

# Is there a pilot in the classroom?

Gérard Lassibille

*Institut de Recherche sur l'Economie de l'Education and Centre National de la Recherche Scientifique*

Pôle AAFE, Esplanade Erasme, BP 26513 - 21065 Dijon Cedex – France. E-mail: gerard.lassibille@u-bourgogne.fr

**Abstract.** Using data from a survey conducted recently in Madagascar, the article analyzes what teachers and school directors do when they are at work and how they manage the pedagogical process. The results show that in only 15 percent of the sample schools do all of the teachers and school directors consistently perform the tasks considered essential to their role. Engagement at work is found to be significantly lower among contract teachers than among civil service teachers, and the ability of teachers to manage the pedagogical process does not improve with accumulated experience. Other noteworthy features in the results are that the principal is the key agent in the school and that leadership is vitally important in developing effective schools.

**Keywords:** teachers' engagement at work; primary education; Madagascar.

**Acknowledgements.** The author is grateful to the World Bank and the Ministry of Education of Madagascar for providing access to the AGEMAD (Amélioration de la Gestion de l'Education à Madagascar) database used here. The opinions expressed in this paper are those of the author alone and should not be attributed to the institutions with which he is associated, to the World Bank, or to the Government of Madagascar. Funding from the Government of Andalusia through the grant P09SEJ4859 is gratefully acknowledged.

## 1 Introduction

Education economists have spent considerable effort examining what factors affect academic achievement. While there is a large literature on the importance of financial resources in determining educational outcomes (Hanushek, 1997; Filmer and Pritchett, 1999), researchers have paid considerably less attention to management of the pedagogical process and its impact on schooling outcomes. That school management and teachers' engagement at work need more attention is suggested by the near absence of a link between the resources that a school receives and the schooling outcomes it delivers (see, for example, Banerjee et al., 2005; Duflo, Dupas, and Kremer, 2007; Glewwe, Kremer, and Moulin, 2009; Lassibille and Tan, 2003).

This paper explicitly considers these rather neglected aspects of educational achievement. It attempts to document and present information on how public primary school teachers in a developing country conduct their work and manage their classroom. It adds to the current base of knowledge on education quality and provides insightful lessons for the development of policies that seek to improve the management of primary schools in low-income countries. The data for the analysis reported in this paper pertain to a survey of some 300 schools with information on teachers and school heads, conducted in 2007 in the framework of a school management program implemented in Madagascar (World Bank, 2010). By taking advantage of survey data of uncommon richness, the article analyzes how principals and teachers in public primary schools handle tasks that educators deem essential to their role and examines the effects of select teacher characteristics and school demographics on engagement at work among school personnel.

The findings of this paper can be summarized as follows. Many aspects of the pedagogical process are poorly managed, and tasks that are essential for student learning are neglected. For example, about 20 percent of teachers do not prepare daily lesson plans, school directors rarely follow up with their teaching staff on student performance, communication from teachers to parents on student learning is often perfunctory, pupil absences are rarely recorded and communicated to parents, and in only 15 percent of the sample schools do all of the teachers and school directors consistently perform the tasks considered essential by Malagasy educators. Beyond documenting teachers' behavior at work, the paper evaluates the extent to which differences in teachers and school characteristics are associated with teachers' engagement at work. The type of employment contract held by teachers is found to be a potent influence of teachers' engagement at work. The empirical evidence shows that contract teachers are significantly less likely to execute conscientiously the tasks that are considered essential to their role compared to civil service teachers. This is an important result because Madagascar, like many others developing countries, has recently hired a large number of contract teachers who are paid much lower salaries than civil service teachers, and have fairly limited promotion opportunities within the education sector. When teacher pay is low, the incentives to generate additional income from secondary activity are generally high. In this regard, the results indicate that having a second job significantly affects work effort in the main job. Another noteworthy feature in the results is that school leadership has a significant impact on teachers' engagement at work and is vitally important in developing effective schools and in facilitating quality teaching and learning.

The remainder of the paper is organized as follows. Section 2 briefly reviews the existing literature on teachers' engagement at work. Section 3 introduces the data. Section 4 provides empirical evidence on how school personnel conduct their work. Section 5 identifies predictors

of teachers' engagement at work. The paper concludes in Section 6 with a discussion on the policy implications of our findings.

## **2 Literature review**

Although the way teachers spend their time as workers is important from various policy perspectives, the literature has paid little attention to this issue. No large-scale study has examined how teachers conduct their work, although the early research by Hilsum and Caine (1971) and Hilsum and Strong (1978) maps out baseline data on the working days of junior and secondary school teachers in the United Kingdom. These influential studies were updated 20 years later by Campbell, Rupert, and Neill (1994), who analyze the work of about 300 primary school teachers in England and Wales and describe the time they spent on teaching, preparation, grading, administration, and professional development. By relating teachers' behavior and conscientiousness to issues of school management and curriculum manageability, this emerging body of research has contributed to the understanding of teacher effectiveness.

In the education and occupational psychology literature, several studies have focused on work engagement among teachers and the factors influencing teachers' engagement at work (see, for example, Hakanen, Baker, and Schaufeli, 2006; Kirkpatrick, 2007; Rutter, 1986). The majority of these works are qualitative case studies, with little statistical analysis. Work engagement is generally defined as a positive state of mind. A highly engaged employee is defined as one who is highly motivated, is committed to his job, and believes that his job is meaningful and challenging (see, for example, Brown, 1996). Although this body of research does not focus directly on the way school personnel spend their time at work, certain behaviors, like spending extra time preparing classes or tutoring students, are obviously good indicators of work engagement.

In the context of developing countries, a rapidly expanding literature documents teachers' absence and evaluates the effectiveness of interventions designed to reduce absenteeism (see, for example, Alcázar et al., 2006; Banerjee and Duflo, 2006; Chaudhury et al., 2006; Glewwe, Holla, and Kremer, 2009). However, a search of published sources reveals a disappointingly small literature on what is really occurring in classrooms when teachers are present and on the way school personnel conduct their work. Basikin (2007) investigates work engagement among a sample of secondary school English teachers in Indonesia. Teachers' work engagement is measured on a three-factor scale consisting of nine items aiming to measure three specific dimensions of work engagement: effort (vigor), enthusiasm (dedication), and immersion in the work. The results indicate that work engagement among secondary school English teachers in Indonesia is generally high and that observable teacher characteristics are not significantly related to teachers' work engagement; unfortunately, the study does not address the impact on

student learning of teacher engagement in teaching. During successive unannounced visits to a sample of public primary schools in India, Pandey, Goyal, and Sundararaman (2008) measured engagement in teaching by identifying teachers who were teaching, writing on the board, supervising written work, or teaching by rote. They find substantial variation in teacher effort within schools and a positive and significant correlation between engagement in teaching and student learning achievement. However, the gain in test score is small largely because teacher activity might not precisely measure real teacher effort. Adekanmbi, Blimpo, and Evans (2009) present results of a baseline survey administered in the context of an impact evaluation of two pilot programs in the Republic of The Gambia. The authors consider whether teachers had a lesson plan or not. The data were collected during unannounced visits to public primary schools. The results indicate that more than half of the teachers did not have a lesson plan or could not show it when asked. This very partial attempt to describe teachers' work suggests that many teachers do not execute conscientiously the tasks for which they are responsible and that improving the management of work flow processes is needed in order to improve the performance and efficiency of the education system. This paper aims to investigate these aspects more deeply and to add to the emerging literature on teacher engagement at work in the context of developing countries. Taking advantage of a data set of uncommon richness, it analyzes how school principals and teachers in public primary schools handle tasks that educators deem essential to their role and examines factors that influence their engagement at work. In addition to this contribution to understanding the management of the education process, it also explores the link between the management style of a school and student test scores.

### **3 The data**

Data for the analysis come from surveys fielded with World Bank assistance in the framework of a school management program implemented on an experimental basis by the Ministry of Education of Madagascar (the Amélioration de la Gestion de l'Éducation à Madagascar—AGEMAD; see World Bank 2010).<sup>1</sup>

Data on the behavior of school personnel were collected in 2007 through a school questionnaire administered following a random schedule of unannounced visits to schools. The questionnaire generated detailed information on the pedagogical and administrative organization of the school, on the personal characteristics and qualifications of the teachers, and on teacher and student absenteeism. In addition to the standard teacher characteristics, the survey also

---

<sup>1</sup> The results presented here pertain to schools that did not receive any of the interventions associated with the experiment.

gathered data on various aspects of school personnel behavior and how teachers and principals do their job. This was done by asking each sampled teacher and school director to answer a series of questions about their administrative and pedagogical practices,<sup>2</sup> such as those controlling absence, preparing lesson plans, monitoring student learning and helping lagging pupils, communicating with parents and local school community. The dataset used here includes information on 303 public primary schools and around 1,200 teachers; schools in the sample are located in 84 subdistricts distributed across 15 school districts.

In addition to the above, a survey of workflow processes was conducted at the end of the 2006-07 school year. About 450 administrative and pedagogical work flow artifacts that provide a record of the work of school personnel over a full school year were collected from about 100 teachers in 20 randomly selected schools. This unique database reveals how teachers and school directors performed their duties throughout the school year, in particular regarding following actions: monitoring and following up on student absenteeism, preparing lesson plans, tracking progress in student learning, following up on teacher absenteeism. This information provides an independent external check on the data reported by school personnel to the survey enumerators.<sup>3</sup> As indicated below, there is a high degree of consistency between the two sources of information, a feature that strengthens confidence in the analytical results based on the reported data.

#### **4 School personnel at work**

What do teachers and school heads do when they are at work, and how do they manage the pedagogical process? The survey of work flow processes mentioned above offers particularly telling revelations in this regard (Table 1).<sup>4</sup> The data show that pupil absenteeism is poorly monitored by teachers, with attendance taken, on average, only 13 days a month, and poorly supervised by school directors, with only one-third of the attendance records kept by

---

<sup>2</sup> This information is available for up to five teachers who were randomly selected in each school.

<sup>3</sup> Detailed data on artifacts, such as those collected in the framework of this research are extremely rare. This rarity is not surprising given that teachers may be unwilling to part with a source of information that provides a relatively complete record of their work.

<sup>4</sup> The results are based on data codified from the work flow artifacts collected from about 100 teachers that provide a record of their work over a full school year; these teachers were working in 20 schools that were not exposed to the interventions.

Table 1: Task execution rates by teachers and school head in a sub-sample of schools

(%)<sup>a</sup>

Task	Execution rate	Task	Execution rate
Roll call (average over the school year)		Record of tests	
Number of days task was performed per month	13.0	Evaluation reports	
Monthly sheets with a recapitulation of rate of pupil absenteeism	21.0	With no annotation on the number of pupils missing their tests	62.7
Monthly sheets not signed by the director	67.0	With no annotation on the number of pupils performing above the class average	74.4
		Not signed by the director	80.0
Weekly lesson plans		Student report cards	
Teachers not using the tool	13.6	With missing information on student's class rank	11.7
Teachers using the tool at least once in the year	86.4	With no information on the average score of pupils in the class	94.4
Frequency of use (average number of bimestrial segments)	2.8	With no observations on the pupil's attendance in class	46.9
Teachers using weekly lessons plans throughout the year	21.1	Not signed by the teacher	16.7
Teachers not reporting the sub-title of the lessons	74.1	Not signed by the director	80.2
Teachers not annotating their observations on the lesson plans	60.5		
Weekly lesson plans not signed by the director	49.0		
Daily lesson plan		Teacher absences	
Average number of days used in the year (maximum 150)	34.1	Monthly teacher attendance records (average over the school year)	
Weekly sheets with annotated observations	11.5	School heads not using the tool	80.0
Teachers who have followed the weekly lesson plans	14.8	School heads using the tolls at least once in the year	20.0
Weekly sheets not signed by the director	71.9	Frequency of use (average number of months)	3.0
		School heads not reporting absences to subdistrict and districts officers	84.0
		Teacher's travel pass for authorized trips	
		Teachers not using the tool	92.0
		Teachers using the tool at least once in the year	8.0
		Pass is signed on teacher's arrival at destination by the relevant authority	13.8
		Pass is signed on teacher's leaving the locality by the relevant authority	20.7

Sources: 2006-07AGEMAD-tools survey. The results are based on data codified from the work flow artifacts collected from about 100 teachers in 20 schools that provide a record of their work over a full school year.

a/ Unless otherwise indicated.

teachers signed by school heads. Essential pedagogical tasks are often neglected: 14 percent of teachers do not use weekly lesson plans; teachers prepare daily lesson plans for a very small portion of the school year, covering an average of 34 days out of a total of 150 days; only 15 percent consistently prepare daily and weekly lesson plans; one-third of school heads never discuss with teachers their daily lesson plans<sup>5</sup>. Students' academic progress is poorly monitored too: the results of tests and quizzes are badly recorded, communication from teachers to parents on student learning via student report cards is often perfunctory, and pupil absences are rarely communicated to parents. School directors are seldom involved in following up on student performance: three-quarter do not discuss learning outcomes with teachers, according to the school survey data, and 80% of test results and student report cards are not signed by school heads. The same goes for teacher absences, which average nearly 10 percent—hardly a negligible figure;<sup>6</sup> only 20 percent of school directors monitor teacher absences by taking daily attendance and a monthly summary of absences, with attendance taken, on average, only 3 months during the school year; more than 80 percent of them fail to report teacher absences to administrators at the subdistrict and district levels; 92 percent of teachers do not use travel pass for authorized trips.<sup>7</sup> The general impression that emerges from these observations is an obvious lack of organization, control, and accountability, all of which can compromise the performance of the system and the chances of success for the many ongoing reforms.

This paper focuses on the tasks that Malagasy educators deem essential to the mission of managing for results (Government of Madagascar, 2004). The list contains seven tasks for teachers and seven for school heads (Table 2). For a teacher, these tasks include, for example, taking daily roll call, preparing the lesson of the day, monitoring student learning, and helping lagging pupils. For a school head, they include keeping a register of enrollment, analyzing student absences on a regular basis, following up lesson planning with teachers, reviewing pupils' performance, and so on. As a strategy for keeping the analysis tractable, a "good" teacher (or, more accurately, a minimally conscientious teacher) is defined as one who performs all seven work flow tasks that Malagasy educators consider essential to the role and likewise for a "good" school head. In the same vein, a well-managed or a "conscientiously managed" school is one where the school director and all of the teachers perform all of their essential tasks.

---

<sup>5</sup> According to the school survey data.

<sup>6</sup> For more information on teachers' absence in Madagascar, see for example World Bank, 2008.

<sup>7</sup> In Madagascar, teachers are routinely granted permission for travel to collect their salaries at designated localities. In the absence of supervision of such travel, the trips may result in excessive absences from the classroom.

Table 2: Tasks considered by Malagasy educators to be essential for teachers and school directors

Teachers	School directors
Takes daily roll call Prepares daily lesson plans Prepares bimonthly lesson plans Monitors student learning Has tested pupils during the past two months Helps lagging students Discusses student learning issues with the director	Keeps a register of enrollment Signs off on daily roll call Analyzes student absences on a monthly or bimonthly basis Reviews pupils' test results Takes stock of teacher absences Informs subdistrict or district officer about teacher absences Follows up with teachers on lesson planning

Source: Government of Madagascar (2004).

According to the school survey data, only 42 percent of teachers perform all of the tasks deemed essential for good classroom management (Table 3). In 24 percent of the schools, all of the teachers perform all of their essential tasks. The share of “conscientiously-managed” schools is only 15%. Obviously, these findings reveal that many aspects of the pedagogical process are poorly managed and that far too many school personnel neglect tasks that are deemed essential for student learning. The lack of organization, control, and accountability within schools compromises the performance of the system and the chance of success for many ongoing reforms. Results reported in a companion paper indicate that the way schools are run has a significant impact on students’ performance. All else remaining the same, students enrolled in a “conscientiously managed” school score about 0.14 of a standard deviation above the sample mean, compared with their counterparts, and this management effect is much stronger for low achievers (Lassibille 2009).

Table 3: Execution rate of essential tasks

Indicator	Number of observations	%
Teachers performing all seven essential tasks <sup>a</sup>	1,046	42.4
Schools with all teachers performing all seven essential tasks <sup>b</sup>	200	23.9
Well-managed schools <sup>c</sup>	200	14.6

Source: 2006–07 AGEMAD school survey.

a/ The teacher is the unit of observation.

b/ Schools with up to five teachers only.

c/ Schools where the director and all teachers perform their essential tasks; schools with up to five teachers only.

## 5 Correlates of teachers’ engagement at work

The picture that emerges from the previous analysis is that teachers’ engagement in teaching and teachers’ effort at work are low. To examine which attributes are associated with engagement at work, the probability that a teacher will execute all of the tasks considered essential to his role is regressed on his personal characteristics and on school-level variables



representing his workplace environment.<sup>8</sup> Specifically, the individual factors postulated to influence teacher behavior include gender, marital status, residential location, attachment to the local community, employment conditions, and professional experience, including whether the teacher had previously been employed in a private school and whether he held a second job at the time of the survey. Variables at both the classroom and school levels include the number of students in the classroom, an index of school conditions—constructed using principal components analysis based on the quality of the physical facilities of the school<sup>9</sup>—and the school head’s management style, controlling for subdistrict specific fixed effects. These fixed effects capture unobserved characteristics that are common to all teachers within the same subdistrict and that influence teachers’ engagement at work. Among these school-district effects is the management style of the subdistrict officers who supervise teaching and learning practices in schools. As an econometric specification, a probit model with no sample selection is used because teaching posts are allocated to schools by the Ministry of Education through a formula for teacher staffing. Under certain circumstances, teachers may self-select the schools to which they will apply and thus may have some choice in location. While the micro-level variation in teacher distribution may reflect variations in the attractiveness of specific schools, such as the availability of housing, proximity to roads, and access to centers of population, it is highly unlikely that new teachers will be able to select a school on the basis of the quality of work their future peers may perform in the classroom. In the absence of self-selection on unobserved characteristics related to teachers’ engagement at work, a probit model with no selection is used to adjust the probability for a teacher to execute all of the tasks considered essential to his role. Because teachers’ behavior within the same school may be correlated, and residuals may be not independent within schools, standard errors of the coefficients may be biased unless this

---

<sup>8</sup> An alternative approach is to consider each essential task—either separately or as a cluster of tasks—and to follow the methodology of Kling, Liebman, and Katz (2007), who estimate a system of seemingly unrelated regressions for the outcomes in each category and compute the average effect of an exogenous variable on each category of outcomes by averaging across the standardized effects of the individual outcomes included in that category. This approach was considered for this article, but the judgment of Malagasy educators that the individual tasks are an integrated package of closely connected actions required for managing the teaching and learning process ultimately was accepted. I also checked the robustness of my results by considering the number of tasks performed by each teacher. Regression results not shown here to save place indicate that considering a continuum of conscientiousness does not alter the results discussed below.

<sup>9</sup> The following items are included in the construction of the index: the structure is permanent, the number of classrooms is sufficient, and the school is equipped with electricity, water, latrines, and chairs for all pupils. The index ranges from about 126 in schools with all of these features to 75 in those with none of them.

correlation is corrected for. Hence possible intra-school correlation is taken into account by clustering standard errors at the school level. Two basic specifications are adjusted: first, a reduced model that only controls for teacher characteristics and, second, a full specification that includes class- and school-level variables. The results are shown in Table 4 along with the summary statistics of the variables for the data set. After excluding observations with missing values, the final sample includes 1,007 teachers in 294 schools.

Table 4: Probability for a teacher to execute all the tasks considered essential to his role

	Mean (sd)	I		II		III	
		Coefficient	Marginal effect	Coefficient	Marginal effect	Coefficient	Marginal effect
<i>Personal characteristics</i>							
Male	0.330 (0.470)	0.082 (0.095)	0.032 (0.036)	-0.008 (0.113)	-0.002 (0.028)	-0.019 (0.115)	-0.005 (0.028)
Married	0.675 (0.469)	0.045 (0.095)	0.017 (0.037)	-0.020 (0.114)	-0.005 (0.028)	-0.007 (0.115)	-0.002 (0.028)
Local origins <sup>a</sup>	0.762 (0.426)	-0.179 (0.112)	-0.069 (0.043)	0.012 (0.121)	0.003 (0.030)	0.014 (0.122)	0.003 (0.030)
Walking distance to school <sup>b</sup>	0.0526 (0.223)	-0.024 (0.170)	-0.009 (0.065)	-0.184 (0.187)	-0.045 (0.046)	-0.154 (0.185)	-0.038 (0.045)
Civil service teacher <sup>c</sup>	0.521 (0.500)	0.253* (0.137)	0.097* (0.052)	0.410** (0.168)	0.101** (0.041)	0.425** (0.166)	0.104** (0.040)
Years as a teacher	14.69 (12.17)	0.273** (0.129)	0.105** (0.049)	-0.014 (0.155)	-0.003 (0.038)	-0.018 (0.155)	-0.004 (0.038)
Years in the present school	6.200 (6.794)	-0.008 (0.007)	-0.003 (0.003)	-0.008 (0.008)	-0.002 (0.002)	-0.009 (0.008)	-0.002 (0.002)
Previously employed in a private school	0.125 (0.331)	0.005 (0.009)	0.002 (0.003)	0.001 (0.011)	0.000 (0.003)	0.001 (0.011)	0.000 (0.003)
Holding a second job	0.0755 (0.264)	-0.404* (0.209)	-0.155* (0.080)	-0.692*** (0.255)	-0.170*** (0.062)	-0.683*** (0.254)	-0.167*** (0.062)
<i>School-level variables</i>							
School managed by a “good” school head	0.644 (0.479)	—	—	—	—	0.327** (0.163)	0.080** (0.040)
Index of school conditions <sup>d</sup>	101.4 (9.861)	—	—	—	—	0.003 (0.010)	0.001 (0.003)
Class size	25.19 (22.29)	—	—	—	—	-0.001 (0.004)	-0.000 (0.001)
Constant	—	0.087 (0.174)	—	1.715*** (0.634)	—	1.408 (1.274)	—
Subdistrict fixed effects		No		Yes		Yes	
Significance fixed effects (p-values)	—	—	—	0.000	—	0.000	—
Log likelihood function	—	-66.213	—	-42.858	—	-42.551	—
Pseudo R <sup>2</sup>	—	0.0168	—	0.364	—	0.368	—
Number of teachers	1,007	1,007	—	1,007	—	1,007	—
Number of schools	294	294	—	294	—	294	—
Number of subdistricts	85	85	—	85	—	85	—

Source: 2006–07 AGEMAD school survey.

Note: \*\*\* Significant at 1%. \*\* Significant at 5%. \* Significant at 10%. Standard errors are in parentheses. Clustering is at the school level.

a/ Teacher born in the region where the school is located.

b/ Walking distance more than one hour.

c/ FRAM teacher is the omitted category.

d/ See footnote 9 for an explanation of the construction of this index.

The findings indicate that personal demographics explain little of the variation in the behavior of school personnel. As shown in Table 4, taken together, the variables used in the analysis account for less than 2 percent of the variation in the probability for a teacher to

perform all of the pedagogical and administrative tasks that are considered essential for a well-functioning system. To some extent, this result is in line with what is observed in other countries. To illustrate, Rutter (1986) finds very moderate relationships between the characteristics of teachers and teachers' commitment at work in the United States; Basikin (2007) obtains a similar result for secondary school teachers in Indonesia.<sup>10</sup> The estimated coefficients on school districts are jointly very significant, as revealed by the p-values at the bottom of the table.

Focusing now on the characteristics of individual teachers, the results from the regressions presented in Table 4 show no significant gender effect on the probability of performing the essential tasks. Several studies have argued that motivation and incentives to help the community are probably higher among local teachers because of their ties to the local area and greater sense of accountability (see, for example, Alcázar et al., 2006). However, the results of this study indicate that attachment to the local community—measured by a dummy indicating whether the teacher was born in the region where the school is located—has no significant impact on teachers' behavior at work.<sup>11</sup> In a similar vein, teachers who were previously teaching in the private sector are not more likely to perform the essential tasks than their counterparts. One possible reason may be that the public sector is not able to attract the best private sector teachers or that private sector teachers who move to the public sector tend to adapt their level of work effort to the level of commitment of their new peers. Attachment to the teaching force, measured by the years of service as a teacher over the teachers' entire career and in the present school, has no significant impact on the probability of performing all of the tasks deemed essential for good classroom management. Otherwise stated, the ability of teachers to manage the pedagogical process in their classroom does not improve with accumulated experience. This result also suggests that the probability for an experienced teacher to be a good mentor is probably low and that the probability for a novice teacher to learn good practices from his senior peers in the school is probably small. Because good managerial skills with regard to the pedagogical process are not acquired through learning-by-doing and probably not through learning from others either, building skills for good classroom management would require

---

<sup>10</sup> However, the definition of engagement at work used by these authors departs from the one used here, as they also take into account attitudes and predispositions at work. In Rutter (1986), for example, engagement at work includes the following aspects: how successful teachers feel in doing their work, how much time they spend helping students outside of class, how much acceptance and respect they feel from their colleagues, and whether they have changed their teaching practices in recent years.

<sup>11</sup> A similar result is obtained when measuring attachment to the local community by a dummy indicating whether the teacher was born in the community where the school is located.

specific actions and interventions. As teachers in Madagascar do not receive specific training on management of the pedagogical process, ongoing pre- and in-service training programs for teachers could include short modules on classroom management, and operational tools designed to help teachers to accomplish their tasks should be developed.

Another noteworthy feature in the results presented in Table 4 is that the type of employment contract held by teachers has a significant impact on teachers' work behavior. Based on their job status, there are two broad categories of teachers in Madagascar. The first group of teachers consists of civil service teachers who are recruited and paid by the government. The second group consists of FRAM teachers.<sup>12</sup> In past years, FRAM teachers were hired by the communities to respond to the lack of publicly paid teachers in the country; they were paid entirely by the parents' association through fees paid by pupils' families. Since 2002–03, the government has contributed to the pay of FRAM teachers. Today, these teachers make up 50 percent of the teaching staff at the primary level, compared to only 5 percent in 1998. While contract teachers in Madagascar have more years of formal schooling than civil service teachers on average, they have little prior exposure to teacher training programs, and their professional qualifications are generally lower. They are paid considerably less than their counterparts for doing the same job. Their monthly salary is 60 percent below that of civil service teachers on average, and they are only paid for 10 months out of 12.<sup>13</sup>

According to the results in Table 4, FRAM teachers are significantly less likely to execute conscientiously the tasks that are considered essential to their role. The estimates indicate that contract teachers have a probability of performing the seven essential tasks 10 percentage points lower than their counterparts, *ceteris paribus*. This is an important result because Madagascar, like many others developing countries, has recently hired a large number of contract teachers. The lower engagement at work of contract teachers may reflect a weaker attachment to the post. To a considerable extent, it reflects lower motivation due to a combination of weak incentives, fairly limited promotion opportunities within the education sector, and low job satisfaction. The probability for a contract teacher to be integrated into the regular teaching force—and consequently to improve his economic situation—is only 13 percent on average. The survey offers particularly telling observations regarding job satisfaction among contract teachers. Respondents were asked to rate their job satisfaction on a 10-point scale, where a value of 1 corresponds to “not at all satisfied” and a value of 10 corresponds to “completely satisfied.” Results show that 25 percent of contract teachers are highly satisfied

---

<sup>12</sup> FRAM is the acronym for *Fikambanan'ny Ray Amandrenin'ny Mpianatra*, the school-based parent-teacher association.

<sup>13</sup> For more details on FRAM teachers, see Government of Madagascar (2008) and World Bank (2002).

with their job compared to 34 percent of civil service teachers, where highly satisfied is defined as reports of job satisfaction at the level of 7 or higher. In contrast, 4 percent of civil servants are highly dissatisfied with their job compared to around 10 percent of contractual teachers, where highly dissatisfied is defined as reports of job satisfaction at the level of 4 or lower.

When teacher pay is low, the incentives to generate additional income from secondary activity are generally high. In the sample, around 8 percent of teachers hold a second job. As expected, having a second job directly affects work effort in the main job. As shown in Table 4, teachers with a second job have a probability of executing the essential tasks 16 percentage points lower than their counterparts.

Regarding school- and class-level variables included in the model, no significant relationship is found between the number of students taught in the classroom and the way teachers handle the essential aspects of teaching. The intuition of this result is clear with regard to the nature of many of the elemental tasks teachers have to perform. Obviously, preparing lessons, discussing student learning issues with the director, or monitoring student learning are to a large extent “fixed-cost tasks”—that is, the cost of performing one of these particular tasks stays the same regardless of the number of students in the classroom. Similarly, no significant relationship is found between the overall working conditions that teachers encounter at the school—measured through an infrastructure index—and their probability of performing all of the tasks deemed essential for good classroom management. This is a somewhat unexpected result because workers are generally expected to do a better job and to be more motivated in a good physical working environment. A quadratic term of the infrastructure index is included in the model to check for possible threshold effects and nonlinearities in the relationship between teachers’ working conditions and engagement at work. However, results not reported here indicate no significant nonlinearities in the relationship. Finally, results in Table 4 show that the principal’s management style has a significant and positive impact on teachers’ commitment at work. Teachers in schools administered by a “good” school head have a probability of performing all of the essential tasks around 8 percentage points higher than their counterparts. This finding is in line with the commonly held belief that school leaders are vitally important in influencing teachers’ behavior and have a central role in developing effective schools (see, for example, Bennell, 2004; Dinham, 2005; Purkey and Smith, 1983). Where teachers’ motivation and incentives are low and professional qualifications are scarce, making explicit to teachers their responsibilities, giving them proper support, and supervising their work are crucial elements in promoting excellence among staff. For these reasons, particular attention should be paid to the recruitment and training of head teachers in order to ensure that every school is placed under the control of a strong and engaged principal.

## 6 Conclusion

Schools face complex problems, and for the most part the solutions have not yet been found. A detailed analysis of how education is delivered in schools reveals that many aspects of the pedagogical process are poorly managed and that far too many school personnel and administrators neglect tasks deemed essential for student learning. As mentioned earlier, pupil absenteeism is poorly monitored by teachers and poorly supervised by school directors. Essential pedagogical tasks are often neglected: 20 percent of teachers do not prepare daily lesson plans, school directors rarely discuss with teachers their daily lesson plans. Students' academic progress is poorly monitored, and communication from teachers to parents on student learning is often perfunctory. School directors rarely follow up with their teaching staff on student performance; more than 80 percent of them fail to report teacher absences to administrators at the subdistrict and district levels. In only 15 percent of the sample schools do all the teachers and school directors consistently perform the package of seven tasks considered essential by Malagasy educators.

The regression results clearly show that contract teachers are significantly less likely than civil service teachers to execute conscientiously the tasks that are considered essential to their role. The lower engagement at work of contract teachers may reflect a lower attachment to the post due to a combination of weak incentives, fairly limited opportunities for promotion, and low job satisfaction. It is nonetheless important to emphasize that even for civil service teachers, there is no room for complacency. The share of "good teachers" among this group is around 45%. Moreover, the results show that the ability of teachers to manage the pedagogical process in their classroom does not improve with accumulated experience. Otherwise stated, the probability for a novice teacher to learn good practices from his senior peers in the school is probably small. The findings from this study have also shown that the principal is the key agent in the school and that leadership is vitally important in developing effective schools and in facilitating quality teaching and learning. In this regard, teachers in schools administered by a "good" school head have a probability of performing all of the essential tasks around 8 percentage points higher than their counterparts.

There are clear signs of weak management. Various interventions could be fashioned with the goal of rationalizing and tightening the work processes of teachers and making schools more effective. Improving the management of the pedagogical process would require defining and prioritizing the responsibilities of teachers and school directors, with mechanisms for support and performance monitoring. In this regard, school personnel should be equipped and trained with management tools specific to their role and designed to aid in task execution and to reinforce reporting relationships among school personnel. The toolkit of operational instruments

should focus on teachers' core responsibilities—for example, pedagogy, student learning and follow-up, management of instructional time, administration, school statistics, and partnership with the local community—and should be designed to modify the current behavior of personnel. The management action plan should include features that encourage the school director to pay closer attention to the work of the personnel he or she supervises, to review information supplied by a teacher, and to suggest specific follow-up actions when needed. Special attention should be paid to the recruitment and training of school directors in order to ensure that every school is placed under the control of a strong and engaged principal. By increasing information flows between personnel and improving accountability, this set of interventions should lead to improvement in their behavior. These positive behavioral changes would lead to better-functioning schools, which would positively influence the quality of education and translate into improved student learning.

## References

- Adekanmbi, A., Blimpo, M., and Evans, D. (2009). *The State of The Gambia Lower Basic Education*. The Republic of The Gambia, Department of State for Basic and Secondary Education.
- Alcázar, L., Rogers, F.H., Chaudhury, N., Hammer, J., Kremer, M., and Muralidharan, K. (2006). *Why are teachers absent? Probing service delivery in Peruvian primary schools*. Mimeo. World Bank, Washington, DC.
- Banerjee, A., and Duflo, E. (2006). Addressing absence. *Journal of Economic Perspectives*, 20 (1), 117–32.
- Banerjee, A., Jacob, S., Kremer, M., Lanjouw, J., and Lanjouw, P. (2005). *Promoting school participation in rural Rajasthan: Results from some prospective trials*. Working Paper. MIT, Cambridge, MA.
- Basikin, B. (2007). *Vigor, dedication, and absorption: Work engagement among secondary school English teachers in Indonesia*. AARE conference, Monash University, Victoria, November 25–29, 2007.
- Bennell, P. (2004). *Teacher motivation and incentives in Sub-Saharan Africa and Asia*. Mimeo. Knowledge and Skills for Development, Brighton.
- Brown, S.P. (1996). A meta-analysis and review of organizational research on job involvement. *Psychological Bulletin*, 120(2), 235–255.
- Campbell, R.J., Rupert, S., and Neill, S.R.St.J. (1994). *Primary Teachers at Work*. Routledge, London.

- Chaudhury, N., Hammer, J., Kremer, M., Muralidharan, K., and Rogers, H. (2006). Missing in action: Teacher and health worker absence in developing countries. *Journal of Economic Perspectives*, 20(1), 91–116.
- Dinham, S. (2005). Principal leadership for outstanding schooling outcomes in junior secondary education. AARE annual conference, University of Woollongong, November-December 2005.
- Duflo, E., Dupas, P., and Kremer, M. (2007). Peer effects, pupil-teacher ratios, and teacher incentives. Working paper. MIT, Cambridge, MA.
- Filmer, D., and Pritchett, L. (1999). What education production functions really show: A positive theory of education expenditures. *Economics of Education Review*, 18, 223–239.
- Glewwe, P., Holla, A., and Kremer, M. (2009). Teacher incentives in the developing world. In *Performance Incentives: Their Growing Impact on American K–12 Education*, ed. M. Springer. Brookings Institution Press, Washington, DC.
- Glewwe, P., Kremer, M., and Moulin, S. 2009. Many children left behind? Textbooks and test scores in Kenya. *American Economic Journal of Applied Economics*, 1, 112–35.
- Hakanen, J.J., Bakker, A.B., and Schaufeli, W. (2006). Burnout and work engagement among teachers. *Journal of School Psychology* 43, 495–513.
- Hanushek, E. (1997). Assessing the effects of school resources on student performance: An update. *Educational Evaluation and Policy Analysis*, 19(2), 141–164.
- Hilsum, S., and Caine, B. (1971). *The Teachers' Day*. National Foundation for Educational Research, Slough.
- Hilsum, S., and Strong, C.R. (1978). *The Secondary Teachers' Day: Report of the NFER Research Project*. National Foundation for Educational Research, Windsor; distributed by Humanities Press, Atlantic Highlands, NJ.
- Kirkpatrick, C.L. (2007). To Invest, Coast or Idle: Second-stage Teachers Enact their Job Engagement. AERA conference, Chicago, IL, April 10, 2007.
- Kling, J., Liebman, J., and Katz, L. (2007). Experimental analysis of neighborhood effects. *Econometrica*, 75(1), 83–119.
- Lassibille, G. (2009). La gestion des processus pédagogiques. Paper presented at the Fourth Workshop on Improving Education Management in African Countries. Niamey.
- Lassibille, G., and Tan, J.P. (2003). Student learning in public and private primary schools in Madagascar. *Economic Development and Cultural Change*, 51(3), 699–717.
- Madagascar, Government of. (2004). *Amélioration de la gestion de l'éducation à Madagascar: Approche stratégique et plan d'actions*. Government of Madagascar, Antananarivo.



- . (2008). *Éléments de diagnostic du système éducatif Malagasy: Le besoin d'une politique éducative nouvelle pour l'atteinte des objectifs du millénaire et la réduction de la pauvreté*. Government of Madagascar, Antananarivo.
- Pandey, P., Goyal, S., and Sundararaman, V. (2008). Public participation, teacher accountability, and school outcomes: Findings from baseline surveys in three Indian states. Policy Research Working Paper 4777. World Bank, Washington, DC.
- Purkey, S., and Smith, S. (1983). Effective schools: A review. *Elementary School Journal*, 83(4), 427–452.
- Rutter, R.A. (1986). Facilitating Teacher Engagement. National Center on Effective Secondary Schools, University of Wisconsin, Madison.
- World Bank. (2002). *Education and training in Madagascar: Toward a policy agenda for economic growth and poverty reduction*. World Bank, Washington, DC.
- . (2008). Service delivery in the education and health sectors in Madagascar. Mimeo. World Bank, Washington, DC.
- . (2010). *Améliorer la gestion de l'enseignement primaire à Madagascar: Résultats d'une expérimentation randomisée*. World Bank, Washington, DC.