	***	-0.8856	***	-0.8818	***	-0.7546	***
	(0.064)		(0.076)		(0.079)		(0.111)			
Performing emotional abuse	-0.1495	**	-0.1916	**	-0.1935	**	-0.2055	**	-0.2849	***
	(0.065)		(0.078)		(0.078)		(0.092)			
Acceptable forms of physical violence	-0.9554	***	-0.9655	***	-0.9690	***	-0.9730	***	-0.7695	***
	(0.046)		(0.053)		(0.056)		(0.110)			
Performing physical violence	-0.3314	***	-0.4028	***	-0.3919	***	-0.3213	**	-0.3414	***
	(0.063)		(0.092)		(0.094)		(0.127)			
Specifications										
Previous training	No		Yes		Yes		Yes		Yes	
Demographics	No		No		Yes		Yes		Yes	
School closures COVID-19	No		No		No		Yes		Yes	
#Observations	298		298		298		298		298	
#Schools	40		40		40		40		40	

\* All models apply weights from the propensity score matching. Significance at 1%-level (\*\*); 5%-level (\*\*); and 10%-level (\*).

Further, we also observe a decreased incidence of using forms of emotional abuse or physical violence in daily teaching practices. The effect size is more modest, however, when compared to the rating of acceptable forms of discipline. TIGER had a small effect on performing emotional abuse or physical violence. Translating knowledge into practice takes time (and the TIGER project was limited to only three years), and can be considered difficult, too. It is then not surprising that beliefs towards acceptable forms of discipline changed substantially, while daily teaching practices altered to a more limited extent. Furthermore, answers to the scales at baseline in Section 6.3 revealed that only few teachers self-assessed themselves to perform emotional abuse or physical violence. Then there is only limited room for improvement.

Fourth, we indicate that including control variables, like demographic characteristics (Model 3), and questions on school closures (Model 4), do not change our conclusions. Therefore, we can defend the conclusion that the estimated coefficients are robust to different specifications.

*Table 8: Summary of the impact of TIGER on teachers*

<b>What worked?</b>	<b>Impact in Effect Sizes for Primary versus Secondary Schools</b>	<b>What didn't work?</b>	<b>Impact in Effect Sizes for Primary versus Secondary Schools</b>
Decreased ratings on two scales of <u>acceptable forms of discipline</u> dealing with emotional abuse and physical violence.	Large impact on emotional abuse (-0.852 SD) and physical violence (-0.761 SD) in primary schools. Large impact on emotional abuse (-0.636 SD) and physical violence (-0.764 SD) in secondary schools.		
Decreased ratings on two scales of <u>performing</u> emotional abuse and physical violence in primary schools.	Moderate impact on emotional abuse (-0.497 SD) and on physical violence (-0.604 SD) in primary schools.	No decreased ratings on two scales of <u>performing</u> emotional abuse and physical violence in secondary schools.	No significant impact of the TIGER project on teachers <u>performing</u> less emotional abuse (-.133 SD) and physical violence (-0.030 SD) in secondary schools.

Further exploring the effects by primary vs. secondary schools (summary in Table 8, and full model estimates available at the authors upon request), lead us to the conclusion that largest effects of the TIGER project on teachers' ratings are found for primary schools. The results for primary schools are quite comparable to the main results in appendix A. Among secondary schools, the TIGER project had moderate to large effects on both scales for acceptable forms of discipline, but no effects are found on performing emotional abuse or physical violence.

## 7. Conclusion

TPD is an effective instrument to stimulate knowledge acquisition, and change beliefs, attitudes and practices regarding SRGBV, in communities that traditionally tolerate violence against boys and girls in a teacher-child relationship. We find significant effects of the TIGER project on teachers' ratings of both scales of acceptable forms of emotional abuse and physical violence. As

such, TIGER impacts the layer of “increased teachers’ knowledge and beliefs”, as defined in Desimone (2009).

Identified successful features or characteristics of such an effective TPD consist of a capacity building trajectory with the TEC management and teacher educators that strengthen teachers’ and school leaders’ awareness and understanding of gender responsiveness. This successful feature of TIGER is in line with what’s suggested by Stone et al. (2009, p.194); a study in which the authors argue that [...] staff awareness and response is a key programmatic centerpiece in most school violence prevention and intervention programs.” An Action Guide co-developed by VVOB with local stakeholders, and endorsed by MoEYS, facilitated the TIGER-trainings and implementation process.

TIGER guaranteed a gender-responsive pedagogy, focusing on teachers’ role as change agents for traditional gender stereotypes, and paying attention to the specific learning needs of girls and boys. Further evidence on the need of addressing gender stereotypes among teachers can be found in Glock & Kleen (2017). According to UNGEI (2013), “Whole school support for a gender-equitable learning environment involves school leadership, teachers and students working together to develop a culture of caring [...].” This idea is clearly reflected in the pedagogic focus of the TIGER project. The TPD also got supported by individual coaching sessions and peer support discussions (in-service) that took place after the initial TPD sessions. The main goal of these additional TPD activities is to overcome difficulties the teachers face during implementation of the taught tools and strategies.

We also observe a significant impact of the TIGER project on the layer of “teachers’ changes in attitudes and practices”. Teachers from primary schools seem to benefit the most of the TPD in terms of performing less emotional abuse or physical violence within a teacher-child relationship. In secondary schools, the effects of TIGER on performing emotional abuse or physical violence are not significant. These results suggest that it may be more difficult to implement a ‘coherent and active learning approach’, such as TIGER, in lower secondary schools than in primary schools. One reasons for this observation is that teachers from the lower secondary schools were more difficult to attract into the TIGER activities. There were two lower secondary schools (out of

seven participating schools) with a participation rate in the TPD training sessions below 60%, and three lower secondary schools with a moderate participation rate below 90%, while nearly all teachers (100%) from primary schools participated upon invitation to the TIGER project. Interviews with key informants revealed that teachers from lower secondary education invest time in tutoring classes after the school day ends. While they usually work full time at the public school, teachers tend to only be effectively at the school to teach their lessons, and besides that they invite students for tutoring at their house. This makes them more difficult to reach at the school. Effective TPD requires ownership and engagement, and a lack of it eventually may hamper an effective change in behaviour (Desimone, 2009; Darling-Hammond et al., 2017; Merchie et al., 2018). Future research can then focus on how to adapt TIGER to fit this context of lower secondary education better.

Sela-Shayovitz (2009) also found in an exploratory study on school-based violence (without a focus on gender) that teachers from higher levels in education are more difficult to reach (or teach) than teachers from primary schools. Consequently, it is argued by this author that participation in the violence prevention programme increased teachers' self-reported efficacy in coping with violent events to greater extent at primary schools than secondary schools. At the same time, and contrary to the results of the TIGER project, the teachers did not change their general attitudes towards the problem of violence. The school violence prevention programme appeared to focus more on the practical aspects of dealing with violence and less (or not) on the changes in attitudes and beliefs regarding violence at school. This finding suggests that a comprehensive approach, as suggested in the TIGER project, is a prerequisite to tackle SRGBV at the different layers (or levels of the cascade) of the framework in Desimone (2009). Even more so when including a focus on gender aspects into school-related violence.

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## 9. Appendix A: Full model estimates

**Table A.1 Full model estimates on the scale of rating acceptable forms of emotional abuse**

	Model 1		Model 2		Model 3		Model 4	
Treatment ( <i>D</i> )	0.0856	*	0.0292		-0.0054		-0.0587	
	(0.048)		(0.064)		(0.067)		(0.133)	
Time ( <i>T</i> )	0.0305		-0.0258		-0.0480		-0.0451	
	(0.074)		(0.085)		(0.086)		(0.087)	
Impact TIGER ( <i>D</i> × <i>T</i> )	-0.8174	***	-0.8738	***	-0.8856	***	-0.8818	***
	(0.064)		(0.076)		(0.079)		(0.111)	
Control variables								
Training ( <i>G</i> )			-0.1555	**	-0.1661	**	-0.1665	**
			(0.065)		(0.066)		(0.066)	
Female					0.0451		0.0442	
					(0.046)		(0.046)	
Age					0.0119		0.0092	
					(0.006)		(0.007)	
Seniority					-0.0096		-0.0072	
					(0.005)		(0.007)	
Household wealth					0.0579		0.0623	
					(0.047)		(0.051)	
School closures due to COVID-19 (Ref. No teaching to children)								
Taught at children's home							0.0129	
							(0.116)	
Children visited school							0.1156	
							(0.149)	
Online courses							-0.1084	
							(0.121)	
Constant	2.2005	***	2.2569	***	1.7806	***	1.8264	***
	(0.036)		(0.055)		(0.230)		(0.251)	
#Observations	298		298		298		298	
#Schools	40		40		40		40	

**Table A.2 Full model estimates for ratings on the scale of performing emotional abuse**

	<b>Model 1</b>		<b>Model 2</b>		<b>Model 3</b>		<b>Model 4</b>	
Treatment Group (D)	0.1917	***	0.1496	*	0.1473	*	0.0764	
	(0.061)		(0.076)		(0.077)		(0.118)	
Time (I)	0.1586	**	0.1165		0.1159		0.1190	
	(0.067)		(0.080)		(0.081)		(0.081)	
Impact TIGER (DxI)	-0.1495	**	-0.1916	**	-0.1935	**	-0.2055	**
	(0.065)		(0.078)		(0.078)		(0.092)	
Control variables								
Training (G)			-0.1163		-0.1149		-0.1151	
			(0.077)		(0.076)		(0.076)	
Female					0.0075		0.0063	
					(0.036)		(0.037)	
Age					0.0002		-0.0026	
					(0.005)		(0.005)	
Seniority					-0.0022		0.0003	
					(0.005)		(0.005)	
Household wealth					-0.0152		-0.0116	
					(0.035)		(0.036)	
School closures due to COVID-19 (Ref. No teaching to children)								
Taught at children's home							0.0295	
							(0.083)	
Children visited school							0.1345	
							(0.104)	
Online courses							-0.0897	
							(0.067)	
Constant	1.3241	***	1.3663	***	1.4311	***	1.4804	***
	(0.043)		(0.061)		(0.161)		(0.178)	
#Observations	298		298		298		298	
#Schools	40		40		40		40	

**Table A.3 Full model estimates on the scale of rating acceptable forms of physical abuse**

	Model 1		Model 2		Model 3		Model 4	
Treatment ( <i>D</i> )	-0.2291	***	-0.2392	***	-0.2496	***	-0.2975	*
	(0.072)		(0.080)		(0.083)		(0.147)	
Time ( <i>T</i> )	-0.0305		-0.0407		-0.0437		-0.0413	
	(0.096)		(0.100)		(0.100)		(0.101)	
Impact TIGER ( <i>D</i> × <i>T</i> )	-0.9554	***	-0.9655	***	-0.9690	***	-0.9730	***
	(0.046)		(0.053)		(0.056)		(0.110)	
Control variables								
Training ( <i>G</i> )			-0.0280		-0.0273		-0.0274	
			(0.081)		(0.081)		(0.083)	
Female					0.0056		0.0047	
					(0.069)		(0.068)	
Age					0.0072		0.0051	
					(0.010)		(0.010)	
Seniority					0.0007		0.0027	
					(0.009)		(0.009)	
Household wealth					-0.0110		-0.0086	
					(0.055)		(0.056)	
School closures due to COVID-19 (Ref. No teaching to children)								
Taught at children's home							0.0156	
							(0.101)	
Children visited school							0.0967	
							(0.148)	
Online courses							-0.0632	
							(0.082)	
Constant	2.0047	***	2.0148	***	1.8046	***	1.8429	***
	(0.037)		(0.045)		(0.338)		(0.330)	
#Observations	298		298		298		298	
#Schools	40		40		40		40	

**Table A.4 Full model estimates for ratings on the scale of performing physical abuse**

	Model 1		Model 2		Model 3		Model 4	
Treatment Group (D)	-0.1077		-0.1791		-0.1521		-0.1157	
	(0.091)		(0.116)		(0.130)		(0.160)	
Time (I)	0.0683		-0.0031		0.0089		0.0108	
	(0.103)		(0.123)		(0.125)		(0.125)	
Impact TIGER (DxI)	-0.3314	***	-0.4028	***	-0.3919	***	-0.3213	**
	(0.063)		(0.092)		(0.094)		(0.127)	
Control variables								
Training (G)			-0.1969		-0.2016		-0.2020	
			(0.133)		(0.136)		(0.137)	
Female					0.0050		0.0044	
					(0.053)		(0.053)	
Age					-0.0125	*	-0.0144	**
					(0.007)		(0.007)	
Seniority					0.0126	*	0.0143	*
					(0.007)		(0.007)	
Household wealth					0.0410		0.0448	
					(0.070)		(0.069)	
School closures due to COVID-19 (Ref. No teaching to children)								
Taught at children's home							-0.0697	
							(0.088)	
Children visited school							0.0111	
							(0.141)	
Online courses							-0.0982	
							(0.070)	
Constant	1.3455	***	1.4169	***	1.5467	***	1.5784	***
	(0.061)		(0.091)		(0.261)		(0.244)	
#Observations	298		298		298		298	
#Schools	40		40		40		40	







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