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SCHOOL DROPOUT PREVENTION PILOT PROGRAM

Do Early Warning Systems and Student Engagement Activities Reduce Dropout?

Findings from the School Dropout Prevention Pilot Program Impact Evaluation in Timor-Leste

Volume 1: Main Findings

Contract No. EDH-I-00-05-00029-00
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g.	Contractor name	Creative Associates International, Inc. 5301 Wisconsin Avenue, NW, Suite 700 Washington, DC 20015 Telephone: 202 966 5804 Fax: 202 363 4771 Contact: KarenT@creativedc.com
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Acronyms

CARE	Care International
EMIS	Education Management Information System
EWS	Early Warning System
ECA	Extra-Curricular Activities
FOI	Fidelity of Implementation
ITT	Intent-to-Treat
KAPE	Kampuchean Action for Primary Education
MDI	Minimum Detectable Impact
QUEST	Quest Alliance
RCT	Randomized Control Trial
SDPP	School Dropout Prevention Pilot Program
STS	School-to-School International
SY	School Year
TOT	Treatment-on-the-Treated
USAID	United States Agency for International Development

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Karen Tietjen	(Creative Associates)
Nancy Murray	(Mathematica Policy Research)
Quinn Moore	(Mathematica Policy Research)
Emilie Bagby	(Mathematica Policy Research)
Ali Protik	(Mathematica Policy Research)
Mark Strayer	(Mathematica Policy Research)
Kristine Johnston	(Mathematica Policy Research)
Kathy Buek	(formerly Mathematica Policy Research)
Larissa Campuzano	(Mathematica Policy Research)
Jane Fortson	(Mathematica Policy Research)
Ebo Dawson-Andoh	(Mathematica Policy Research)
Owen Schochet	(Mathematica Policy Research)
Ron Palanca	(Mathematica Policy Research)
Jeremy Page	(Mathematica Policy Research)
Linda Molinari	(Mathematica Policy Research)
Serge Lukashanets	(Mathematica Policy Research)
Brendan Kirwan	(Mathematica Policy Research)
Carol Razafindrakoto	(Mathematica Policy Research)
Jonathan McCay	(Mathematica Policy Research)
Ivonne Padilla Espinosa	(Mathematica Policy Research)
Lotte Renault	(CARE)
Shoaib Danish	(CARE)

The final report was prepared by Nancy Murray, Quinn Moore, Emilie Bagby, Ali Protik, Anitha Sivasankaran, Mark Strayer, Ebo Dawson-Andoh, Jonathan McCay, Owen Schochet and Karen Tietjen.

Executive Summary

Over the past two decades, considerable progress has been made in increasing school enrollment. However, many children do not complete primary or secondary cycles once they enroll. In many countries and regions, a greater percentage of out-of-school children have dropped out of school than have never enrolled in school. Interventions have been conducted in the United States and abroad to prevent dropout, but there is limited evidence on how well they work, particularly in developing countries.

The School Dropout Prevention Pilot (SDPP) Program, a five-year multi-country program funded by the U.S. Agency for International Development (USAID), is designed to identify successful means of decreasing student dropout rates in primary and secondary schools.[1] Its goal is to pilot and test the effectiveness of dropout prevention interventions in four countries—Cambodia, India, Tajikistan, and Timor-Leste—to generate evidence-based programming guidance for USAID missions and countries in Asia and the Middle East. In all four countries, SDPP introduced an early warning system (EWS) and a student engagement intervention to motivate greater student engagement, better attendance and desire to stay in school. This report presents findings from the impact evaluation of the SDPP Program in Timor-Leste.

SDPP Program in Timor-Leste

Timor-Leste's SDPP Program had two main components: (1) an EWS, and (2) an Extra-Curricular Activities (ECA) program, featuring songs, games, crafts and small group projects (Creative Associates International 2012a; Creative Associates International 2012b). The SDPP Program was targeted to 4th-, 5th-, and 6th-grade students in five districts, as both the grades and geographic areas exhibited the highest dropout rates and would benefit most from a dropout prevention program (Shin, Jennifer, Rajani Shrestha, and Karen Tietjen 2011b).

The EWS consists of three components: (1) identification of students at risk of school dropout; (2) first response strategies; and (3) community engagement. For Component 1, the SDPP Program worked with teachers to identify at-risk students based on six measures of dropout risk. For Component 2, SDPP helped teachers use a "track and trigger" approach to closely monitor the attendance, behavior and coursework of at-risk students and initiate "first response" activities when students show signs of struggling, ranging from in-class attention to contact via letter, phone call and/or home visit, to case management meetings with school staff. Component 3 focused on raising community awareness about the problem of dropout, working with parent-teacher associations and other community groups on advocacy activities and enlisting their support for the first response activities, working closely with the school.

The Extra-Curricular Activities program offered enrichment activities to all target-grade students, with special encouragements for students identified as at risk through the EWS (Creative

[1] SDPP is implemented by Creative Associates International, with international partners Mathematica Policy Research and School-to-School International and local partners Kampuchean Action for Primary Education (KAPE) in Cambodia, Quest Alliance (QUEST) in India, and Care International (CARE) in Timor-Leste. Creative Associates has a corporate office in Tajikistan, which covers the responsibilities of a local partner in that country.

Associates International 2012a)[2]. The activities were scheduled either before or after school, depending on instructional schedules. Each week, students participated in one or two sessions focused on promoting fun through songs, games, and craft sessions. The ECA program was intended to motivate children to attend and engage in school through structured activities to foster cooperative learning, enhance self-confidence and reinforce basic skills. The ECA program was initially conducted by SDPP facilitators. During the second year of program implementation, target-grade teachers and community members led the second weekly session. The SDPP facilitators monitored at-risk students' progress, recorded participation levels and met at least monthly to discuss progress with homeroom teachers. The intervention was developed with cost and sustainability considerations in mind to increase the likelihood of continued implementation in Timor-Leste beyond the funding period.

The SDPP Program was active in schools during three school years (SY)—SY 2012, SY 2013, and SY 2014. Students and teachers of target grades received only a partial year of exposure during the first year of the program (SY 2012) because of the timing of the roll-out of program activities. Students and teachers of the target grades during the second and third school year received the program for the full school year.[3]

During three school years of program activity, the SDPP Program targeted students in grades 4, 5 and 6 and their teachers. Students in grades 4 and 5 during SY 2012 and SY 2013 received the program for more than one year (grade 6 is the final year of primary school). Specifically, the evaluation follows: (1) SY 2012 5th graders who continued to receive the program in SY 2013, in their 6th grade; (2) SY 2012 4th-graders who continued to receive the program in SY 2013 and SY 2014, in their 5th and 6th grades, respectively, (3) SY 2013 4th grade students, who continued to receive the program in SY 2014, in their 5th grade; and (4) SY 2014 4th grade students.[4] The analyses focus on the latest point in time for which these students and teachers are observed across these multiple school years. The latest observation point occurs in SY 2013 or SY 2014 for all students followed by the evaluation.

SDPP evaluated the fidelity of implementation (FOI) of the EWS and after-school activity components during field visits conducted in May, October, and November 2014. Overall, schools appeared to implement the EWS unevenly: the proportion of schools meeting threshold levels for identifying at-risk students and tracking attendance was high (93 percent for both), but the proportion of schools meeting threshold levels for communicating with parents and taking follow-up actions were very low (at 8 percent and 26 percent, respectively) (Creative Associates International and School-to-School International 2015). The FOI results suggested that the after-school activities were fairly well-implemented, though there was room for improvement, particularly in the frequency with which the after-school activity program was held. Only 76

[2] During the first year of SDPP implementation, one session was offered per week. SDPP transitioned to two weekly sessions at the start of the second year of implementation.

[3] The teachers and school administrators were first trained in August 2012, which is the middle of SY 2012. The EWS began in September 2012 and the after-school activities began in October 2012 for entering 4th-, 5th-, and 6th-grade students in SY 2012. For entering 4th-, 5th-, and 6th-grade students in SY 2013 and SY 2014, both the EWS and after-school activities began in January.

[4] The evaluation does not focus on SY 2012 6th graders because they did not receive the program for a full school year.

percent of schools reported holding the after-school activities weekly, as intended (Creative Associates International and School-to-School International 2015).

Evaluation Design

SDPP hypothesized that academic and social support, combined with additional enrichment activities for at-risk students and changes in teacher practices, would improve student attitudes and behavior, translating into increased student engagement and reduced school dropout. Guided by this conceptual model, SDPP designed the impact evaluation to address five primary research questions:

1. Does SDPP improve teacher behavior and attitudes?
2. Does SDPP improve student attitudes?
3. Does SDPP improve student engagement in school associated with retention, such as attendance?
4. Does SDPP improve the dropout rate?
5. What are SDPP's impacts for students most at risk of dropping out of school?

The SDPP evaluation addressed these research questions using a Randomized Control Trial (RCT) in which the outcomes of students and teachers in 97 schools randomly assigned to provide SDPP services were compared to those of teachers and students in 94 schools randomly assigned to a control group providing business-as-usual services.[5] With random assignment, exposure to SDPP is not directly related to the choices or pre-existing characteristics of study participants, allowing attribution of any observed treatment-control differences in outcomes to the program.

Data Collection

The data used in this report was collected from school records and through interviews with teachers and at-risk students. SDPP collected data five times from all 191 schools in the study over four school years, between SY 2012 and SY 2015, to follow the four cohorts of students who were exposed to the SDPP intervention for at least one full school year and included in the analyses. SDPP collected information from school records for 37,861 students, and conducted interviews with 7,387 at-risk students and 1,444 teachers and administrators.[6] All final outcomes were measured during SY 2013 or 2014 for the four cohorts followed (SY 2012 5th graders, SY 2012 4th graders, SY 2013 4th graders and SY 2014 4th graders).[7]

SDPP and control group schools had comparable characteristics at baseline during SY 2012, with no evidence of systematic differences between the groups. The typical SDPP group school enrolls about 251 students, compared with about 260 students in control group schools. The average SDPP group school has 41 4th-grade students, 34 5th-grade students, and 30 6th-grade students,

[5] Of the 94 schools randomly assigned to the control group, 1 school dropped out of the study sample during the SY 2013.

[6] Please see Appendix A for further details about data collection. An eligible subset of the total students and teachers collected was used in the analysis.

[7] An eligible subset of the total students and teachers was used in the analysis.

compared with 42, 40, and 33 students in control group schools, respectively. SDPP group schools had an average of 9 teachers, compared with 10 teachers in the control group schools. Most study schools have school feeding programs, but few have other active external assistance programs.

Impacts of SDPP

A conceptual model of SDPP Program activities and how they might affect student and teacher outcomes guided the design of the program and the impact evaluation. This model posits that teacher and parent knowledge and practices—shared and reinforced by the larger community—are inputs into students' attitudes toward school and educational aspirations. These student attitudes translate into student engagement in school, including their attendance, behavior, and academic performance. The complex, cumulative interactions of these factors are inputs into the student's ability, desire and decision to remain in school or drop out.

The evaluation estimated SDPP's impacts on teacher outcomes, student attitudes, student engagement in school, and school dropout. In each domain, SDPP focuses on a small set of key outcomes, identified before the analysis began.

The text boxes and figures below summarize the primary measures of effectiveness and findings for them in domains related to teacher practices, at-risk students' attitudes toward school, student engagement in school, and school dropout. Estimates of the impact of the SDPP Program are based on differences in average outcomes for SDPP and control group students and teachers. These impact estimates represent the difference in the outcome of interest at endline that is attributable to the SDPP Program relative to the status quo. The estimates are expressed as percentage point differences between the treatment and control group; we also present percentage increases or decreases in the primary outcomes across the treatment and control groups. These "percentage changes" should not be interpreted as the percentage "change" that might be calculated in a pre-post or baseline/endline change, but rather, as the increase or decrease in the treatment group's outcome measure in relation to the control group at endline.

Statistical tests were conducted to assess whether each impact is significantly different from zero. Impacts estimates are described as ***statistically significant*** if there is less than a 5 percent probability that it is due to chance (and not to the SDPP Program). Impact estimates are described as marginally significant if the probability that it is due to chance (and not to the SDPP Program) is between 5 and 10 percent.

SDPP effectiveness in influencing teacher outcomes

Primary research question

Did SDPP affect teacher dropout prevention practices?

Primary measure of SDPP Program's effectiveness

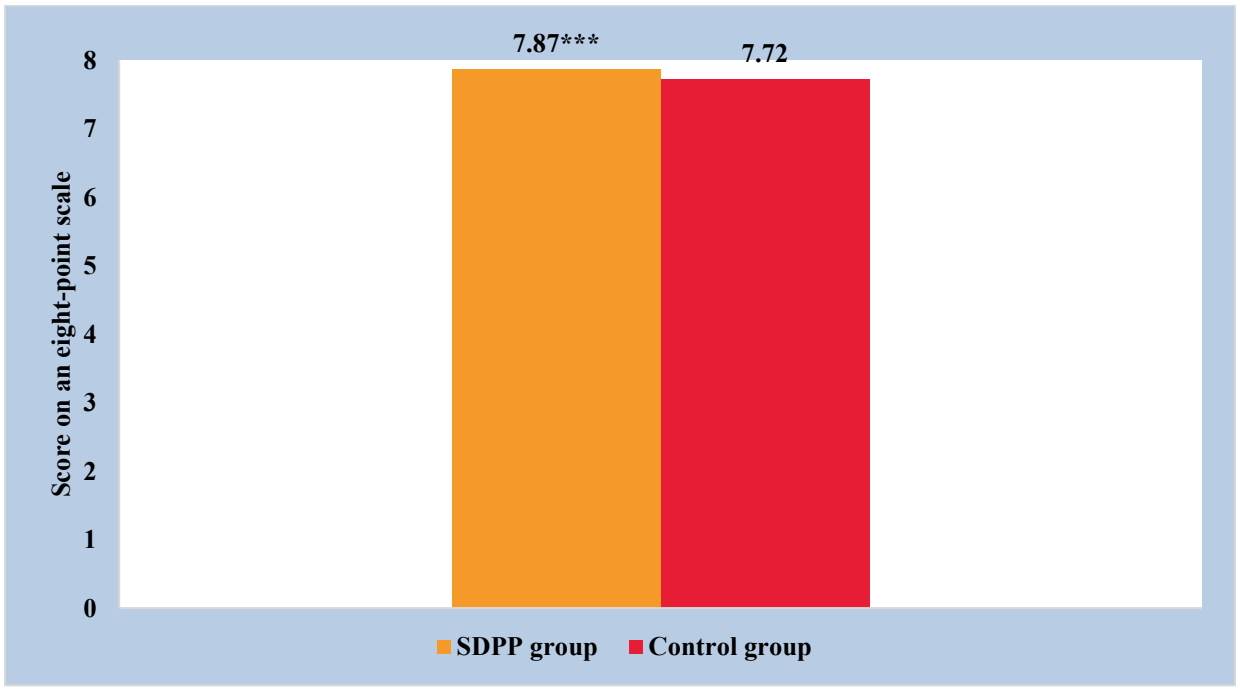
- Teacher take-up of dropout prevention practices

Additional measures of SDPP Program's effectiveness

- Teacher sense of self-efficacy
- Teacher sense of responsibility
- Administrator dropout prevention practices, sense of self-efficacy and sense of responsibility

SDPP had a statistically significant impact on teacher dropout prevention practices (Figure ES.1), but no impact on administrator dropout prevention practices. Despite the high scores on this scale—which measures whether teachers report engaging in behavior that might help at-risk students succeed in school—in both the SDPP (7.87 out of 8) and the control groups (7.72 out of 8), the difference between groups is statistically significant. Even without SDPP, teachers may be employing most of the dropout prevention practices measured by this scale, and SDPP only changed them slightly; or, the scale scores could be artificially high in both groups because they are based on self-reports rather than direct observation.

Figure ES.1. Impacts of the Timor-Leste SDPP Program on teacher dropout prevention practices (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up teacher self-administered questionnaires and school records data collection; May 2012, May 2013, and September 2014.

Note: The analysis is based on 4th-, 5th-, and 6th-grade homeroom, math, and language teachers during SY 2013 and SY 2014. The sample includes 412 teachers for the SDPP group and 406 for the control group

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of teachers within schools and school-year and grade fixed effects. For a tabular presentation of these findings, see Appendix Table H.5.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

The evaluation also examined teachers' and administrators' sense of self-efficacy (ability to respond to factors related to dropout) and sense of responsibility (whether they perceived it was their role to prevent at-risk students from dropping out). **The SDPP Program had a statistically significant positive impact on teachers' sense of self-efficacy, but not on teacher sense of responsibility.**

SDPP effectiveness in influencing student attitude outcomes

Primary research question

Did SDPP affect at-risk students' attitudes toward school?

Primary measures of SDPP Program's effectiveness

- Emotional attitudes toward school (e.g., Student likes school)
- Cognitive attitudes toward school (e.g., Student adapts better study habits)
- Behavioral attitudes toward school (e.g., Student observes school requirements and rules)

Additional measures of SDPP Program's effectiveness

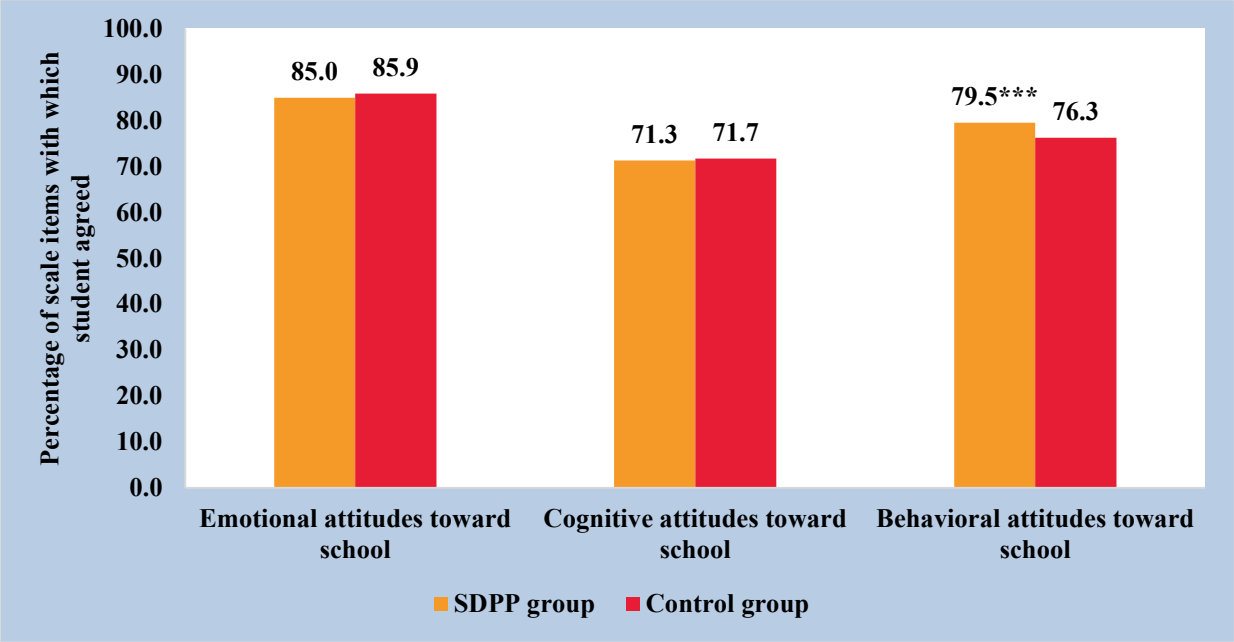
- Students' perceptions of teacher support
- Students' perceptions of parental support

SDPP had a positive, statistically significant impact on at-risk students' behavioral attitudes toward school, but had no impacts on cognitive or emotional attitudes toward school (Figure ES.2). These measures of student attitudes toward school—which were captured by surveying students identified as being at risk of school dropout based on baseline characteristics—could have changed because of changes in teacher or parent attitudes and practices or due to the intervention activities.[8] On the behavioral attitudes toward school scale, at-risk students in SDPP schools agreed to 80 percent of the questions, compared with 76 percent for students in control schools, a statistically significant difference.[9]

[8] The three measures of student attitudes are constructed from responses to a survey administered to a sample of at-risk students in each cohort. This survey is explained in further detail in the Technical Appendix – Section A.

[9] Agreement indicate more positive feelings and actions towards school.

Figure ES.2. Impacts of the Timor-Leste SDPP Program on at-risk student attitudes toward school (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up student surveys, May 2013 and September 2014; baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015.

Note: The analysis is based on SY 2012 4th and 5th grade at-risk students, and SY 2013 and 2014 4th grade at-risk students. The sample includes 3,226 at-risk students for the SDPP group and 3,006 at-risk students for the control group.

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. Impacts were adjusted for multiple comparisons using the Benjamini-Hochberg method. For a tabular presentation of these findings, see Appendix Table H.5.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

SDPP also measured students' perceptions of the support provided by their parents and their teachers and found no impacts on these secondary measures of student attitudes in Timor-Leste.

SDPP effectiveness in influencing student engagement

Primary research question

Did SDPP affect attendance, overall or for at-risk students?

Primary measure of SDPP Program's effectiveness

- Student average daily attendance for the year

Additional measures of SDPP Program's effectiveness

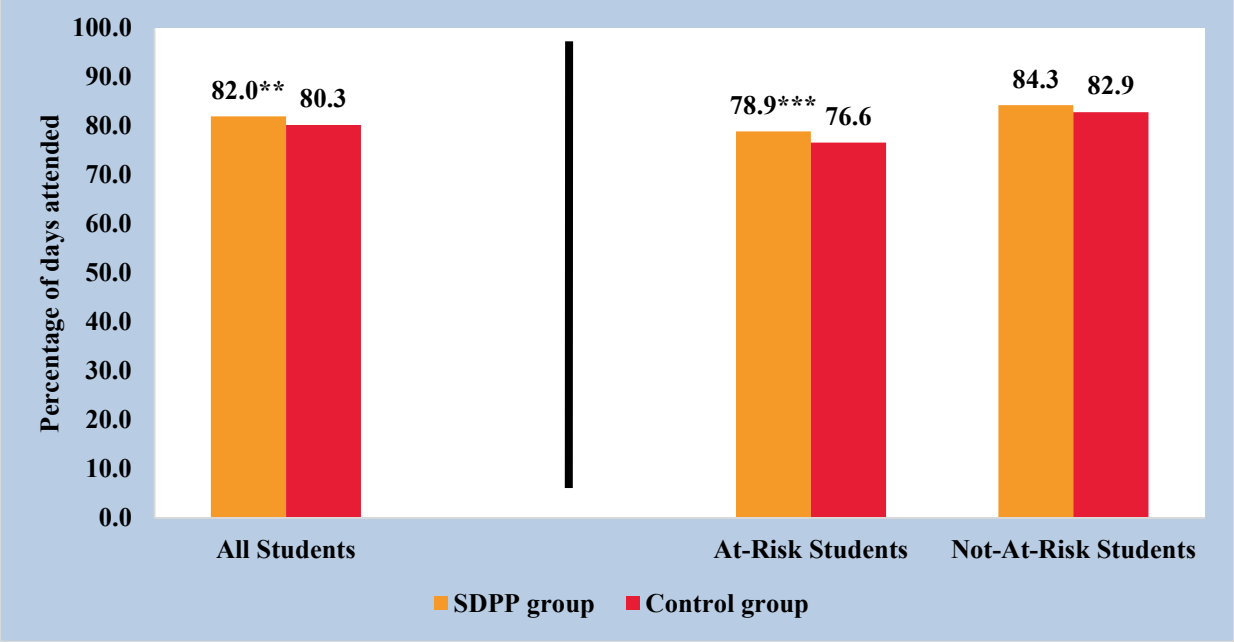
- Student performance in school
- Student behavior in school

SDPP improved attendance for students exposed to the program, and particularly had impact on at-risk students (Figure ES.3). The difference in the average rate of daily

attendance—82 percent for target-grade students in the SDPP group compared with 80.3 percent for students in the control group—was statistically significant. For students at-risk of dropping out of school, these rates were lower—78.9 percent for students in the SDPP group compared to 76.6 percent for students in the control group; this difference was also statistically significant.

Both elements of SDPP—the EWS and ECA—might have contributed toward SDPP's impacts on student behavioral attitudes toward school and attendance. Fun, recreational activities might have attracted students to attend school more frequently than they would without them. Contacting parents if students were absent may have induced at-risk students to attend school more often.

Figure ES.3. Impacts of the Timor-Leste SDPP Program on daily attendance, overall and by at-risk status (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015.

Note: The analysis is based on SY 2012 4th- and 5th-grade students, and SY 2013 and 2014 4th-grade students. The sample includes 13,645 students for the SDPP group (5,884 at risk and 6,233 not at risk) and 13,702 students for the control group (5,724 at risk and 6,681 not at risk).

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. For a tabular presentation of these findings, see Appendix Tables H.5 and H.6.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

SDPP also estimated impacts on students' math, language, and behavioral performance, measured at the end of the school year. The SDPP Program did not affect these outcomes in Timor-Leste.

SDPP effectiveness in influencing school dropout

Primary research question

Did SDPP affect school dropout, overall or for at-risk students?

Primary measure of SDPP Program's effectiveness

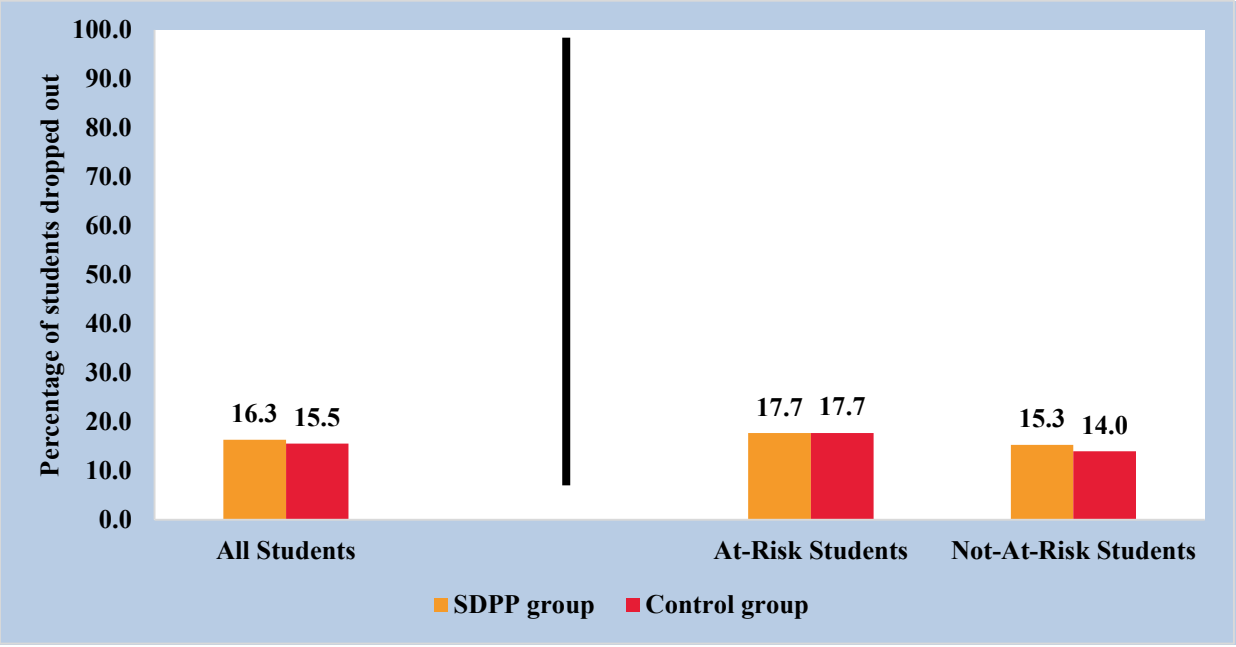
- School dropout

Additional measure of SDPP Program's effectiveness

- Student progression in school

SDPP had no impact on dropout for the students exposed to the program (Figure ES.4).[10] Students in SDPP schools dropped out at a rate of 15.5 percent, compared with 16.3 percent for students in control schools, but this difference was not statistically significant. At-risk students dropped out at a higher rate, at 17.7 percent in both SDPP and control schools; this difference was not statistically significant.

Figure ES.4. Impacts of the Timor-Leste SDPP Program on school dropout, overall and by at-risk status (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015.

[10] SDPP operated in three target grades (grades 4, 5, and 6), including the final year of primary school (grade 6). Students were considered dropouts if they were no longer continuing their education at the last possible time we observed them. Students who started the program in grades 4 and 5 in the first year of implementation were considered to have dropped out if they did not complete their final grade 6 examinations in subsequent years. Students who started the program in grade 4 in the second and third years of implementation were considered to have dropped out if they did not enroll in school for the 2015 school year (as grade 5 and 6 students, respectively).

Note: The analysis is based on SY 2012 4th- and 5th-grade students, and SY 2013 and 2014 4th-grade students. The sample includes 14,045 students for the SDPP group (6,015 at risk and 8,030 not at risk) and 14,458 students for the control group (5,950 at risk and 8,508 not at risk).

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. For a tabular presentation of these findings, see Appendix Tables H.5 and H.6.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

SDPP also measured grade progression, or whether a student enrolled in the next grade or higher in the following school year. Grade progression is different than school dropout in that a student who repeated the grade he/she was in would not be considered to have progressed to the next grade or higher, but such a student would not be considered a school dropout. For example, if a student repeated 5th grade, he/she would not be considered a between-grade dropout, but he/she would not be considered as having progressed to the next grade or higher. The SDPP Program did not affect grade progression in Timor-Leste.

What do beneficiaries say about the SDPP interventions?

Insight into how beneficiaries interacted with the SDPP interventions was obtained through a Qualitative Research Study. Responses from parents, students, teachers and administrators was very positive about both the Early Warning System (EWS) and the Extra-Curricular Activities (ECA) Program.

EWS: About one third of at-risk students and nearly two-thirds of dropouts skipped school without their parents' knowledge. About 40 percent of at-risk students and 80 percent of dropouts confirmed their parents had received a warning postcard from the school and/or home visit. Nearly all parents contacted spoke positively about the experience, although they also said they were initially surprised, ashamed, and disappointed in their child. The "Stay in School" committee members said that parents received the visit well once they understood its purpose was to help, not blame. Afterwards, their children—with the exception of dropout boys—confirmed their parents were more supportive: parents were more likely to monitor their attendance, talk to them about school, and provide material support. Teachers (73%) felt EWS made their job easier, in part because the EWS procedures and forms were easy to follow. Teachers, school directors and community members all felt the increased and improved contact with the families was a particularly positive feature of the EWS, helping both families and teachers better understand the issues the child faced. Ninety percent of school personnel hope to continue using the EWS.

ECA: The ECA Program was popular among all the students, although most felt one day per week was sufficient and denied it improved their attendance on the day it was held. They noted how engaging in games together improved their skills in collaboration and conflict resolution, and that the sessions helped to improve their language and math skills. Parents generally favored ECA, noting that it did seem to make their child more positive about school, but they remained ambivalent about its impact on attendance. Teachers disagreed. They strongly felt the ECA had a positive impact on improved attendance, behavior and general performance. The teachers also felt they had benefitted from the ECA training, noting that it helped them to use more interactive and hands-on instructional techniques in their regular classes. While teachers were concerned that the lack of supplies might hinder their ability to continue the ECA Program, school directors worried whether the teachers were adequately trained to lead the ECA Program on their own, and suggested additional training and guides.

Discussion

SDPP had a positive impact on teachers' dropout prevention practices and their sense of self-efficacy. Overall, SDPP affected improvements in key student attitudes and behaviors that can lead to dropout: at-risk students' behavioral attitudes toward school, and daily attendance overall and among at-risk students. Despite improvement in student engagement to school as measured through attitudes and attendance, SDPP did not reduce the primary measure of school dropout.

Table ES.1. SDPP Program impacts on primary measures of program effectiveness in Timor-Leste

	Impacts
Teacher dropout prevention practices	+++
At-risk student attitudes toward school	
Emotional attitudes toward school	○
Cognitive attitudes toward school	○
Behavioral attitudes toward school	+++
Attendance	
Overall	++
At-risk	+++
Dropout	
Overall	○
At-risk	○

+ + +/+ +/+ Statistically significant positive impact at the .01/.05/.10 level.
— — —/— —/— Statistically significant negative impact at the .01/.05/.10 level.
○ Impact is not statistically significant.

Table ES.2. SDPP Program impacts on additional outcome measures in Timor-Leste

	Impacts
Teacher outcomes	
Teacher self-efficacy	++
Teacher sense of responsibility	○
Administrator dropout prevention practices	○
Administrator self-efficacy	○
Administrator sense of responsibility	○
Student attitudes toward school	
At-risk student perceptions of parent support	○
At-risk student perceptions of teacher support	○
Student engagement	
Math performance	○
Portuguese	○
Tetun	○
Behavior	○
Dropout	
Progression	○

+ + +/+ +/+ Statistically significant positive impact at the .01/.05/.10 level.
— — —/— —/— Statistically significant negative impact at the .01/.05/.10 level.
○ Impact is not statistically significant.

There are several factors that might explain why SDPP did not reduce dropout in Timor-Leste. Each of these factors is discussed briefly below.

Inconsistent implementation of SDPP in Timor-Leste. According to SDPP's fidelity-of-implementation (FOI) analysis, the vast majority of its treatment schools in Cambodia, India and Tajikistan had met the threshold established to indicate that the SDPP interventions had been implemented in congruence with their design. However, in Timor-Leste the FOI study found that schools appeared to implement the EWS inconsistently, particularly in terms of communicating with parents and taking follow-up actions. The implementation of extra-curricular activities in Timor-Leste was somewhat better, although only about 71 percent of schools reported that they conducted after-school activities weekly, which was the intended frequency (Creative Associates International and School-To-School International 2015). Although the SDPP interventions have improved attitudes and engagement toward school, the inconsistent implementation of follow-up actions by teachers and communication with parents may have decreased the program's ability to affect dropout.

Duration of exposure. SDPP was active in schools for two full school years and worked with grades 4, 5 and 6. Exposure time for individual students varied from one to two years depending upon their grade when they first received SDPP. While the EWS was a part of school itself, the ECA Program was offered to students once a week outside of school hours. From an operational standpoint, exposure time was even less than intended, being limited by interruptions in the school calendar, including school closures due to rain, unscheduled and extended holidays, and national teacher training activities that pulled teachers from school for several weeks. Student attitudes toward school and behavior patterns are formed over time, starting with initial enrollment. Introducing SDPP interventions--which combine targeted adult attention and support, a welcoming school environment and activities that build student engagement—at the start of a student's academic career, as well as continuing throughout their schooling, could help create positive perceptions of school and better behaviors. That the program had its intended effect on intermediate outcomes suggests that it would have its intended effect on longer-term outcomes with longer or more intense exposure to the intervention.[11] Findings suggest that with additional exposure, program impacts might be more pronounced.

Complexity of factors related to dropout. Given the complex pathways and inputs that lead to school dropout, it is possible that SDPP services alone may not be sufficient to influence the dropout decision for the majority of the students dropping out. In particular, economic factors that SDPP was contractually prohibited from addressing directly—such as school-related expenses, and the need to supplement income through household chores or domestic work—were found to be particularly relevant in decisions to drop out of school (Creative Associates International 2014).[12] However, that SDPP was able to show impact on key teacher and student behaviors shown to influence decisions to dropout demonstrates that the EWS and ECA Program interventions should be included among the multiple strategies needed to reduce dropout in Timor-Leste.

This study shows that the SDPP Program in Timor-Leste was successful in improving some intermediate outcomes— particularly teachers' dropout prevention practices, students' behavioral attitudes towards school, and daily attendance—but not in reducing dropout. It is useful to compare the impacts of SDPP in Timor-Leste to other countries where SDPP was able to target students in

[11] We explore the question of the role of exposure more fully in Appendix J of Volume 2 of the report.

[12] The SDPP dropout prevention interventions were contractually prohibited from including conditional cash transfers or economic incentives, which have already been demonstrated to be effective by prior research.

contexts where dropout was much higher, and where SDPP was implemented with more fidelity. Additional discussion of the impacts of the SDPP Program across all SDPP countries is presented in a separate, four-country summary report (Creative Associates International and Mathematica Policy Research 2015).

I. Introduction

Over the past two decades, considerable progress has been made in increasing school enrollment. From 2000 to 2011, the number of children out of school worldwide decreased from 102 million to 57 million—a reduction of almost 50 percent (Millennium Development Goals Report 2013). This effort has been supported by extensive research evaluating interventions aimed at increasing access to schooling in developing countries (Petrosino, Anthony, Claire Morgan, Trevor Fronius, Emily Tanner-Smith, and Robert Boruch 2012). However, many children do not complete primary or secondary cycles once they enroll; out of the 137 million children worldwide who entered first grade in 2011, 34 million are likely to leave school before reaching the last grade in primary school (Millennium Development Goals Report 2013). In many countries and regions, a greater percentage of out-of-school children have dropped out of school than have never enrolled in school. Interventions have been conducted in the United States and abroad to prevent dropout, however, there is limited evidence on how well they work, particularly in developing countries.

The School Dropout Prevention Pilot (SDPP) Program, a five-year multi-country program funded by the U.S. Agency for International Development (USAID), is designed to identify ways to reduce student dropout in primary and secondary schools.[13] Its goal is to provide evidence-based programming guidance to USAID missions and countries in Asia and the Middle East (AME) on student dropout prevention by piloting and testing the effectiveness of dropout prevention interventions in four countries: Cambodia, India, Tajikistan, and Timor-Leste. To better understand ways of mitigating dropout in these countries, SDPP used a three-stage process: (1) reviewing the literature to identify international best practices in preventing dropout; (2) analyzing dropout trends and identifying risk factors and conditions associated with dropout in each country as part of a situational analysis; and (3) designing, implementing, and evaluating interventions to keep students at risk of dropout in school. Earlier reports describe findings from the first two stages of the project (Brush, Lorie, Jennifer Shin, Rajani Shrestha, and Karen Tietjen 2011; Creative Associates International 2014a, 2014b; Shin, Jennifer, Rajani Shrestha, and Karen Tietjen 2011a, 2011b; Shrestha, Rajani, Jennifer Shin, and Karen Tietjen 2011a, 2011b).

Based on the findings from the literature review and situational analyses, as well as input from key stakeholders in the four countries, SDPP worked with the Ministry of Education in each country to identify two interventions to address dropout. In all four countries, SDPP introduced an Early Warning System (EWS) and a student engagement intervention to motivate students to stay in school.

Early Warning Systems (EWS) are a dropout prevention strategy that has shown promise in the United States, but for which there is very little evidence internationally.[14] EWS use teacher assessments and student records data to identify students who are at risk of dropping out of school and to target them for assistance. In reviews of dropout prevention research conducted by the What

[13] SDPP is implemented by Creative Associates International, with international partners Mathematica Policy Research and School-to-School International and local partners Kampuchean Action for Primary Education (KAPE) in Cambodia, Quest Alliance (QUEST) in India, and Care International (CARE) in Timor-Leste. Creative Associates has a corporate office in Tajikistan, which covers the responsibilities of a local partner in that country.

[14] The SDPP dropout prevention interventions were contractually prohibited from including conditional cash transfers or economic incentives, which have already been demonstrated to be effective by prior research.

Works Clearinghouse, U.S. Department of Education, two versions of EWS, the Check & Connect program and ALAS program, were found to help keep middle and high school students from dropping out and potentially help them progress in school (American Institutes of Research 2006a, 2006b). However, existing research does not tell us whether EWS would have similar impacts in developing countries, given the different educational and cultural contexts in these countries. Similarly, the effectiveness of these types of programs on students of younger ages and lower grades is not known.

In developing countries, there is evidence that other types of interventions designed to mitigate the factors that affect dropout, such as cash transfers (in specific contexts), scholarships and school construction, can be successful in improving enrollment, attendance, and retention (see, for example, An Angrist, Joshua, Eric Bettinger, Erik Bloom, Elizabeth King, and Michael Kremer 2002; Levy, Dan, Matt Sloan, Leigh Linden, and Harounan Kazianga 2009; Schultz, T. Paul 2001). Interventions that target specific groups of students, such as girls (see, for example, Friedman, Willa, Michael Kremer, Edward Miguel, and Rebecca Thornton 2011; Oster, Emily, and Rebecca Thornton 2011) and students that live in rural areas (see, for example, Miguel, Edward, and Michael Kremer 2004) have also proven to be successful. However, to our knowledge, the SDPP evaluations present the first rigorous evidence of EWS in the developing country context. Studies of interventions that have incorporated academic activities, such as tutoring, computer labs, and other after-school activities, have had mixed results, though there is little rigorous evidence from evaluations that focus specifically on these activities (Banerjee, Abhijit, Shawn Cole, Esther Duflo, and Leigh Linden 2007; Brush, Lorie, Jennifer Shin, Rajani Shrestha, and Karen Tietjen 2011).

The SDPP Program for each of the four project countries included the EWS combined with additional activities in the schools that varied depending on the country.[15] The additional activities were designed to motivate greater student engagement, better attendance, and increase the desire to stay in school. The interventions were rolled out to the target grades in each country at various times during 2012.

Although all of the target country programs included the EWS, they were distinct enough to merit independent evaluations in each country. The implementation of the EWS in four diverse countries allowed experimental evaluation of the effectiveness of these interventions in several contexts with different populations, strengthening the external validity of SDPP's findings.

SDPP conducted rigorous evaluations of the effectiveness of the SDPP Program in each of the four countries. In each country, schools that were eligible to receive the program were identified, recruited, and asked to consent to participate in the study. Eligible schools in targeted regions were then randomly assigned to either an SDPP treatment group, which offered the SDPP intervention package, or a control group, which did not. For each country, the evaluation estimated program effects by comparing the outcomes of students and teachers in SDPP schools with the outcomes of those in control schools.

This report presents findings from the impact evaluation of the SDPP Program in Timor-Leste. In Timor-Leste, the program included an EWS in combination with an Extra-Curricular Activities

[15] The grades targeted in each country are as follows: grades 7, 8, and 9 in Cambodia; grade 5 in India; grade 9 in Tajikistan; and grades 4, 5, and 6 in Timor-Leste.

(ECA) activities once to twice a week focused on promoting fun through songs, games, and craft sessions. The impact evaluation draws on school records and survey data collected in 97 SDPP schools and 93 control schools across five districts.[16] The student sample includes 4th-, 5th-, and 6th-grade students from each of the two complete school years (SY) (2013 and 2014) during which the SDPP Program was in effect.

The findings and information on the impact evaluation for SDPP in Timor-Leste are presented in two volumes. Volume 1 presents the impact evaluation findings and Volume 2 details the methodology used.

This report—Volume 1—is organized as follows. Section II describes the SDPP Program and its implementation in Timor-Leste. Section III discusses the impact evaluation design and describes the types of outcome domains used to evaluate the program. Section IV discusses the sample and data collection, and Section V describes the characteristics of the sample prior to implementation. Section VI presents the impacts of the program on teacher outcomes, attitudes toward school, engagement in school, and school dropout. Section VII presents school-level dropout trends. Section VIII discusses the findings and conclusions.

Volume 2—a technical appendix—provides more detail on the study, including further detail on the sample frame, data collection, estimation procedures, subgroup analyses, robustness checks, and additional exploratory analyses.

[16] Of the 94 schools randomly assigned to the control group, 1 school dropped out of the study sample during the SY 2013.

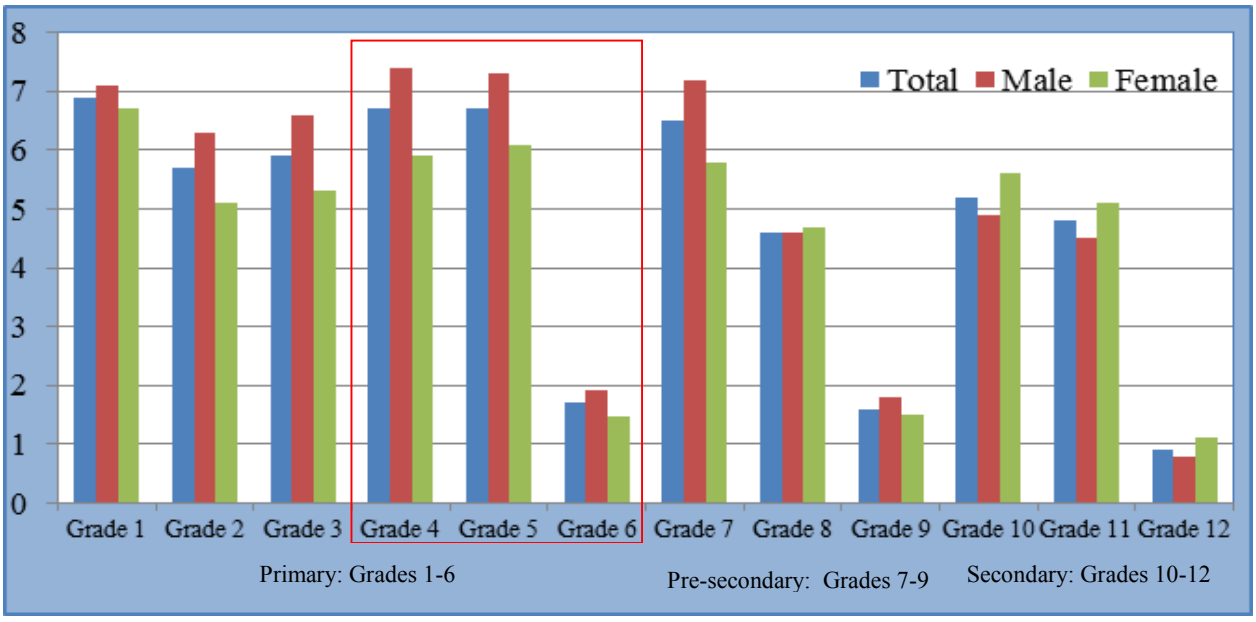
II. SDPP Program in Timor-Leste

The SDPP Program in Timor-Leste had two main components: (1) an EWS, and (2) an Extra-Curricular Activities (ECA) program (Creative Associates International 2012a, 2012b). To the extent possible, these activities built on existing Ministry of Education procedures to facilitate sustainability after the project ends.

A. Targeting grades and geographic areas for intervention

Using data from the national education management information system, SDPP identified the population for whom dropout was most prevalent and who would benefit most from a dropout prevention program. In-grade dropout was consistently most acute at the primary level, with an average dropout rate of about 6 percent compared to average rates closer to 3 percent at the pre-secondary and secondary levels.[17] Grades 1, 4, and 5 had the highest dropout rates at about 7 percent. Because the Grade 1 dropout rate was largely explained by high underage enrollment, resulting in later re-enrollment, it was not a suitable target grade for SDPP interventions. In contrast, the Grade 6 dropout was low, as the national EMIS did not report students who leave school after completing a cycle as "dropouts." However, the transition rate of 82 percent between primary and pre-secondary cycles indicated that 18 percent of Grade 6 students do not reach Grade 7. (Shrestha, Rajani, Jennifer Shin, Karen Tietjen 2011b). Consequently, SDPP focused on the upper primary grades 4, 5, and 6 (Figure II.A.1). Based on the severity of dropout coupled with security and accessibility considerations, the five target districts of Bobonaro, Ermera, Liquica, Manatuto and Viqueque were selected (Figure II.A.2).[18]

Figure II.A.1. National dropout rates by grade (2009–2010)



Sources: Creative Associates International (2014b)

[17] The between-grade dropout rate is the proportion of students who no longer enroll in the following year. The in-grade dropout rate is the proportion of students who drop out of the school before the end of the academic year.

[18] The dropout rate overall for 4th, 5th, and 6th graders in these districts according to Ministry records was about 7 percent, ranging from 4.75 percent to 8.1 percent. SDPP data reported in Section VI shows notably higher rates.

Figure II.A.2. Target regions of the SDPP Program

Source: Creative Associates International (2014a).

B. Interventions

1. Selecting the SDPP interventions

SDPP selected dropout prevention interventions to be implemented on the basis of: (1) a review of the existing domestic and international evidence on interventions designed to decrease school dropout; (2) an analysis of existing policies and programs in each country that could affect dropout; (3) situational analyses of the factors and conditions associated with school dropout in each country; and (4) input from key stakeholders in each country. The literature review found little rigorous evidence on dropout prevention interventions in an international context.[19] Conditional

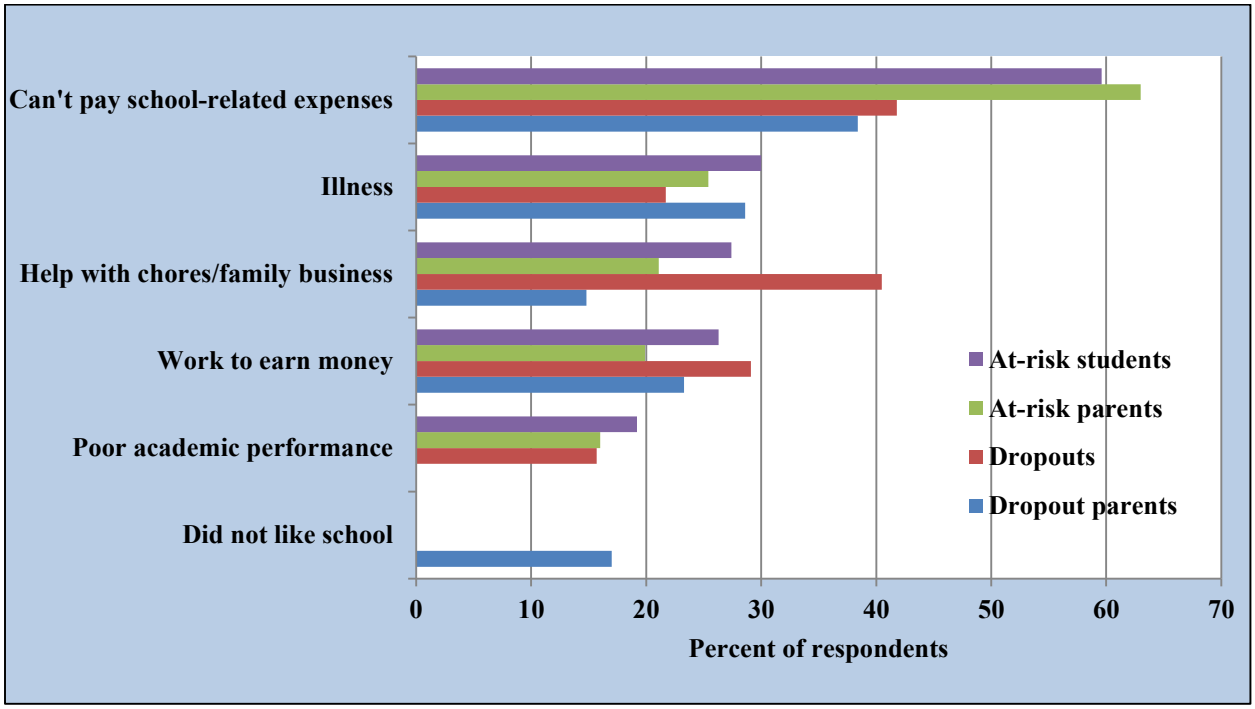
[19] See Brush, Lorie, Jennifer Shin, Rajani Shrestha, and Karen Tietjen (2011) for complete findings from the literature review.

cash transfer interventions showed consistently positive impacts on school dropout, but other evidence was mixed or focused on U.S.-based interventions.

SDPP conducted primary research focused on 4th, 5th and 6th grades in Bobonaro, Ermera and Liquicia, in order to identify key factors and conditions associated with school dropout in Timor-Leste. [20] The situational analysis collected data from at-risk students, dropouts, their parents/guardians, school administrators and teachers, community members and local education officials in 30 school-communities.

Findings from the SDPP Situational Analysis indicate that the top causes of student dropout among 4th-, 5th-, and 6th-grade students in the target districts fell into three categories: (1) economic, (2) academic or school-related, and (3) health. (Figure II.B.1). [21] Economic reasons are most commonly cited by children and their families: about 60 percent of the at-risk students and parents, and about 40 percent of the dropout children and parents cited the inability to pay for school expenses, and 20 to 30 percent pointed to the need to work to earn money. About 25 percent of at-risk students and 40 percent of dropouts cited domestic chores. Nearly one-third indicated health reasons. However, about 20 percent of Grade 4, 5, and 6 students drop out for academic and school-related reasons: they performed poorly in school and/or simply do not like school. About 50 percent of at-risk parents and 65 percent of dropout parents reported their child had not mastered basic reading and math, and nearly 60 percent of the at-risk pupils and dropouts said they had failed a subject.

Figure II.B.1. Reported causes of dropout



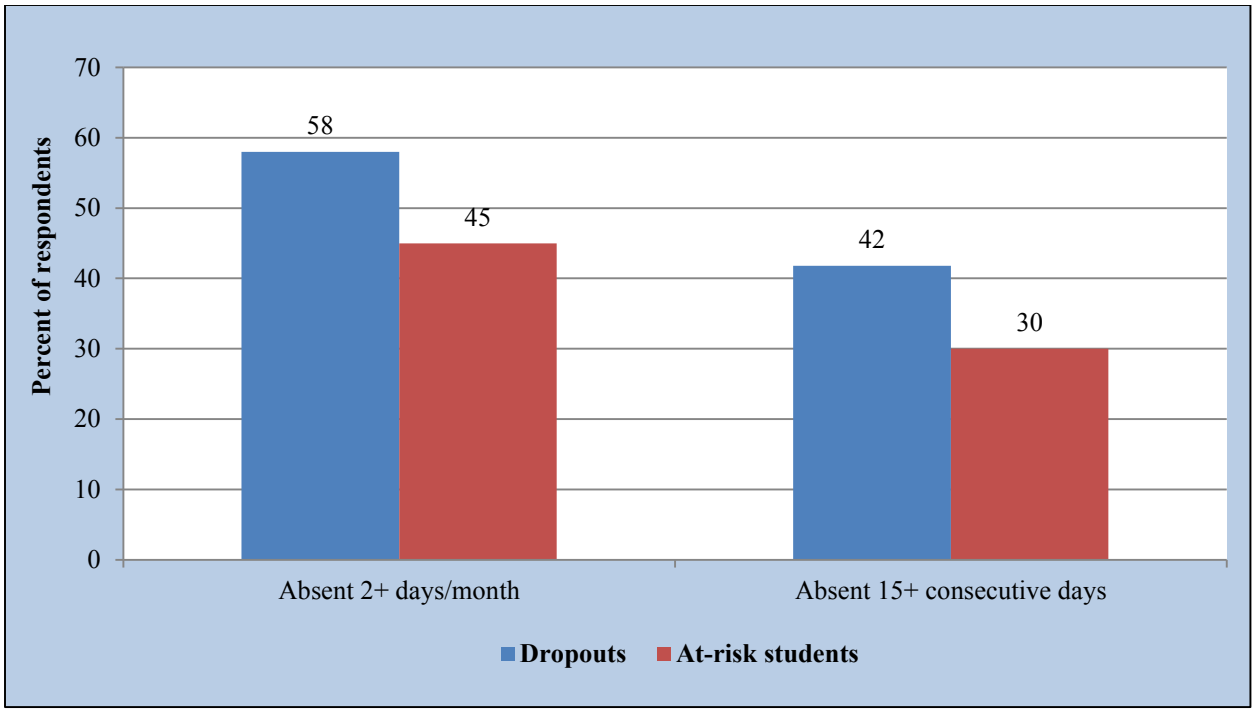
Source: Creative Associates International (2014a)

[20] The other two districts—Manatuto and Viqueque--were added later to meet sampling requirements.

[21] See Creative Associates International (2014b) for complete findings from the situational analysis.

These reasons led to or were exacerbated by high student absenteeism (Figure II.B.2). Nearly half of at-risk students and more than half of dropouts missed two or more days of school per month; over 40 percent of dropouts and 30 percent of at-risk students have missed more than 15 consecutive days of school. Only 40 percent of at-risk parents indicated they were aware of their child's school attendance patterns, and 7 percent had no idea whether or not their child was regularly attending school. Almost half of the parents reported keeping their child home from school to help with domestic chores.

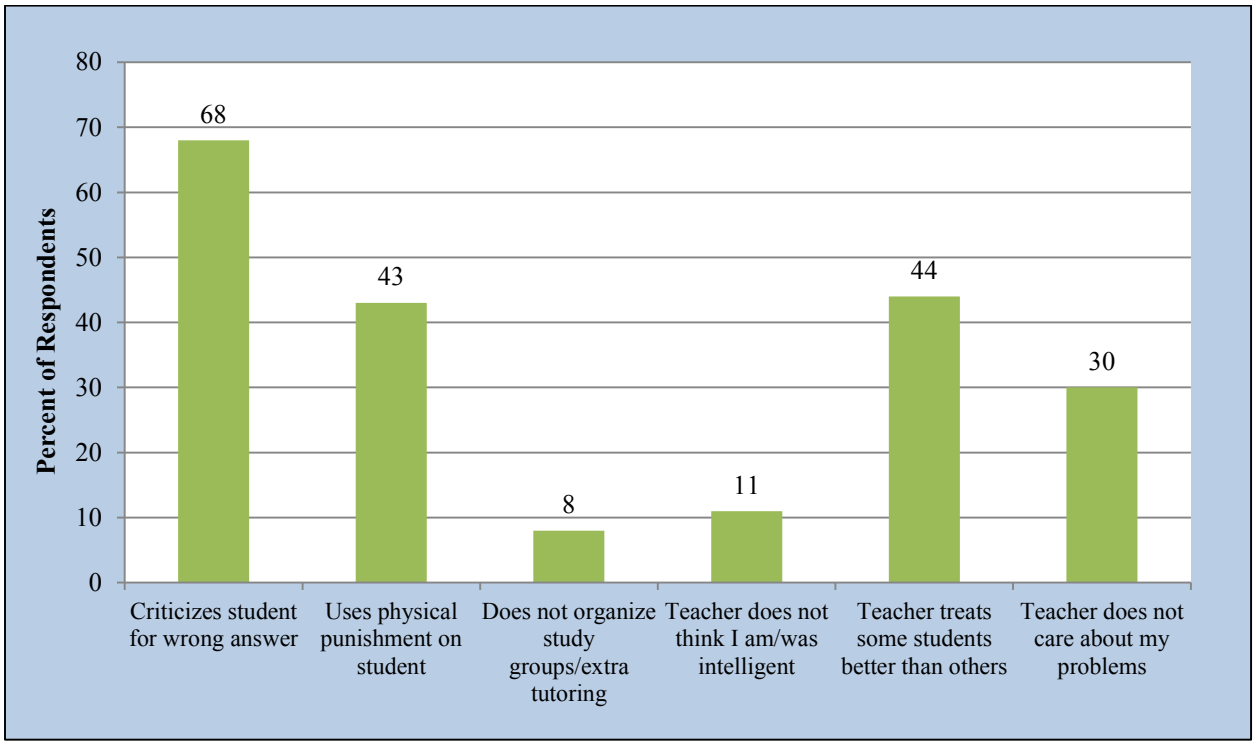
Figure II.B.2. Absenteeism reported by dropouts and at-risk students



Source: Creative Associates International (2014a)

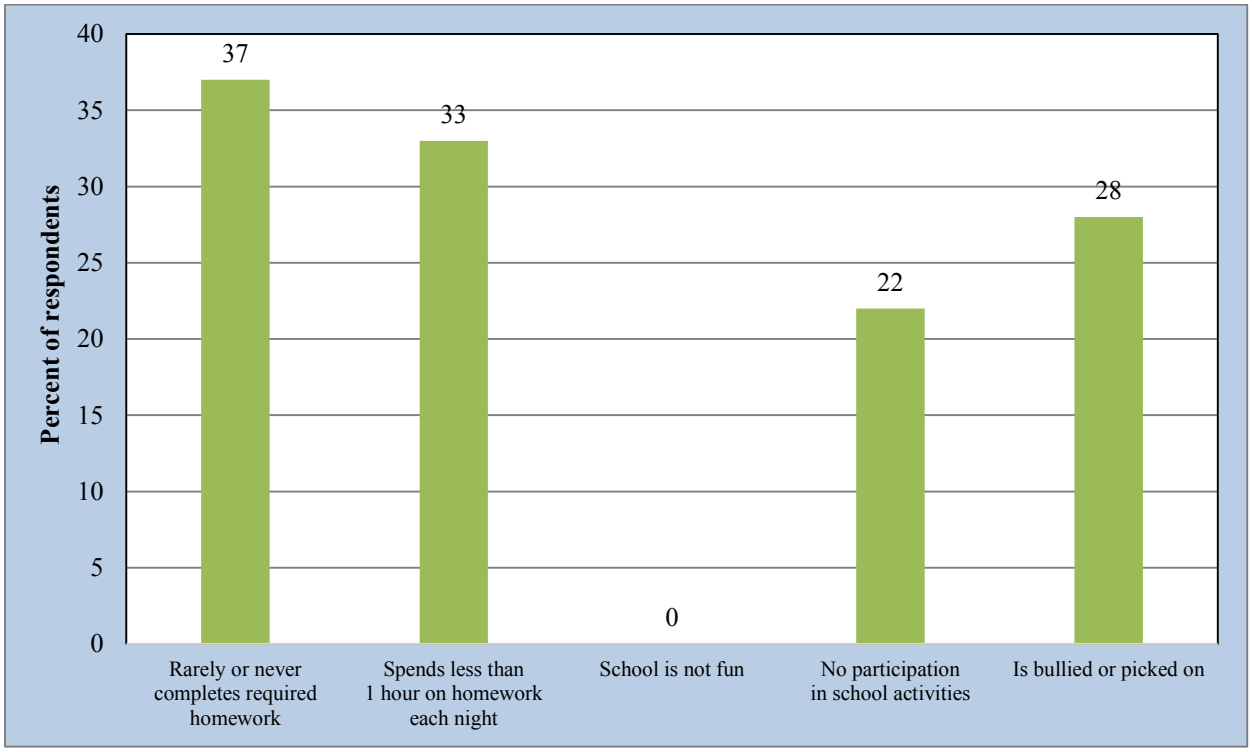
Many at-risk students reported poor treatment by teachers and an unsupportive school environment (Figure II.B.3). Student engagement is low, with only slightly more than one-third of at-risk students completing homework assignments, less than a quarter participating in school activities and more than a quarter reporting being bullied (Figure II.B.4). Between 10 to 20 percent of dropouts and at-risk students experienced some form of behavioral problem, ranging from disruptive behavior and conflicts with teachers to breaking school rules and getting into trouble.

Figure II.B.3. Treatment by teachers reported by at-risk students



Source: Creative Associates International (2014a).

Figure II.B.4. At-risk student engagement in school



Source: SDPP situational analysis data collection; 2011

In November 2011, SDPP convened a consultation workshop on program design in Timor-Leste to solicit ideas for and determine the school-based dropout prevention interventions with the greatest chance of both success and of sustainability. SDPP led stakeholders—including nongovernmental organizations and education authorities—through the main findings from the literature review and situational analyses, and discussed intervention options for the SDPP Program. The SDPP contract parameters—which excluded economic subsidies, vocational training, construction/infrastructure improvements and general teacher training—were reviewed.[22] Design workshop participants ranked a set of intervention options. SDPP then selected the interventions for Timor-Leste using these rankings along with additional program considerations. Two complementary inventions were planned, based on power calculations, sample size parameters and timeline.[23]

One of the complementary interventions was aimed at reducing negative student behaviors associated with dropout, such as attendance, and the other aimed at student motivation, based on the findings of the situational analysis, which found low student engagement. Stakeholders in Timor-Leste selected EWS as the primary component and enrichment and recreational activities as the supplemental component.[24]

2. Early Warning System (EWS)

The purpose of the EWS was to identify and provide targeted support to students at risk of dropping out of school. The EWS used existing data in schools as well as teacher input to identify at-risk students, closely monitor them, and target them for additional support. It was intended to enhance the capacity of schools to address the needs of at-risk pupils, strengthen the partnership between the parents/guardians and school personnel to monitor and improve school attendance and performance, and raise awareness among parents/guardians and the community about the value of children staying in school and what parents/guardians can do to support their children. The EWS consisted of three components: (1) identification of students at risk of school dropout, (2) first response strategies, and (3) community engagement.

In Component 1, the SDPP Program in Timor-Leste worked with teachers to identify at-risk students based on six measures of dropout risk. These included the globally recognized ABCs of dropout – attendance, behavior, and coursework—and were augmented with other contextually specific indicators—how often the student completes his or her homework, and how often the student is tardy or leaves early. (Creative Associates International 2014b). SDPP worked with

[22] While USAID's AME Regional Bureau recognized the role that economic, infrastructure/construction, and school quality barriers could play in families' decisions not to send their children to school, these types of interventions were excluded from experimentation for a variety of reasons. A solid research base already existed for economic subsidies and cost alleviation measures. Infrastructure improvements and construction exceeded USAID manageable interests. Desire to focus on dropout-specific interventions eliminated general teacher training for instructional improvement, which was already funded under other programs. Finally, funding for USAID Basic Education prohibited expenditure of SDPP budget on vocational education activities.

[23] The SDPP contract specified two recommendations for interventions. SDPP was originally a three-year program, and did not provide sufficient time to design, develop, and implement multiple interventions in each country.

[24] See Prouty, D. and K. Tietjen, SDPP Pilot Design Plan: Timor-Leste (February 2012).

teachers to score and rank students' relative risk level. Students with the highest score were deemed at-risk students.[25]

Component 2 used a "track and trigger" approach to closely monitor the progress of at-risk students and initiate "first response" activities when students showed signs of struggling. Teachers recorded and tracked key student behaviors, such as attendance, behavior and coursework. Signs of problems—for example, frequent absences or failed classes—triggered an immediate set of response actions, ranging from in-class attention to contact via letter and/or home visit with parents to case management meetings with school staff to develop an individualized program of intervention.

Component 3 focused on raising awareness within the community about the importance of schooling and the problem of dropout. SDPP worked with parent-teacher associations and other community groups on advocacy activities and enlisted their support in implementing some of the first response activities, working closely with the school. For example, contact with parents was conducted through "Stay in School" groups made up of community members, who delivered illustrated "postcards" from the school to households to notify parents of a problem and follow up with home visits to discuss issues and solutions. For many school communities, this was the first time that community or school organizations and their members engaged in student support activities not limited to fund raising or infrastructure improvement. This component also included outreach activities, such as school events to discuss how parents can support their child in school. These activities were designed to directly change the behaviors of community members, parents, and students themselves.

3. Extra-curricular activities program

Extra-curricular activities, which consisted of one or two in-school sessions per week, were offered to all target-grade students, with special encouragements for students identified as at-risk through the EWS (Creative Associates International 2012a).[26] The activities were scheduled either before or after school, depending on instructional schedules. Each week, students participated in one or two sessions focused on promoting fun through songs, games, and craft sessions. The ECA program was intended to motivate children to attend and engage in school through structured activities to foster cooperative learning, enhance self-confidence and reinforce basic skills. The ECA program was initially conducted by SDPP facilitators, and during the second year of program implementation, target-grade teachers and community members were encouraged to lead a second weekly session. The SDPP facilitators monitored at-risk students' progress, recorded participation levels and met at least monthly to discuss progress with homeroom teachers.

C. Program implementation

The SDPP Program was active in schools during three school years—SY 2012, SY 2013, and SY 2014 (Figure II.C.1). Students and teachers of target grades received only a partial year of exposure

[25] Please see Appendix A for more details on the SDPP determination of dropout risk.

[26] During the first year of SDPP implementation, one session was offered per week. SDPP encouraged schools to transition to two weekly sessions at the start of the second year of implementation, with the second session led by teachers and community members.

during the first year of the program (SY 2012) because of the timing of the roll-out of program activities. Students and teachers of the target grades during the second and third school year received the program for full school years.[27] The teachers and school administrators were first trained in August 2012 during a break in the 2012 school year. The EWS began in September 2012, followed by the after-school activities in October 2012 for entering 4th-, 5th-, and 6th-grade students in the 2012 school year.

During three school years of program activity, the SDPP Program targeted students in grades 4, 5, and 6 and their teachers. Students in grades 4 and 5 during SY 2012 and SY 2013 received the program for more than one year (Figure II.C.2); grade 6 is the final year of primary school. Specifically, the evaluation follows: (1) SY 2012 5th graders who continued to receive the program in SY 2013, in their 6th grade; (2) SY 2012 4th-graders who continued to receive the program in SY 2013 and SY 2014, in their 5th and 6th grades, respectively; (3) SY 2013 4th grade students, who continued to receive the program in SY 2014, in their 5th grade; and (4) SY 2014 4th grade students.[28] SDPP focuses the analyses on the latest point in time for which these students and teachers are observed across these multiple school years. The latest observation point occurs in SY 2013 or SY 2014 for all students followed by the evaluation.

[27] The teachers and school administrators were first trained in August 2012, which is the middle of SY 2012. The EWS began in September 2012 and the after-school activities began in October 2012 for entering 4th-, 5th-, and 6th-grade students in SY 2012. For entering 4th-, 5th-, and 6th-grade students in SY 2013 and SY 2014, both the EWS and after-school activities began in January.

[28] The evaluation does not focus on SY 2012 6th graders because they did not receive the program for a full school year.

Figure II.C.1. Rollout of the interventions in Timor-Leste

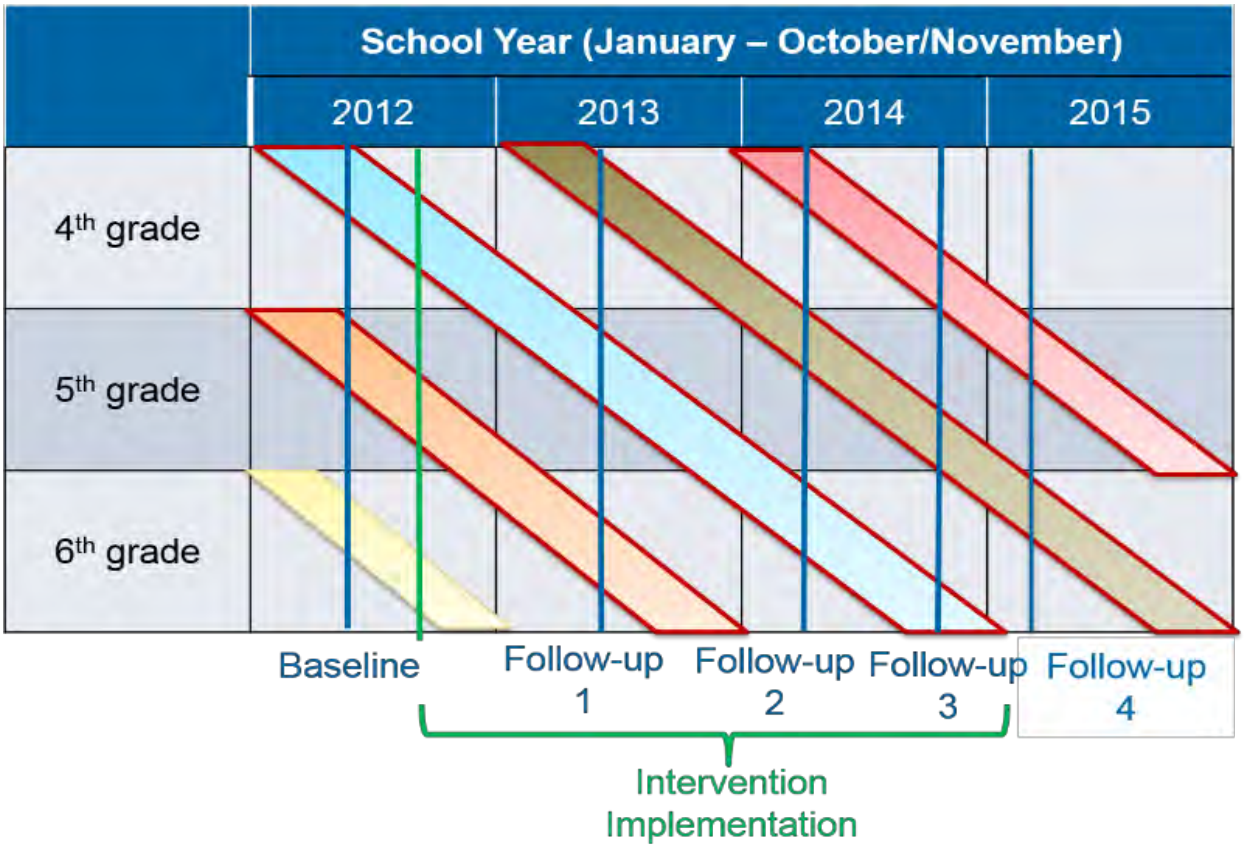
	2012								2013												2014												
	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J
Program rollout				T	E	A			E, A													T, E, A											
Data collection	X												X										X						X	EOA			X

Note: The school year in Timor-Leste lasts from January to October/November.

T = teacher and school administrator training begins; E = EWS intervention rolled out to students; A = after-school enrichment activities rolled out to students; EOA = end of activities; X = Impact evaluation data collection in schools.

2012 school year
2013 school year
2014 school year
2015 school year

Figure II.C.2. Grades by academic year for SDPP students in Timor-Leste



D. Fidelity of Implementation

As part of the research design, Fidelity of Implementation (FOI) was measured to determine the extent to which the SDPP interventions were being implemented as designed. SDPP evaluated the fidelity of implementation of the EWS and after-school components in May, October, and November 2014.

To assess the fidelity of the EWS implementation, SDPP examined how well schools and teachers identified at-risk students, tracked their attendance, communicated with parents, and provided follow-up support. In the second year of implementation, two rounds of FOI data were collected and analyzed.[29]

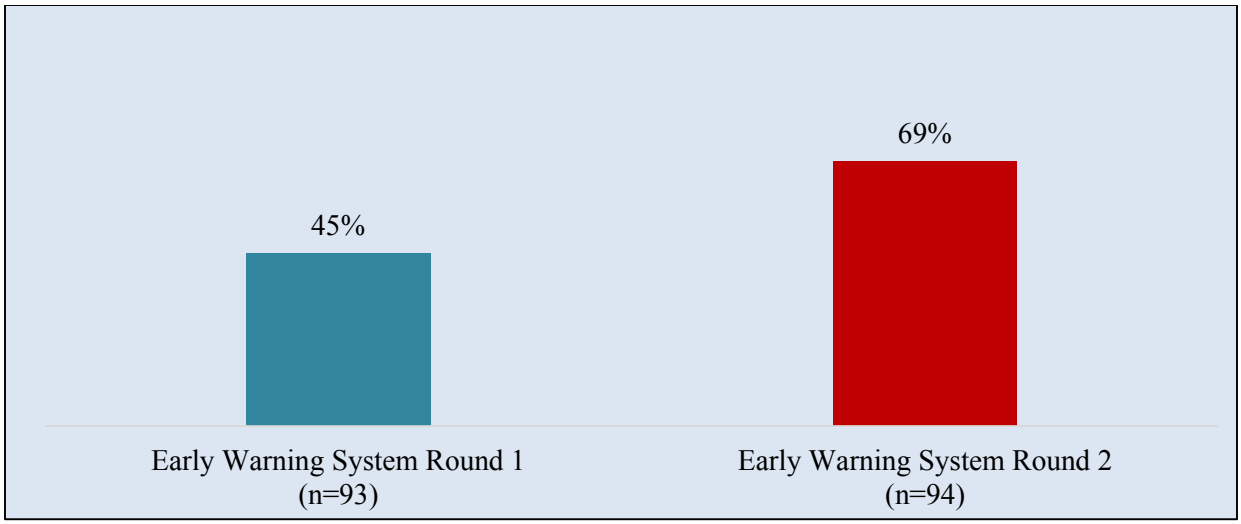
Overall, schools appeared to implement the EWS unevenly (Creative Associates International and School-to-School International 2015). During the first round of FOI data collection and analysis, only 45 percent of the schools met or exceeded the threshold score of 80 percent for the EWS intervention (with an average total score of 39%) (Figure II.D.1). With the exception of Component 2 ("tracking research students"), the percentage of schools fell below the threshold score on the three other components: 66 percent of schools met the threshold score for identifying research students, but only 9 percent met the threshold for communicating with parents and only

[29] Fidelity of implementation was monitored throughout intervention implementation, but only in the second year of implementation were standardized instruments used for the data reported in this report.

8 percent met the threshold for follow-up action, primarily case management meetings among school personnel (Figure II.D.2).

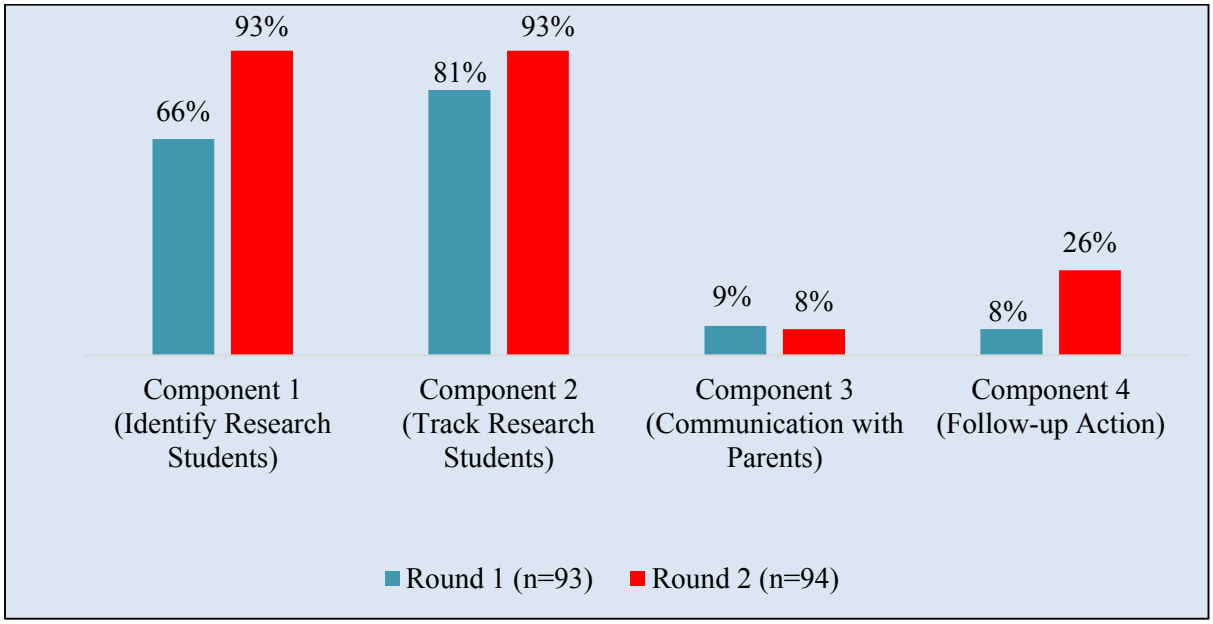
Results from the second round showed notable improvement, with 69 percent of schools meeting or exceeding the threshold score. By component, 93 percent of schools met or surpassed the threshold score for identifying and tracking research students and 26 percent met it for taking follow-up action. However, only 8 percent of schools met the threshold for communicating with parents, indicating the difficulty of mobilizing the "Stay in School" community groups (Figure II.D.2).

Figure II.D.1. EWS: Proportion of schools meeting or exceeding 80% FOI threshold



Source: Creative Associates International and School-to-School International (2015).

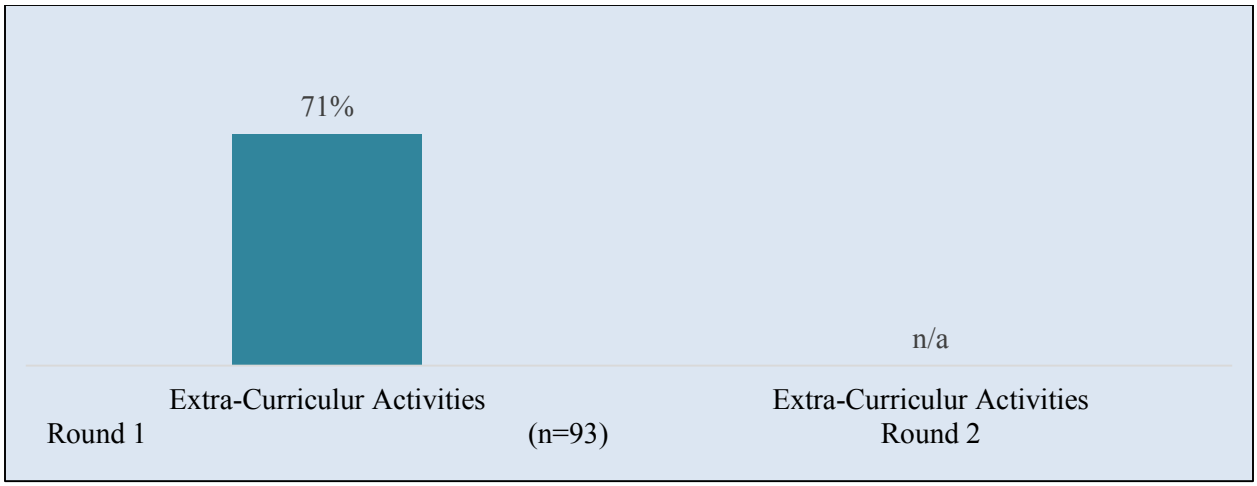
Figure II.D.2. EWS: Proportion of schools meeting or exceeding FOI threshold by component



Source: Creative Associates International and School-to-School International (2015).

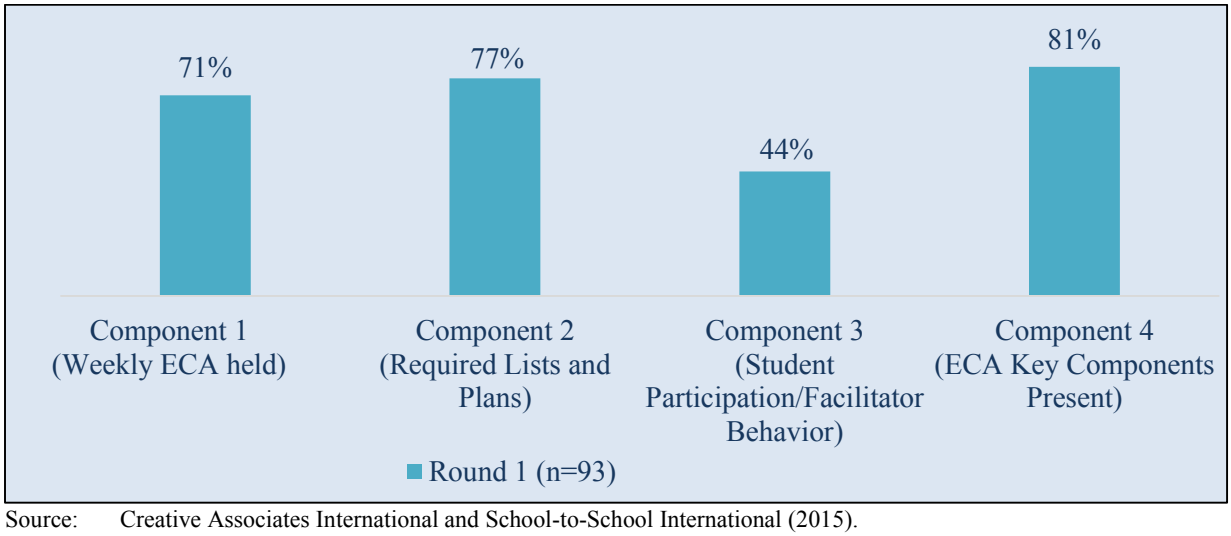
To assess the implementation of the ECA Program, SDPP looked at whether: the program was held weekly; schools maintained attendance lists and lesson plans; students and teachers were actively and positively engaged; and key activity components were incorporated into the program. The results suggested that the after-school activities were fairly well-implemented, with 71 percent of the schools meeting or exceeding the threshold score (Figure II.D.3). There was room for improvement, particularly in the frequency with which the after-school activity program was held. Only 71 percent of schools reported holding the after-school activities weekly, as intended (Figure II.D.4). (Creative Associates International and School-to-School International 2015).

Figure II.D.3. ECA: Proportion of Schools Meeting or Exceeding 80% FOI Threshold



Source: Creative Associates International and School-to-School International (2015).

Figure II.D.4. ECA: Proportion of Schools Meeting or Exceeding 80% FOI Threshold, by Component



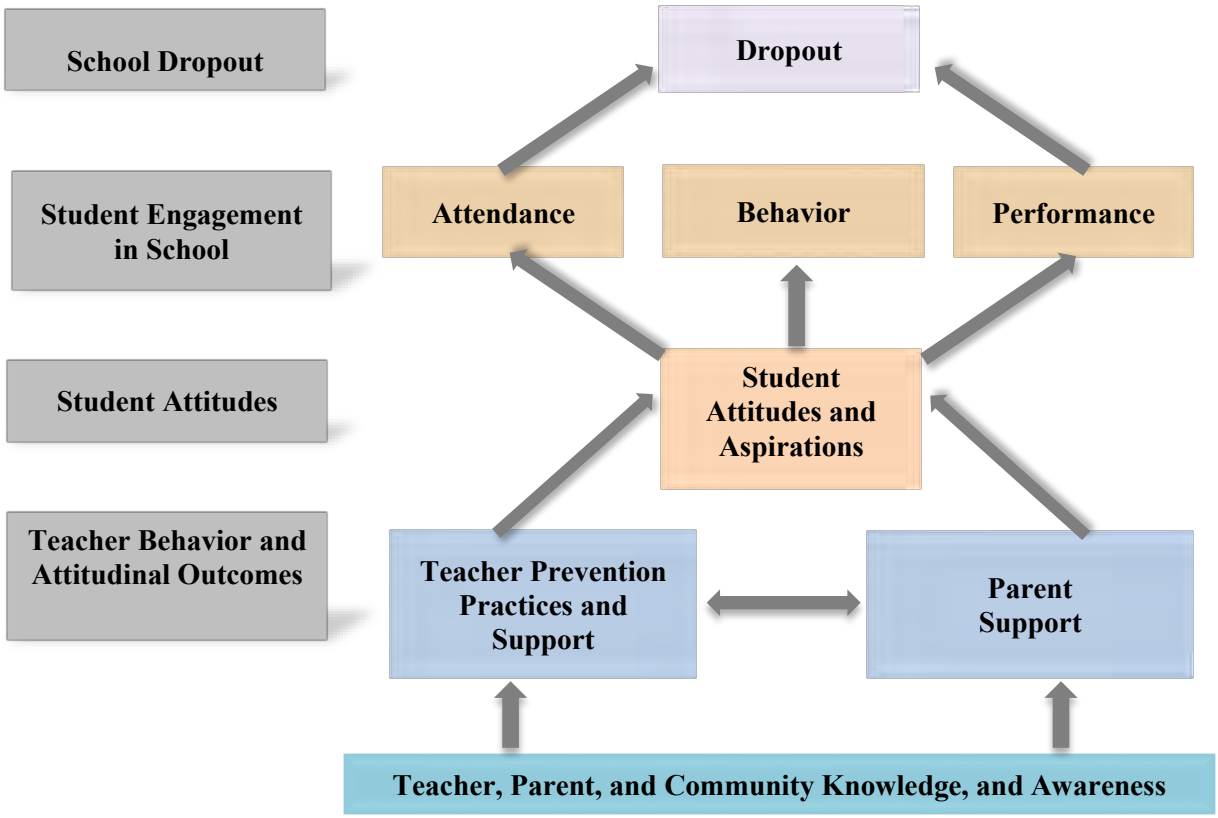
Source: Creative Associates International and School-to-School International (2015).

III. Evaluation design

A. SDPP Theory of Change

A conceptual model of SDPP Program activities and how they might affect student and teacher outcomes guided the design of the impact evaluation (Figure III.A.1). This model posits that teacher and parent knowledge and practices—shared and reinforced by the larger community—are inputs into students' attitudes toward school and educational aspirations. These student attitudes translate into student engagement in school, including their attendance, behavior, and academic performance. The complex, cumulative interaction of these factors are inputs into the student's ability, desire and decision to remain in school or drop out.

Figure III.A.1. Timor-Leste SDPP conceptual model



The ultimate goal of these activities is to reduce school dropout, and SDPP activities involved working directly with teachers, administrators, and parents with this goal in mind. Teachers received extensive training to influence their attitudes toward and practices used with at-risk students, as well as instruction on how to use a new EWS and how to engage students in extra-curricular activities using active learning and child-centered methods. The EWS was designed to improve student attendance and attitudes toward school, both directly (through interactions with students) and indirectly (through interactions with teachers and parents). The idea behind this

system is that, by changing teacher, administrator, and parent knowledge and behaviors toward students, student attitudes toward school should change. This improvement in attitudes should lead to more student engagement in and attachment to school, which in turn should reduce school dropout. Likewise, the ECA Program was designed to improve teacher-student interactions and, as a consequence, student attitudes toward school by helping students improve their academic performance and offering recreational activities to encourage attendance.

Recognizing the complex processes that lead to dropping out, mechanisms through which the SDPP interventions aim to reduce dropout are varied and focused on influencing intermediate outcomes—specifically the attitudes, practices, and behaviors of teachers, parents, and students—that that may be related to dropout.

B. Research questions

Based on this conceptual model, SDPP designed the impact evaluation to address five primary research questions: [30]

- Does SDPP improve teacher behavior and attitudes?
- Does SDPP improve student attitudes toward school?
- Does SDPP improve student engagement in school associated with retention, such as attendance?
- Does SDPP improve the dropout rate?
- What are SDPP's impacts for students most at risk of dropping out of school?

C. Evaluation Design

To answer these questions, SDPP used a randomized control trial design, as depicted in Figure III.C.1. SDPP randomly assigned schools to either an SDPP group that provided the SDPP Program, or a control group that operated as usual. SDPP estimated program impacts by comparing relevant outcomes for students and teachers in schools offering the SDPP Program (the SDPP group) to the outcomes of students and teachers in schools offering regular services (the control group)

What is an impact evaluation?

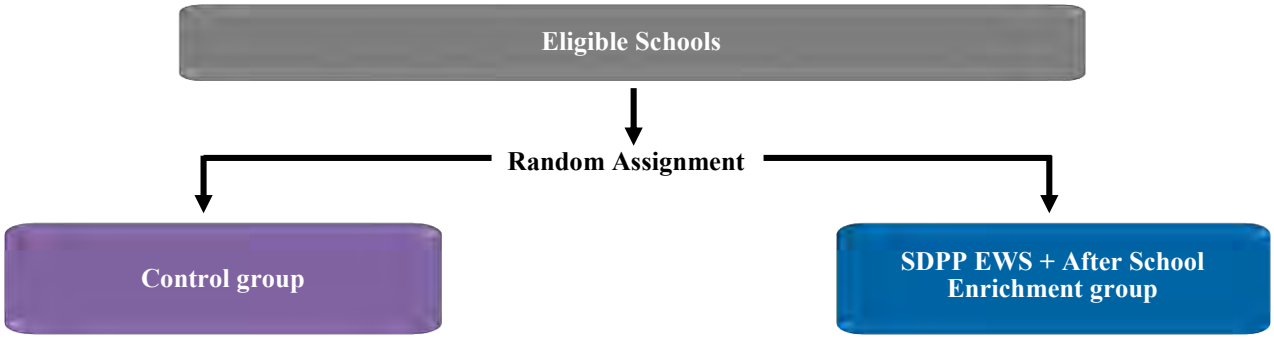
- Goal: an evaluation designed to provide answers to policy or program effectiveness, aims to generate rigorous evidence to answer questions about program impact
- Purpose: establish the causal effect of an intervention through the use of a counterfactual
- Mechanism: comparison of outcomes for those randomly assigned to SDPP and control groups

A randomly assigned control group is a crucial element of a rigorous impact evaluation because it allows the evaluator to estimate what would have happened in the absence of the program. With well-implemented random assignment, the students and teachers in treatment schools will be similar to those in control schools in terms of their pre-existing

[30] See Murray, Nancy, Quinn Moore, Larissa Campuzano, Kathy Buek, Emilie Bagby, and Mark Strayer 2012 for details on the evaluation design.

characteristics. The only systematic difference between these groups is that the students and teachers in the treatment group were offered the SDPP Program, and the students and teachers in the control group were not. The result is that any observed treatment-control differences in outcomes can be attributed to the SDPP Program and not to pre-existing differences in the characteristics of students, teachers, and schools in the sample.

Figure III.C.1. SDPP Randomized Control Trial design in Timor-Leste



From 190 eligible schools in Timor-Leste, 93 schools were randomly assigned to the control group and 97 schools were randomly assigned to the SDPP group. Over the course of the project, data was collected on 19,255 and 1,216 individual students and teachers in control schools, and 18,606 and 1,182 individual students and teachers in SDPP schools.

1. Study eligibility

To be eligible for the evaluation, schools had to: (1) be located in the five target districts; (2) offer 4th, 5th, and 6th grade; (3) not be a technical or religious school; (4) not be receiving major assistance from other donors or organizations, such as UNICEF, Childfund, and CARE; and (5) agree to participate in the evaluation. SDPP identified 190 schools that met these criteria;[31] 97 were randomly assigned to the SDPP group and 93 were randomly assigned to the control group.[32] SDPP implemented the random assignment, stratifying by district.

2. Primary impact analysis

Given the RCT design, the assessment of the SDPP Program's effectiveness focuses on the difference in average outcomes at our final follow-up between students and teachers randomly assigned to the SDPP group and those randomly assigned to the control group. Because random assignment means that there should be no systematic differences in baseline characteristics between the SDPP and control groups, a simple difference in outcomes across groups provides a rigorous, unbiased estimate of the SDPP Program's impact. However, we are able to increase the precision of the impact estimates and our ability to identify impacts as statistically significant by using statistical models that adjusted for small differences in the initial characteristics of the study

[31] With this sample size, and a 7.5 percent dropout rate, power calculations indicated that the study would be able to detect an impact of 4 percentage points or higher, with 80 percent power. Please see Appendix A for more information.

[32] Originally, 194 schools were randomly assigned. However, one SDPP school and three control schools dropped out of the study because they no longer offered 6th grade, a condition for participation in the evaluation.

groups that may have arisen by chance or because of survey nonresponse.[33] In this way, the impact estimates adjust for baseline values of the outcomes of interest, as well as individual and school-level characteristics. RCT impact estimates are considered the gold standard in evaluating program effectiveness.[34]

These impact estimates represent the difference in the outcome of interest at endline that is attributable to the SDPP Program relative to the status quo. The estimates are expressed as percentage point differences between the treatment and control group. The impact estimates reported in this study should be interpreted as the difference in outcomes that resulted from exposure to SDPP. For example, an "X" percentage point favorable impact on school dropout indicates that, on average, the dropout rate under SDPP is "X" percentage points lower than it would have been under business-as-usual operations. We also present percentage increases or decreases in the primary outcomes across the treatment and control groups. These "percentage changes" should not be interpreted as the percentage "change" that might be calculated in a pre-post measure or baseline/endline change, but rather, the increase or decrease in the treatment group's outcome measure in relation to the control group at endline.

The impact analysis includes all students in the targeted grades in SDPP and control schools, regardless of whether the students in the SDPP schools actually participated in SDPP activities. Therefore, these estimates represent the average impact of SDPP on *all* students in the enrolled schools. These are called intent-to-treat (ITT) estimates—they reflect the fact that not every school or student intended to be treated (via program services) actually participated in the program. The ITT estimates therefore answer the policy-relevant question—do programs make a difference for schools that choose to enroll? These types of estimates are widely used in large-scale evaluations and preserve the integrity of the random assignment design.

SDPP worked with 4th, 5th and 6th graders from SY 2012, SY 2013 and SY 2014. Therefore, SDPP worked with: (1) SY 2012 5th graders who continued to receive the program in SY 2013, in their 6th grade; (2) SY 2012 4th-graders who continued to receive the program in SY 2013 and SY 2014, in their 5th and 6th grades, respectively; (3) SY 2013 4th grade students, who continued to receive the program in SY 2014, in their 5th grade; and (4) SY 2014 4th grade students. The analyses look at outcomes for these cohorts of students. SDPP schools and control school outcomes are compared, and differences are estimated while controlling for school level and individual level information regarding the school year during which they received SDPP.

3. Impact analysis for at-risk students

The SDPP Program was intended to affect outcomes more strongly for students at risk of dropout than for students not at risk, since the goal of the EWS was to train teachers to identify and work with students that are at risk of dropping out of school. Therefore, SDPP analyzed the impacts on students at risk of dropout in two ways. First, students in the SDPP Program were identified in control schools as at risk based on student characteristics before they entered the target grades, mimicking the EWS identification process as closely as possible with available data. SDPP also conducted a subgroup analysis of the students which were identified as at-risk. This subgroup

[33] Statistical significance is explained in Section IV; see text box on "statistical significance".

[34] Please see Appendix B for more details on the impact estimation methods.

analysis is part of the primary assessment of whether the SDPP Program effectively accomplished its goals (or was effective).

Importantly, the students identified as at risk for the subgroup analysis in SDPP schools based on baseline characteristics are not necessarily the same as those identified by the EWS in SDPP schools. However, there is substantial overlap in these groups. SDPP focused the primary analysis on the subgroup of students identified as at risk of dropout based on their baseline characteristics because it would allow us to identify at-risk students in the control group using an analogous process. More critically, preserving the integrity of the random assignment design requires that subgroup analysis be based on baseline characteristics observed before receiving program services, and students in both SDPP and control schools are thus identified as being at-risk in the same manner.

4. Additional subgroup analyses

In addition to looking at impacts separately for at-risk students, SDPP also conducted several additional subgroup analyses. The SDPP Program was not designed to have different impacts for different subgroups of students (other than students at-risk of dropout); however, the literature suggests that outcomes and impacts might vary for different types of students. There might be differential impacts for students with certain characteristics (such as gender or being over age for their grade), for different types of schools (such as the percentage of at-risk students in a school, and the remoteness of the school), or for different types of teachers (such as differences by gender or by full-time teaching status) (Table III.C.1). These subgroup analyses provide interesting context for interpretation of the main findings, but are not part of SDPP's primary assessment of program effectiveness. Because these subgroup analyses were exploratory, SDPP did not adjust statistical significance thresholds for multiple comparisons when there were multiple subgroup comparisons being made. These additional subgroup analyses provide interesting context for our interpretation of the main findings and insight into the groups for which the SDPP Program may be more or less successful.[35]

[35] Because these subgroup analyses were exploratory, SDPP did not adjust statistical significance thresholds for multiple comparisons when there were multiple subgroup comparisons being made (Schochet, Peter Z. 2009).

Table III.C.1. Primary and additional subgroup analyses

Subgroup	Subgroup Type	Definition	Analysis Type
At-risk students / Not-at-risk students	Students	Students were identified as being most at risk of dropping out based on information on their characteristics available in school records at baseline before entering the target grade.	Primary
Female/male	Students; Teachers	Student and teacher sex was determined from school records.	Additional
Full-time teaching status	Teachers	Teachers were determined to be full-time or not full-time (part-time, contract, volunteer, or other types of teachers that are not full time employees)	Additional
Over-age / not over-age	Students	A student is considered to be over-age if he or she is two years older than the appropriate age for his or her grade, compared to those who were within two years of the appropriate age. In Timor-Leste, 4th-grade students were defined as over-age if they were 13 or older, 5th-grade students as over-age if they were 15 or older, and 6th-grade students as over-age if they were 17 or older.	Additional
High % at-risk/low % at-risk	Schools	SDPP divided schools into a group that was at the 70th percentile or higher in percentage of at-risk students at baseline among control group schools (the high percentage group) and a group that was below the 70th percentile (the low percentage group).	Additional
Distance to school	Schools	Schools are defined as remote if they could not be reached by all types of vehicles and schools as not remote if they could.	Additional

5. Primary and additional measures of SDPP's effectiveness

To select outcomes for the impact study, SDPP identified the key domains that were expected to be affected by the SDPP Program as indicated by the program theory of change: (1) teacher behavior and attitudes, (2) student attitudes, (3) student engagement in school, and (4) school dropout. Within each of these domains, SDPP identified key outcomes that the program was intended to affect; these primary outcomes can be used to assess whether the program achieved its goals. In addition to the primary outcomes, the evaluation presents findings for additional outcomes to provide context to the primary analysis and more detail on how students and teachers may have been affected by SDPP.

Table III.C.2. Primary and additional measures of Timor-Leste SDPP Program effectiveness

Domain	Primary measures of program effectiveness	Secondary measures*
Primary Measures of Program Effectiveness		
Teacher outcomes	Teacher dropout prevention practice scale (range: 1 to 8), SY 2013 and SY 2014, teachers in grades 4, 5, and 6	Teacher's sense of responsibility for at-risk students scale (range: 1 to 4), SY 2013 and SY 2014, teachers in grades 4, 5, and 6 Teacher's sense of self efficacy scale (range: 1 to 5), SY 2013 and SY 2014, teachers in grades 4, 5, and 6 Administrator dropout prevention practice scale (range: 1 to 8), SY 2013 and SY 2014 Administrator's sense of responsibility for at-risk students scale (range: 1 to 4), SY 2013 and SY 2014 Administrator's sense of self efficacy scale (range: 1 to 5),[d] SY 2013 and SY 2014, school administrators
At-risk student attitudes	Emotional attitudes toward school, SY 2013 and SY 2014, for at-risk students in the SY 2012 4th- and 5th-grade cohort and the SY 2013 and SY 2014 4th-grade cohorts Cognitive attitudes toward school, SY 2013 and SY 2014, for at-risk students in the SY 2012 4th- and 5th-grade cohort and the SY 2013 and SY 2014 4th-grade cohorts Behavioral attitudes toward school, SY 2013 and SY 2014, for at-risk students in the SY 2012 4th- and 5th-grade cohort and the SY 2013 and SY 2014 4th-grade cohorts	Student perception of teacher support, SY 2013 and SY 2014, for at-risk students in the SY 2012 4th- and 5th-grade cohort and the SY 2013 and SY 2014 4th-grade cohorts Student perception of parental support, SY 2013 and SY 2014, for at-risk students in the SY 2012 4th- and 5th-grade cohort and the SY 2013 and SY 2014 4th-grade cohorts
Engagement in school	Attendance, January–October, SY 2013 for 2012 5th-grade cohort; January–November, SY 2014 for 2012 4th-grade cohort, 2013 4th-grade cohort, and 2014 4th-grade cohort	Performance in math, SY 2013 for the SY 2012 cohort; SY 2014 for the SY 2012, SY 2013, and SY 2014 4th-grade cohorts Performance in Portuguese language, SY 2013 for the SY 2012 cohort; SY 2014 for the SY 2012, SY 2013, and SY 2014 4th-grade cohorts Performance in Tetun language, SY 2013 for the SY 2012 cohort; SY 2014 for the SY 2012, SY 2013, and SY 2014 4th-grade cohorts Behavior, SY 2013 for the SY 2012 cohort; SY 2014 for the SY 2012, SY 2013, and SY 2014 4th-grade cohorts
Dropout	Global dropout measure composed of: Between-grade dropout at start of SY 2015 for 2013 4th-grade cohort and 2014 4th-grade cohort Within-grade dropout at the end of SY 2014 for the 2012 4th-grade cohort and the 2012 5th-grade cohort	Progression from 4th grade to 6th grade or higher for the SY 2012 and SY 2013 4th-grade cohorts; 5th grade to 6th grade or higher for the SY 2012 5th-grade cohort; 4th grade to 5th grade or higher for the SY 2014 4th-grade cohort

* Exploring the impact of SDPP on these additional outcomes of interest is meant to be descriptive in nature, to provide context and better understand the impacts on the primary measures by which SDPP's effectiveness is determined. In these exploratory analyses on additional outcomes, SDPP did not adjust statistical significance thresholds for multiple comparisons when presenting impacts of the program.

SY = school year.

Within the teacher outcomes domain, the primary outcome measure is a scale representing teacher dropout prevention practices (Table III.C.2). SDPP worked directly with teachers to improve their knowledge and practices related to preventing dropout. Teachers also received training on how better to deal with students through the after-school enrichment activities program. Since teachers inspire and shape student attitudes and behaviors, changes in teacher practices may represent catalysts for student change. Changes in student attitudes should then result from these changes in teacher attitudes and practices, and so SDPP looks at outcomes within the student attitudes domain. The three primary outcomes in this domain are: student emotional, cognitive, and behavioral attitudes toward school.[36] Changes in student attitudes should then result in changes in student engagement in school, including in their attendance, behavior and performance. Low attendance, behavior, or performance may indicate that students are less active participants in their own education, which could be a sign that students are on their way to dropping out of school. Finally, improvements in attendance and in performance should result in a reduction in dropout. Therefore, the ultimate goal of SDPP is its own domain, and the primary outcome measure is an indicator of whether the student had dropped out at the time of follow-up data collection.

In addition to the primary outcomes, the evaluation analyzes additional information to provide context to the primary analysis and increase understanding of the ways in which the program was and was not effective in influencing a particular domain. Table III.C.2 lists these additional outcomes, which include teacher attitudes and practices, student perceptions of teachers and parents, academic performance, behavior, and grade progression.

IV. Sampling and data collection

This report draws on data from three sources: (1) student records collected from schools, (2) surveys conducted with at-risk students, and (3) surveys conducted with school administrators and teachers teaching 4th, 5th, and 6th grade homeroom, math, and language courses. SDPP collected this data at five points in time, collecting data for four school years, from the first trimester in the school year that the program was later rolled out (SY 2012) to the school year after completion of the program (SY 2015) (Figure II.1). Across the five rounds of data collection, SDPP gathered information on the four cohorts used in the analysis, their teachers, and their schools.

Across all data collection rounds, SDPP gathered data from 190 schools—97 treatment and 93 control—that are used in the impact analyses (Table IV.1). Information used in the student analyses from school records was gathered for 16,961 students from the SDPP group and 17,615 students from the control group. Similarly, SDPP analyzed information collected from interviews with 3,750 students from the SDPP Program group and 3,581 students from the control group, and 506 target grade teachers and administrators in the SDPP group and 511 target grade teachers and administrators in the control group.[37]

[36] SDPP used a multiple-comparison adjustment procedure (the Benjamini-Hochberg method) for student attitudinal outcomes to account for the fact that there were three primary outcomes in this domain (Benjamini, Yoav and Yosef Hochberg 1995).

[37] Please see Appendix A for further details about data collection. An eligible subset of these total students and teachers collected were used in the analysis.

Table IV.1. Study sample sizes

	SDPP group	Control group	Total
Schools	97	93	190
Student records	16,961	17,615	34,576
Student survey	3,750	3,581	7,331
Teacher survey	506	511	1,017
Administrator survey	185	179	364

Sources: SDPP baseline, follow-up 1, follow-up 2, follow-up 3, and follow-up 4 student records, student questionnaire, and teacher self-administered questionnaire.

Note: Sample sizes refer to the number of unique data points from each data collection source that are used in the impact analyses. Data on different cohorts come from different rounds of data collection. Overall sample sizes for each data collection effort were larger, since some students were included in the school records that are not eligible to be included in the analysis.

SDPP administered school questionnaires to the school director or deputy director to gather information about school characteristics, enrollment, and teacher characteristics during each data collection round. SDPP administered teacher questionnaires to directors, deputy directors, and 4th, 5th, and 6th-grade math, language, and homeroom teachers at the end first trimester in SY 2012, in the middle of SY 2013, and at the end of SY 2014. The teacher questionnaire included questions related to respondents' experience and training, awareness of risk factors related to dropout, and attitudes toward and practices used with at-risk students. Eligible teachers responded at rates of 81 percent, 91 percent, and 96 percent (SY 2012, SY 2013, SY 2014, respectively) at each data collection point.

During each round of data collection, SDPP obtained official student records to glean information on the attendance, school performance and demographics, and enrollment of the four cohorts. During three rounds of data collection, at the end of SY 2012, SY 2013, and SY 2014, SDPP also interviewed students who were at risk of dropping out of school (based on their baseline characteristics) to assess their attitudes about school. A subset of at-risk students from each cohort was sampled for interviews and included in the analyses. The actual sampling process in the field varied by cohort because of the data available to identify student risk status at the time of sampling. Appendix A describes this process in detail.

As mentioned earlier, to identify at-risk students for this evaluation, SDPP only used data that were available in school records for all SDPP Program and control group schools. This is a different method than the one used to identify at-risk students via the EWS in SDPP schools. To identify students based on school records, the analysis used four analogs of the six at-risk components used in Timor-Leste's EWS at-risk identification process: (1) attendance from the latest month available during the previous school year; (2) math exam score in the latest trimester of available the previous school year; (3) Tetun exam score in the latest trimester of available the previous school year; and (4) grade in behavior in the latest trimester available during the previous school year.[38]

[38] For the SY 2012 4th and 5th grade cohort of at-risk students, there was no information available from the last trimester of the previous school year at the time of sampling students, so SDPP used 1) March 2012 attendance, (2) first trimester SY 2012 math exam score, (3) first trimester SY 2012 Tetun exam score, and (4) first trimester SY 2012 behavior grade.

At-risk students who were selected for an interview responded to questions about demographics; cognitive, behavioral, and emotional attitudes toward school; and perceptions of teachers and parents. Sampled students responded at a rate of 86 percent at each data collection point at the end of each SY, 2012, SY 2013, and SY 2014.

V. Characteristics of the sample prior to implementation

Having data on the sample members before they are exposed to the intervention is a crucial element of a rigorous impact evaluation; it provides information on the sample's baseline characteristics and allows us to check for equivalence between the treatment and control groups. In the case of the SDPP in Timor-Leste, the characteristics of students and teachers gathered before the intervention started in schools in September 2012 serves as the reference point for all subsequent measurement and analysis.

SDPP Program and control group schools had comparable characteristics at baseline (SY 2012), with one characteristic, the mean number of students enrolled in grade 5, that differed between study groups by a marginally significant amount (Table V.1, top panel). Most study schools maintained school feeding programs throughout the intervention, with a few additional programs active in some schools. No schools had other active programs targeting school dropout, which strengthens any claims of the SDPP Program's effectiveness. Seventy-seven percent of schools in the SDPP group and 72 percent of schools in the control group are accessible by all types of vehicles. The typical SDPP group school enrolled 251 students on average, and the typical control group school enrolled 260 students. The average SDPP group school had 41 4th-grade students, 34 5th-grade students, and 30 6th-grade students, compared with 42, 40, and 33 students in those grades in control group schools, respectively. SDPP group schools had an average of 9 teachers, compared with 10 in the control group schools.

SDPP also compared the characteristics of 4th-, 5th-, and 6th-grade teachers in the SDPP Program group versus the control group, and found no statistically significant differences (Table V.1, bottom panel). The average teacher in both groups was 42 years old. Thirty-one percent of SDPP group teachers were female, compared to 34 percent of control group teachers. Secondary schooling was the highest level of education for the majority of teachers. Fifty percent of SDPP group teachers had less than ten years teaching experience, compared to 53 percent of teachers in the control group schools. For both groups, less than 10 percent of teachers had 30 years or more of teaching experience. In the SDPP group schools, 45 percent of teachers had received training related to at-risk students, compared with 39 percent of control group teachers. Far fewer in each study group had received such training within the past year. Teachers scored very high on the teacher prevention practice scale: 7.76 and 7.80 (on an 8-point scale) for SDPP and control group schools, respectively.

Table V.1. Average school and target grade teacher characteristics prior to intervention (grades 4–6, SY 2012) (percentage unless indicated otherwise)

Outcome	SDPP group	Control group
School characteristics prior to intervention		
Offer grades 1 through 6	100.0	100.0
Enrollment (mean number of students)		
Grade 4 (target grade)	40.5	41.5
Grade 5 (target grade)	33.7*	39.7
Grade 6 (target grade)	29.8	33.1
Grades 1 through 6	250.8	260.3
Number of teachers	9.3	10.3
Attendance rate at time of headcount (% of students)		
Grade 4 (target grade)	79.7	78.8
Grade 5 (target grade)	81.6	79.9
Grade 6 (target grade)	83.4	82.9
Grades 4, 5, and 6 teacher attendance rate		
January	95.9	93.8
February	95.0	94.1
March	94.8	94.9
Active external school programs[a]		
No other active programs	18.6	22.3
School feeding	76.3	72.3
Health or hygiene	21.6	20.2
Other active programs	26.8	20.2
School accessible by all types of vehicles	77.3	72.3
Grade 4–6 math, language, and homeroom teacher characteristics prior to intervention		
Age (years)	42.4	42.0
Female	30.9	34.4
Highest level of education[b]		
University degree or higher	1.1	2.2
Bacharelato[c]	20.9	20.4
Teacher training institute/college (SPG)	19.9	17.2
Secondary school	55.7	55.6
Did not complete secondary school	2.5	4.7
Teaching experience overall[b]		
Less than 10 years	50.5	52.6
10 years to less than 20 years	26.4	25.2
20 years to less than 30 years	14.1	15.6
30 years or more	9.0	6.7
Received training related to at-risk students		
Ever	45.2	39.4
In the past year	15.4	16.8
Teacher dropout prevention practice scale (range: 1 to 8)[d]	7.7	7.8
Sample size		
Schools	**97**	**94**
Teachers	**282**	**279**

Sources: SDPP baseline teacher self-administered questionnaire and school questionnaire, May 2012.

Note: Differences between SDPP and control group means were tested using two-tailed t-tests unless otherwise indicated. The teacher analysis accounts for clustering of teachers within schools. Sample sizes for some characteristics may be smaller due to missing responses.

[a] External programs are those funded and implemented by organizations other than the school system. More than one external program can operate in a school. Examples of other programs include teacher training programs and provision of textbooks and other materials.

[b] Differences between SDPP and control group distributions were tested using a chi-squared test.

[c] This is an associate's degree obtained through an 18 month course of study provided by the Ministry of Education and the Portuguese Cooperation.

[d] This scale represents the sum of teacher responses to eight items that indicate whether the teacher reports recording daily attendance, taking action if the student is absent three days in a month, giving weak students feedback, discussing support for weak students with other teachers, developing plans to support weak students, communicating with parents of weak students, meeting with weak students, and being willing to come early or stay late to help weak students.

***/**/* Difference between SDPP and control group means is statistically significant at the .01/.05/.10 level.

†††/††/† Difference between SDPP and control group distributions is statistically significant at the .01/.05/.10 level.

Students who were in 4th-, 5th- and 6th- grade in SY 2012 were also similar across the SDPP and control groups, with no statistically significant differences (Table V.2).[39] Forty-nine percent of students in both groups were female, and about 16 to 17 percent of students in both groups were not appropriately aged for their grade. About 38 to 39 percent of students in both groups were at risk of school dropout at baseline. At-risk students had slightly lower attendance and academic performance in Math, and lower behavior grades than the full sample. Between 36 and 38 percent of at-risk students were rated good or better all four quarters of SY 2012, compared to between 59 and 61 percent of the full sample.

Table V.2. Average student characteristics prior to intervention (grades 3–6, SY 2012) (percentages of students unless otherwise indicated)

	Full sample		At-risk sample	
	SDPP group	**Control group**	**SDPP group**	**Control group**
Demographic characteristics				
Female	48.9	48.6	43.5	43.9
Overage for grade[a]	17.1	16.1	14.5	15.0
Factors related to risk of dropout				
Categorized as at-risk based on baseline information, grades 3–5	39.0	37.5	100.0	100.0
Daily attendance 1st trimester of school year	93.9	94.5	91.1	92.0
Academic performance on 1st trimester exam scores (range 1–10)				
Math	5.8	5.7	5.3	5.2
Portuguese	6.0	6.0	5.5	5.5
Tetun	6.4	6.3	5.9	5.8
Behavior rated good or better during 1st trimester[b]	61.3	58.7	36.0	37.6
Sample size				
Schools	**97**	**94**	**97**	**94**
Grade 3 Students	**4,275**	**4,248**	**1,000**	**960**
Grade 4 Students	**3,883**	**3,830**	**936**	**912**
Grade 5 Students	**3,229**	**3,679**	**891**	**868**
Grade 6 Students	**2,845**	**3,069**	**n.a.**	**n.a.**
Students Overall	**14,232**	**14,826**	**2,827**	**2,740**

Sources: SDPP baseline student survey and school records data collection, May 2012.

Note: Differences between SDPP and control group means were tested using two-tailed t-tests. The analysis accounts for clustering of students within schools. Sample sizes for some characteristics may be smaller due to missing responses.

[a] A student is considered over-age for his or her grade if he or she is two years older than the appropriate age for the grade.

[b] Behavior rating has a range of 1–10. A rating of "good or better" is equal to a score of 8 or higher.

***/**/* Difference between SDPP and control group means is statistically significant at the .01/.05/.10 level.

[39] Assuming regular progression, the 3rd- 4th- and 5th-grade students in SY 2012 would have been in the 4th, 5th, and 6th grade in SY 2013.

VI. Impacts of SDPP

The evaluation estimated the SDPP Program's impacts on teacher outcomes, student attitudes, student engagement in school, and school dropout. This chapter discusses the extent to which the SDPP Program was successful in improving the primary measures of program effectiveness in each of these domains. The assessment of the SDPP Program's effectiveness focuses on program impacts measured as the difference in average outcomes at final follow-up between students and teachers randomly assigned to the SDPP group and those randomly assigned to the control group, adjusting for baseline characteristics. The impact estimates reported in this study should be interpreted as the difference in outcomes that resulted from exposure to SDPP. For example, an "X" percentage point favorable impact on school dropout indicates that, on average, the dropout rate under SDPP is "X" percentage points lower than it would have been under business-as-usual operations. In some places, to provide additional context we also present percentage increases or decreases in the primary outcomes across the treatment and control groups. These "percentage changes" should not be interpreted as the percentage "change" that might be calculated in a pre-post measure or baseline/endline change, but rather, the increase or decrease in the treatment group's outcome measure in relation to the control group at endline.

The discussion is organized by outcome domain, as follows: (1) teacher behavior and attitudinal outcomes, (2) student attitudes, (3) student engagement in school, and (4) school dropout. Impact findings for primary and additional measures of program effectiveness are presented with bar charts corresponding to the mean outcome level by random assignment group status. Differences that are statistically different than zero are indicated with asterisks.

Statistical significance

Estimates of the impact of the SDPP Program are based on differences in average outcomes for SDPP and control group students and teachers. In interpreting these estimates, it is important to evaluate whether they are sufficiently large that it is unlikely that the difference is due to chance (indicating that the SDPP Program did have an impact). With this in mind, statistical tests were conducted to assess whether each impact is significantly different than zero. Impacts estimates are described as *statistically significant* if there is less than a 5 percent probability that it is due to chance (and not to the SDPP Program). Impact estimates are described as marginally significant if the probability that it is due to chance (and not to the SDPP Program) is between 5 and 10 percent. In tables and figures, the statistically significant impacts at the 1 percent, 5 percent, and 10 percent levels are denoted with asterisks as ***, ** or *.

The chance (1%, 5% or 10%) that the reported findings are falsely reporting an impact increases as additional tests are conducted. Therefore, caution should be used when interpreting the meaning of our exploratory analyses of additional outcomes and subgroups because we do not correct for the total number of comparisons being made. Individual tests of these additional contrasts of program effects for other subgroups are provided as additional context for the main findings.

A. Impacts on teacher outcomes

Teachers can shape the attitudes and actions of students through their own actions. As shown in the theory of change (Figure III.A.1), a teacher's actions might represent the first level of change in reducing school dropout. SDPP worked directly with teachers to improve their knowledge and awareness of dropout, training them to identify at-risk students and to work with those students and their families to strengthen their attachment to school. Teachers were taught to use the EWS to improve their dropout prevention practices, and received training on how to better deal with students through the complementary enrichment program, which, in turn, should improve student attitudes and behaviors. Thus, changes in teacher actions can be early indicators of changes in student behaviors.

Teacher Outcomes

Primary measure of program effectiveness

- Teacher take-up of dropout prevention practices

Additional measures

- Teachers' sense of self-efficacy in dealing with dropout
- Teachers' sense of responsibility for addressing dropout
- Administrators' dropout prevention practices, self-efficacy and sense of responsibility

This section discusses the impacts of SDPP on teachers' knowledge, attitudes, and practices related to dropout.

1. Impact on teacher take-up of dropout prevention practices

The primary measure of SDPP's influence on teacher outcomes is the teacher dropout prevention scale. This scale combines responses to eight questions posed to homeroom teachers, who were the focus of the EWS intervention, and to teachers of math and language. The questions focus on teacher behavior that might help at-risk students succeed in school, such as whether the teacher records daily attendance and whether he or she takes action if the student is absent three days in a month. (See Appendix C for details on the creation of the scale.)

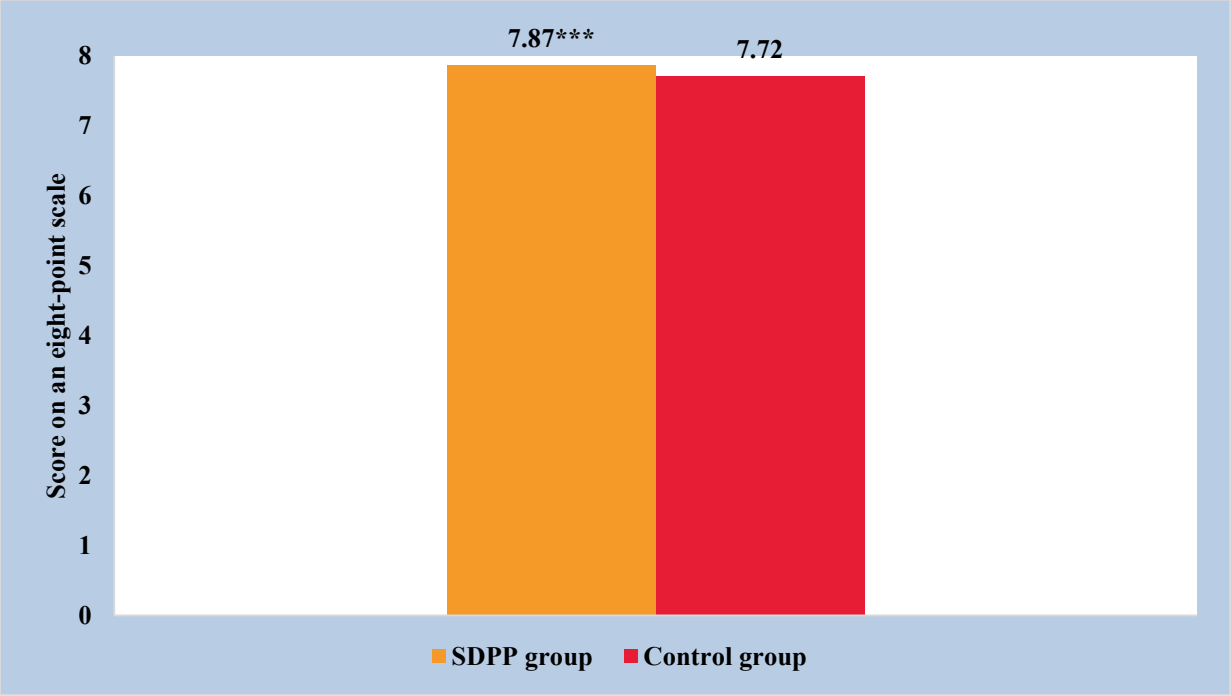
Teacher dropout prevention practices scale (primary measure)

Teachers responded to a questionnaire. Scoring is based on an 8-point scale corresponding to eight survey items that indicate whether the teacher has adopted dropout prevention practices. The items include:

- ✓ Recording daily attendance
- ✓ Taking action if the student is absent three days in a month
- ✓ Giving weak students feedback
- ✓ Discussing support for weak students with other teachers
- ✓ Developing plans to support weak students
- ✓ Communicating with parents of weak students
- ✓ Meeting with weak students
- ✓ Willingness to arrive early or stay late to help weak students

SDPP had a statistically significant impact on teachers' practices related to dropout prevention (Figure VI.A.1). SDPP and control group teachers both scored 7.87 and 7.72, respectively, on the 8-point dropout prevention scale.[40] Although both groups of teachers scored high, this represents a two percent improvement for the SDPP group relative to the control group.

Figure VI.A.1. SDPP Program impacts on teacher dropout prevention practices (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up teacher self-administered questionnaires and school records data collection, May 2012, May 2013, and September 2014.

Note: The analysis is based on 4th-, 5th-, and 6th-grade homeroom, math, and language teachers during SY 2013 and SY 2014. during SY 2013 and SY 2014. The sample includes 412 teachers for the SDPP group and 406 teachers for the control group.

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of teachers within schools and school-year and grade fixed effects. For a tabular presentation of these findings, see Appendix Table H.5.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

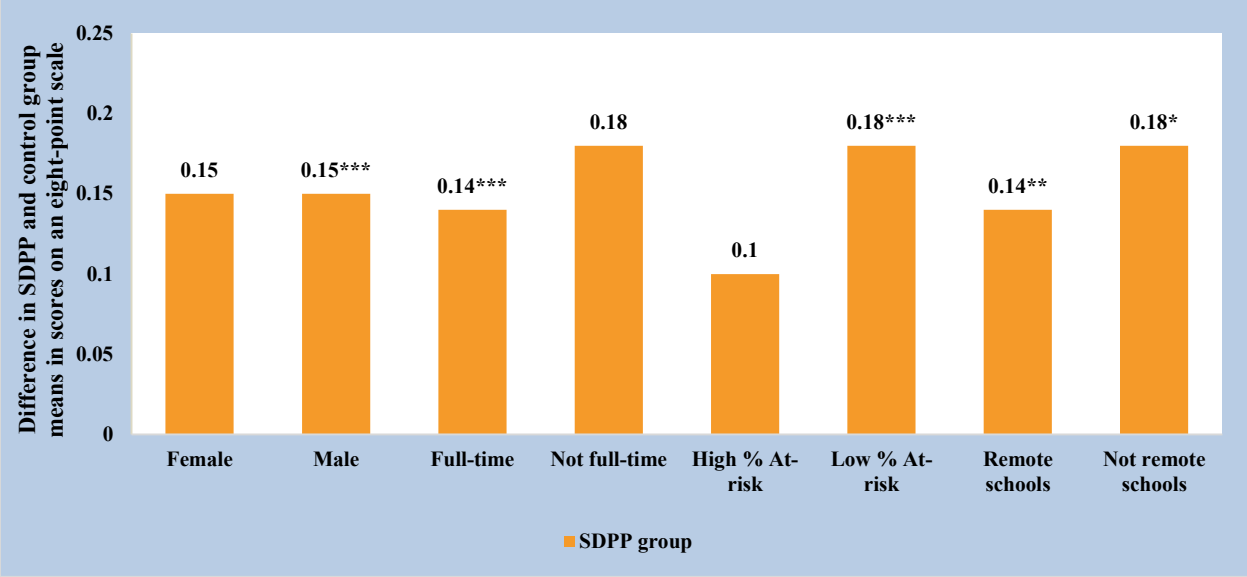
Although a higher percentage of SDPP group homeroom teachers remained homeroom teachers for the duration of the intervention (44 percent of SY2012 homeroom teachers remained homeroom teachers in SY 2014) than for control group homeroom teachers (32 percent of SY 2012 remained in SY 2014), the impact on teacher practices may have been greater had a larger percentage of SDPP benefitted from two full years of SDPP training and intervention implementation.

[40] Higher scores indicate better practices to prevent dropout.

SDPP also explored the effects of the program on additional subgroups that were not directly targeted by SDPP but are still of interest.[41] These comparisons provide useful context and can suggest pathways through which the program might be working.

SDPP examined impacts on the primary teacher outcome, the teacher dropout prevention practices scale, for four pairs of subgroups (Figure VI.A.2). In particular, SDPP assessed impacts separately by the teacher's gender, the percentage of at-risk students in the school, the remoteness of the school (a school is defined as "remote" is it is not accessible by all types of vehicles), and the teacher's full-time teaching status. Consistent with SDPP's main findings, the program's impacts on the teacher dropout prevention practices scale were statistically significant or marginally significant in the following subgroups: male teachers, teachers in schools with a low percentage of at-risk students, teachers in both remote and not remote schools, and full-time teachers. There were no statistically significant impacts on the teacher dropout prevention practices scale between these subgroups.[42]

Figure VI.A.2. SDPP Program impacts on teacher dropout prevention practices, by subgroup (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015; baseline and follow-up teacher self-administered questionnaires and school records data collection; May 2012, May 2013, and September 2014.

Note: The analysis is based on 4th-, 5th-, and 6th-grade homeroom, math, and language teachers during SY 2012, SY 2013, and SY 2014.

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of teachers within schools and school-year and grade fixed effects. Because these subgroup analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

[41] As described in Section III, because these analyses are exploratory, results were not adjusted for multiple comparisons, despite the large number of comparisons.

[42] Differences between impacts within each subgroup type were tested. Within each subgroup grouping, there were no differences in impacts between females and males, between full time and not full time employees, between teachers in schools with a high percentage of at-risk students and teachers in schools with a low percentage of at-risk students, and between teachers in remote schools compared to teacher not in remote schools on teacher dropout prevention practices.

Teachers Work to Prevent Dropout in Timor-Leste

A teacher who works to prevent dropout in Timor-Leste

Fernando dos Santos Gonsalves teaches fourth grade at Bazartete, a rural school in the Liquica district, high in the mountains of Timor-Leste. In the past, many of his students frequently missed school to help their parents work in the fields. But things have changed since his school has been a part of the Student Dropout Prevention Pilot Program (SDPP). As part of the program, the school personnel, families and community leaders have learned about the importance of staying in school.

Fernando and other teachers at his school have been taught to implement an Early Warning System (EWS) to track key indicators that signal a student is at risk of dropping out of school. Being absent from school is one of those warning signs. As part of the SDPP Program school personnel work with community leaders to increase awareness about school dropout and to strengthen the school and community partnership. One of the things they did to strengthen the partnership was to create "Stay in School" committees that reach out to students' families about their children's school attendance.

When one of his students, Domingo, was absent from school a second day in one week, Fernando followed the EWS steps he was taught. He notified the school director and together they asked a "Stay in School" committee volunteer to hand deliver a Parent Notification Card to Domingo's parents. During the visit the volunteer talked to his parents to find out why he was absent and remind them they needed to regularly send their son to school.

Fernando believes that the increased awareness teachers have to monitor attendance and work with the "Stay in School" committees has made a big difference. *"After the 'Stay in School' Community Group started working with the school, the local leaders held meetings, and really began to get people to think about the importance of keeping students in school."*

SDPP also worked with the school to make classrooms more inviting by working with teachers to provide individualized attention to at-risk students and use interactive student-centered teaching activities in their classrooms to make learning more interesting. Now, Domingo doesn't want to miss school. "*Last year I didn't like school because it wasn't exciting. But now I like school… there are many interesting activities."*

Fernando sees a difference not only in Domingo's behavior but in his attitudes toward school as well. *"Domingo used to be very quiet and shy. By making sure that he can join in all of the activities, his confidence has really grown. It has had a result on his grades too—especially in Tetum. And because we are making school more interesting and monitoring attendance we have gone from 30 Parent Notification Cards last year to only 2 cards this year.*"

2. Impact on additional teacher outcomes

Besides the primary measure of the program's effect on teachers' dropout-related practices, SDPP used two other scales to examine teachers' sense of self-efficacy and sense of responsibility for at-risk students. SDPP provides these findings here because they may be of interest and could help paint a more complete picture of teachers' experiences.[43]

a. Teacher sense of self-efficacy

An additional indicator of the SDPP Program's effectiveness in addressing dropout is influencing teachers' belief that they are capable of affecting factors associated with student dropout, such as poor behavior, disinterest in class, and absenteeism. This outcome is measured according to the teacher sense of self-efficacy scale, which SDPP adapted from Tschannen-Moran and Hoy (2001). The questions focus on teacher beliefs that they can help at-risk students succeed in school, such as whether the teacher thinks he or she can encourage students to value learning and provide assistance to families in helping their child succeed in school.

Responses to the questions about teachers' self-efficacy ranged from 1 (nothing) to 5 (a great deal) and were compiled into a scale in which higher values corresponded to a higher sense of self-efficacy.

Teacher sense of self-efficacy scale

Teachers were asked how much they can do to prevent or address the following 12 factors associated with dropout:

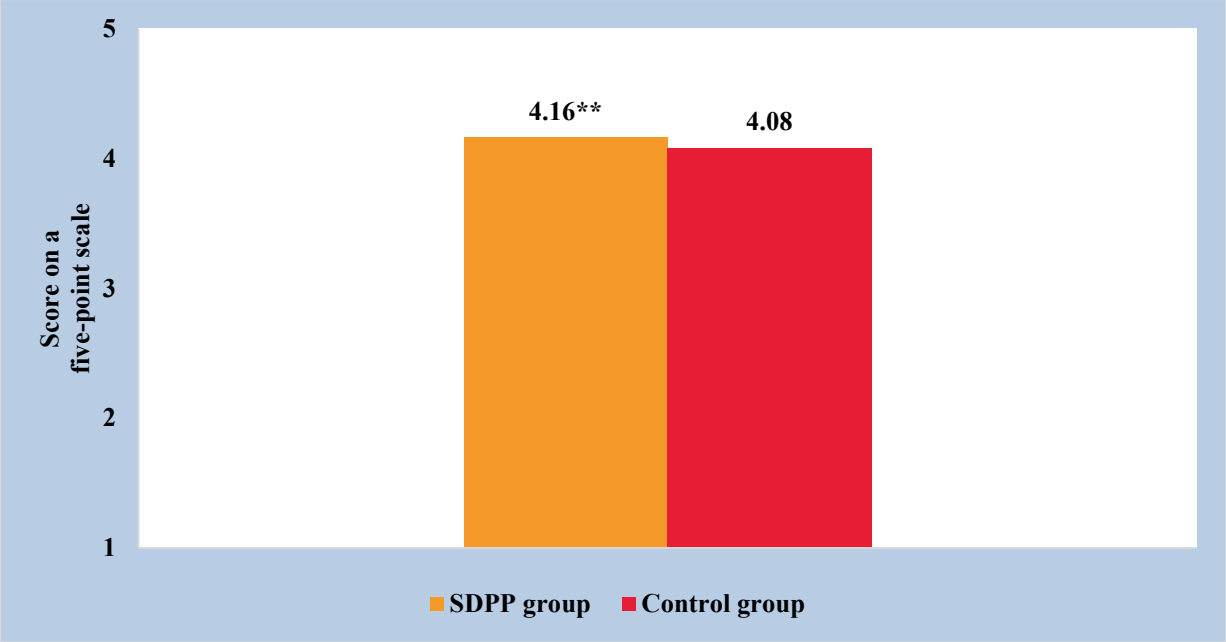
- ✓ Disruptive behavior in the classroom
- ✓ Motivation of students with low interest in school
- ✓ Encouragement of students to believe they are capable of succeeding in school
- ✓ Help students value learning
- ✓ Make lessons interesting for students
- ✓ Enforcing classroom rules
- ✓ Encouragement of active participation among students not engaged
- ✓ Identification of students needing extra support
- ✓ Student attendance
- ✓ Modification of teaching and learning activities to help weak or poorly performing students
- ✓ Assistance to families in helping their children do well in school
- ✓ Help for poor-performing students to do better in school

The SDPP Program had a statistically significant impact on teachers' sense of self-efficacy (Figure VI.A.3). Teachers in the SDPP group schools had an average score of 4.16 on the sense of self-efficacy scale, compared with 4.08 for teachers in the control group schools. This difference was statistically significant. This represents a two percent improvement for the SDPP group relative to the control group. This means that teachers in both SDPP and control schools felt they

[43] As described in Section III, because these analyses are exploratory, results were not adjusted for multiple comparisons, despite the large number of comparisons being made.

could do "quite a bit" to respond to factors associated with dropout, but teachers in SDPP schools felt they could do slightly more.

Figure VI.A.3. SDPP Program impact on teacher sense of self-efficacy (SY 2013 and SY 2014)



Source: SDPP baseline and follow-up teacher self-administered questionnaires and school records data collection, May 2012, May 2013, and September 2014.

Note: The analysis is based on 4th-, 5th-, and 6th-grade homeroom, math, and language teachers during SY 2013 and SY 2014.

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of teachers within schools and school-year and grade fixed effects. Because these are additional outcomes and the analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

b. Teacher sense of responsibility

In addition to teacher sense of self-efficacy scale, SDPP developed a scale to measure teachers' sense of responsibility for students at risk of dropping out. The questions in this scale focus on teachers' opinions about ways to prevent students from dropping out of school

Teacher sense of responsibility for at-risk students scale

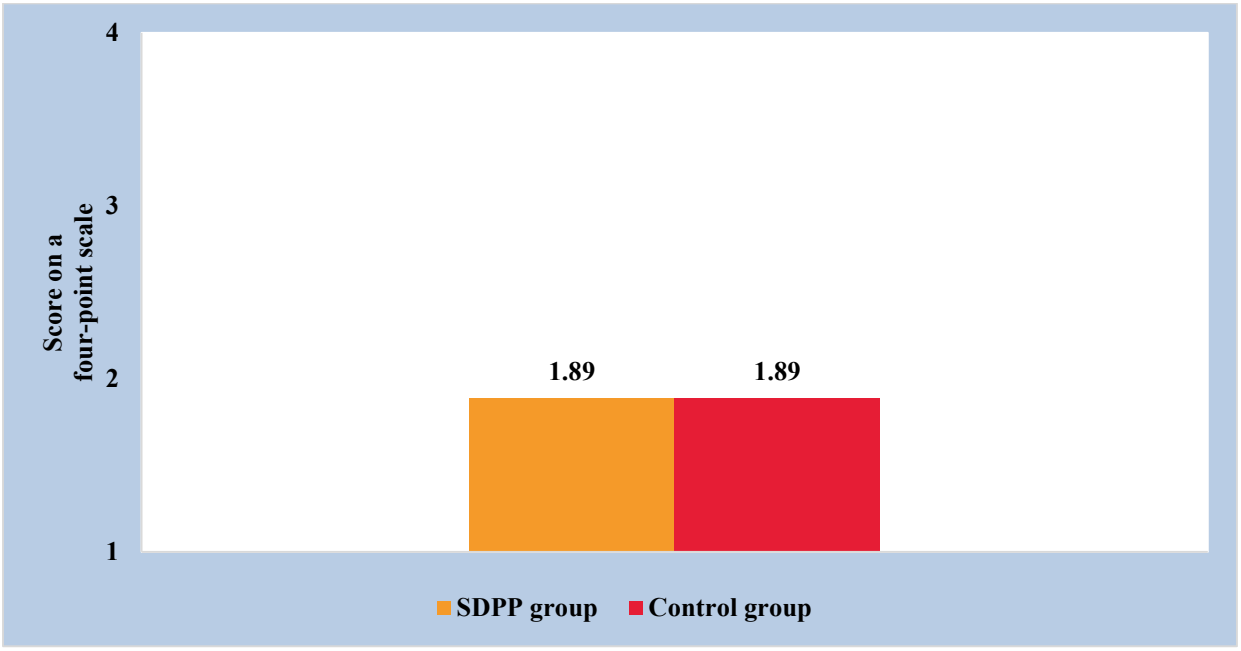
This scale is based on teacher agreement with five statements about at-risk students. The scale items are:

- ✓ Students at risk of dropping out of school should work harder.
- ✓ Little can be done by the teacher or school to help students at risk of dropping out.
- ✓ If a student is at risk of dropping out, it is mainly the fault of the parent/guardian or family.
- ✓ At-risk students face too many challenges to succeed in school.
- ✓ At-risk students need more help than teachers have time or resources to provide.

Responses for this scale ranged from 1 (strongly agree) to 4 (strongly disagree). The scale score is the mean of the five items. Higher values correspond to a higher sense of teacher responsibility for at-risk students.

Teachers in both research groups tended to have a low sense of responsibility for at-risk students (Figure VI.A.4). SDPP had no impact on teachers' sense of responsibility for at-risk students. The average score for teachers in the SDPP and control schools was 1.89 (out of 4), indicating that teachers tended to agree that they bore little responsibility for at-risk students. It is interesting to note that teachers feel they are able to greatly influence many of the factors associated with dropout (self-efficacy), but they do not feel particularly responsible for doing so, as shown by the sense of responsibility scale. SDPP presents findings for further additional teacher outcomes as well as for administrators in Appendix G.

Figure VI.A.4. SDPP Program impact on teacher sense of responsibility (SY 2013 and SY 2014)



Source: SDPP baseline and follow-up teacher self-administered questionnaires and school records data collection, May 2012, May 2013, and September 2014.

Note: The analysis is based on 4th-, 5th-, and 6th-grade homeroom, math, and language teachers during SY 2013 and SY 2014.

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of teachers within schools and school-year and grade fixed effects. Because these are additional outcomes and the analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

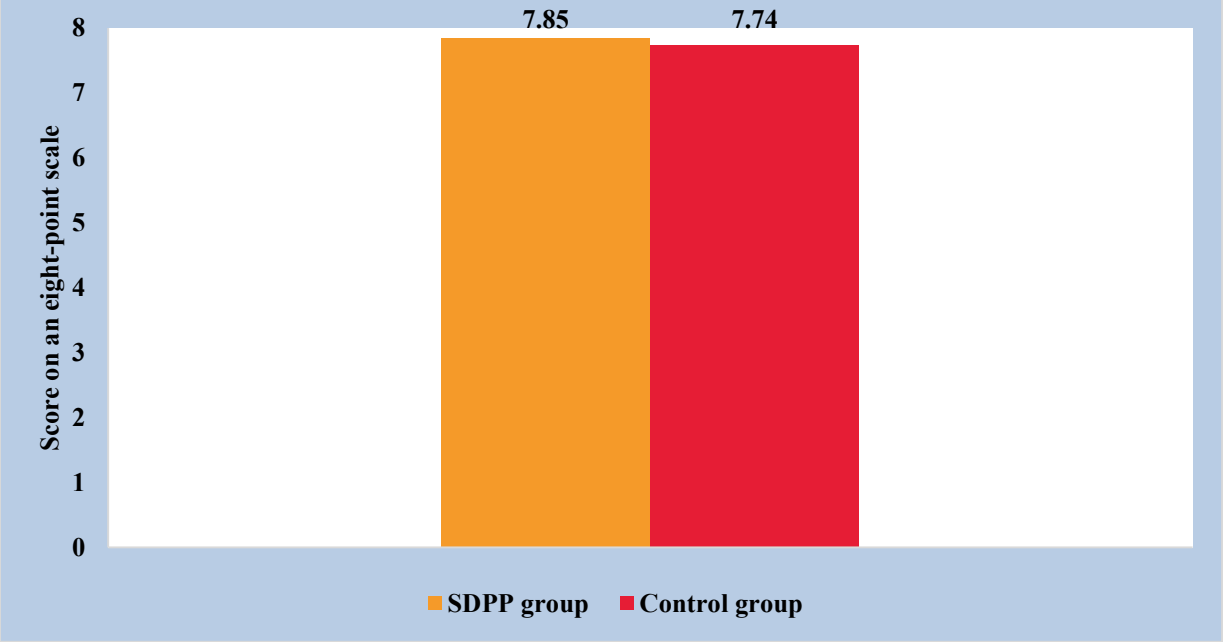
3. Impact on additional school administrator outcomes

Impacts were also estimated for school administrators' dropout-prevention practices, sense of self-efficacy, and sense of responsibility for at-risk students. Each of these outcomes was measured in the same way as the teacher outcomes.

a. Administrator dropout prevention practices

The SDPP Program did not have a statistically significant impact on administrators' dropout prevention practices in Tajikistan (7.85 versus 7.74) (Figure VI.A.5). The average score for both groups was quite high, which left little room for improvement. SDPP did appear to have a positive effect on school administrator knowledge about dropout. Administrators in SDPP schools identified an average of 41 percent of a list of 8 risk factors for school dropout, compared to control school administrators, who only identified an average of 33 percent of the risk factors. The difference between SDPP and control school administrators was significant.

Figure VI.A.5. SDPP's impact on administrators' dropout prevention practices scale (SY 2013 and SY 2014)



Source: SDPP baseline and follow-up teacher self-administered questionnaires and school records data collection, May 2012, May 2013, and September 2014.

Note: The analysis is based on administrators during SY 2013 and SY 2014. The sample includes 185 administrators for the SDPP group and 176 administrators for the control group.

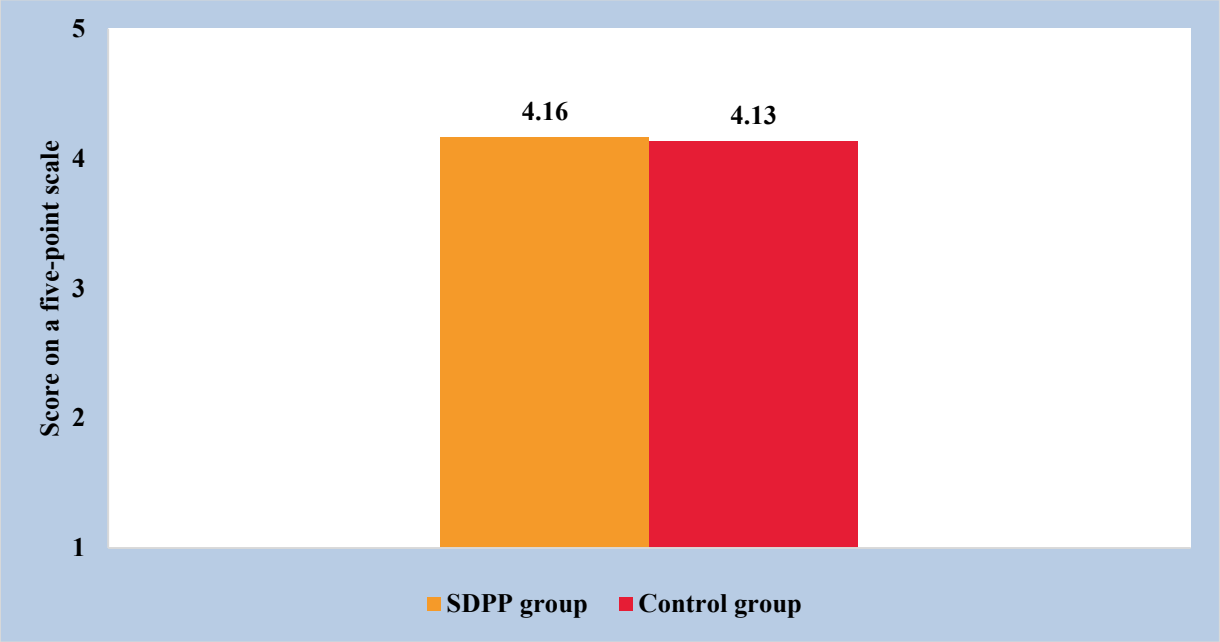
Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of administrators within schools and school-year and grade fixed effects. Because these are additional outcomes and the analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

b. Administrator sense of self-efficacy

Contrary to the findings for teachers' sense of self-efficacy, there was no statistically significant impact on administrators' sense of self-efficacy (Figure VI.A.6).

Figure VI.A.6. SDPP Program impact on administrators' sense of self-efficacy scale (SY 2013 and SY 2014)



Source: SDPP baseline and follow-up teacher self-administered questionnaires and school records data collection, May 2012, May 2013, and September 2014.

Note: The analysis is based on administrators during SY 2013 and SY 2014. The sample includes 185 administrators for the SDPP group and 176 administrators for the control group.

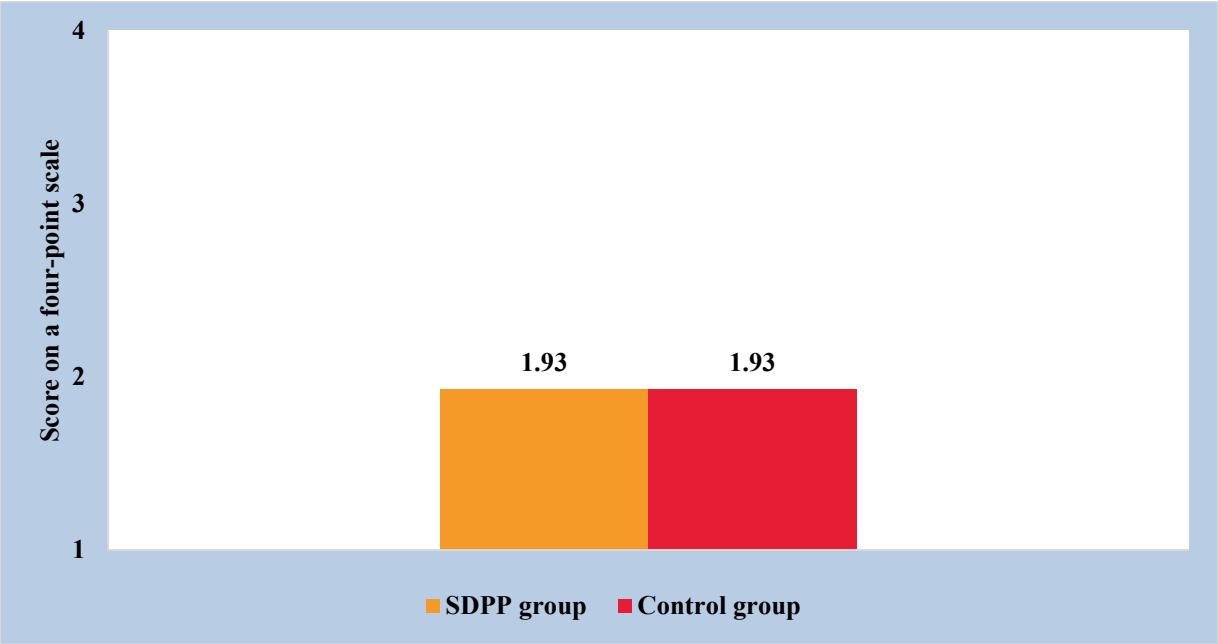
Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of administrators within schools and school-year and grade fixed effects. Because these are additional outcomes and the analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

c. Administrator sense of responsibility

Consistent the results for teachers, SDPP had no statistically significant impact on administrator sense of responsibility (Figure VI.A.7).

Figure VI.A.7. SDPP Program impact on administrators' sense of responsibility for at-risk students scale (SY 2013 and SY 2014)



Source: SDPP baseline and follow-up teacher self-administered questionnaires and school records data collection, May 2012, May 2013, and September 2014.

Note: The analysis is based on administrators during SY 2013 and SY 2014. The sample includes 185 administrators for the SDPP group and 176 administrators for the control group.

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of administrators within schools and school-year and grade fixed effects. Because these are additional outcomes and the analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

Teachers Adopt Dropout Prevention Habits

It's not easy to change teacher attitudes and behaviors. But when teachers see how important new approaches are, and when they learn strategies that help them improve, it can make a significant difference for students in their classrooms.

Julio Amaral, an SDPP Field Officer in Manatuto, Timor-Leste, has seen this kind of change. *"In the past, teachers did not understand the importance of regular school attendance, and students would miss school, or leave early whenever they felt like it. If a student's marks were not very good, the teachers were not particularly bothered. But with this program, teachers are now working hard to check on students' attendance on a daily basis. This means that teachers now understand the importance of daily attendance for their students."*

Teachers who recognize the importance of attendance have become a positive force for both their own students and their fellow teachers.

Teachers coached by SDPP field officers feel they can continue to use dropout prevention approaches on their own.

Julio continues: "*The change that I have noticed is that now our teachers interact with their students and pay attention to them. Therefore, they act as a good model for the students and other teachers to follow."* The teachers also realize they need to change what happens when the students do come to school – they need to make classrooms more inviting and learning more interesting.

These changes in teachers have had particular impact on Tadeo, a 4th grade student in School Maun Fahe. When Tadeo missed three days during the first trimester, his parents received a notification card. His teacher then met with his parents to identify ways to address his attendance issues and help him do better in school. Since the visit Tadeo has missed school only once, and his Tetum exam marks have risen from a 5 to a 7 out of 10.

Julio notes that teachers want to continue using the approaches they learned from SDPP because they realize these strategies are making a difference in their classroom. SDPP has helped to lay the groundwork for teachers to develop ideas on their own that support and guide students to do better and stay in school. Julio notes with satisfaction the positive changes he has seen in his visits to schools:

"Last week I visited the schools where I had worked with the teachers; they were still checking attendance and creating lively activities for students – even though I was not there to support them. This means that teachers are able to continue using dropout prevention approaches on their own in the future."

B. Impacts on at-risk students' attitudes toward school

The SDPP theory of change (Figure III.A.1) suggests that a change in teacher knowledge and practices could lead to a change in student attitudes toward school. Observed impacts in teacher dropout prevention practices, together with the EWS and ECA program, could translate to a change in student attitudes. SDPP captured these attitudes by surveying students whom the analysis identified—via the available baseline data as described in Section IV—as being at risk of dropout.

At-risk student attitude toward school outcomes

Primary measure of program effectiveness

- Emotional, cognitive, and behavioral attitudes toward school

Additional outcomes:

- Students' perceptions of teacher support
- Students' perceptions of parental support

This section presents findings on the impact of the SDPP Program on attitudes of at-risk students.

1. Impact on primary measures of student attitudes toward school

As described earlier, SDPP used three measures of student attitudes to determine the effectiveness of the program: emotional, cognitive, and behavioral attitudes toward school. [44]

The emotional attitudes toward school scale measures how a student feels toward school. The measure captures the percentage of responses to questions with which a student agreed. A higher percentage represents more positive attitudes towards school. (See Appendix D for details on the construction of the scales.)

Emotional attitudes toward school

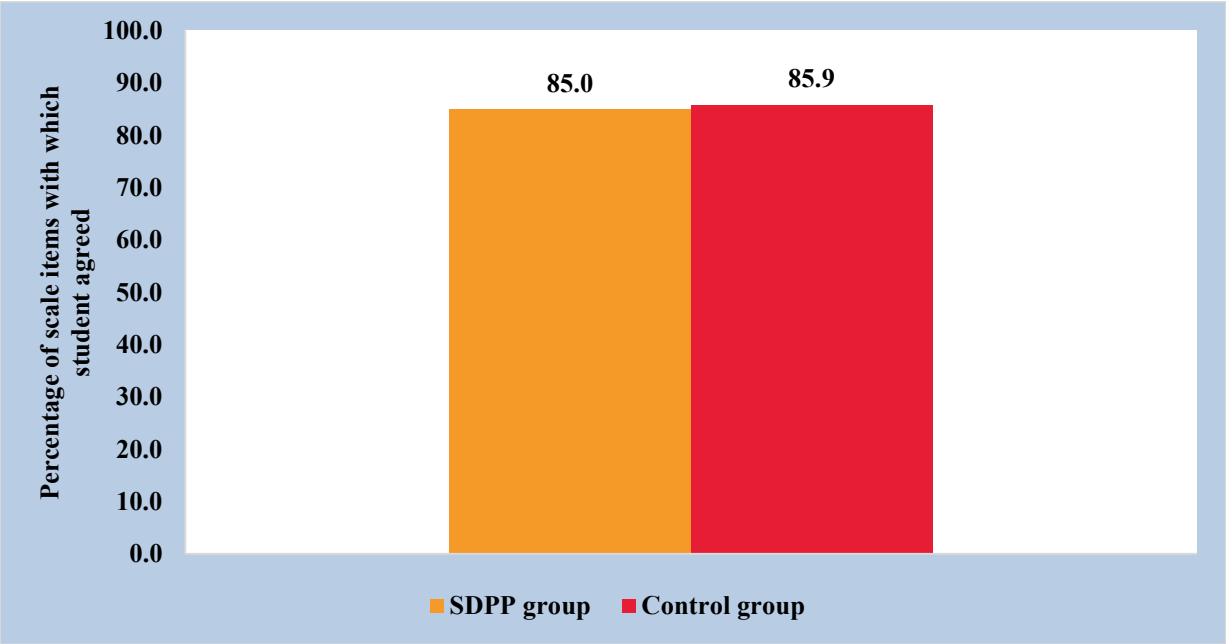
Students identified as being at risk of dropping out of school responded to a questionnaire. This scale is based on student responses to the following six survey items related to how students feel about school:

- ✓ School is a fun place to be.
- ✓ There are teachers I can talk to.
- ✓ I participate in school activities after school.
- ✓ I enjoy participating in class activities.
- ✓ I look forward to school.
- ✓ A tutoring program would help me with my studies.

There were no statistically significant impacts on emotional attitudes toward school; SDPP students agreed to 85.0 percent of the questions, compared with control students, who agreed with 85.9 and percent of the questions (Figure VI.B.1).

[44] SDPP constructed the three measures of student attitudes from responses to a survey administered to multiple cohorts of students identified as at risk based on their pre-intervention characteristics. The survey was developed through developing and testing new questions and adapting existing student engagement, cognitive and behavioral attitudes surveys (see Fredericks, Jennifer A., Phyllis Blumenfeld, Jeanne Friedel, and Alison Paris, 2005; and Finlay, Krystina A. 2006.). For more details on the survey, see Appendix A.

Figure VI.B.1. SDPP Program impacts on at-risk students' emotional attitudes toward school (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015; baseline and follow-up student surveys, May 2013 and September 2014.

Note: The analysis is based on SY 2012 4th- and 5th-grade at-risk students, and SY 2013 and 2014 4th-grade at-risk students. The sample includes 3,226 at-risk students for the SDPP group and 3,006 at-risk students for the control group.

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. Impacts were adjusted for multiple comparisons using the Benjamini-Hochberg method. For a tabular presentation of these findings, see Appendix Table H.5.

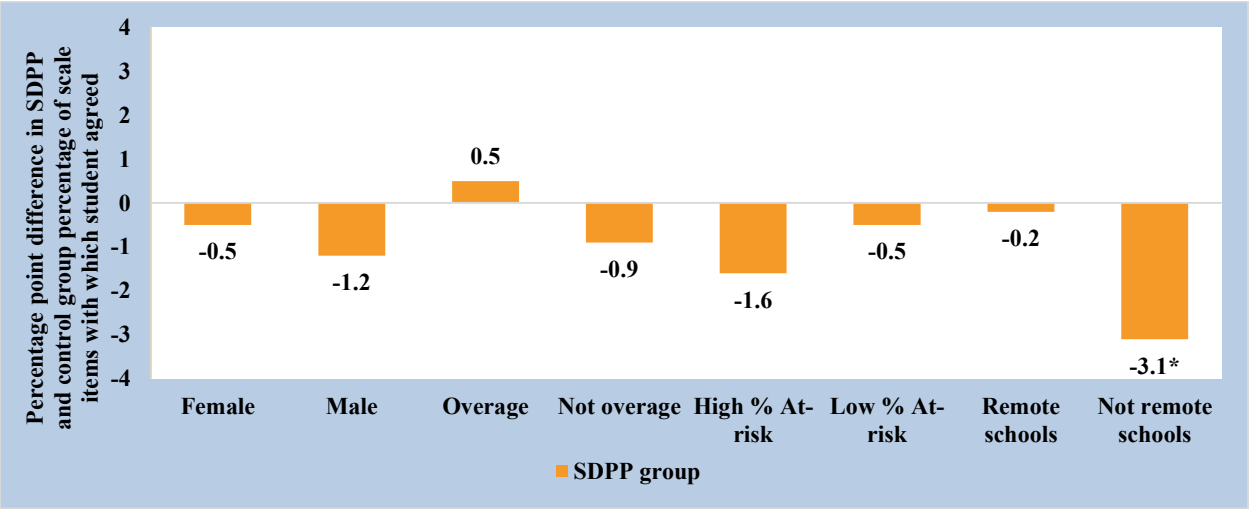
***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

SDPP targeted students who were at risk of school dropout. However, there are additional subgroups of students for whom the understanding the effects of SDPP on student attitudes would provide useful further context in understanding the intervention and the potential pathways through which it has effects. Here, SDPP explores the impacts of the program on the attitudes of at-risk students using additional subgroups of interest (Figure VI.B.2).[45]

Consistent with SDPP's main findings, the program's impacts on emotional attitudes toward school were not statistically significant for several subgroups. The impact on at-risk students in schools that are not remote was marginally significant.

[45] As described in Section III, because these analyses are exploratory, result were not adjusted for multiple comparisons, despite the large number of comparisons.

Figure VI.B.2. SDPP Program impacts on students' emotional attitudes toward school, by subgroup



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015; baseline and follow-up student surveys, May 2013 and September 2014.

Note: The analysis is based on SY 2012 4th and 5th grade at-risk students, and SY 2013 and 2014 4th grade at-risk students. Sample sizes are 2,865 (female) and 3,367 (male), 598 (overage) and 5,198 (not overage), 2,223 (schools with high percentage of at-risk students) and 4,009 (schools with low percentage of at-risk students), and 1,339 (not remote schools) and 4,893 (remote schools).

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. Because these subgroup analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons. There were no statistically significant differences between subgroup impact estimates.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

The cognitive attitudes toward school scale measures how a student thinks about school and school work. The measure captures the percentage of responses to questions with which a student agreed. A higher score represents more positive attitudes toward school.

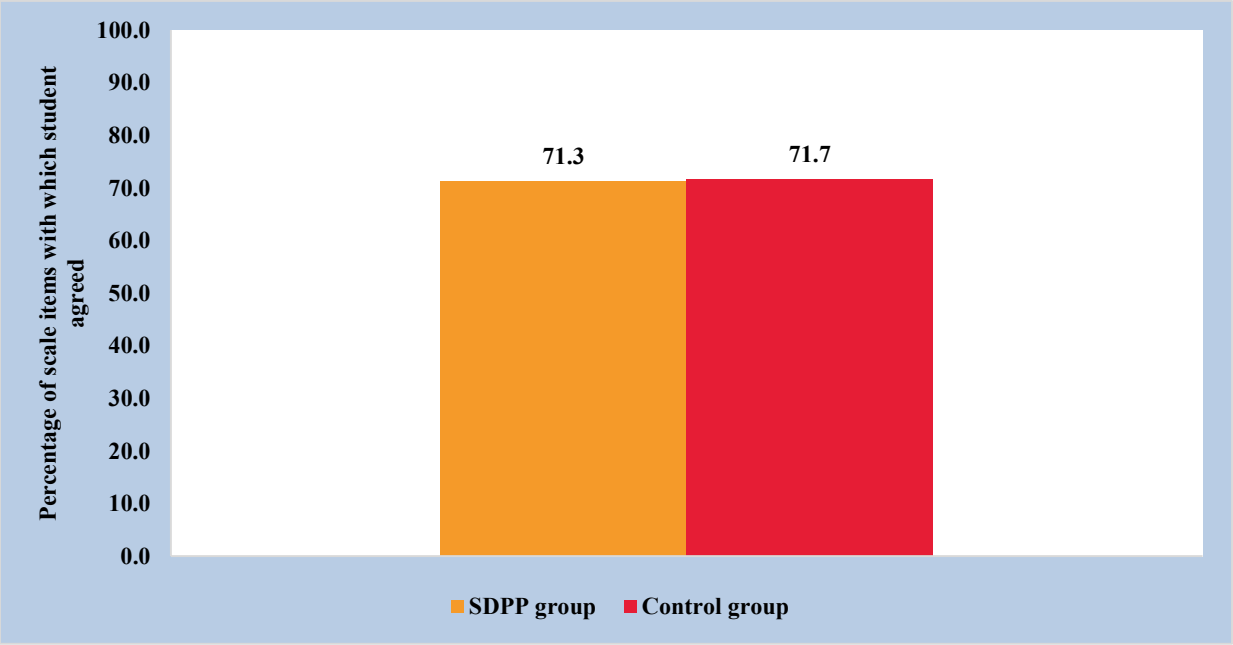
Cognitive attitudes toward school

Students identified as being at risk of dropping out of school responded to a questionnaire. This scale is based on student responses to the following nine survey items related to how students think about school:

- ✓ I will complete the grade I'm in.
- ✓ Completing the grade will be useful to my family and me.
- ✓ Missing school affects my performance in school.
- ✓ Doing homework helps me do well in school.
- ✓ I am interested in the work I get to do in my classes.
- ✓ I check my school work for mistakes.
- ✓ I need extra help with my studies or homework.
- ✓ I have difficulty paying attention in school.
- ✓ I try to do my best at school, even if it is not perfect.

There were no impacts on cognitive attitudes toward school; SDPP students agreed with 71.3 percent of the questions, compared with control students who agreed with 71.7 percent of the questions (Figure VI.B.3).

Figure VI.B.3. SDPP Program impacts on at-risk students' cognitive attitudes toward school (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015; baseline and follow-up student surveys, May 2013 and September 2014.

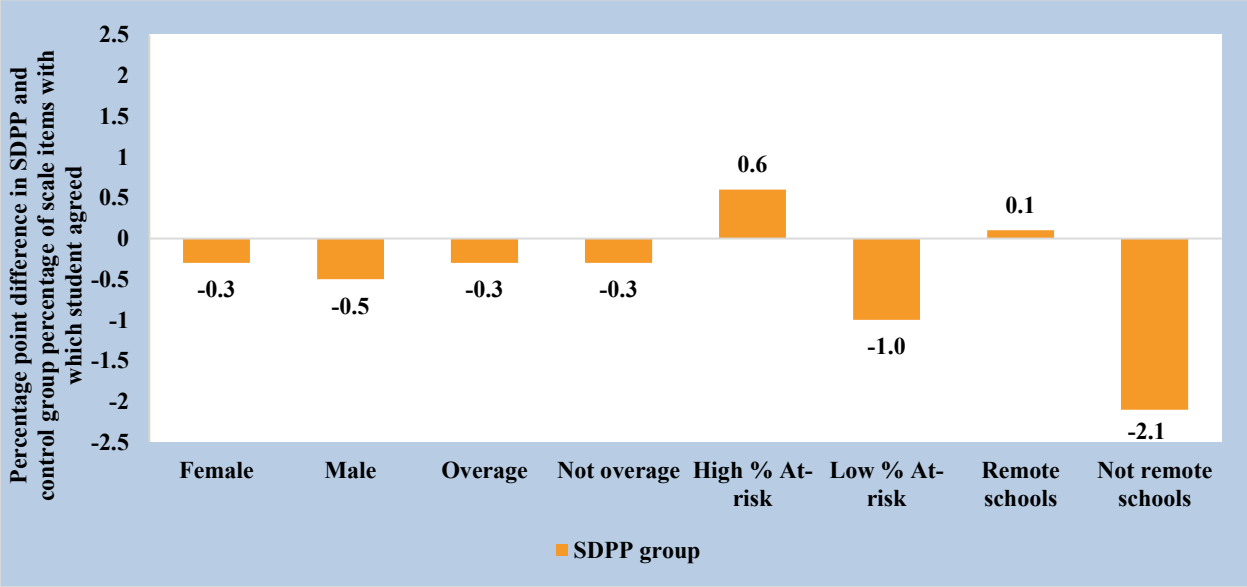
Note: The analysis is based on SY 2012 4th- and 5th-grade at-risk students, and SY 2013 and 2014 4th-grade at-risk students. The sample includes 3,226 at-risk students for the SDPP group and 3,006 at-risk students for the control group.

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. Impacts were adjusted for multiple comparisons using the Benjamini-Hochberg method. For a tabular presentation of these findings, see Appendix Table H.5.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

As with emotional attitudes toward school, we explore the impacts of SDPP on the cognitive attitudes of at-risk students using additional subgroups of interest. **Consistent with our main findings, there were no statistically significant impacts for any subgroup on cognitive attitudes toward school (Figure VI.B.4).**

Figure VI.B.4. SDPP Program impacts on students' cognitive attitudes toward school, by subgroup (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015; baseline and follow-up student surveys, May 2013 and September 2014.

Note: The analysis is based on SY 2012 4th and 5th grade at-risk students, and SY 2013 and 2014 4th grade at-risk students. Sample sizes are 2,865 (female) and 3,367 (male), 598 (overage) and 5,198 (not overage), 2,223 (schools with high percentage of at-risk students) and 4,009 (schools with low percentage of at-risk students), and 1,339 (not remote schools) and 4,893 (remote schools).

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools, and cohort fixed effects. Because these subgroup analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons. There were no statistically significant differences between subgroup impact estimates.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

The behavioral attitudes toward school scale measures how a student reports behaving in relation to school activities. The measure captures the percentage of responses to questions comprising the scale with which a student agreed. A higher score represents more positive attitudes toward school.

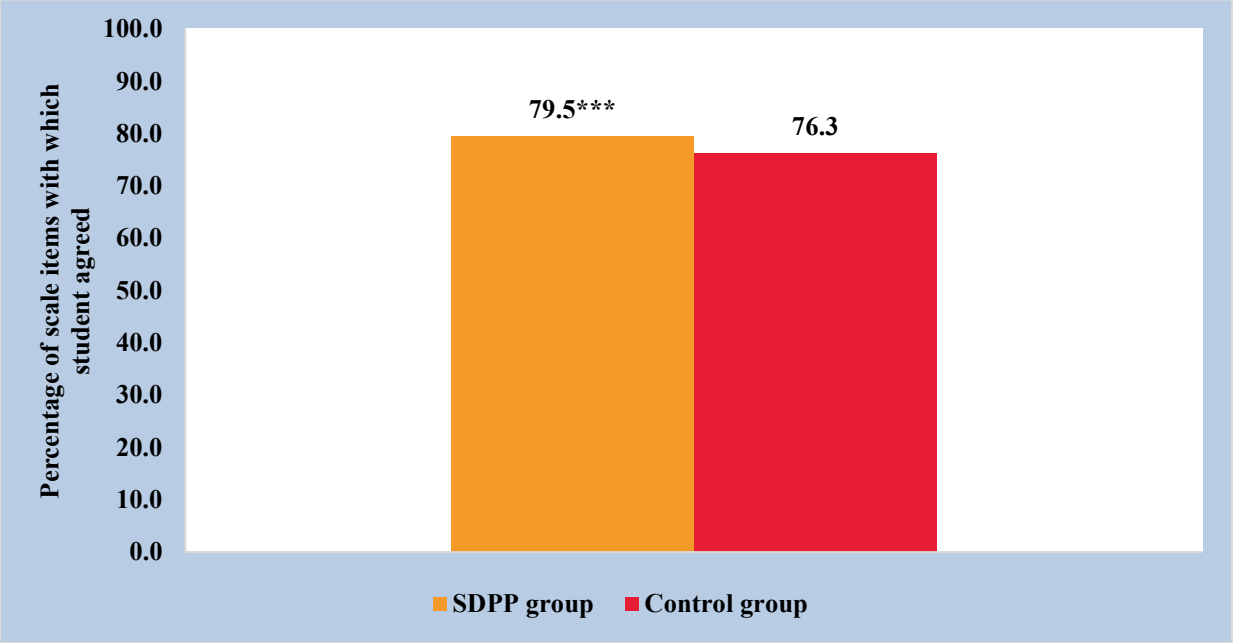
Behavioral attitudes toward school

Students identified as being at risk of dropping out of school responded to a questionnaire. This scale is based on student responses to the following 10 survey items related to how students act at school:

- ✓ I have thought about dropping out.
- ✓ I attend school regularly.
- ✓ I reach school on time.
- ✓ I stay home from school even if I am not sick.
- ✓ I skip classes during school.
- ✓ I skip school or miss classes without telling my parents.
- ✓ I do the homework assigned to me.
- ✓ I follow the rules at school.
- ✓ I get in trouble at school.
- ✓ I have difficulty getting along with other students.

There was a statistically significant impact on behavioral attitudes toward school (Figure VI.B.5). At-risk students in SDPP schools agreed with 79.5 percent of the questions, compared with control school students, who agreed with 76.3 percent. This represents a 4.2 percent improvement for the SDPP group relative to the control group.

Figure VI.B.5. SDPP Program impacts on at-risk students' behavioral attitudes toward school (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015; baseline and follow-up student surveys, May 2013 and September 2014.

Note: The analysis is based on SY 2012 4th- and 5th-grade at-risk students, and SY 2013 and 2014 4th-grade at-risk students. The sample includes 3,226 at-risk students for the SDPP group and 3,006 at-risk students for the control group.

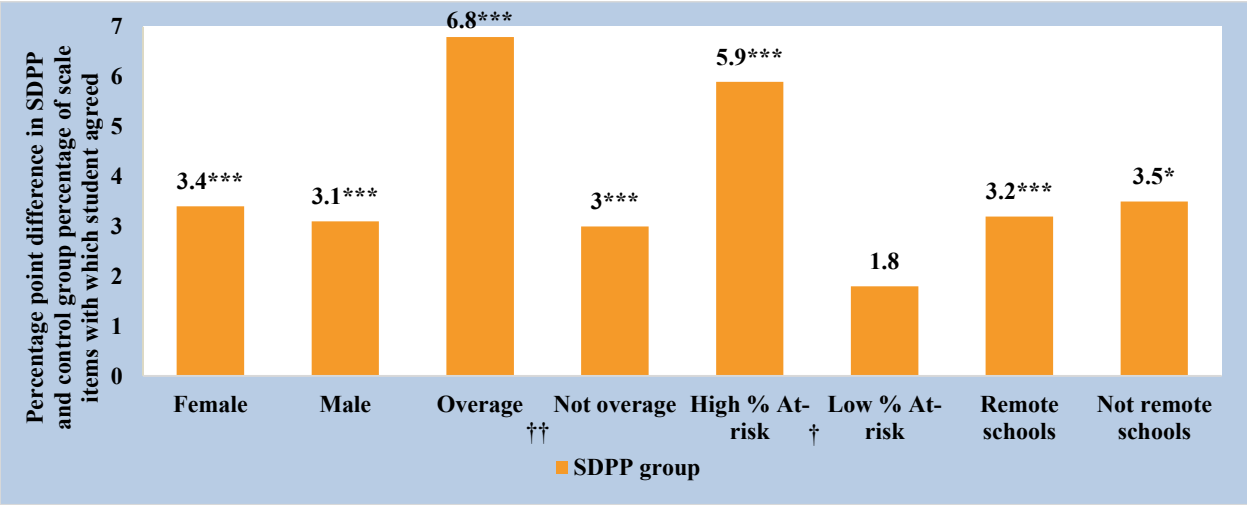
Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. Impacts were adjusted for multiple comparisons using the Benjamini-Hochberg method. For a tabular presentation of these findings, see Appendix Table H.5.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

Consistent with estimates overall, the SDPP Program impact on behavioral attitudes toward school was statistically significant for several subgroups (Figure VI.B.6). The only subgroup that did not have a statistically significant or marginally significant impact was for at-risk students in schools with a low percentage of at-risk students.[46]

[46] Differences between impacts for each subgroup were tested. There was a statistically significant difference between the impact estimates for over-age and not over-age students and between the impact estimates for students in schools with a high percentage of at-risk students and students in schools with a low percentage of at-risk students.

Figure VI.B.6. SDPP Program impacts on students' behavioral attitudes toward school, by subgroup (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015; baseline and follow-up student surveys, May 2013 and September 2014.

Note: The analysis is based on SY 2012 4th and 5th grade at-risk students, and SY 2013 and 2014 4th grade at-risk students. Sample sizes are 2,865 (female) and 3,367 (male), 598 (overage) and 5,198 (not overage), 2,223 (schools with high percentage of at-risk students) and 4,009 (schools with low percentage of at-risk students), and 1,339 (schools below median distance to district capital) and 4,893 (schools at or above median distance to district capital).

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. Because these subgroup analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

†††/††/† Statistically significant difference between the subgroup impact estimates at the .01/.05/.10 level

Changed Behavior Puts Nelson on the "Fast Track" to Grade 7

Nelson, a Grade 6 student in Timor-Leste, didn't like school and he didn't mind letting people know it. He was frequently absent and failed to do his homework; even if he did do it he didn't turn it in. He acted up in class. These were warning signs that he was on the precipitous track to drop out of school. However, his teacher, Honório Pinto, decided he would take aggressive action to derail Nelson from that track and turn those behaviors around. Pinto had received training on an Early Warning System (EWS) as part of the School Dropout Prevention Pilot (SDPP) Program. The EWS showed Honório how to identify at-risk students like Nelson; it also taught him actions he could take to lower the risk of students dropping out of school.

The first step Honório took was making the classroom more inviting for Nelson. He also contacted Nelson's mother to let her know about Nelson's worrisome behaviors and invited her to discuss what to do to keep Nelson in school. She explained, "*Sometimes Nelson doesn't go to school for up to a month. As the oldest son he helps his father on the farm and tends the cattle. There is no one else at home to do this. I've received the cards informing me of Nelson's absences."* Despite receiving the warning cards, she didn't know what to do.

Students in Timor-Leste improved their behavioral engagement in school – coming to school, being punctual, doing homework, and following rules.

Nelson's mother came to the school after she received the warning card. Nelson's teacher and the school director explained the long-term impact of dropping out of school and how bad it would be for Nelson, the family and their community. They discussed his high number of absences and what could be done to improve his attendance. His mother left the meeting determined to make sure Nelson went to school every day. *"Now as his mother, I send him to school every morning."* Nelson also agreed to make sure he did his homework and focus on what he was being taught.

It didn't take long for his teacher Honório to see a change. *"Comparing now to before, there is a big difference in Nelson's attendance. Before he would miss up to three days of school in a week, but recently he hasn't missed at all."* Honório also noted the change in homework, *"Nelson is now more active in school because of the support the SDPP Program provides to motivate students and the use of the early warning card."*

Nelson's teacher, school director and his family took actions based on EWS steps, which produced positive results. His behavior changed, he worked hard and at the end of the year he proudly reported that he passed his exams and would continue to Grade 7.

2. Impact on additional measures of student attitudes toward school

In addition to measuring impacts on the three primary student attitudes described above, SDPP also assessed the program's impacts on two other attitudinal outcomes for at-risk students: their perceptions about teachers' and parents' support of their success in school.[47] These scales were also based on responses to the at-risk student survey, and higher scores on these scales represent more positive student perceptions of the support they receive from teachers and parents.[48]

Student perceptions of teacher support

Students identified as being at risk of dropping out of school responded to a questionnaire. This scale is based on student responses to the following 11 survey items related to how students perceive the support provided by their teachers:

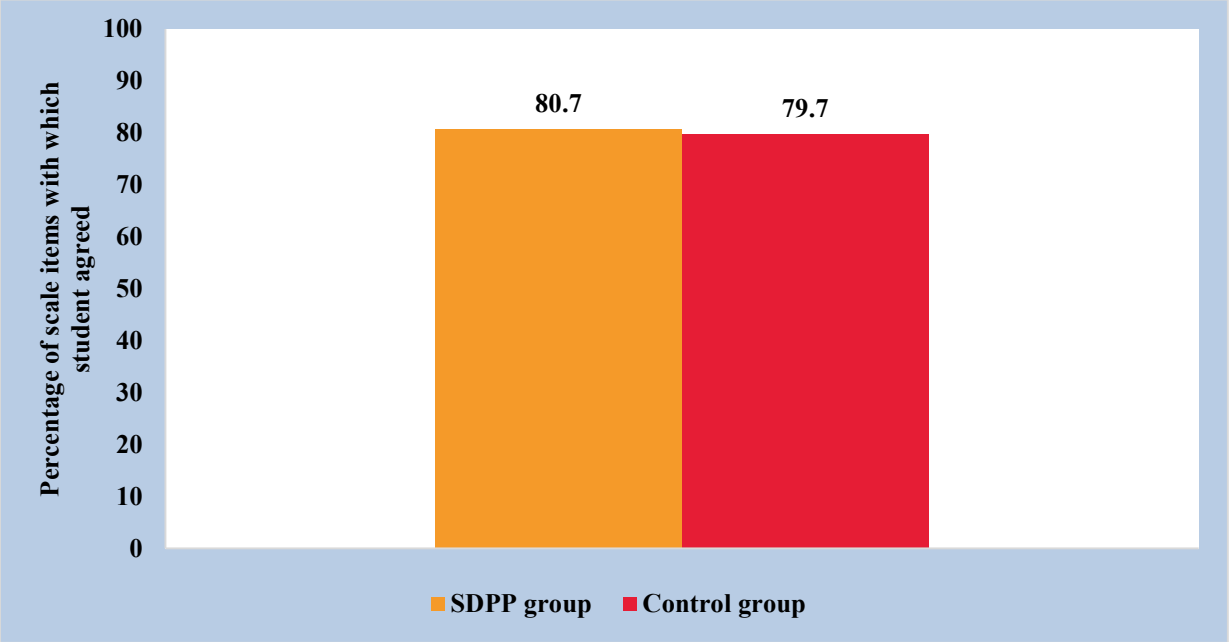
- ✓ I have had difficulty getting along with my teacher(s).
- ✓ My teacher(s) cares about how I'm doing.
- ✓ My teacher(s) talks to me about how I did on my homework and/or exams.
- ✓ My teacher(s) helps me if I am having problems with a lesson.
- ✓ I feel comfortable asking my teacher(s) for help with my lessons.
- ✓ My teacher(s) talks to me if I miss school or class.
- ✓ My teacher(s) thinks I am capable of completing my current grade.
- ✓ My teacher(s) has talked to me about my future plans.
- ✓ My teacher(s) has contacted my parents about my school work.
- ✓ My teacher(s) has contacted my parents about my attendance.
- ✓ My teacher(s) and my classmates encourage me not to drop out.

SDPP found no impact on student perceptions of teacher support (Figure VI.B.7). Students from SDPP agreed to 80.7 percent of the questions on their perceptions of teacher support, and students from control schools agreed to 79.7 percent of questions.

[47] As described in Section III, because these analyses are exploratory, results were not adjusted for multiple comparisons, despite the large number of comparisons.

[48] Appendix D describes the construction of these measures.

Figure VI.B.7. SDPP Program impact on students' perceptions of teacher support (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015; baseline and follow-up student surveys, May 2013 and September 2014.

Note: The analysis is based on SY 2012 4th and 5th grade at-risk students, and SY 2013 and 2014 4th grade at-risk students.

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. Because these are additional outcomes and the analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

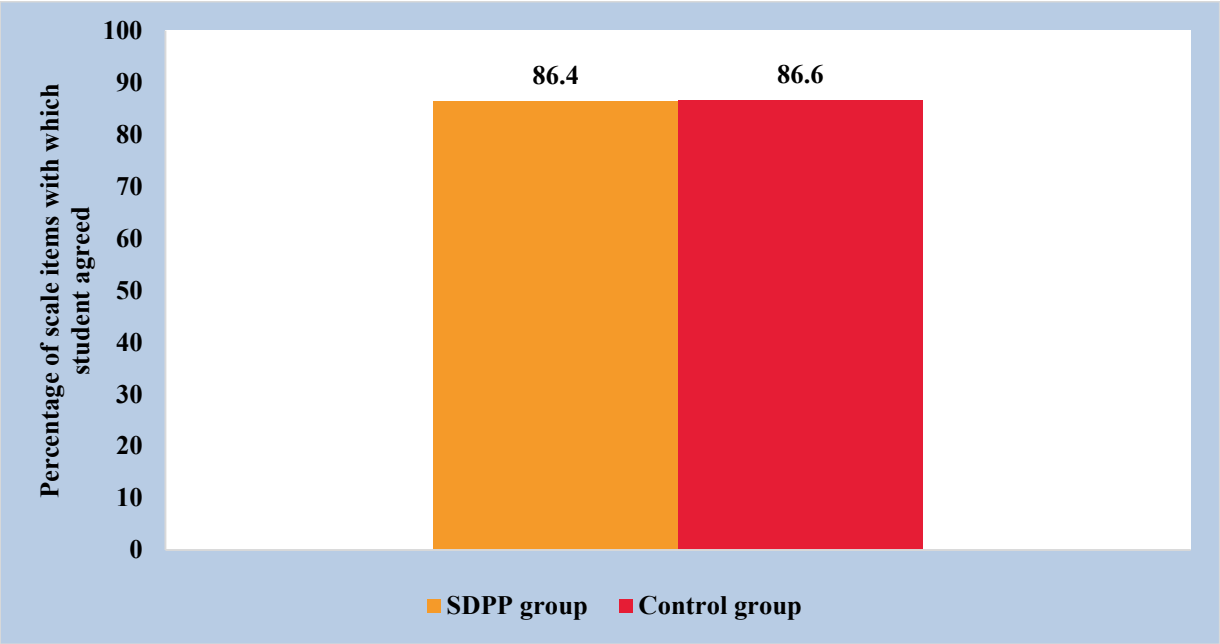
Student perceptions of parental support

Students identified as being at risk of dropping out of school responded to a questionnaire. This scale is based on student responses to the following 10 survey items related to how students perceive the support provided by their parents:

- ✓ My parents know when I have not completed my homework and assignments.
- ✓ My parents have talked with my teacher about my exam scores or absences.
- ✓ My parents have talked with my teacher about my attendance.
- ✓ My parents make sure I go to school every day.
- ✓ It is important to my parents that I do well in school.
- ✓ My parents attend school events.
- ✓ My parents talk to me about improving my grades.
- ✓ My parents try to support me with my studies.
- ✓ My parents free up my time for schoolwork.
- ✓ My parents want me to complete my current grade.

SDPP found no impact on student perceptions of parent support (Figure VI.B.8). Students from SDPP schools agreed to 86.4 percent of the questions on their perceptions of parental support, compared to students in control schools who agreed to 86.6 percent.

Figure VI.B.8. SDPP Program impact on students' perceptions of parental support (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015; baseline and follow-up student surveys, May 2013 and September 2014.

Note: The analysis is based on SY 2012 4th and 5th grade at-risk students, and SY 2013 and 2014 4th grade at-risk students. Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. Because these are additional outcomes and the analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

C. Impacts on student engagement in school

Student engagement in school outcomes

Primary measure of program effectiveness

- Daily attendance

Additional measures

- Student performance in school
- Student behavior in school

The SDPP theory of change suggests that an improvement in student attitudes toward school will result in an improvement in their engagement in school. SDPP used three outcomes to measure student engagement in school: attendance, academic performance, and behavior. For both categories, SDPP used school records to construct the outcome measures. Because the SDPP Program was intended to improve student attendance, it is the primary measure of its effectiveness in this domain.

This section presents findings on the impact of SDPP on student engagement in school.

1. Impact on student's daily attendance in school

Because SDPP was intended to improve student attendance, it is the primary measure used to determine SDPP's effectiveness in this domain. Students at risk of dropping out may miss excessive amounts of school, causing them to do poorly on their school work and fall behind in

their studies, discouraging and alienating them from their studies, school and classmates. SDPP estimated impacts on attendance for all students as well as for students identified as at risk of dropout based on their baseline characteristics.

Student attendance

The attendance measure is average daily attendance for the full school year. The daily attendance rate is the percentage of school days a student attended during the school year, constructed by averaging the monthly percentages for the most recent school year.

SDPP had a statistically significant impact on attendance for the students exposed to the program (Figure VI.C.1). Students in SDPP schools had an average daily attendance rate of 82.0 percent, compared with 80.3 percent for students in control schools, a 2.1 percent change improvement in attendance for the treatment group as compared to the control group.[49] This improvement in engagement with school is the next level in the theory of change, following the improvement in students' behavioral attitudes.

The difference in attendance rates for students at risk of dropout in SDPP and control schools was statistically significant .The average daily attendance for at-risk students in SDPP schools was 78.9 percent versus 76.6 percent for those in control schools, a three percent change improvement in attendance for the treatment group as compared to the control group. In contrast, average attendance rates differed for students not at risk of dropout in SDPP schools (84.3 percent) compared to control schools (82.9 percent), but this difference was not statistically significant. Appendix E presents findings based on alternative measures of attendance.

Improved Attendance: What does this mean?

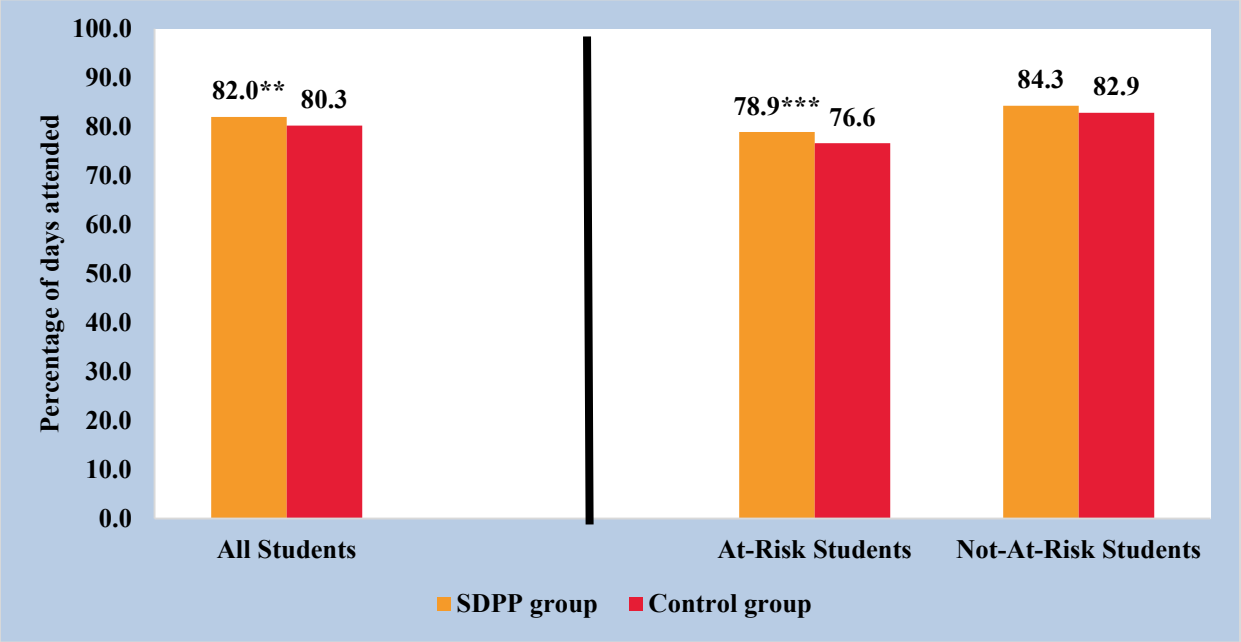
Positive impacts on attendance mean that students were in school and able to receive instruction more often than they would have without SDPP. Impacts on attendance can be translated into the number of additional school days attended by all students who received the SDPP Program.

In Timor-Leste, schools are open for 240 days, on average, during a school year. A student typically misses around 19 days of school per school year. Overall, a student who participated in SDPP attended four additional days at school compared to a student who did not participate in SDPP. Given that 14,000 students were exposed to the intervention in the SDPP schools, the number of additional school days attended is up to 56,000 in Timor-Leste.

Among at-risk students, the number of additional school days attended is up to 33,000 in Timor-Leste.

[49] This translates to an additional school days attended of up to 77,000 in Timor-Leste. This gross calculation uses rounded numbers and assumes that impacts would be similar for all students in the target grades and schools. Under alternate assumptions these numbers could vary.

Figure VI.C.1. SDPP Program impact on daily attendance, overall and by at-risk status (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015.

Note: The analysis is based on SY 2012 4th- and 5th-grade students, and SY 2013 and 2014 4th-grade students. The sample includes 13,645 students for the SDPP group (5,884 at risk and 6,233 not at risk) and 13,702 students for the control group (5,724 at risk and 6,681 not at risk).

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. For a tabular presentation of these findings, see Appendix Table H.5.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

The SDPP Program was not designed to have different impacts for different subgroups of students (other than students at-risk of dropout); however, the literature suggests that outcomes and impacts might vary for different types of students. Impacts of the SDPP Program on attendance were present in several subgroups (Figure VI.C.2).[50]

Attendance Data

SDPP collected aggregate attendance data via headcounts during each data collection effort during mid-morning. These values were similar in SDPP and control schools.

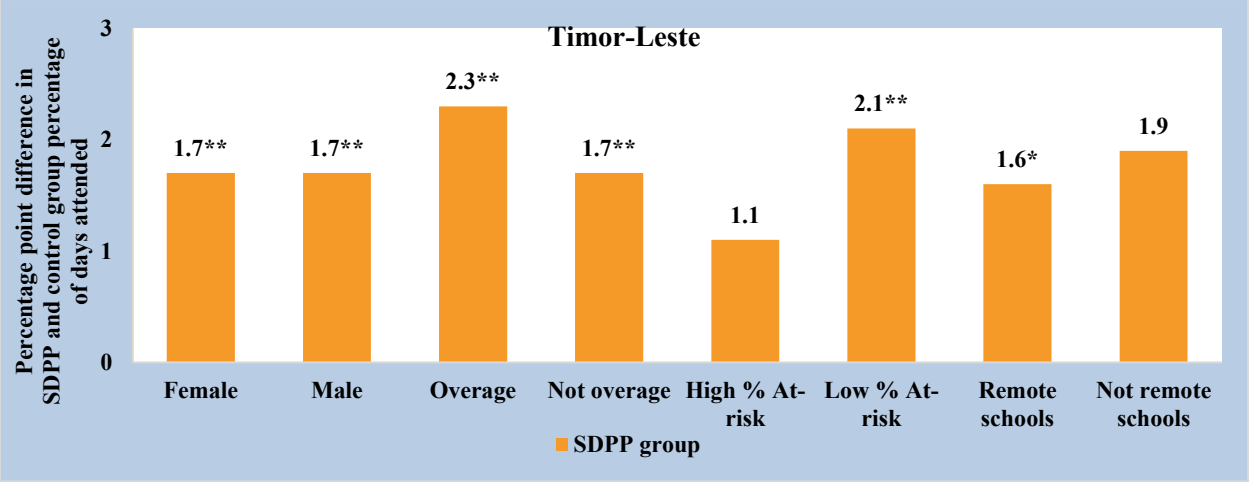
The attendance rate from this data was then compared to attendance measures derived from student- level data from school records. The attendance rate based on the headcount was very similar to the rate determined through school records in both research groups.

Consistent with SDPP's main findings, the program had positive impacts on attendance which were statistically significant for students in several subgroups. These included females, males, students either at or above the appropriate age for their grade, and students from schools with a

[50] As described in Section III, because these analyses are exploratory, the results were not adjusted for multiple comparisons, despite the large number of comparisons.

low percentage of at-risk students. The impacts were marginally significant for students from schools that are remote.

Figure VI.C.2. SDPP Program impacts on daily attendance for students overall, by subgroup



Sources: SDPP baseline and follow-up school records data collection; May 2012, May 2013, March 2014, September 2014, and January 2015.

Note: The analysis is based on SY 2012 4th- and 5th-grade students, and SY 2013 and 2014 4th-grade students.

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. Because these subgroup analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons. There were no statistically significant differences between subgroup impact estimates.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

Increasing Attendance in Timor-Leste: Community Volunteers Reach Out to Families

The USAID-funded SDPP Program introduced intervention activities to prevent school dropout in the last trimester of the 2011 school year in five districts in Timor-Leste. Within three months, the interventions were already making a difference at the Mantane Primary School. *"Earlier in the school year, there were 21 students who dropped out of school. In 2012 there is not one case of student dropout. If there is an absence, it is due to illness only, but then they return to school. The SDPP Program has been a real success,"* stated School Principal Eugenio Guterres.

Faustina Yustinus da Costa, an SDPP staff member working with the school added: *"We heard stories from the years before of how many students would disappear from school before the exam time. Now when students aren't there, we know through the community group members what their situation is."*

Student absenteeism is a major predictor of dropout and a cause of poor academic performance. SDPP research shows that 30 to 40 percent of at-risk pupils and dropouts missed more than 15 consecutive days of school and, on average, they missed 4 or more days of school a month. Yet only 40 percent of parents knew their child was absent, and less than 60 percent of the parents had been contacted by the school. Most parents do not have telephones and may live far from the school.

The SDPP Program worked with community volunteers to bridge the communication gap between the school and parents. Romana Cáceres, a volunteer, explains: *"When a student is absent 2 or 3 days, we follow up right to the home, even when we have to walk very far to get there."* The home visits, Romana says, make parents aware of the linkage between absenteeism and dropout. Now when students are absent, it is usually due to illness, not chores or work.

The home visits are also a way to address student truancy. Principal Eugenio noted that the program can reduce the number of students who skip school *"because they are concerned about the community volunteer's home visit delivering a postcard notification from the school."*

In August 2013, members of the Mantane volunteer "Stay-in-School" committee were awarded certificates in a ceremony recognizing their activism and success in reducing dropout and absenteeism.

Members of a Stay-in-School Committee in Timor-Leste

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2. Impact on additional measures of student engagement in school

Even though attendance is the primary outcome in the engagement domain, SDPP also examined the program's impacts on academic performance, since an increase in attendance might result in an improvement in overall performance in school. Because SDPP did not attempt to directly influence academic performance, it is not a primary measure in determining program effectiveness.[51] The measures examined Tetun, Portuguese, and math exam scores for students and behavior grades. Schools scored students on a 10-point scale, from 1 to 10, with higher scores indicating better performance.

Math, Portuguese language, Tetun language and behavior performance

Data came from third trimester exams. Schools scored students on a scale of 1 to 10: 1 is "terrible" and 10 is "excellent."

a. Academic performance in math and language

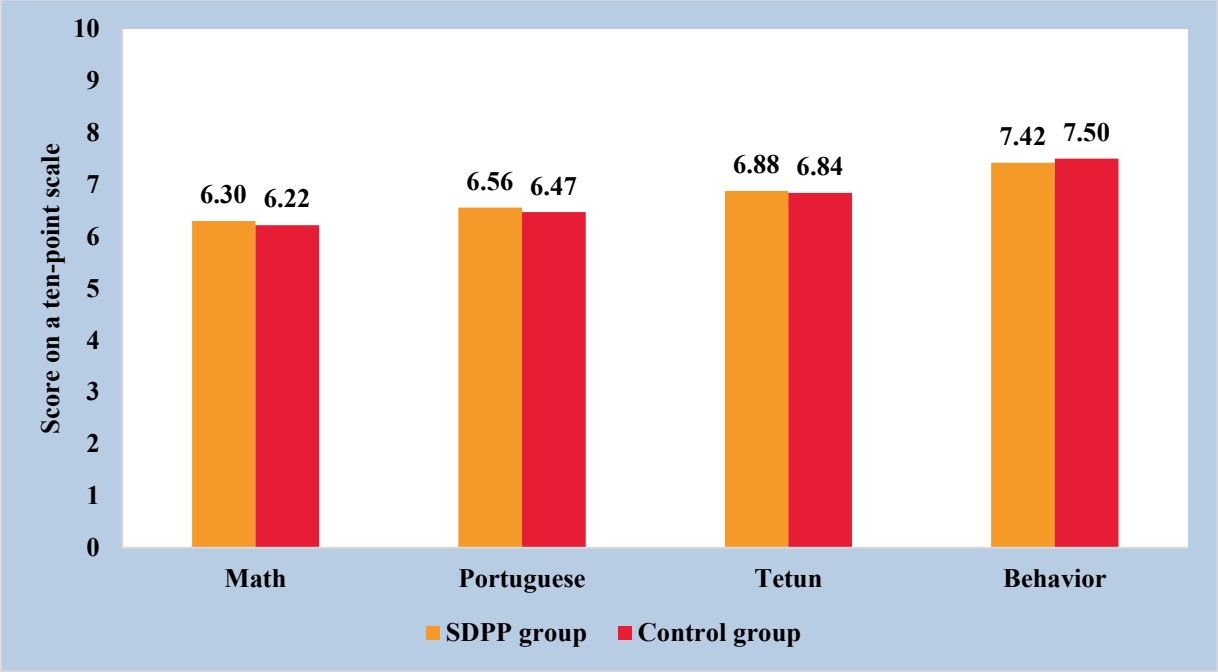
The SDPP Program did not have a statistically significant impact on math, Portuguese language, or Tetun language performance (Figure VI.C.3).

b. Student behavior in school

Teachers in Timor-Leste keep records on student behavior. **Behavior grades from third trimester for students show that SDPP had no impact on this measure of student performance, as assessed by their teachers (Figure VI.C.3).**

[51] Moreover, impact estimates for academic performance may be biased if the program was successful in keeping low-performing students in school. Also, as described in Section III, because these analyses are exploratory the results were not adjusted for multiple comparisons, despite the large number of comparisons.

Figure VI.C.3. SDPP Program impact on academic performance (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015.

Note: The analysis is based on SY 2012 4th- and 5th-grade students, and SY 2013 and 2014 4th-grade students.

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. Because these are additional outcomes and the analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

Appendix E presents additional findings for the engagement domain based on alternative measures of attendance, including an alternative approach to accounting for missing values from school records. Findings using the alternative approaches are consistent with those presented here.

D. Impacts on school dropout

Reducing school dropout is the primary goal of the SDPP intervention. Students who drop out of school prematurely forgo a considerable amount in yearly earnings over their working lives (Duflo, Esther 2001), limit their access to further education and training, reduce their ability to contribute to the well-being of their community, and add to wastage of the resources invested in their schooling.

School dropout outcomes

Primary measure of program effectiveness

- Within-grade dropout
- Between-grade dropout

Additional measures

- Grade progression

For Timor-Leste, SDPP defined the primary dropout measure as within-grade (whether a student completes the school year for an end of cycle target grade) or between-grade (whether a student enrolls back in school the year after completing a target grade) depending on the cohort.[52] A student was considered to be a within-grade dropout if the student missed any of the three 3rd trimester exams, and a student was considered to be a between-grade dropout if the student was not enrolled in the next school year. For this analysis, SDPP uses school records to measure dropout from school.

This section presents findings on the impact of SDPP on student dropout from school.

1. Impact on primary measure of school dropout

Primary measure of program effectiveness for school dropout

Students were considered dropouts if they were no longer continuing their education at the last possible time we observed them. Students who started the program in grades 4 and 5 in the first year of implementation were considered to have dropped out if they did not complete their final grade 6 examinations in subsequent years. Students who started the program in grade 4 in the second and third years of implementation were considered to have dropped out if they did not enroll in school for the 2015 school year (as grade 5 and 6 students, respectively).

SDPP had no statistically significant impact on dropout (Figure VI.D.1). Students in SDPP schools dropped out at a rate of 16.3 percent, compared with 15.5 percent for students in control schools, but this difference was not statistically significant. These dropout rates are much higher than those identified in the national EMIS data.

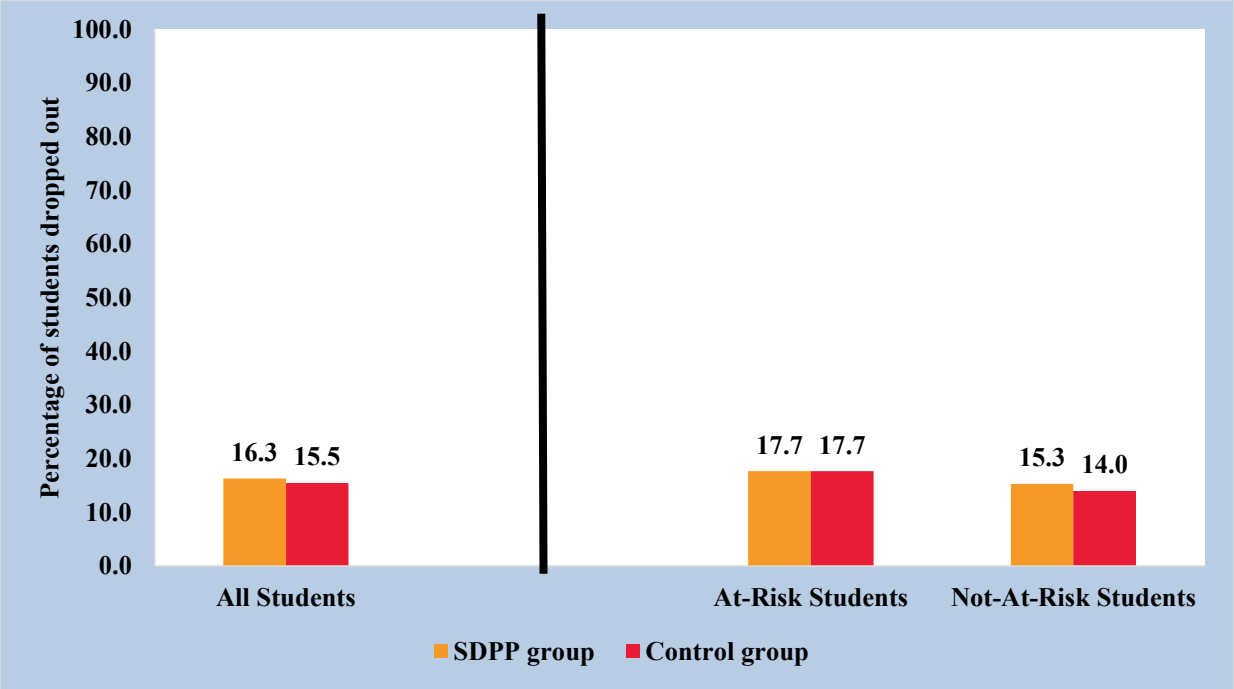
At-risk students dropped out at a higher rate than not-at-risk students. In both SDPP and control schools, at-risk students dropped out at a rate of 17.7 percent.[53] Among students not at risk

[52] Dropout is measured as between-grade dropout rate at the beginning of SY 2015 for the SY 2013 and SY 2014 4th-grade student cohorts; and within-grade dropout at the end of SY 2013 for the SY 2012 5th-grade student cohort and at the end of SY 2014 for the SY 2012 4th-grade student cohort.

[53] We also estimated the treatment-on-the-treated (TOT) impacts for (1) schools with high fidelity of implementation scores, and (2) students who were identified through the EWS for SDPP services using quasi-experimental research techniques. The TOT estimates are consistent with the findings presented here (See Appendix J for details).

of dropout, the dropout rates were lower and differed between students in SDPP schools (15.3 percent) and control schools (14 percent), but this difference was not statistically significant.

Figure VI.D.1. SDPP Program impacts on school dropout, overall and by at-risk status (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015.

Note: The analysis is based on SY 2012 4th- and 5th-grade students, and SY 2013 and 2014 4th-grade students. The sample includes 14,045 students for the SDPP group (6,015 at risk and 8,030 not at risk) and 14,458 students for the control group (5,950 at risk and 8,508 not at risk).

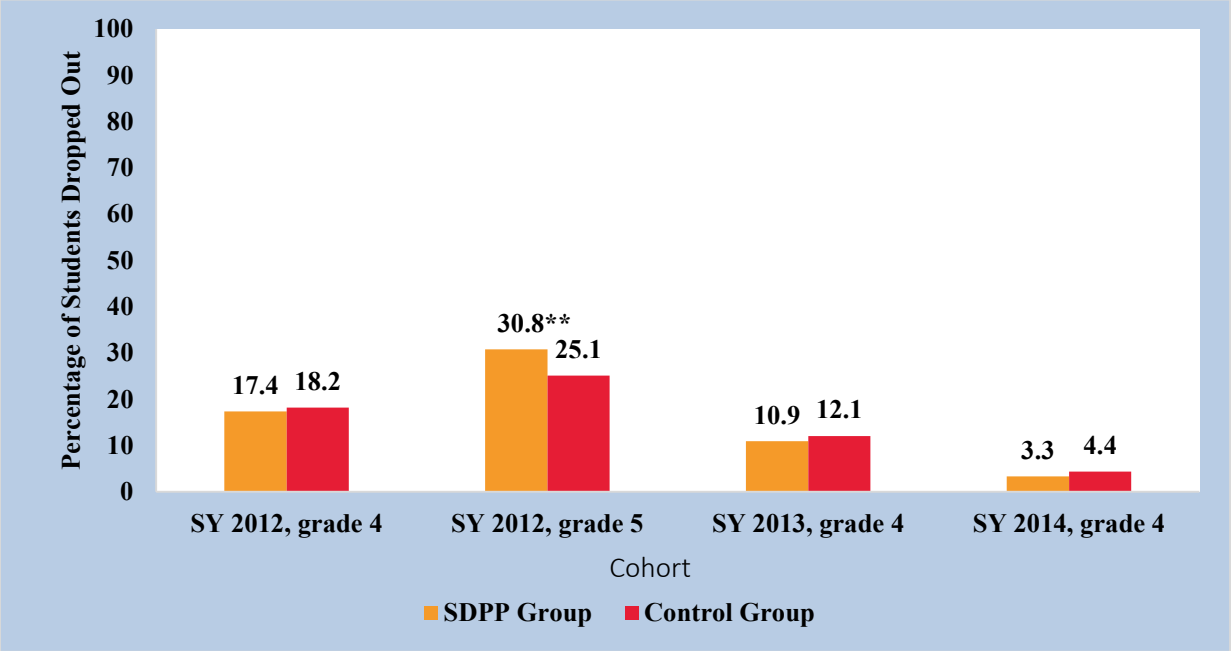
Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. For a tabular presentation of these findings, see Appendix Table H.5.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

Because four cohorts of students received the intervention and were exposed for different periods of time at different points in time, SDPP also estimated dropout separately for each cohort (Figure VI.D.2). [54] Dropout rates differed substantially across cohorts, but there were no statistically significant differences between SDPP Program and control group students for any cohort. Students in SDPP schools in the SY 2012 4th-grade cohort, SY 2012 5th-grade cohort, SY 2013 4th-grade cohort and SY 2014 4th-grade cohort dropped out at a rate of 17.4 percent, 30.8 percent, 10.9 percent and 3.3 percent, respectively. Students in SDPP schools in the SY 2012 4th-grade cohort, SY 2012 5th-grade cohort, SY 2013 4th-grade cohort and SY 2014 4th-grade cohort dropped out at a rate of 18.2, 25.1 percent, 12.1 percent and 4.4 percent, respectively.

[54] As described in Section III, because these analyses are exploratory, the results were not adjusted for multiple comparisons, despite the large number of comparisons.

Figure VI.D.2. SDPP Program impacts on school dropout, by cohort (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015.

Note: The analysis is based on four cohorts of students: SY 2012 4th- and 5th-grade students, and SY 2013 and 2014 4th-grade students. The sample includes 14,045 students for the SDPP group (6,015 at risk and 8,030 not at risk) and 14,458 students for the control group (5,950 at risk and 8,508 not at risk).

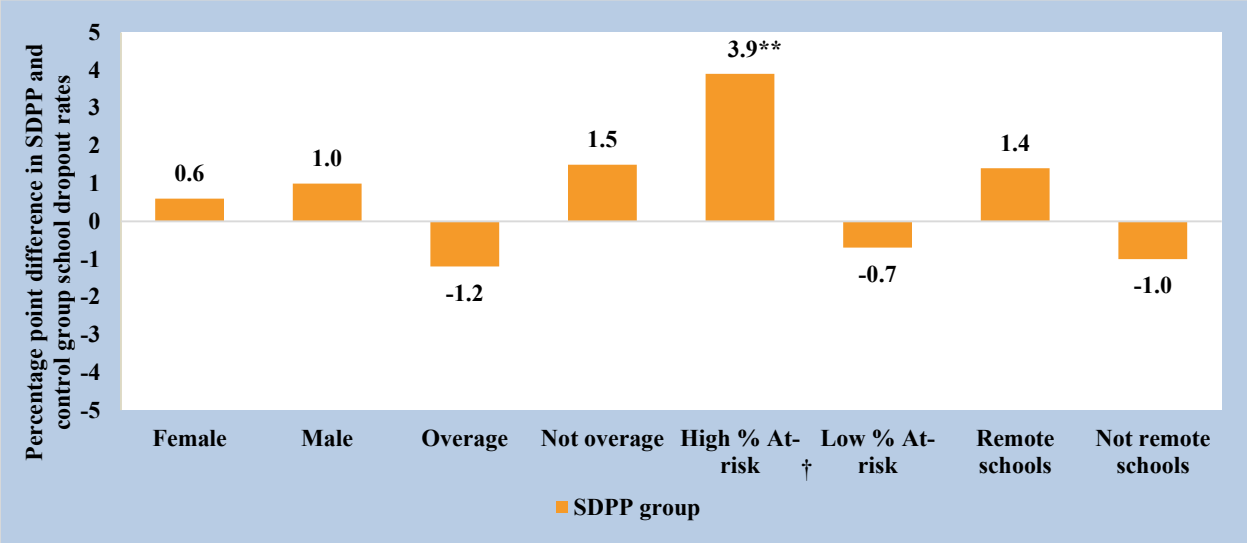
Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. For a tabular presentation of these findings, see Appendix Table H.7.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

SDPP also explored the program's impacts on dropout for four additional subgroups of interest: gender, over-age status, whether the school has a low or high percentage of students at risk, and whether the school is remote or not.[55] SDPP found no effects on dropout for most of these subgroups (Figure VI.D.3). However, program impacts on dropout rates were statistically significant for students from schools with a high percentage of at-risk students. Moreover, the difference in impacts between students in schools with high and low percentage of at-risk students was also statistically significant.

[55] As described in Section III, because these analyses are exploratory. SDPP did not adjust the results for multiple comparisons, despite the large number of comparisons.

Figure VI.D.3. SDPP Program impacts on school dropout, by subgroup (SY 2013 and SY 2014)



Sources: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015.

Note: The analysis is based on SY 2012 4th- and 5th-grade students, and SY 2013 and 2014 4th-grade students.

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. Because these subgroup analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

†††/††/† Statistically significant difference between the subgroup impact estimates at the .01/.05/.10 level.

2. Impact on additional measures of school dropout

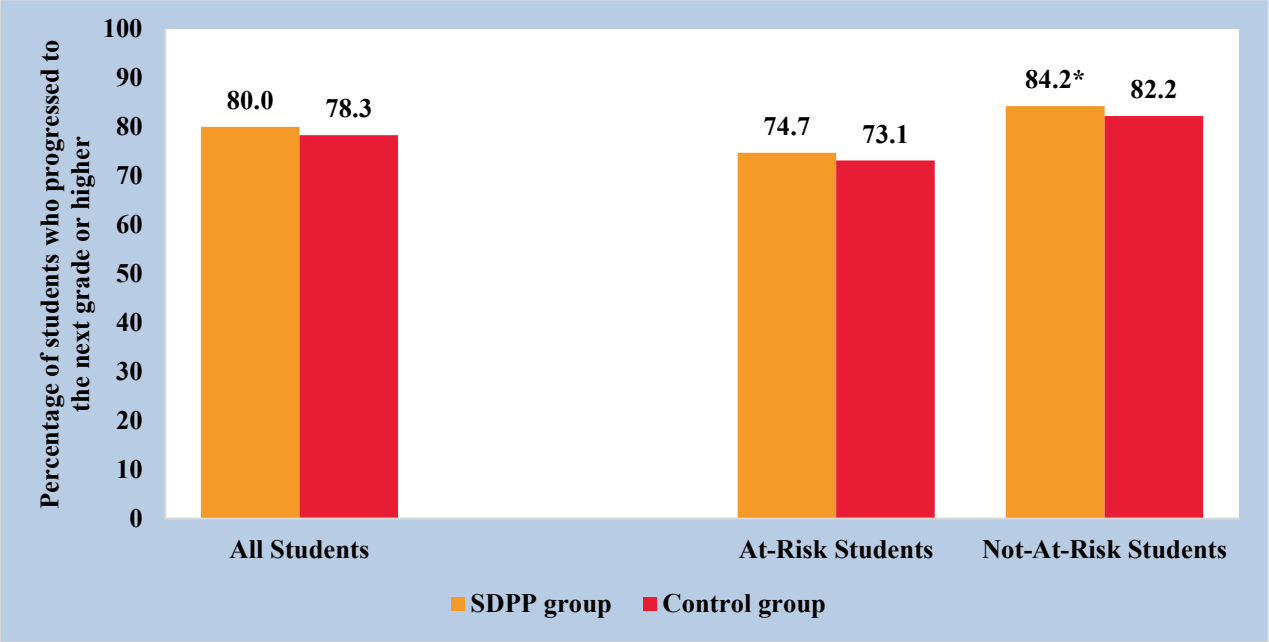
SDPP also calculated a measure of grade progression for SY 2012 4th grade, SY 2013 4th grade, and SY 2014 4th grade students, and expressed it in terms of whether a student enrolled in the next grade or higher in the year(s) following exposure to the SDPP Program. This measure provides additional information on students' successful progression in school.

Grade progression

A student is considered to have progressed if they are enrolled in the next grade or higher in the following school year.

As with the school dropout, SDPP had no impact on grade progression in school overall (Figure VI.D.4), but SDPP did improve grade progression for not-at-risk students. SDPP students progressed at a rate of 84.2 percent while control group students progressed at a rate of 82.2 percent. This difference is marginally statistically significant.

Figure VI.D.4. SDPP Program impact on student progression in school at endline, overall and by at-risk status (percentage) (SY 2013 and SY 2014)



Source: SDPP baseline and follow-up school records data collection, May 2012, May 2013, March 2014, September 2014, and January 2015.

Note: The analysis of grade progression is based on the SY 2012 4th-grade, the SY 2013 4th-grade, and the SY 2014 4th-grade students.

Differences between SDPP and control group means were tested using two-tailed t-tests. Mean values are adjusted for baseline characteristics. The analysis accounts for clustering of students within schools and cohort fixed effects. Because this is an additional outcome and the analyses are exploratory, statistical significance thresholds were not adjusted for multiple comparisons.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

Appendix F provides findings related to the dropout domain based on alternative measures of dropout. It also provides findings for two additional measures of progression. The first measure is defined as a student enrolling in the next grade, but not higher, in the following school year. No impact was found.

In the second measure, a student is considered to have been promoted to the next grade if their school records indicated that he or she completed 6th grade and was promoted to 7th grade. Although we were not actually able to witness whether the student enrolled in 7th grade because 6th grade is the final target grade and students who subsequently enrolled in 7th grade frequently had to change schools, SDPP did have a marginally significant impact on progression from 6th grade to 7th grade on schedule with progression estimated at 79.7 percent among SDPP students and 77.7 percent among control group students.

Qualitative Research Findings in Timor-Leste

During the second year of intervention implementation in the treatment schools, the SDPP team conducted a Qualitative Research Study in Timor-Leste to better understand: why changes in student and teacher behaviors and attitudes had happened; and how beneficiaries and targets (students, teachers, school directors, parents and community members) responded and reacted to the interventions. Some findings are highlighted below.

What do beneficiaries say about the Early Warning System?

The need to help support their families was the primary reason students considered dropping out of school. For those who did drop out, frequent absences and poor grades were primary factors. Despite these warning signs—absenteeism and poor grades—almost three-fourths (72%) of the parents indicated they were unaware that their child as at-risk of dropping out. Almost all of the children – both at-risk and those who did eventually drop out – reported that they themselves had made the decision to quit. This suggests students might have internalized their family's vulnerable economic status and that awareness prompted their decision to leave. Dropout students also noted more could have been done to keep them in school, suggesting they needed more "encouragement." But, both dropout and at-risk students reported their teachers had been very helpful and encouraging.

Truancy was significant. About 30 percent of at-risk students and 60 percent of dropouts skipped school without their parents' knowledge. With the exception of at-risk boys (67%), more than 80% of the students recalled someone communicating with their families about their absences; about 40 percent of at-risk students and 80 percent of dropouts confirmed their parents had received a warning postcard from the school and/or home visit. When asked about their parents' response to the contact, most students reported their parents were either upset at them or embarrassed, but also confirmed it resulted in their parents becoming more supportive. They said their parents sent them back to school, punished them, or talked to them about why they did not want to go. Boys who dropped out reported that the contact from school had no impact on their parents, but many – boys and girls – mentioned the school's contact with their parents made them sad they couldn't attend.

Nearly all (94%) of the parents contacted spoke positively about the contact, although they also said they were initially surprised, embarrassed, and disappointed in their child. They were more likely to monitor their child's attendance and provide other support, such a buying school supplies. They noted they had greater awareness of the impact of missing school and how it could hinder their child's future by leading to delinquency or vagrancy. There was also a greater awareness of the need to educate their daughters. The "Stay in School" committee members said that parents received the visit well once they understood its purpose was to help, not blame.

Teachers praised the structure the EWS gave them to deal with struggling students. Almost 80% of them realized the EWS indicators did a better job at identifying students who needed extra support. Three-quarters felt it made their job easier, in part because the EWS procedures and forms were easy to follow. When asked about the support they received from both their school directors and community members, the majority felt it had been a very collaborative effort. In general, teachers, school directors and community members all felt the increased and improved contact with the families was a particularly positive feature of the EWS, helping both families and teachers better understand the issues the child faced. As one teacher shared, *"Students now pay attention to the subject material. Before they were lazy and sleepy. The Warning Card is one way of waking the students up."*

When asked about the impact of the EWS, especially the contact with parents, 85 percent of the teachers reported improvements in attendance, behavior, completion of homework, and in student performance. Ninety percent of school personnel hope to continue using the EWS.

What do beneficiaries say about the Extra Curricular Activities (ECA) program?

The ECA program was popular among all the students who participated in tit. Although the ECA sessions were offered more than once a week in some schools, attendance dropped significantly for students attending more than one day a week. Over half felt that once a week was fine; none of them suggested more than twice a week. Girls particularly liked the singing, drawing and crafts, in contrast to the boys, who preferred more active things like the traditional sports games, marbles, and hopscotch.

Students unanimously agreed they benefitted from the ECA, referring to improved language and math skills. They also noted how engaging in games together improved their skills in collaboration and conflict resolution – one of the key objectives of the intervention. As one student shared, *"In the past we weren't happy at school. There were no games, and there was no fun. School now makes us very happy because we can learn together. Now we feel happy, and we have fun. We feel sad when we are absent because we will miss the games that [the teachers] teach."* Another says, *"Before, I could not read. Now I can read. Before I could not write or count, but now I am much better. Now I can read, write and count. Friends helped me with writing so that now I can write my letters well. Before I didn't like coming to school."*

Although they overwhelmingly enjoyed the ECA, most students – other than a small number of at-risk girls – reported it did not play a role in their attendance. The majority of parents reported they knew of the ECA, generally favored them, and noted they did seem to make their child more positive about school. However, parents' reactions were more mixed when asked if children actually went to school more often on days when there were extracurricular activities. Only 38 percent of mothers and 61 percent of fathers said "yes." When the question was rephrased to ask how they felt about their child taking time away from home to attend the ECA, parents were less positive about their child's participation. Fathers and mothers appeared split along gender lines on their viewpoints, particularly when asked whether their children should spend more or less time in the ECA program: fathers expressed a higher level of dissatisfaction at the suggestion of additional time being allocated after school for more ECA.

Teachers held a different view. They strongly felt the ECA had a positive impact on improved attendance, behavior and general performance and pointed to school-level data to support their claim. They also reported students were more punctual, there was less fighting, and they were motivated to do well in school. They were also pleased with the increased self-confidence they observed in their students as a result of their participation in the ECA. The teachers also felt they had benefitted from the ECA training, noting that it helped them to use more interactive and hands-on instructional techniques in their regular classes.

Despite the additional work involved with implementing the ECA, in general, two-thirds of the teachers expressed an overall positive opinion about the ECA. They cited things like the closer relationship they had with their students and that classroom management was much easier with happier and more motivated students. One of their concerns was the limited time they had within the ministry-approved curriculum and the challenge to add the activities to the schedule, although this may be largely driven by their perception about their legal work week. Teachers understand they are only required to work 24 hours – essentially the hours that they spend in class – instead of the 40-hours defined by law. Teachers also doubted the capacity of their schools to continue implementing the ECA at the end of the SDPP due to the cost of the materials required for many of the hands-on arts and crafts activities.

School directors had different concerns. They wondered if the teachers were adequately trained to take over the ECA program since teachers were in a helping role next to facilitators during the ECA. All the school directors except one hoped to continue doing ECA in their schools. However, in addition to more training, they also suggested the program might be expanded with additional guides.

VII. School-level dropout trends

The analyses presented thus far use student-level measures of dropout. This section presents different types of data to explore if alternative measures can provide additional insight or support to the findings presented earlier. SDPP has complementary, grade-level measures of dropout using data on enrollment and transfer counts from school records, as is often done in education studies.[56] Constructing grade-level rates based on counts requires a much smaller data collection effort than gathering details about all individual students in a grade or school. School systems often report aggregate measures of enrollment and dropout as part of regular reporting, and stakeholders often find these measures to be easier to understand and interpret than other measures. Therefore, for readers more accustomed to these measures, they are presented in addition to the student-level estimates. These grade-level measures are available for 4th, 5th, and 6th grade as well as for grades that were not the focus of the interventions (1st–6th grades). Aggregate between-grade and within-grade dropout rates are presented over time, across three complete school years (SY 2011 to SY 2013) for 1st–6th grades in SDPP and control schools.

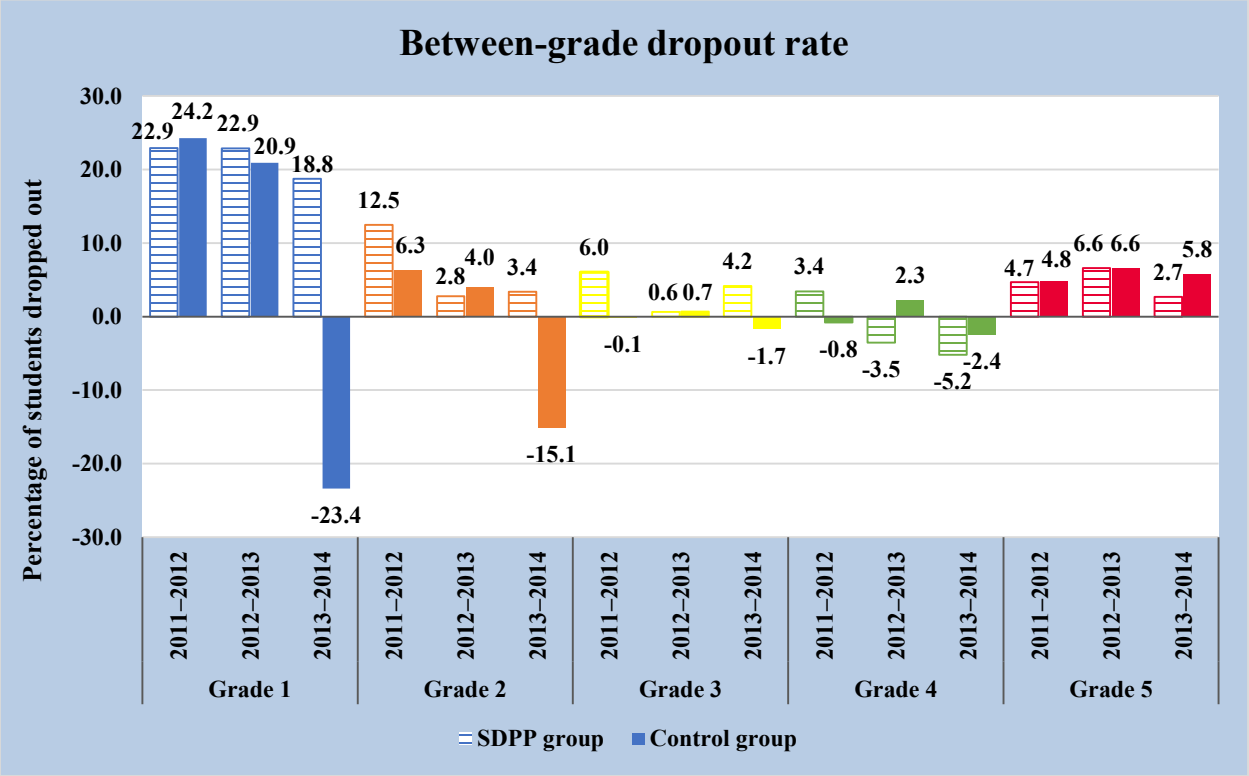
Grade-level measures, although much easier to collect than individual-level data, typically suffer from substantial measurement error because it is difficult to distinguish between enrolled students, dropouts, transfers, repeaters, and newly enrolled students. Aggregate dropout measures actually include students in all of these situations. The magnitude of the aggregate dropout measure is therefore sensitive to whether more students transferred in or repeated the grade than dropped out or transferred out; the magnitude could even change signs to show a negative dropout rate. As a result, depending upon the levels of transfer, repetition, and dropout, there may or may not be any observable trends in dropout when using measures that are constructed from aggregate grade-level counts such as these.

The between-grade dropout rate was generally much higher for 1st grade than for 2nd grade through 5th grade across both SDPP and control schools (Figure VII.1). This is seen in many developing countries, where schools lose many students after 1st grade. For 1st grade, between-grade dropout rates were highest between SY 2011 and SY 2012, with an average rate of 22.9 percent for the SDPP group and 24.2 percent for the control group. The between-grade dropout rate was mostly lower—between 22.9 percent and -23.4 percent—in the following two school years. The between-grade dropout rate for 2rd grade through 5th grade remained below 13 percent in all school years, and in some grades it was actually negative.[57] Again, there was no clear trend in between-grade dropout in either the SDPP or the control group in any of the grades. No differences were statistically significant.

[56] The number of students enrolled at the start of each school year and the number of students who took exams at the end of each school year were collected and used to calculate between-grade dropout and within-grade.

[57] If more students enrolled in the school during the school year than dropped out or transferred out during the same time frame, then the dropout rate would be negative.

Figure VII.1. School between-grade dropout rates, by grade and school year



Sources: SDPP baseline and follow-up school records data collection, SY 2011, 2012, 2013, and 2014.

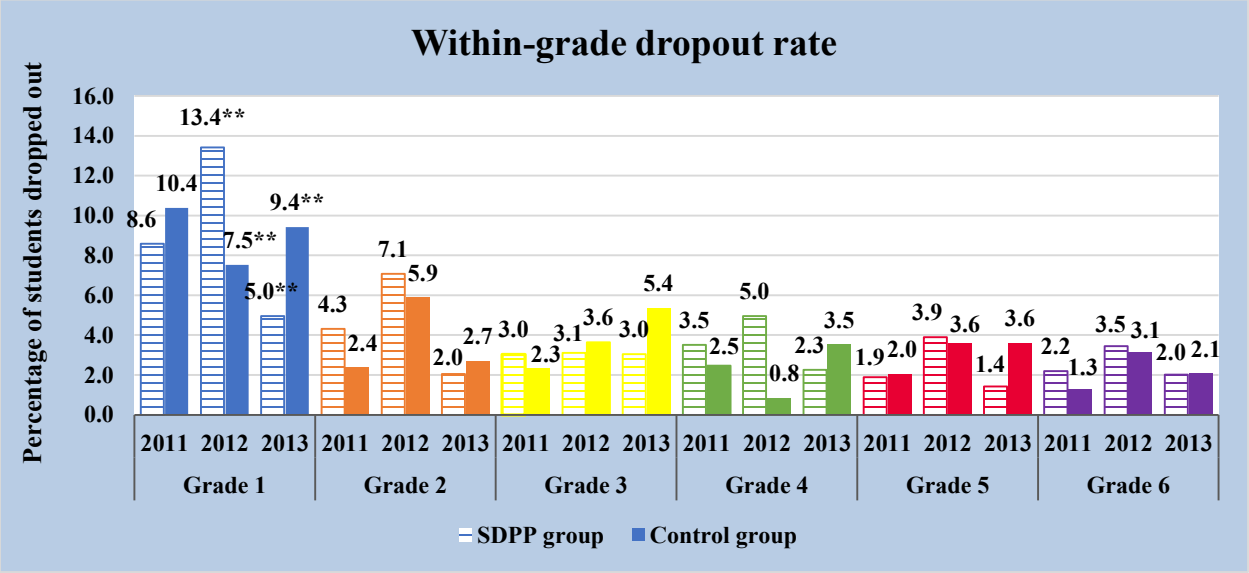
Note: The analysis is based on aggregate enrollment count data for SY 2011, SY 2012, and SY 2013 1st- through 6th-grade students.

Differences between SDPP and control group means were tested using two-tailed t-tests.

***/**/* Statistically significant difference at the .01/.05/.10 level.

There were no clear trends in within-grade dropout rates for 1st through 6th grades either. Dropout rates were highest in 1st grade, ranging between 5.0 percent and 13.4 percent (Figure VII.2). Differences between SDPP group and control group dropout rates were statistically significant in 1st grade in SY 2012 and SY 2013. Dropout rates were generally lower in 2nd through 6th grade, although 2nd grade dropout rates were still somewhat elevated, ranging from 2.0 percent to 7.1 percent. Dropout rates were between 0.8 percent and 5.4 percent from SY 2011 through SY 2013 in 3rd through 6th grade.

Figure VII.2. School within-grade dropout rates, by grade and school year



Sources: SDPP baseline and follow-up school records data collection, SY 2011, 2012, and 2013.

Note: The analysis is based on aggregate enrollment count data for SY 2011, SY 2012, and SY 2013 1st- through 6th-grade students.

Differences between SDPP and control group means were tested using two-tailed t-tests.

***/**/* Statistically significant difference at the .01/.05/.10 level.

Given the measurement issues in these dropout rates, it is challenging to draw any conclusions about the effectiveness of the program using grade-level estimates. These estimates can be useful in understanding how the level of dropout might change across grades (for example, whether it is higher for 1st grade than for the later grades), but they cannot be used to estimate an accurate level of dropout.

SDPP also examined trends using similar information for enrollment and for attendance, as measured by headcounts. During each round of data collection, the SDPP team counted the number of students present in target grade classrooms on the day of data collection by entering classrooms during third period and counting the number of students present. The headcounts collected by SDPP during each data collection round show that the average number of target grade students present at the time of data collection was similar in SDPP and control schools. This number was then compared to attendance measures derived from student-level data in order to determine how similar the two data sources were. There was no clear trend between the attendance rate as determined through the head count compared to the attendance rate determined from school records, though they were typically similar. Appendix I presents these findings in more detail.

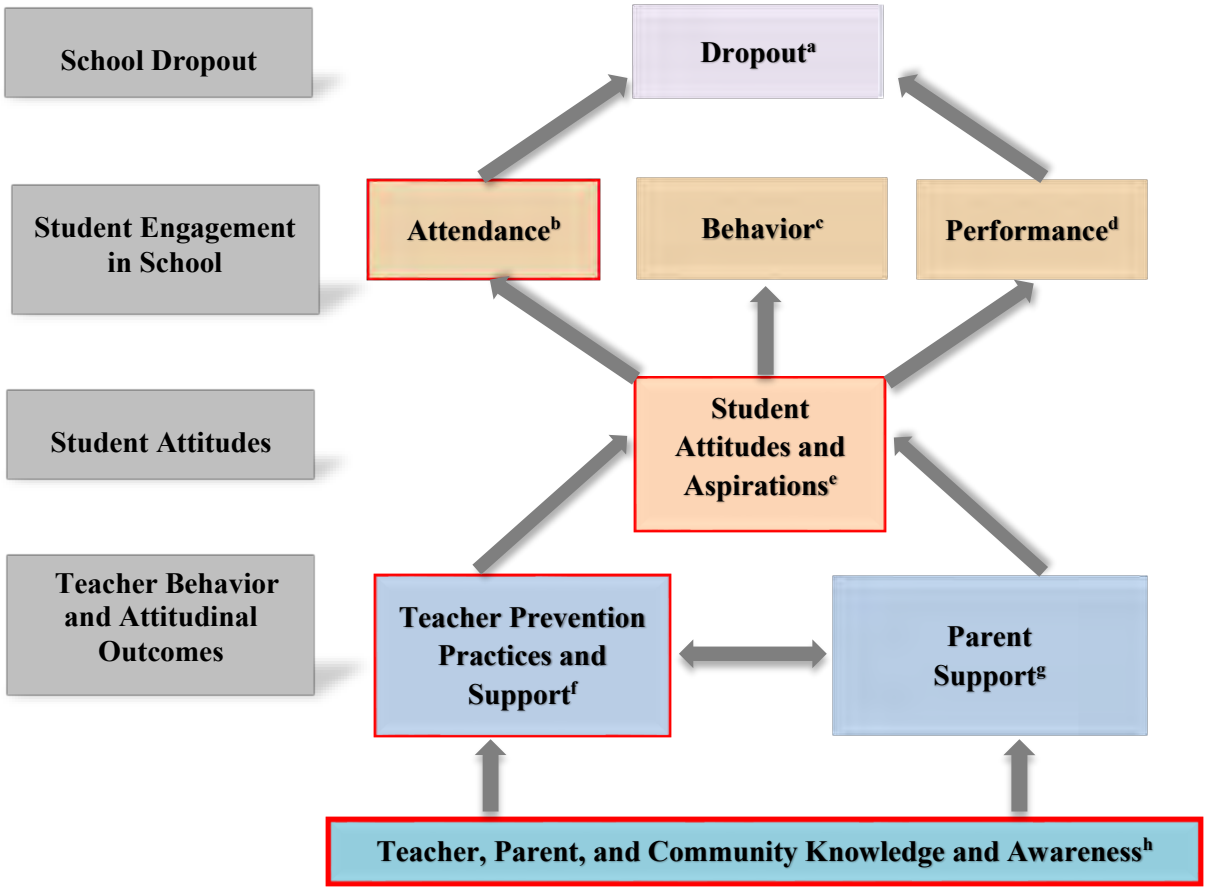
VIII. Discussion

The SDPP Program in Timor-Leste aimed to reduce school dropout among students in the 4th, 5th, and 6th grade—the last three years of primary school in Timor-Leste. SDPP interventions included an EWS to identify and target support to students at risk of dropout and an ECA program to increase student engagement and attachment to school. SDPP hypothesized the ECA program activities for at-risk students, along with changes in teacher practices, involvement of parents, and increased community involvement, would improve student attitudes and behavior, translating into increased student engagement and reduction in school dropout. The SDPP evaluation in Timor-Leste examined the effectiveness of SDPP using a randomized controlled trial in which the outcomes of students and teachers in 97 schools randomly assigned to provide SDPP services are compared to those of teachers and students in 93 schools randomly assigned to a control group providing business-as-usual services. The evaluation is part of a broader study of similar dropout prevention interventions implemented in four Asian countries.

A. Overview of findings

SDPP examined the effectiveness of the program on the primary and additional outcomes it was intended to affect related to teacher practices, at-risk students' attitudes toward school, student engagement in school, and school dropout. Figure VIII.A.1 shows SDPP's impacts according to its theory of change. The boxes banded in red show the outcomes on which SDPP had statistically significant or marginally statistically significant impacts as measured by the impact evaluation.

Figure VIII.A.1. SDPP conceptual model with program impacts



Notes: The thickness of the border around each box indicates the number statistically significant or marginally significant favorable impacts on the primary and secondary outcomes within the given domain. Impacts on subgroups are not included.

Statistically significant impacts for this domain were found on one outcome

Statistically significant impacts for this domain were found on two outcome

[a] Dropout includes the primary measure of dropout, global dropout.
[b] Attendance is daily attendance averaged over the entire school year.
[c] Students are assigned a behavior grade by their teachers.
[d] Math and language performance is measured on a range of 1–10, with 1 being the lowest grade and 10 being the highest.
[e] Student attitudes and aspirations are measured only for at-risk students and include students' emotional, cognitive, and behavioral attitudes toward school.
[f] Teacher and administrator prevention practices and at-risk student perceptions of teacher support.
[g] Parent support is measured by the at-risk students' perceptions of parent support scale.
[h] Teacher and administrator self-efficacy and sense of responsibility.

SDPP had a positive impact on teacher dropout prevention practices and a positive impact on teachers' sense of self-efficacy, but not on teachers' sense of responsibility for at-risk students.

Overall, SDPP effected improvements in key student attitudes and behaviors that can lead to dropout. These include positive, statistically significant changes in:

- at-risk students' behavioral attitudes toward school; and
- daily attendance overall and among at-risk students.

Despite improvement in student engagement to school as measured through attitudes and attendance, SDPP did not reduce school dropout overall or among at-risk students. SDPP did not reduce dropout among students identified as at-risk based on their baseline characteristics.

Tables VIII.A.1 and VIII.A.2 summarize the impacts.

Table VIII.A.1. SDPP Program impacts on primary measures of program effectiveness in Timor-Leste

	Impacts
Teacher dropout prevention practices	+++
At-risk student attitudes toward school	
Emotional attitudes toward school	○
Cognitive attitudes toward school	○
Behavioral attitudes toward school	+++
Attendance	
Overall	++
At-risk	+++
Dropout	
Overall	○
At-risk	○

+ + +/+ +/+ Statistically significant positive impact at the .01/.05/.10 level.
— — —/— —/— Statistically significant negative impact at the .01/.05/.10 level.
○ Impact is not statistically significant.

Table VIII.A.2. SDPP Program impacts on additional outcome measures in Timor-Leste

	Impacts
Teacher outcomes	
Teacher self-efficacy	++
Teacher sense of responsibility	○
Administrator dropout prevention practices	○
Administrator self-efficacy	○
Administrator sense of responsibility	○
Student attitudes toward school	
At-risk student perceptions of parent support	○
At-risk student perceptions of teacher support	○
Student engagement	
Math performance	○
Language performance	○
Language performance 2	○
Behavior	○
Dropout	
Progression	○

+ + +/+ +/+ Statistically significant positive impact at the .01/.05/.10 level.
— — —/— —/— Statistically significant negative impact at the .01/.05/.10 level.
○ Impact is not statistically significant.

B. Contextual factors related to findings

In interpreting findings from the evaluation, it is useful to consider the fidelity with which SDPP was implemented and other contextual factors that may have influenced its effectiveness.

SDPP worked directly with teachers at school, community members affiliated with the schools, and parents at home to change their knowledge and awareness of dropout. This work was intended to improve the dropout prevention practices of teachers, which is reflected in the improved scores for teachers in SDPP schools on the teacher dropout prevention practice scale used by the evaluation. However, scores on this scale were near the maximum for teachers in both the SDPP and the control groups (7.87 and 7.72 out of 8, respectively). Thus, even without SDPP, teachers could be maintaining a high intensity of the dropout prevention practices as measured by this scale, and SDPP could only change them slightly, even if the difference in the teacher scores across groups is statistically significant. Alternatively, the scale scores might be artificially high in both groups because they are based on self-reports rather than direct observation. Consistent with the idea that SDPP school teachers performed an increased amount of duties to keep at-risk students from dropping out because of the EWS, findings from the qualitative analysis found that teachers reported doing more activities to keep students in school, such as checking attendance, issuing warning cards when students were absent twice in a month, and counseling them not to drop out (Creative Associates International 2015).

As noted earlier, SDPP had positive impacts on at-risk students' behavioral attitudes toward school and daily attendance. Both elements of SDPP—the EWS and after-school enrichment activities—are likely to have contributed toward SDPP Program impacts on these outcomes. Almost all students included in the qualitative analysis reported receiving help from homeroom teachers when they had trouble in school (Creative Associates International 2015). Additionally, it is possible that the after-school activities that attempted to foster cooperative learning and enhance self-confidence improved students' behavioral attitudes toward school and motivated them to attend school more frequently than they would have without after-school enrichment activities. Also, as part of the EWS, homeroom teachers, parents, and community members were asked to monitor at-risk students' attendance and contact parents if students were consistently absent. This part of the EWS could have induced at-risk students to attend school more than they would have in the absence of the program, leading to the positive impact on attendance, particularly for at-risk students.

There are several factors that might explain why SDPP was not successful in reducing dropout in Timor-Leste. Each of these factors is discussed in more detail below.

Inconsistent implementation of SDPP in Timor-Leste. According to SDPP's fidelity-of-implementation (FOI) analysis, the vast majority of its treatment schools in Cambodia, India and Tajikistan had met the threshold established to indicate that the SDPP interventions had been implemented in congruence with their design. However, in Timor-Leste the FOI study found that schools appeared to implement the EWS unevenly, particularly in terms of communicating with parents and taking follow-up actions. The implementation of extra-curricular activities in Timor-Leste was somewhat better, although only about 76 percent of schools reported that they conducted after-school activities weekly, which was the intended frequency (Creative Associates International and School-To-School International 2015). Although the SDPP interventions have

improved attitudes and engagement toward school, the inconsistent implementation of follow-up actions by teachers and communication with parents may have decreased the program's ability to affect dropout.

Duration of exposure. Although SDPP did not reduce dropout, it was successful in improving three key intermediate outcomes—teacher dropout prevention practices, student behavioral attitudes toward school and attendance. SDPP was active in schools for two full school years and worked with grades 4, 5 and 6. Therefore, exposure time for individual students varied from one to two years depending upon their grade when they first received SDPP. Two cohorts, SY 2012 4th graders and SY 2013 4th graders, were exposed to the intervention for two full school years, and two cohorts, SY 2012 5th graders and SY 2014 4th graders were exposed for one full school year.

While the EWS was a part of school program itself, the ECA program sessions were offered to students once a week out of school hours. From an operational standpoint, exposure time was even less than intended, being limited by interruptions in the school calendar, including school closures due to rain, unscheduled and extended holidays, and national teacher training activities that pulled teachers from school for weeks at a time, leaving classrooms unstaffed. That the program had its intended effect on intermediate outcomes suggests that it could have its intended effect on longer-term outcomes with longer or more intense exposure to the intervention.

This evaluation examined outcomes after students were exposed to the program for one to two years. It should be noted that student attitudes toward school and behavior patterns are formed over time, starting with initial enrollment. Introducing SDPP interventions—which combine targeted adult attention and support, a welcoming school environment and activities that build student engagement—at the start of a student's academic career, as well as continuing throughout their schooling, could help create positive perceptions of school and better behaviors. In Appendix G we explore the question of the role of exposure more fully. Findings suggest that with additional exposure, program impacts might be more pronounced. After at least two years of exposure to SDPP, SDPP group students had a marginally significant higher rate of attendance than control group students. SDPP group students also had a lower rate of school dropout, although this difference was not statistically significant. Future research should assess whether SDPP's positive impacts on intermediate outcomes translate into impacts on dropout with more intense and/or extended exposure to the intervention.

Complexity of factors related to dropout. Given the complex pathways and inputs that lead to school dropout, it is possible that SDPP services alone may not be sufficient to influence the dropout decision for the majority of the students dropping out. In particular, economic factors that SDPP was contractually prohibited from addressing directly—such as school-related expenses, and the need to supplement income through household chores or domestic work—were found to be particularly relevant in decisions to drop out of school (Creative Associates International 2014).[58] However, that SDPP was able to show impact on key teacher and student behaviors shown to influence decisions to drop out demonstrates that the EWS and ECA program intervention should be included among the multiple strategies needed to reduce dropout in Timor-Leste.

[58] The SDPP dropout prevention interventions were contractually prohibited from including conditional cash transfers or economic incentives, which have already been demonstrated to be effective by prior research.

C. Conclusion

This study shows that the SDPP Program in Timor-Leste was successful in improving some important intermediate outcomes— particularly teachers' dropout prevention practices, students' behavioral attitudes towards school, and daily attendance—but not in reducing dropout. It is useful to compare the impacts of SDPP in Timor-Leste to other countries where SDPP was able to target students in contexts where dropout was much higher, and where students were older, and where SDPP was implemented with more fidelity. Additional discussion of the impacts of the SDPP Program across all SDPP countries is presented in a separate, four-country summary report (Creative Associates International and Mathematica Policy Research 2015).

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