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Effect of Pupil Factor on Mathematics Achievement in Cambodian Urban Primary School

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It is generally observed in the literature of school effectiveness research that there are two broadly categorized factors influencing pupil achievement. However, the results of the studies based on empirically collected data vary from country to country and from time to time. Premised on this inconsistency of results and gaps in knowledge of this field in Cambodian education, this study was conducted in order to examine the effect of pupil factor on their mathematics achievement. The data were collected from pupils by means of questionnaires and a mathematics test. After controlling such factors as pupils' poverty during the research design, the results of the stepwise regression analysis showed that pupils' interest in mathematics was a significantly positive contributor to their performance. Pupils' absence frequency, gender, grade repetition and preschool attendance had significantly negative effects on their mathematics outcome.

Key Words: mathematics achievement, determining factor, primary school

After Cambodia was liberated from the auto- genocidal Pol Pot regime from 1975-1979 (during which schools were almost completely closed), the newly established Cambodian government reopened schools to respond to the needs of the nation's children. Urgent action was needed not only in fulfilling the needs of basic education but also in terms of construction of school buildings and the acquisition of teaching and learning materials. Moreover, since 75 per cent of teachers and/or educated people were either killed or fled the country since the beginning of the chaotic year of 1975 (Ministry of Education, Youth and Sports [MoEYS], 1998b) there was a shortage of suitably literate people from which to recruit new teachers. These efforts to reestablish the educational system from scratch were evidenced with the reopening of over 5,000 primary schools, the bringing in of 1,300,000 eligible children back in the classrooms and the recruitment of 30,000 teachers despite problems with the question of standards (Kiernan, 1982). The substantial provision in basic education especially at the primary level was aimed at achieving a massive educational rehabilitation for the large numbers of youngsters who missed schooling during the Khmer Rouge, (United Nations Children and Education Funds [UNICEF], 1989).

After the general election in 1993, educational access and quality for the nation's children was one of the major concerns amongst the general public, educators and foreign donors to Cambodia. The Royal Government of Cambodia paid particular attention to education by setting the objectives and targets for primary and lower secondary education for the years 2000 in the first "Socioeconomic Development Plan 1996-2000" that:

1. Extend the duration of primary education by one year as part of the introduction of a 6+3+3 school system;
2. Increase the net enrollment ratio to 90%;

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3. Achieve an equal balance in primary enrollment;
4. Reduce repetition rates by at least 10%;
5. Ensure that at least 85% of those enrolled in grade 1 complete the 6th grade curriculum.

There has been impressive progress since the plan was set in motion in 1996. A 5-year system in primary school was successfully extended to 6 years in 1996 and the first 6th grade graduates were produced in the 1996-1997 academic year. The expansion of schooling opportunities is remarkably impressive. Despite difficulties, almost every school aged child effectively entered grade 1 although not necessarily at the statutory age of 6. During the 1997-1998 academic year, the gross access rate in grade 1 was as high as 98% and the gross enrollment rate over the complete 6 year cycle was 88% (MoEYS, 1999b).

Despite the improvements which have been largely driven and funded by foreign donors, Cambodia's education system remains in crisis (Ayres, 2000). The administration system is still hamstrung by a skill deficit among senior managers, and is still operated in a highly centralized, hierarchical manner. Policy and regulations, funding and curriculum development and its implementation, training and in-school operations function on a cascade system (United Nations for Education, Science and Cultural Organization [UNESCO], 1998).

Of the first 5-year plan, the least achieved goal was the reduction in the repetition and dropout rates in the primary cycle. Repetition rates remain extremely high especially in grades 1 to 3 and the dropout rate is also very high throughout the cycle, increasing dramatically towards the end of the primary cycle, with 21% in grade 5 and 18% in grade 6 (MoEYS, 1999a). Of children entering grade 1, only 41% reached grade 5, 32% reached grade 6 and only 26% completed grade 6 successfully. Around 40% (41%, 41.2%, 40.9% and 37.8% in 1997, 1998a, 1999a & 2000, respectively) of pupils enrolling in grade 1 were repeaters (MoEYS, 1997, 1998a, 1999a & 2000) in Cambodian primary schools. Using repetition and dropout rates as indicators, one can observe that although socioeconomic backgrounds of pupils and school resources including both human and material are better in urban areas especially in the capital city Phnom Penh, the educational efficiency, in terms of promotion, repetition and dropout rates does not significantly vary between schools in urban and rural areas (MoEYS, 1997, 1998a, 1999a & 2000). Furthermore, due to the lack of evaluation studies of pupil performance, the progress of the pupils is assessed based on teacher-made tests conducted at the end of each month and semester as a proxy for pupil achievement in all grades in the primary cycle (MoEYS, 1999b). In a promotion system based on the level of performance, as is the system in Cambodia, it is generally accepted that the high repetition rates attest to the low standard of pupil performance.

In the literature that there are two broadly categorized factors influencing pupil achievement: (1) school-related factor and (2) pupil-related factor (see for instance, Baker, Goesling, & Letendre, 2002; Carron & Châu, 1996; Chhinh & Tabata, 2002; Coleman, et al., 1966; Darling-Hammond, 2000; Fuller, 1987, 1990; Kai-ming, 1996; Lockheed & Verspoor, 1994; Murnane & Phillips, 1981; Noriega, Lavin, & Martinez, 1996; Plowden, 1967; Reynolds, 2000). The focus of this paper, however, is to identify the joint effect of the pupil-related factor on their mathematic achievement in Cambodian urban primary schools. By identifying the significantly determining factors affecting pupil achievement, the results of this study should help to develop an intervention strategy designed to improve the quality of education in Cambodia, a country that manifestly lacks such empirical research to help prioritize investment choice and policy intervention.

Method

Research Problem

Although it is generally accepted in the literature that there is a significant relationship between pupil achievement and the pupil factor, different studies show different results depending on countries and contexts. Premised on these inconsistent results and the shortage of scholarly work in this field in Cambodia, this paper attempts to identify the relationship between the pupil factor and their achievement in the mathematics subject. More specifically, this study was guided by the following research questions:

1. Is there a significant relationship between pupils' demographic backgrounds (sex, age) and their mathematics achievement?
2. Is there a significant relationship between pupils' schooling variables (interest in mathematics, time spent on self-study at home, private tutoring, academic help from parents or siblings, absence frequency, grade repetition, preschool attendance) and their mathematics achievement?

3. Is there a significant relationship between pupils' socioeconomic variables (parents' levels of educational attainment, parents' occupations, household material possessions, number of books at home, family members) and their mathematics achievement?
4. What variables contribute jointly to effect pupils' mathematics achievement?

Participants

Participants in this study were fourth grade pupils studying in seven urban primary schools in Phnom Penh. Participants were randomly selected twice to participate in this study. Firstly, about 50 per cent of pupils in each class were randomly selected to participate in the study by answering the questionnaires designed to control their poverty. In other words, only pupils whose household material possessions ranged from 8-15 items were selected to participate in the second step of the study by taking the mathematics achievement test. Random sampling procedure was performed again to choose about 10 pupils from each class with more than 10 pupils whose household material possessions ranged from 8 to 15 items. The use of household material possessions in lieu of income or salary was based on the observations that almost all households in the city have irregular and unreliable sources of income. Pupils' poverty was controlled in this study for the reason that in previous studies pupil poverty has been identified as a factor explaining the variance of their performance but does not lend itself to policy intervention. Through these procedures, the pupil participants in this study were 973. Out of these 973 pupils, 474 were boys, 493 were girls and the remaining 6 did not respond to the gender question. The age of the participants ranged from 8-16 years (M = 10.90; SD = 1.58).

It needs to be noted that the study was undertaken in the urban area of the Phnom Penh capital city from early November 2001 to late January 2002. Therefore, it is not advised to assume the sample to be representative of other urban primary schools in other areas. The results and discussion in this paper may be seen in the light of these limitations.

Assessment Instrument

A mathematics achievement test was the assessment instrument administered to fourth grade pupils in order to measure their level of performance. The scores of the test were used as a dependent variable for the analyses. The choice of the mathematics subject was stimulated by the special emphasis and intervention programs initiated by the Royal Government of Cambodia and donor agencies to improve the pupil outcomes in two core subjects: mathematics and language. The intervening programs involve the provision of special remedial tutoring for the entire summer vocation to pupils who do not meet the promotion criteria at the end of the academic year.

The items in the mathematics test were primarily based on the released items from the Third International Mathematics and Science Study (Martin & Kelly, 1996). Prior to the data gathering, a pretest was conducted. This was done by gathering feedback to the test items from five fourth grade teachers; two of them were trained by test specialists to develop mathematics and language tests for an educational project in the Ministry of Education, Youth and Sports. Conducted through a discussion, the aim of the pretest was to modify the test items and make them suitable to the Cambodian context in terms of difficulty and relevance covered in the mathematics textbook. After the discussion with the teachers, a test of about 30 items was piloted with the pupils for improvement. After conducting the test with pupils, the hardest and easiest items were excluded from the final test which consisted of 19 items ranging from a very simple calculation to difficult problem-solving requiring pupils to use complex procedures. The scores of the pupils ranged from 0-19 with a mean of 9.45 and a standard deviation of 3.31.

Procedure

At the request of the researcher, a letter of permission to conduct the study in primary schools was issued by the Municipal Office of Education and distributed to school principals for cooperation. Upon their approval, the researcher distributed the questionnaires to pupils during their regular class hours. To maximize the accuracy of the responses to the items in the questionnaires, the researcher explained both the purposes of the research and how to fill in the questionnaires item by item to pupils in every class. Furthermore, to ensure the accuracy of the pupils' data on socioeconomic background, pupils were requested to bring the questionnaires home and ask their parents or guardians for assistance in fulfilling these items.

As previously mentioned, pupils were randomly selected twice. Only pupils who were finally selected were admitted to remain in the classes and take a mathematics test in one regular session, one week after the collection of the questionnaires. To make the classroom environment

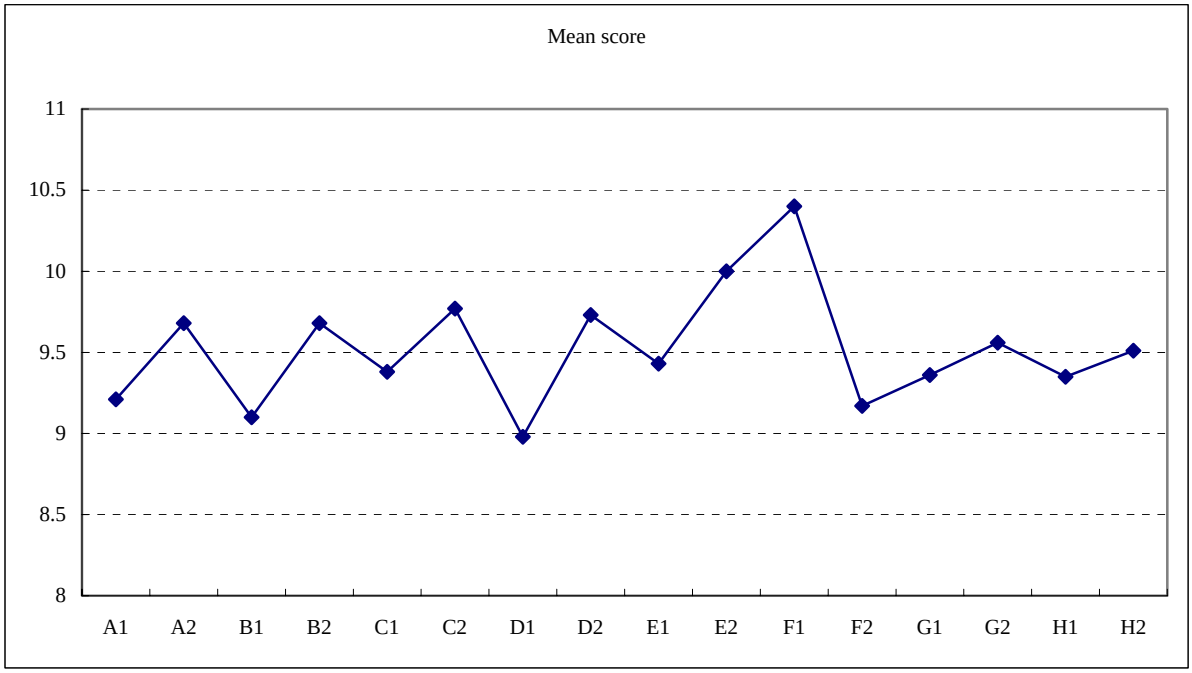
conducive for the pupils who took the test, pupils who were not selected to participate in this study were asked to leave the classrooms and study in the library or play outside. In some exceptional cases where putting pupils outside classrooms or in the library was impossible, pupils who did not take the test were put to one side of the room answering quizzes assigned by their teachers and those who took the test were in another. As the test was administered during the first semester examination period, all participants were told that the score from the mathematics test would be used as the first semester examination score of the mathematics subject so that they would do their best and that pupils who did not take the test with the researcher would take it with their classroom teacher next time.

Data Analysis

Pupils' scores in the mathematics test were manually computed in two stages. Firstly, a score of 1 was given to every item with a correct answer and 0 to a wrong or incomplete answer. Using this method, the 19-item test produced the highest score of 19 and the lowest of 0 with a mean of 9.45. Secondly, individual pupil's scores were totaled and used as a dependent variable in the statistical analyses. To answer the research questions posed earlier in this study, a *t*-test, Pearson product-moment correlation coefficient and multiple stepwise regression analyses were employed.

Result and Discussion

The results of the *t*-test and correlation coefficient analyses are presented in Tables 1 and 2 respectively. Discussions of the results are guided by the research questions previously posed.



Note.

A1 = Girl
A2 = Boy
B1 = Preschool takers
B2 = Non-preschool takers
C1 = Private tutoring takers
C2 = Non-private tutoring takers
D1 = Grade repeaters
D2 = Non-grade repeaters
E1 = Academic help receivers
E2 = Non-academic help receivers
F1 = Interest in mathematics subject
F2 = Interest in other subjects
G1 = Father worked for the government
G2 = Father did not work for the government
H1 = Mothers worked
H2 = Mothers did not work

Figure 1. *Differences in mean scores of selected paired variables*

Table 1. *Simple correlations between pupils' scores and selected variables*

Variables	Correlation Matrix								
	1	2	3	4	5	6	7	8	9
1. Score									
2. Age	-.024								
3. Absence frequency	-.144**	.142**							
4. Time for self-study	.009	-.018	-.053						
5. Number of books	.077*	-.104**	-.127**	.31					
6. Family members	-.021	.173**	-.023	.015	.005				
7. Material possessions	.033	-.105**	-.058	.076*	.146**	-.003			
8. Father's education	.016	-.295**	-.093*	-.022	.117**	-.003*	.148**	.	
9. Mother's education	.046	-.288**	-.140**	-.061	.117**	-.015**	.113**	.581**	.
Mean	9.45	10.90	.77	77.69	7.07	5.95	11.19	2.23	1.80
Standard deviation	3.31	1.58	1.23	38.20	6.62	2.12	2.06	1.24	1.12

Note. * p < .05; ** p < .01 (2 tailed)

Relationship between Pupils' Demographic Background and Their Mathematic Achievement

Table 2 shows that boys scored significantly higher (M = 9.68; SD = 3.30) than girls (M = 9.21; SD = 3.30), $t(965)$ = 2.198, p <.05. Explained by academic opportunity, it is generally observed that boys are provided with a more supportive environment than girls in term of advice in which teachers take the importance of "hard" subjects such as mathematics less seriously for girls. Similarly, at the age of 11 years old as the age of the participants in this study, girls are expected to help the family with household chores, while boys have more opportunity for self-study, private lessons or play. Furthermore, although boys and girls, by nature, possess comparatively the same ability, it is observed that girls tend to show less interest in mathematics and science much faster than their male counterparts. Living in a traditional society like Cambodia, girls are observed to prefer social studies and language subjects for their immediate and daily life applications to science and mathematics, which are thought to be more useful for pursuing further education. The results reconfirmed the findings of previous studies which found that boys outperformed girls in complicated subjects such as mathematics (Palafox, Prawda & Velez, 1994; Raudenbush, Kidchanapanish & Kang, 1991).

This study found a negative relationship between pupil age and their achievement, although it was not significant (Table 1). Previous studies also found that age is negatively related to achievement (Baker, Goesling, & Letendre, 2002; Lokan, Ford, & Greenwood, 1996; Palafox, Prawda & Velez, 1994; Raudenbush, Kidchanapanish & Kang, 1991). The explanation given to this negative relationship is that older pupils are usually those who enrolled in school later than the official age of 6 or are repeaters. In-depth discussion of the negative effect of grade repetition on learning achievement is provided later in this paper.

Relationship between Pupils' Socioeconomic Status and Their Mathematic Achievement

Data show that parents' levels of educational attainment and employment were not significantly related to pupil achievement. Table 1 shows no relationship between father and mother's levels of educational attainment and the pupil achievement (r = .02, p>.05; r = .05, p>.05) respectively. Similarly, data from this study also show no significant difference in the mean score between those whose fathers worked for the government (M = 9.36; SD = 3.20) and those whose fathers were not government employees (M = 9.56; SD = 3.34), $t(899)$ = .900, p >.05 (Table 2) and no significant difference in the mean score between pupils whose mothers worked (M = 9.51; SD = 3.32) and those whose mothers were housewives (M = 9.35; SD = 3.33), $t(924)$ = .732, p >.05. The treatment of fathers' occupations (government employees vs.

non-government employees) in this study as one of the pupils' socioeconomic variables was based on the general observation that the government employees were seen to have lower economic status than those who were self-employed or worked in other sectors in the city.

Regarding other aspects of pupils' socioeconomic status (Table 1), this study found a non-significant relationship between pupils' household material possessions and their mathematic achievement (r = .03, p>.05). Although the general household material possessions were not significantly related to mathematics achievement, the number of books was (r = .09, p<.05). Previous studies found that pupils who have more books at home, read and practice doing exercises more (Elly, 1992). Although it is not significant, the number of other family members was negatively related to achievement (r =.-02, p>.05).

Unlike previous studies which found a significant relationship between pupils' socioeconomic status and their learning achievement (Palafox, Prawda, & Velez, 1994; Raudenbush, Kidchanapanish, & Kang, 1991; Varghese, 1995), this study was intentionally designed to control the variance of the pupils' possessions of the household materials which were not open to policy intervention. As a result of the restriction of the participants during the research design, none of the variables of pupils' socioeconomic status covered in this study were significantly related to achievement except the number of books which, however, were excluded in the stepwise regression due to its weakness as a means of prediction.

Relationship between Pupils' Schooling Variables and Their Mathematics Achievement

Table 2 shows that pupils who did not attend preschool scored significantly higher (M = 9.68; SD = 3.41) than those who attended preschool (M = 9.10; SD = 3.08), t(939) = 2.668, p<.01. The results of this study contradicted the general results in the literature of school effectiveness and school improvement studies conducted in other countries which found that these two variables were positively related (Raudenbush, Kidchanapanish, & Kang, 1991). However, the results challenge exploration and explanation of the mechanism underling the preschool issue in Cambodia. Although preschool helps children develop basic knowledge and skills for learning in later grades in the primary cycle and a sense of belonging to school, previous studies show that preschool usually benefits children whose home environment (language spoken at home) is different from school and poor rural children. In addition, preschool would significantly increase pupil learning especially in the early grades of primary schools only if the preschool education is well-conceived and well-implemented (Halpern & Myers, 1985).

Well-perceived and well-implemented preschool education does not yet exist in Cambodia. Data show that only about 5 per cent of preschool children aged three to five benefited from the preschool service provided by the government (Renou, Mathews, & Clement,1999). However,

Table 2. *Differences in mean scores of selected variables of pupil factor*

Variable		*M*	*SD*	*T*	*df*	*p*
Gender	Boy	9.68	3.30	2.19	965	<.05
	Girl	9.21	3.30			
Preschool attendance	Yes	9.10	3.08	2.67	939	<.01
	No	9.68	3.41			
Private tutoring	Yes	9.37	3.22	1.50	952	>.05
	No	9.77	3.22			
Grade repetition	Yes	8.98	3.52	-3.08	947	<.01
	No	9.73	3.16			
Academic help from parents or siblings	Yes	9.43	3.28	1.12	959	>.05
	No	10	3.68			
Interest in mathematics subject	Yes	10.40	3.02	5.59	890	<.01
	No	9.17	3.29			
Father worked for the government	Yes	9.36	3.20	.90	899	>.05
	No	9.56	3.34			
Mother worked	Yes	9.51	3.32	.73	924	>.05
	No	9.35	3.33			

preschool is run sporadically and unsystematically. In some cases, some classrooms in the primary schools are used for preschool age children who come to school with their elder brother or sister who are enrolled in a higher grade due to the absence of adults at home. In such cases, no real teaching/learning takes place. Teaching and learning activities are not any better in the preschool designated for preschool children. Children usually come to play the traditional games with their friends as there is a lack of materials for meaningful and systematic curriculum and teaching and learning.

The government-supported preschool does not catch parents' attention very much due to its irregularity and poor quality. Growing demand of preschool especially in the capital city of Phnom Penh attracts more private investment. Now private schools are mushrooming in the city in almost every street. However, it must be noted here that these private schools do not have any standards in management or curriculum. Furthermore, these schools bearing interesting names as a center or institute teach mostly foreign languages such as English, French, Chinese, Thai, Japanese, etc. at any level including preschool children. It is worthy of further note that the design of this study did not lend itself to differentiating between the types of preschool pupils attended. Data collected only revealed whether pupils attended preschool or not. Such a varied experience from preschools that are unsystematically run and lack standards may not be useful for learning in a later stage especially in the mathematics subject covered in this study.

The wide spread of private education costs associated with public schooling in Cambodia is a major concern for both parents and policy makers due to issues of inequity. For this reason, in this study, an attempt was made to find out the significant effect of private tutoring on the performance of pupils. Surprisingly, the results indicated no significant difference in the mean score between those who took private tutoring (M = 9.37; SD = 3.22) and those who did not (M = 9.77; SD = 3.22), $t(952) = 1.500$, $p > .05$ (Table 2). It is worth noting here that Cambodian urban primary school teachers are forced to provide private tutoring to their pupils in order to financially support themselves and their family (Bray, 1999; Ayres, 2000). Common observations and informal discussions with teachers revealed that private tutoring in Phnom Penh primary schools are of two forms. Firstly, private tutoring is conducted during the first part of the first hour. For this tutoring, pupils are requested to pay their teachers 200 riels for their regular classes (Bray, 1999). Private tutoring in this setting is not academically oriented to help poor pupils to understand the materials in the textbook because it is conducted in the same setting, with the same teachers and the same number of pupils in the classroom. Secondly, teachers provide private tutoring at a higher fee in the afternoon when the teacher teaches in the morning and vice versa than the fee collected from the private tutoring during the public hour. This remedial class takes place within the houses in the school vicinity.

In this study, pupils were asked if they attended the latter form of the private tutoring. The better performance of pupils who did not attend the private tutoring than those attending as shown by the data, indicates that the latter form of private tutoring is not any better than the former one. Two reasons could be used to explain the non-significant effect of the private tutoring. Firstly, it is a known fact that children in Phnom Penh urban primary schools have to pay a substantial bribe in order to receive a good grade or promotion. It is a common practice that teachers withhold from their regular classes the essential parts of the books pupils need to know in order to pass the test. This missing information or assistance to pass is provided in the private tutoring classes that teachers offer outside their regular classes and for which pupils must pay. Secondly, it is generally observed in the literature that usually good pupils do not attend private tutoring classes. As the test for this study was conducted without the teachers' prior awareness, the results confirm that the quality of the private tutoring classes remains a questionable issue. The results confirm the general observations that private tutoring classes are the opportunities during which pupils go to buy the materials from which they can prepare for getting a passing grade in the test.

Grade repeaters significantly scored lower (M = 8.98; SD = 3.52) than non-grade repeaters (M = 9.73; SD = 3.16), $t(947) = -3.079$, $p < .01$. The results of this study reconfirm the empirical findings of previous studies which found that repetition does not seem to be an effective intervention to help low learners achieve higher (Amadio, 1996; Eisemon, 1997; Varghese, 1995, 1999). Furthermore, repetition is a wastage that increases the social costs of education without any corresponding benefits. According to the World Bank data on wastage rates, a number of developing countries have to provide ten years of primary schooling-instead of a normal or prescribed period of five years to produce one successful school completer because of dropout and repetition (World Bank, 1986).

Another pupil factor that is strongly correlated with their mathematics achievement is the pupils' interest in the subject of mathematics itself. Table 2 indicates that pupils who were

interested in mathematics subject scored significantly higher (M = 10.40; SD = 3.02) than those who were interested in other subjects (M = 9.17; SD = 3.29), $t(890) = 5.598$, $p < .01$. Earlier studies found that the attitudes toward the subject significantly determine the commitment of the pupils toward the subject and help increase the performance.

As with previous studies, this study found that the more often the pupils were absent, the lower the achievement (r = .14, $p<.01$) (Table 1). The result of this study was consistent with that of Baker, Goesling and Letendre (2002) who found that pupil absence was significantly negatively related to pupil performance in both mathematics and science. The last two variables of pupil factors did not significantly influence pupil achievement in mathematics. Table 1 showed no significant relationship between time spent for self-study at home and their achievement. Similarly, Table 2 showed that pupils who did not receive academic help from parents or siblings scored higher (M = 10; SD = 3.68) than those who did (M = 9.43; SD = 3.28), $t(959) = 1.120$; however, the difference was not significant, $p > .05$.

Joint Effect Variables on Pupil Achievement Based on Stepwise Regression Analysis

To what extent, can the variance in pupil achievement be explained by each variable in the pupil factor? What variables contribute joint effects to pupil achievement? To answer these questions, a multiple stepwise regression analysis was performed. In the analysis, only variables that showed significant difference in the t-test and significant relationship in the correlation coefficient analyses were included. Those variables that did not reach the predetermined significant level of 0.05 were not entered in the stepwise regression analysis. Table 3 presents the results of the joint effect variables of the pupil factor on their mathematics achievement.

The results of the multiple stepwise regression analysis presented in Table 3 show that five out of the 16 variables studied were significant contributors to the explanation of variance in pupil achievement in mathematics. Out of these five variables, only interest in the mathematics subject variable is a significant positive predictor to their performance. The other four variables (absence frequency, gender, grade repetition and preschool attendance) were significant negative predictors of the pupil performance.

Implications

The present study reveals some important policy-oriented aspects for the improvement of the standard of pupil outcome. The results suggest that after controlling the geographical disparity of the schools and extreme poverty and wealth of the pupils, some variables of the pupil factor

Table 3. *Joint effect of pupil factor on their mathematics achievement*

Variable	Unstandardized Coefficients	Standardized Coefficients	t value
Subject interest (in mathematics = 1, in others = 0)	1.14**	.24	4.69
Absence frequency	-.35**	.09	-3.60
Gender (girl = 1, boy = 0)	-.69**	.23	-2.95
Grade repetition (repeated = 1, not repeat = 0)	-.72**	.26	-2.77
Attendance to preschool (attended = 1, not attend = 0)	-.55*	.24	-2.25
R^2	.077		
Constant	10.35		
Standard error of the estimate	3.1		

Note. ** $p < .01$; * $p < .05$

such as interest in mathematics, absence frequency, grade repetition and preschool attendance were found to be significant predictors of achievement variance and these variables are open to policy intervention. Therefore, the findings of this research have important implications especially for policy makers and non-government organizations involved in the quality improvement of education in Cambodia. Policy makers and teachers need to be aware that the poor quality of the pupil outcome is not caused by the poor facilities of the schools or the poor quality of the teachers but also the pupils themselves regardless of their socioeconomic status. More strategic intervention should be implemented to help academically poor pupils learn through out the years and ensure promotion to the next grade together with their classmates rather than to retain the pupils in the same grade as retention was not found to be effective from both the academic and financial point of view. Teachers should teach or be trained to teach in such a way that encourages pupils to have an interest in their schooling in general and each subject in particular. The more pupils enjoy their schooling and see the subjects as being useful, the greater their commitment and the better they perform.

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