Financial Cost For Protecting Instructional Time: A Pilot Study of Primary and Secondary Schools in Malaysia

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Abstract: The education sector is truly a labor-intensive industry. A large chunk of the financial cost for managing this industry is the workforce, that is, salaries for the teachers. The absenteeism of teachers, whether due to absence from the school or occupied with other duties, causes a disruption in the teaching and learning process. Classroom productivity is affected because instruction cannot take place and this will give rise to the students to experience an adverse economic impact. This financial loss to students can be estimated based on the salaries received by teachers. Two schools, a primary and a secondary school, are used for the pilot study. This case study involved 112 teachers from a primary school and 75 teachers from a high school in Kuala Lumpur. Data collected, over a period of one year, include attendance records, teacher movement records and medical appointment letters. On average, teachers who were absent from school or the classroom comprised 10% of the school year. 50% of the teacher absenteeism was due to personal reasons, and 50% was due to work duties. The financial loss to students due to teacher absenteeism is estimated to be equal to that of the teacher’s average monthly salary. The total costs to both schools were calculated to be more than half a million Malaysian Ringgit for an academic year of schooling. This amount is enough to pay the annual salaries of almost seven teachers for each school. Instructional time lost needs to be prevented as this means high financial costs and an adverse impact on student learning. It also indicates the inefficient use and management of economic resources. However, the findings based on one case study alone are insufficient to justify for an immediate change in the education policies. Further in-depth study involving more samples and more comprehensive research needs to be carried out to obtain a better picture.

Keywords: Financial, Absenteeism, Comprehensive Research, Ringgit, Attendance, Salary

1. Introduction

A student’s learning rate is influenced by a variety of cultures, their capabilities, and socioeconomic backgrounds. In a typical classroom, the quality of instruction and efficient use of time plays a significant role in the teaching and learning process. Time is one of the factors in the learning process that needs to be acknowledged as an input in education. In all its shapes and variations, irrespective whether it has a direct or indirect link to the output in the education industry, is the quality of the student. One of the deciding factors for school quality is the teaching and learning process, whereby if the rate of productivity is high, then the output quality can be seen as having improved. The use of instructional time can have different effects on students, whether it is the length of time or how it is utilized in the learning process. It cannot be denied that teachers are the most valuable input as they are the presenters of knowledge. However, teacher's time and energy are also needed for non-curricular activities, administrativework, and community activities. A report from the ministry stated that a teacher’s working day is indeed long, from 40 to 80 hours per week (or 15 hours per day), although they are only supposed to be in school for 8 hours a day (MOE, 2013a). The report furthegoes on mentioned that long hours in school does not necessarily reflect the efficient use of resources in the classroom. A teacher's primary duty is likened to an architect whose teaching and learning process takes only 2.4 to 2.9 hours a day or about 15 hours each week on average. This short period is the primary input necessary in producing the desired output (the success of student learning), rather than any classroom activity. As a result, this instructional time should be used efficiently to avoid any disruption. Hallinger and Murphy (1987) in their instructional leadership framework stated that the promotion of an efficient learning environment is a method to protect teaching and learning time from any interruptions. The first interruption of instructional time is a factor of school management and teacher instruction. The Teaching and Learning International Survey (TALIS) reported that the factors affecting student’s learning time were absenteeism, teachers coming late to class and insufficient pedagogical preparation (OECD, 2010). Other than that, instructional time interruptions happen when teachers are in school but not in the classroom. This is because the teachers were instructed to attend ongoing co-curricular activities such as sports, meetings, being called to the office, examination briefings, having to entertain visitors or having to attend to outside duties such as those of a trainer, a chaperon or a course participant. Other physical interruptions include the re-arranging of school or class, announcements over the public address system.
and dealing with school infrastructure or the environment. Furthermore, other problems such as floods or haze that force the closing of schools also affects the quality of teaching and learning.

Interruptions to the education and learning process result to the inefficient use of limited resources, which affects productivity in education. Instruction time needs to be protected to maximize the number of time students involved in productive learning. Failure to do so is an economic loss in education, and it needs to be calculated or rated because the costs of input are high. From an economic context, interruption to teaching and learning caused by teacher absenteeism is an economic wastage due to loss of productivity (Lupo, 2013; Brunhuber, 2017). According to Silcock (2003), a workforce that does not work, or is not present, is economic costs to a nation because of non-contribution to productivity, prolific output or potential economic output. In education, instructional time for teaching and learning is considered as an input in education. Therefore, teacher absenteeism from class, whether on holiday, on outside duties or other reasons constitute economic wastage or loss to students (Hanushek & Ettema, 2017). In economic terms, the fee or wage is a proxy to estimate a reduction in labor productivity in the context of education. Thus, if teachers are absent from school, the loss suffered by the student is the knowledge he or she is supposed to receive. As it is difficult to collect comprehensive data, school managers find it awkward to increase cost effectiveness and have to look for alternative ways to increase quality output (Shaw & Newton, 2014), limited as they are by the input and costs. In developed countries, economic losses from teacher’s absenteeism are much easier to estimate by using the financial cost of substitute teachers. But in the education system where paid substitute teachers are not in practice, hence, economic losses of absenteeism can be estimated by using the opportunity cost of teachers’ instructional time which is the motivation of this study. This study aims to contribute to educational planning and management by reducing inefficiency when using the resources due to teacher’s absenteeism. This research paper explores the matter contained in these two questions (1) what is the pattern of teacher absenteeism in government primary and secondary schools?, and (2) what are the financial costs for protecting instructional time due to teachers absenteeism?

2. Literature Review

It is obvious that students will gain more knowledge when they spend more time on learning because time is part of the learning input. They should be learning more when they spend a lot of time learning from good teachers and parents in smaller-sized classes. The number of days in a school year and the number of hours in the teaching and learning process in a classroom are directly related to students’ achievement. Interaction and activities during the instructional process are very critical for ensuring quality student success. Improvements in instruction will enhance the education output (Barber and Mourshed, 2007). But, all that comes from good instructional leadership not only strengthen the quality of instructional process but also covers classroom monitoring, staff development and curriculum development (Porter, 1989; Gershenson, 2012; Joseph, Waymack & Zielaski, 2014). However, this still depends on the teaching and learning environment in the classroom. Hallinger and Murphy (1987) stated that there are 11 elements involved in promoting a better school education and learning environment. One of the items is the control of the teaching and learning to ensure there is no interruption of instructional time. Teacher absenteeism in the classroom will lower classroom productivity. One common reason for teachers who are not in the classroom (or the school) is illness. Other causes are occasional official duties and responsibilities approved by the school administration.

Harrison and Price (2003) and Dana (2014) defined absenteeism as the physical absence of a person from where he is supposed to be. This is categorized as voluntary and involuntary absenteeism (Sagie, 1998). Voluntary means the worker is absent due to reasons within the employee’s control, while involuntary absence is caused by factors beyond the employee’s control such as illness, death, etc. In the context of this country’s education practice, the first category of school absence is personal leave, which allows for ten days subject to the permission or discretion of the school administrators. The second type is medical leave, which must be supported by a medical certificate either issued by a public or private hospital. If there are other factors that cause the absence, then the teacher can take special permission or unrecorded leave subject to the discretion of the administrators. Other than the two categories of absenteeism (personal or sickness), teacher absenteeism in the classroom may also be caused by instructions to carry out duties, whether in school or outside, such as attending meetings, coordinating activities or events (Ivatts, 2013).

Initial reviews at several schools held by the Ministry of Education show that the rate of absenteeism is rather high. For example, a 4-month review (from June to October) of 625 teachers from 11 schools revealed that the average number of days a teacher was absent from school was 10.45 days. Other reviews that involved 2292 teachers from 21 schools (from January to August) revealed that the monthly rate of absenteeism was between 13.20 to 43.83 percent on the average. In extreme cases, 29 outside activities caused more than 30 percent of the
teachers to be absent on a particular day. There was even a rural school that recorded 45 teachers (about 29.80 percent) who were absent from school on one particular day. An investigation of one rural district that involved 14 schools (from January to May 2013) showed that the average rate of attendance was 80.77 percent, while there was even a class that recorded 67.0 percent attendance (Ministry of Education, 2013a). As compared to other professions, teacher absenteeism is almost twice as frequent (Podgursky, 2002; Shapira-Lischinsky & Ishan, 2013).

The direct impact of teacher absenteeism simply means no teaching and learning takes place in the classroom (Herrman & Rockoff, 2012; Montiel, 2017). Even though teacher substitution methods are employed to ensure a teacher is present in every class (to look after discipline, at the very least), teaching and learning hardly ever takes place (Roby, 2010). However, if any teaching process takes place, the effectiveness may not be the same (Damle, 2009). In the current education system, paid substitute teachers can only be considered to replace teachers who are on maternity leave and even then, only when that teacher has given birth. As 70 percent of the schoolteachers are female, teacher absenteeism due to maternity leave is a perfectly normal matter. There have been cases where as many as ten female teachers in one school were on maternity leave throughout the year of 2012. Of that number, six teachers took the maximum leave of 90 days, two took 60 days of leave, and two more took 180 days of leave (which included three months of leave without pay). All of these teachers took their leave 14 days earlier than their due date which disqualified the school for teacher substitutes during that time (MOE, 2013a). In another school, teacher’s movement book recorded that there were teachers who were absent from their classrooms due to meetings or attending courses almost every week. A teacher who leaves school five times a year to attend meetings is estimated to take between two to three hours each time. It means that the teacher is absent from class for four to six teaching periods in a week (160 to 240 minutes). If that time is used in an efficient way, that teacher could have finished at least one chapter of teaching (MOE, 2013a).

Teacher absenteeism from class or school is an issue that needs to be handled carefully. Such desertion involved high costs as the teachers’ salaries, allowances and compensation accounts for more than 70% of the educational budget. Losses to the students due to the loss of instructional time need to be calculated in financial terms to assess the actual losses to this nation. In the United States, the amount that had to be paid to handle the problem of teacher absenteeism in the classroom was valued at US$2 billion per year (Murnane et al. 2008). While for the period 2012-2013, 40 of the biggest school urban districts spent US$424 million on substitute teachers, or an average of US$1,800 per teacher to cover absences (National Council on Teacher Quality - NCTQ), 2014. The latest study by McIntosh (2015) in one district that comprised of 429 educational staff found the estimated cost of absenteeism was $491,000 over a two-year period. In the United Kingdom, it was as much as £300 million (Bowers & McClver, 2000) and for Israel, US$53 million (Rosenblatt & Shirom, 2005). In developed countries such as in the UK and the US, they estimated the cost of absences by using some substitute’s teachers’ wages directly. However, some developing countries could not manage to pay for substitute teachers. Alternatively, teachers’ absences replaced by the on-duty teacher or another teacher was not scheduled to teach or train teachers, if any. Priorities are having a teacher and making sure the students are not left unattended in the classroom at any time. With national averages of teacher absenteeism ranging between 3 percent and 27 percent for developing countries (Guerrero et al., 2012), the cost of absenteeism is high. A financial loss from teacher absenteeism in Equador and India was near $16 and $2 million a year respectively (Duflo & Hanna, 2005; Banerjee & Duflo, 2006). However, the differences in cost between nations were difficult to compare because of the differences in definitions and criteria for teacher absenteeism (Shapira-Lischinsky & Rosenblatt, 2010), but what is clear is that this problem in the educational system tends to increase the costs of education (Vaizey & Sheehan, 1968; Vaizey, 1971; Adeyemi, 1998).

Teachers’ absences will affect students’ achievement directly and indirectly. Literature suggests that teacher absences affect students’ achievement through some mechanism. For instance, the distraction is a long-term plan, which involves routine instruction and procedures (Capitant, 1980; Gagne, 1977; Rundall, 1986; Turbeville 1987, Jimenez & Sawada, 1999; Varlas, 2001; Duflo, et al., 2012). Furthermore, teachers substitutes may have difficulty to address the needs of individuals due to lack of knowledge of students’ skill (Miller et al., 2008). All education systems allocate time for teaching and learning, depending on the priorities of their respective education policies. But it has been clear that the actual time for teachers and students’ active involvement in teaching and learning is less than the time given (Millot & Lane 2002; Abadzi 2007). The capacity to maximize instructional time (time-on-task) is subject to the success of dealing with instructional time interruptions such as classroom management tasks, transitions between activities, lack of activities and disciplinary problems (Levin & Nolan, 2013). Also, instructional time is relatively short, making it all the more necessary to be protected from activities other than teaching and learning. According to MOE (2013a), instructional time in this country is only between 144 to 174 minutes a day or about 14 hours per week, on average. As a result, if teachers are not in the classroom, the students will pay the price regarding the possibility of losing skills and knowledge from instructional activities.
A financial estimation cost of teacher absenteeism is in line with the Malaysian Education Blueprint, which is to maximize students’ outcome for every dollar, spent (MOE, 2013b). The efficiency and effectiveness should bring good returns of high educational expenditure levels; hence, how funds are allocated and spent should be calculated (MOE, 2013b). In particular, the loss of students - estimated in financial terms, is a motivation for this pilot study. This research paper will estimate the economic losses to students caused by loss of instructional time. For this purpose, one secondary school and one primary school in Malaysia will be the subject of this pilot study.

3. Methodology

A decline in productivity regarding the output for industries due to workforce absenteeism seems easier to estimate based on the output or daily wages. However, in reality, this is harder to predict due to work time rationalization, other workers' overtime and substitute employees. Therefore, losses can be estimated by taking into account the wages of the employees, which make the numbers lower than they are. When calculating the costs of workforce absenteeism in the education sector, the industry works differently as the output involves the students, which is hard to calculate in financial terms. Wage labor (i.e. teachers) is the best proxy for financial cost estimates for teacher absenteeism in the classroom. However, this method can still have room for debate. Also, teacher absenteeism does not mean the teacher is not present for work. They are present but are unable to carry out teaching as they have other duties to attend to which are not instructional duties. It is considered as opportunity cost to the students. If the science or mathematics teacher is not in class, whether the students do their work under the supervision of other teachers or there are substitute teachers who carry out teaching, it is also considered as opportunity cost for the students. Hence, it is important to understand the differences between fixed cost, variable cost and opportunity cost. Fixed cost is a short-term cost that does not vary with changing output such as the classroom, the laboratory and so on. The opportunity cost to the school is income that may accrue if the resources or assets used for other purposes (such as rental or house building). In the context of teacher absenteeism in the classroom, the opportunity cost would be other teachers' time or the time of a supervisor who may have to take action in the absence of the teacher. It may also be the cost of a substitute teacher if a teacher is to be absent for an extended period. Variable cost is cost related to workforce cost (manager, teacher or staff) involved in managing or carrying out the teaching and learning activities. Hourly wages would be variable costs for a workforce that is paid on an hourly basis, and, in this case, it would be easier to calculate the cost of teacher absenteeism (Macy & Mirvis, 1976; Martocchio, 1992). However, for workers receiving monthly wages, the concept of hourly wages can still be applied. Teachers are the input for students (output) through teaching and learning (productivity). The lack of teaching and learning activities would be a loss to students, which carries an adverse effect in the long run. The loss borne by students can be estimated in financial terms based on the proxy of teachers' wages. For example, if the teacher were absent from school for two days, then there would be an output loss. For the students, it would be knowledge via the teaching and learning that was supposed to be received which is calculated in economic terms as the teacher's wages for the two days. This case study method is selected for the pilot study. The two schools were chosen based on the availability of complete attendance records for one academic year via the attendance book, the time punch cards and files of teacher movements. Other than that, the researcher also had to refer to official school documents to obtain data that was not sufficient. Teachersamples comprised 115 teachers (29 male and 86 female teachers) at a primary school – Primary School A (PSA) and 75 (17 male and 58 female teachers) at a particular secondary school – Secondary School B (SSB). According to Silcock (2003), the Human Capital Model is a model that can be used to estimate economic losses for workers that cannot work due to accidents. It is an economic cost experienced by a country because the employee cannot contribute to productivity due to loss of resources, prolific output or potential economic output. This model is based on estimating the cost or production losses that have to be borne by the government or the students due to teacher absenteeism. It builds on the concept of Lost Labor Output (LLO). This method estimates economic loss or output loss by calculating the number of days the worker (i.e. teacher) is absent multiplied with the average daily wage. It is similar to what was used by Martocchio (1992) who estimated the financial cost of absence decisions based on the behavioral cost accounting approach by Greer and Cascio (1987) and Cascio (2007). The average variable cost for absence per worker relies on the average wage per hour multiplied by the number of working hours per day. Then, multiplied by the number of days absent during the period of the study. In this case study, economic loss (in financial terms) due to teacher absenteeism in the classroom is based on the total number of instructional hours for the teacher. Therefore, the estimation procedure is the calculation of the total cost per hour, which is

\[ IC_{It} = \sum_{it}^{n} \frac{W_{it}}{T_{it}} \]

where \( IC_{It} \) is Instructional Cost per Hour, \( W_{it} \) and \( T_{it} \) is total average teacher wage and Total Working Hours for school \( i \) at time \( t \). Therefore, economic loss due to teacher absenteeism in the classroom is
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\[ EL_{it} = IC_{it} \times A_{it} \]

where \( EL_{it} \) is an economic loss to the students and \( A_{it} \) is the total hours of teacher absence.

Data was collected by checking the teachers' attendance from three primary sources; which are the time punch cards, the book which recorded teacher and staff movements and the attendance book for one year (January to December 2018). Information was also obtained from the school, specifically, data related to teacher’s wages and allowances. Information associated with the attendance for a year was not asked from the teachers because most of them were not aware or did not record their absences in that one calendar year.

4. Results

1) What was the cause of teacher absenteeism?

The results of the study found ten reasons why teachers are absent from school. There were two categories of leave, which were not taken, into account for the economic loss analysis, namely maternity and annual leave. Maternity leave only involves the female teachers and annual leave only applies to the top school administrator, which is the secondary school principal or the primary school headmaster. The data showed that the number of teachers who gave birth in the year of study totaled 11 people; eight (8) in the primary school and three (3) in the secondary school. The principal and the headmaster used their individual leave as follows, 22 out of 30 days for the Principal and 20 out of 25 days for the Headmaster. Table 1 illustrates the eight reasons for teacher absenteeism. The number of teachers absent in the Primary School A (PSA) due to illness was five (5) days a year on the average. From this figure, 1.95 days was certified by government health centers and 2.54 days from private health centers. At the Secondary School B (SSB), data from 75 respondents (not including the Principal and two Counselors) showed the average number of days teachers were absent was 2.35 days (for those with medical certs from government clinics or hospitals), which only 3.76 days (SD = 3.79) from private hospitals or clinics, on the average. Thus, teachers were absent from school on sick leave for an average of six (6) days for SSB, a day more when compared to PSA.

<table>
<thead>
<tr>
<th>Type</th>
<th>Primary School A (112)</th>
<th>Secondary School B (75)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>SD</td>
</tr>
<tr>
<td>Sick Leave (Public Hospital)</td>
<td>1.95</td>
<td>4.95</td>
</tr>
<tr>
<td>Sick Leave (Private Hospital)</td>
<td>2.54</td>
<td>2.78</td>
</tr>
<tr>
<td>Personal Leave</td>
<td>2.86</td>
<td>2.10</td>
</tr>
<tr>
<td>Unrecorded Leave</td>
<td>0.16</td>
<td>0.86</td>
</tr>
<tr>
<td>Curriculum Affairs</td>
<td>5.17</td>
<td>9.49</td>
</tr>
<tr>
<td>Co-curriculum Affairs</td>
<td>2.76</td>
<td>8.52</td>
</tr>
<tr>
<td>Student Affairs</td>
<td>0.33</td>
<td>1.35</td>
</tr>
<tr>
<td>Others</td>
<td>0.24</td>
<td>0.86</td>
</tr>
<tr>
<td>Total</td>
<td>16.00</td>
<td>14.40</td>
</tr>
</tbody>
</table>

Other than matters of emergency, the teachers at both PSA and SSB used an average of 3 days of their Special Leave or Personal Leave (SL/PL) (as seven (7) days were allocated for each teacher per academic year). Other than taking leave and attending to official tasks, there were other reasons for teacher absenteeism. Among them were attending interviews, distance learning exams, convocations and for personal problems such as family illness or death. Sometimes unrecorded Leave (UL) was also used (for instances for attending training, outside activities whether voluntary or upon instructions from the administration), emergency cases which involved the death of family, illness or other emergencies when SL allocation has finished. It is usually at the discretion of the principal or headmaster. In this case study, no teacher at SSB took Unrecorded Leave while at PSA; the average number of days for teachers to take UL was 0.16 days. The average number of days for teachers involved in curriculum affairs was five (5) days at both schools. While for co-curriculum affairs, it was three (3) days at PSA and four (4) days at SSB. Therefore, the teachers at the primary school used an average of seven (7) days for curriculum and co-curriculum activities, while those at the secondary level used an average of ten (10) working days. For student affairs, the average number of days for teachers to be absent from school was less than a day.
Table 2 below shows teacher absenteeism was categorized according to personal matters (illness or health problems), official duties and personal matters. The last two columns show the total number of days teachers were absent out of a total number of school days (210) including public holidays.

<table>
<thead>
<tr>
<th>Day</th>
<th>Illness SSB</th>
<th>PSA</th>
<th>Official SSB</th>
<th>PSA</th>
<th>Unofficial SSB</th>
<th>PSA</th>
<th>Total SSB</th>
<th>PSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>19 (25.3)</td>
<td>31 (27.0)</td>
<td>11 (14.7)</td>
<td>23 (20.5)</td>
<td>9 (12.0)</td>
<td>15 (13.4)</td>
<td>0 (0)</td>
<td>3 (2.7)</td>
</tr>
<tr>
<td>1 - 5</td>
<td>25 (33.3)</td>
<td>50 (44.6)</td>
<td>23 (30.7)</td>
<td>44 (39.3)</td>
<td>60 (80.0)</td>
<td>76 (67.9)</td>
<td>8 (10.7)</td>
<td>22 (19.6)</td>
</tr>
<tr>
<td>6 - 10</td>
<td>17 (22.7)</td>
<td>19 (17.4)</td>
<td>14 (18.7)</td>
<td>20 (17.9)</td>
<td>6 (8.0)</td>
<td>19 (17.0)</td>
<td>14 (18.7)</td>
<td>24 (21.4)</td>
</tr>
<tr>
<td>11 - 15</td>
<td>7 (9.0)</td>
<td>5 (4.5)</td>
<td>7 (9.3)</td>
<td>10 (8.9)</td>
<td>0 (0)</td>
<td>2 (1.8)</td>
<td>14 (18.7)</td>
<td>21 (18.8)</td>
</tr>
<tr>
<td>16 - 20</td>
<td>5 (6.7)</td>
<td>1 (0.9)</td>
<td>5 (6.7)</td>
<td>3 (2.7)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>11 (14.7)</td>
<td>15 (13.4)</td>
</tr>
<tr>
<td>21+</td>
<td>2 (2.7)</td>
<td>6 (5.4)</td>
<td>15 (20.0)</td>
<td>12 (10.7)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>28 (37.3)</td>
<td>27 (24.1)</td>
</tr>
</tbody>
</table>

Mean: 6.11 (SD: 8.88)    4.48 (SD: 6.51)    10.37 (SD: 10.47)    8.26 (SD: 12.23)    2.73 (SD: 1.86)    3.26 (SD: 2.52)    19.21 (SD: 13.63)    16.00 (SD: 14.40)

What is interesting is that there are three (3) teachers who recorded full attendance (100 per cent) at PSA but at the SSB, no teacher recorded full attendance. 10% of the teachers at SSB (8 people) were absent for 1 to 5 days, while at PSA it was 19.6%. The number of secondary and primary school teachers who were absent from school between 6 to 10 days comprised 28 teachers at SSB and 21 days were 37% or 28 teachers at SSB, while at PSA it was 14%. Those who were absent more than 21 days were 37% or 28 teachers at SSB and 45% teachers at PSA were absent between one to five days due to health problems. The findings also showed that two (2) teachers at SMB and six (6) teachers at SRA took sick leave totaling more than 21 days. For official matters, majority of the teachers took between six (6) to ten (10) days. However, there were fifteen (15) teachers at SSB and twelve (12) at PSA who were absent from class for more than 21 days to settle official duties. The maximum number of days teachers were absent from school for this matter was 37 days at SSB and 60 days at PSA, while the average number of days teachers were not in school due to official duties was ten (10) days for SSB and eight (8) days for PSA. For unofficial duties or cases of emergency, majority of the teachers were absent for one (1) to five (5) days on the average.

2) Financial Costs of Teacher Absenteeism

The total number of instructional time at school differed from teacher to teacher. It depends on the workload or responsibilities at school. If the teacher was involved in administration, then the total number of teaching periods would be less than other teachers not similarly involved. However, the non-teaching workload for majority of the teachers was quite critical. However, the primary duty of a teacher is to carry out teaching and learning. Therefore, instructional time is the highest priority.

Table 3. Instructional Time and Cost

<table>
<thead>
<tr>
<th>School</th>
<th>Item</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Min</th>
<th>Standard Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary School A (PSA)</td>
<td>Instructional time (monthly)</td>
<td>24.00</td>
<td>128.00</td>
<td>109.54</td>
<td>21.68</td>
</tr>
<tr>
<td></td>
<td>Instructional time (weekly)</td>
<td>6.00</td>
<td>32.00</td>
<td>27.38</td>
<td>5.42</td>
</tr>
<tr>
<td></td>
<td>Instructional time (daily)</td>
<td>1.20</td>
<td>6.40</td>
<td>5.48</td>
<td>1.08</td>
</tr>
<tr>
<td></td>
<td>Wages (per month)</td>
<td>2370.91</td>
<td>5133.91</td>
<td>3260.90</td>
<td>554.98</td>
</tr>
<tr>
<td></td>
<td>Wages (per week)</td>
<td>592.73</td>
<td>1283.48</td>
<td>815.23</td>
<td>138.74</td>
</tr>
</tbody>
</table>
At the secondary school (SSB), the average amount of instructional time is 24.36 weekly or 4.87 daily. The period for one session is about 35 minutes. The average daily wages for primary and secondary school are MYR34.67 and 47.71 respectively. Therefore, the financial cost per instructional period is MYR34.72 (PSA) and MYR47.71 (SSB). It means that if teachers are not in the classroom, the amount of financial losses to the primary school students are MYR34.72 multiplied by 5.48, which is MYR190.27 per day. Therefore, the financial cost or economic losses to students are summarized in Table 4.

<table>
<thead>
<tr>
<th>School</th>
<th>Cost per Instructional Time (per teacher)</th>
<th>Total Cost (Per school)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary School A</td>
<td>34.67</td>
<td>3,034.32</td>
</tr>
<tr>
<td>Secondary School B</td>
<td>47.71</td>
<td>4,406.33</td>
</tr>
</tbody>
</table>

The estimated cost or loss due to teacher absenteeism, in a year according to working days or teaching hours, is as much as MYR3,034.32 per year for each teacher in a primary school and MYR4,406.33 for a secondary school. The average number of days a teacher is absent during the period of this case study was 16 days for the primary school and 19.21 days for the secondary school (out of 210 days for the year). Therefore, the economic cost for no teaching and learning for students in monetary terms is MYR339,843.84 a year for a primary school (with 112 teachers) and MYR330,474.75 a year for a secondary school (with 75 teachers).

5. Discussion and Conclusion

Non-utilized student instructional time is considered as inefficiency regarding the utilization of economic resources in the labor-intensive education industry. This inefficiency will lessen productivity and output quality (i.e. students). This study estimates the cost of economic loss or financial cost borne by the students when the teaching and learning process does not take place according to the allocated time. Two schools, a primary and a secondary school, in the city were selected as samples. The findings show three (3) categories of teachers who were absent from the classroom for reasons such as illness, official duties, work upon or events, which concerns classroom (including sports), exam duties and also the attending of events, which were not related to the teachers’ primary duties. It cannot be denied that a hierarchical education system is based on the following of orders, not only, from school administration but also from the district education office, the state education department or ministry, the exams syndicate and other government agencies. The findings also show some interesting data, which concerns three (3) teachers who did not take any leave at all, of which 25% and 27% from the primary and secondary school respectively did not take any sick leave for the entire 210 days of the school year. There were eight (8) teachers who took sick leave for more than three (3) weeks and 27 teachers (15%) who were involved in duties outside their school for more than three (3) weeks. The data also showed eight (8) teachers in the primary school and three (3) teachers from the secondary school who took maternity leave of about 60 days each (the estimated financial cost due to teacher absenteeism who did not take into account cases of maternity leave as the schools were able to get substitute teachers).
The economic costs or loss to students because of no teaching and learning in the classroom (caused by teacher absenteeism) was about MYR3,034.32 per teacher at the primary school and MYR4,406.33 per teacher at the secondary school. It is the same as the average wage per month for a teacher whether at primary or high school level. In this case study, with the sample of teachers and the average number of teachers absent, the financial loss to students due to teacher absenteeism totaled more than half a million ringgit a year for both schools. This amount of money is sufficient to pay the wages of seven teachers in each school. The absence of teachers in the classroom will increase the cost per unit for the education sector, which is labor intensive because more than 70% of the variable cost is for the payment of teacher wages, especially for a developing country (Psacharopoulos & Woodhall, 1997). The salaries and allowances of teachers determine the costs of education. Therefore, high levels of efficiency and productivity must follow the value of the wages. Teacher absenteeism lessens efficiency resulting to wastage of quality resources which are limited (Adeyemi & Akpotu, 2009). An effort to reduce the rate of absenteeism is one of the effective methods to enhance productivity (Miller et al., 2008).

Estimating the financial cost of the loss can still be debated because teachers who are away from school on official duty bring long-term benefits through the enhancement of skill, knowledge or management for both the teacher and the school. At the same time, their colleagues replace teachers who are absent. Therefore, the financial loss to the students may be lower than the figure estimated. However, teacher absence not only lessens student-learning time but also brings about long-term negative impact. Student routine and motivation is disturbed if there are no relief teachers or if relieved by less-knowledgeable teachers with less experience. Furthermore, in the end, students lose the interest to study when their teacher is always replaced by other teachers (Bruno, 2002). If a school faces problems looking for a replacement teacher, it will add to other teachers’ workload and bring negative impact to colleagues if such a situation continues (Ehrenberg et al., 1989). These side effects may increase the cost of financial loss to students compared to what was previously estimated.

Half of teacher absenteeism in the classroom is by orders and duties outside the school. There are even teachers who are absent for almost 60 days due to commitments elsewhere. The analysis shows that no teacher at SSB took unrecorded leave compared to PSA. Could this be related to management factors? However, it would not be fair to make such connections based on one case study. What is clear is that the higher the rate of teacher absenteeism, the greater the financial loss, a loss that should not happen. As a result of inefficient use of resources that have already been paid for, the overall productivity is lower. The effect of teacher absenteeism not only impacts the student but it also indirectly gives a picture of the inefficiencies of economic resources in the education industry. How can policy makers and administrators lessen this financial loss by protecting instructional time in schools? The best method depends on the school conditions, which consist of the school and teacher profiles, the support and commitment from the education offices (district, state and ministry) as well as the community and school administration. However, this must begin with a complete and consistent school attendance recordkeeping. Information from one or two schools cannot provide a full picture of the reasons for teacher absenteeism and the trends or patterns of sick leave, unrecorded leave and special move (e.g. leave taken at the beginning or the end of the week). A bigger sample size and a wider scope of study would be critical because leadership quality and informal values regarding absenteeism may differ from one school to another. This information is crucial for the planning of strategies to handle teacher absenteeism. A comparison study which identifies best practices of schools with a low rate of teacher absenteeism and long-term intervention methods could give better information for the handling of this problem. A comprehensive study would also provide justification for the increase of workforce or teacher assistants for non-teaching duties such as sports and co-curriculum activities. It could offset the economic loss to students. Interventions to protect instructional time would be more efficient if it were to be ‘top down’ as implementation powers at school level are rather limited. It is vital to the manipulation and innovation that are related to instructional time depending on the school and the teachers without additional input (Millot & Lane, 2002). As suggested by Rogers and Vegas (2009), and Guerrero et al. (2012), the rate of teacher absenteeism can also be reduced by using their attendance as a component of performance appraisal, promotions and pay raises or non-monetary benefits to be given as a reward for good attendance.

References