

Do Scholarship Interventions at Primary Level Increase Student Retention?

The Results of Systematic Research in Cambodia

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ABSTRACT

This study looks at the effectiveness of primary school level scholarship programming supported by USAID in Cambodia. The study considers programmatic effectiveness both with respect to ‘process’ considerations (mainly student selection decisions) and the ability to prevent student dropout. The study uses relatively sophisticated data analysis techniques to draw conclusions including logistic regression and odds ratio comparisons. Overall findings are that locally managed scholarship programs can be highly effective with respect to administrative decision-making, mainly student selection decisions, but that unitary scholarship packages focused on the direct costs of education will be more effective with younger primary school children and less so with children in the upper primary grade levels, where opportunity costs are much greater.

Disclaimer

The views expressed in this article are those of the author and do not necessarily reflect those of World Education, Inc. or USAID.

1. INTRODUCTION

1.1 Rationale for the Study

Various donors such as USAID and UNICEF have been providing support to scholarship programs at primary school level in Cambodia for almost ten years. Historically, the first program began in 2001 with UNICEF support. Such support generally consists of in kind assistance including uniforms, stationery, shoes, and writing slates, the total of value of which is about \$12 per year. While there have been some anecdotal assessments of the effectiveness of these programs, there has never been any systematic research using comparison groups under experimentally controlled conditions. This situation is in contrast to scholarship programming at secondary school level where there has been much rigorous research of the effectiveness of assistance to poor students (e.g., Filmer and Schady, 2006; MoEYS, 2006). The greater interest in secondary education scholarship programs among researchers stems mainly from the observation that unit investment costs are significantly higher (e.g., \$40/student for the government secondary school scholarship program versus \$12/student at primary level). Nevertheless, primary scholarship programs have been implemented in hundreds of schools and still represent a significant dollar amount in many donor programs.

A recently inaugurated development program in Cambodia supported by USAID, known as the *Improved Basic Education in Cambodia Project* (IBECP) sought to support systematic research in this area, thereby providing the rationale for the current study. Based on a request from the donor, this project sought to validate assumptions that scholarship programming at primary school level is effective in what it purports to do.

1.2 Research Questions and the Approach to Determining 'Effectiveness'

The present study's design in approaching the construct of 'effectiveness' in scholarship programming looked at outcomes on two levels. One of these levels reflected the 'process' of administration of scholarship benefits. That is, was the intervention effective in the way that it was implemented (e.g., selection of the most vulnerable students)? While there are many aspects to consider in the implementation process for scholarship programming (e.g., selection, timeliness of interventions, transparency, etc), by far the most important to consider is whether the **selection** of students adhered to the most commonly held predictors for dropout. Poor selection methodology has sometimes been called the 'weak link' in scholarship programs at all levels (see for example, Kampuchean Action for Primary Education-ADB, 2001). Such programs are frequently found to be effective in preventing dropout, except for the observation that many of the beneficiaries would have stayed in school anyway because they did not exhibit characteristics of vulnerability. In Cambodia, lapses in governance and especially the influence of patronage networks often result in the wrong children receiving scholarships (World Education, 2005). This is particularly a source of vulnerability in many of the Cambodian primary level scholarship programs because selection decisions are made 'locally' by school directors and community-based School Support Committees. These decision-makers are clearly tempted to provide scholarship benefits to their friends and relatives, rather than to the children most in need.

Predictors of dropout and hence vulnerability take in a wide range of characteristics that are frequently cited in research studies of the topic (e.g., KAPE-ADB, 2001; UNICEF, 2009; Kanamugire and Rutakamize, 2009). They also play a key role in exploring the effectiveness of the implementation process of scholarship programming in the current study. Briefly these predictors and their corresponding influence can be summarized as follows:

Table 1.1: Predictors of Dropout and the Nature of their Influence

Predictor	Mediating Impact
1. High Age Level/High Grade Level	Older children have a higher labor value and experience significant pressure to leave school and join the work force
2. Gender	Attitudinal factors relating to the vulnerability of girls in walking to school, gender roles, etc. mitigate against participation in school
3. Low Socio-economic Status	Families with low SES cannot afford the direct costs of education (e.g., uniforms, stationery, etc). Low SES can be defined according to several related attributes including: Low income, Low Occupational Status of Parents/High Number of Siblings in school/Single Parent Households (i.e., with whom the student resides)
4. Low Parental Education	Parents with lower parental education may be more prone to not seeing the value of education
5. Long Distance to School	Distance to school may have financial implications including the need for a bicycle, time away from house chores, as well as attitudinal ones such as increased security risks for female children
6. Minority Status	Minority children may

Based on the predictors shown in Table 1.1, it is believed that the degree to which a scholarship intervention adheres to these predictors in the selection of student beneficiaries, the more 'effective' it can be considered to be in its implementation. Therefore, a key research question investigated in this study can be stated as follows:

Is there a high probability of being selected for a scholarship award in sampled schools based on possession of one or more dropout predictors?

On another level, the present study sought to determine effectiveness of scholarship programming in the current context by looking at terminal outcomes that are essentially the bottom line for project managers; that is, did the intervention achieve its primary purpose, which is to reduce the likelihood of dropping out of school.

The intervention itself is primarily financial in its focus and provides material support to vulnerable children. This support is not provided in cash but rather entirely as in-kind assistance (e.g., uniforms, stationery, etc.). Scholarship distributions occur twice or three times during the year and children are theoretically chosen by local stakeholders based on common predictors of dropout.

As noted earlier, investigation of outcomes relating to dropout reduction can be highly flawed if it rests on an un-validated assumption that student selection occurred properly, espe-



cially since such decisions are made by local stakeholders. Localizing such decisions among local stakeholders certainly brings advantages to programming through increased intervention ownership but it also augments exposure to cultural norms that operate on patronage principles. Because there are numerous factors that affect the decision to stay in school (financial, attitudinal, distance, etc), effectiveness in preventing dropout rests on the belief that the intervention's design, where support for the direct costs of education is provided to vulnerable children, will keep the majority in school.

Based on the above considerations, the other key research question investigated in this study can be stated as follows:

Are scholarship interventions effective in preventing school dropout and if so, under what conditions is this effectiveness optimal?

An implicit assumption within this question is that scholarship effectiveness may vary under certain circumstances. Of much significance in this regard is the issue of age and grade level. As noted in the mediating influences of Predictor 1 in Table 1.1, it is believed that the pressure to leave school increases with a child's age due to the increasing value of his or her labor in the employment market. Staying in school and forfeiting income that could be earned in the market place or household are frequently known as indirect or 'opportunity' costs. Subsidies for the direct costs of education are likely to be most effective when a child's labor value is low but may decrease in effectiveness as a child's labor value increases along with the opportunity costs associated with increasing age. Thus, examining variations in scholarship 'effectiveness' across grade levels is also of major interest in the research question stated above.

1.3 Background on Scholarship Programming Supported by USAID in Cambodia

IBEC is currently USAID's largest education program in Cambodia with about \$10 million in funding over a five-year period (2010-2014). The project is designed to promote USAID's Goal of 'better educated youth' and its Strategic Objective for Basic Education, 'increased relevance, quality and access in basic education.' The latter, "increased access to basic education," is being addressed at the Primary School level in part through scholarship programming that targets students from poor households. Gender equity is an important cross-cutting theme in the IBEC Project. One way that this issue has been addressed is through the establishment of a quota framework through which scholarships at both primary and secondary school levels are structured; 61% of upper primary school scholarships were awarded to girls, according to the latest project data. Because girls have a higher proclivity for dropout, this quota system reflects a greater effort to ensure girls continue in school, while still aiming to include at-risk boys in the scholarship program as well since they also comprise a significant proportion of recipients (World Education, 2010). In addition, it should be emphasized that scholarship support is targeted at children in the upper primary school grades (mainly Grades 4 to 6), since, as we noted above, the value of children's labor (and associated opportunity costs) increases dramatically at these grade levels. Thus, the incentive to leave school in order to enter the work force is very great in the upper primary grades with consequent effects on transition rates to lower secondary school.

As noted earlier, primary school level scholarship packages are worth about US\$12 per year and consist of two uniforms, stationery (writing books and pens/pencils), and shoes. While this level of assistance may seem low in developed educational contexts, it is important to remember that

a poor Cambodian family earns \$1.25 or less per day, according to official definitions of poverty (e.g., Ministry of Planning-World Food Program, 2002). Scholarship support is intended to cover the direct costs of education for poor and vulnerable students at target schools. Notably, current assistance does not address the opportunity costs associated with attending primary school. Scholarship assistance is provided in two installments at the beginning of the year (December) and again in February. The Cambodian school year generally begins in late October and ends in July of each year. Although it is primarily a needs-based program, continued inclusion in the IBEC Upper Primary School Scholarship program is contingent on students maintaining a passing grade average each year (World Education, 2009).

2. METHODOLOGY

2.1 General Approach and Data Analysis Methods

The research approach used in this study unfolded in two steps with methodologically separate considerations of each of the two research questions raised in Section 1.

The researcher first examined the effectiveness of a scholarship intervention by examining adherence of beneficiary selection in selected schools to predictor criteria among subjects in an experimental treatment group. The researcher used a *logistic regression* to determine whether possession or non-possession of these criteria for vulnerability significantly predicted whether or not a student was accepted into the IBEC Upper Primary Scholarship Program

In examining the overall effectiveness of the scholarship intervention in terms of its impact on dropout as per the second research question described in Section 1, the study used a quasi-experimental research design in which the impact of a scholarship intervention was identified as the treatment condition for randomly selected subjects in selected schools. Statistically significant differences between membership in the experimental or control group with respect to the incidence of dropout was examined using an *odds ratio* analysis. The researcher also looked at effectiveness considerations across grade levels (Grades 4, 5, and 6), since it was supposed that opportunity costs (and associated pressures to leave school) would increase with a student's age and grade level.

The researcher did not have any direct control over the assignment of students to the treatment condition (since this decision occurred by schools at the beginning of the year) but nevertheless was able to create a study sample by randomly assigning scholarship recipients to an experimental condition and developing a control group of non-recipients based on equivalent matching. Because scholarship assistance is highly limited, there are often a number of vulnerable students who are not assisted. Historically, only about 5 to 9% of students in any given might receive a scholarship. Thus, the control group was selected from among matched students within the same schools who for whatever reason did not receive a scholarship.

2.2 General Sampling Considerations

The target population consists of all scholarship recipients in IBEC target areas. The construction of the sample began with efforts to select six schools from among the 133 schools with scholarship support that broadly represented the diversity of schools in the target area. Such characteristics included a mix of school sizes, demographic background (rural/remote), posses-

sion of minority groups, and role in the cluster school system.² Within the cluster school system used in Cambodia to mitigate resource disparities between schools, the central core schools tend to be better endowed while satellite schools tend to have less access to teachers and material resources. School characteristics were not mutually exclusive and frequently overlapped. Study participants were chosen from six IBCEP schools in the two target provinces where the project is working in accordance with the following criteria:

Table 2.1: Kinds of Schools and Number Selected

School Characteristic	Number of Schools
Size³	
Large	3
Medium	2
Small	1
Demographic Status	
Rural	4
Remote	2
Minority Presence	3
Cluster School Function	
Core School	3
Satellite School	3

Student data was collected in two rounds. During the first round of data collection, 750 students in Grades 4 to 6 in each school were administered a background questionnaire pertaining to predictor criteria, (e.g., occupational status of parents, number of siblings, etc.). Enumerators visited each school, met with students, and distributed/explained a 12 item-questionnaire pertaining to predictor variables. The first round of data collection was completed shortly after the April vacation holiday, which generally marks the end of the dry season and the beginning of the planting season (June to August). Historical reviews of scholarship programs have generally found that it is during this period that dropout rates historically begin to accelerate in Cambodia, hence the timing for the study (e.g., CARE, 2001).



The sample of scholarship recipients was constructed using a random number generation, each number representing a student. 40 students from primary schools included in the study were selected in this way. A matching control group of 38 non-recipients sharing similar background characteristics of the scholarship recipients from the same schools

² Cambodian primary schools are organized into clusters with a central *core* or resource school and smaller *satellite* schools scattered around that utilize resources provided by the core school.

³ Small schools are defined as 150 students or less; medium sized school are defined as those with enrolment of 151 to 300; large school are defined as those with over 300 students.

was identified, based on the background interviews described earlier. In order to compare scholarship students with non-recipients who were as similar as possible, students were matched on at least 7 of the following ten predictor variables:

- Age Group (9-12 years old or 13-15 years old)
- Gender
- Grade Level (4, 5, 6)
- Occupational status of parents (farmer/worker, run small business, civil official)
- Distance from school (<5 km, 6-10 km, >10 km)
- Parental education level (no education, primary education, lower secondary and above)
- Who student resides with (both parents, mother, father, relative or guardian)
- Minority status⁴
- Number of siblings attending school
- Proxy indicator for SES (e.g., Type of roof on home)

As noted earlier, the above variables are posited by the study as relevant predictors of dropout.

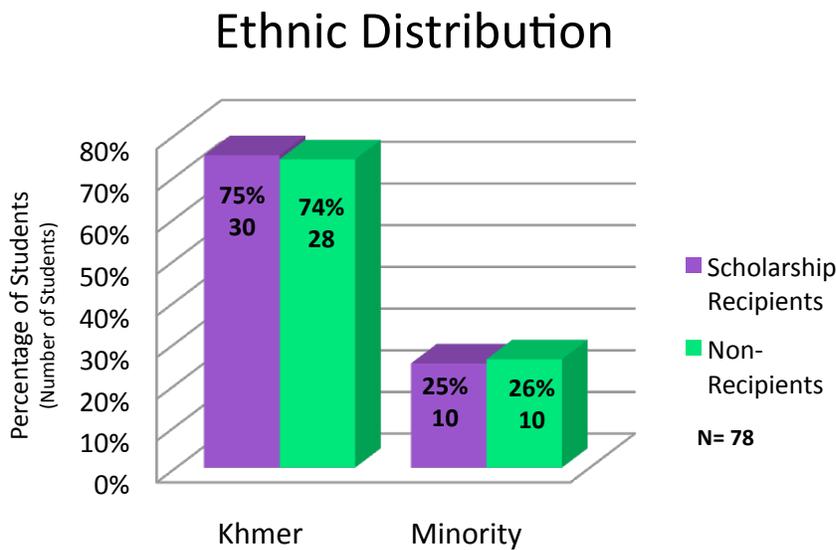
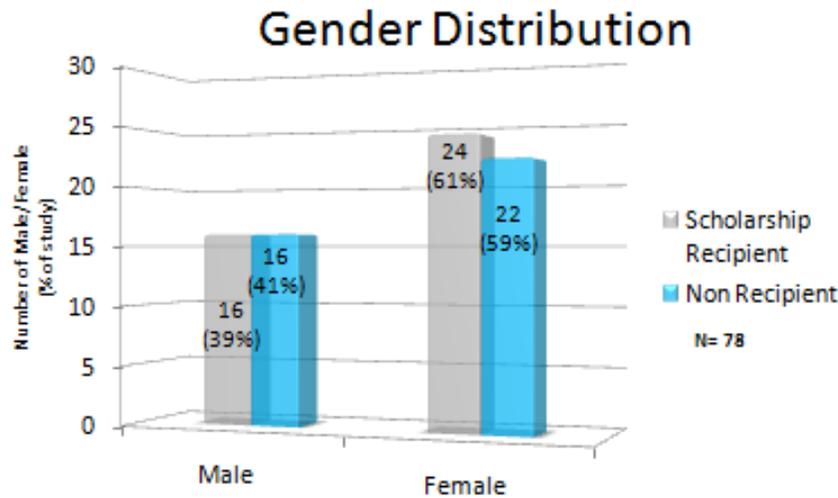
Due to resource constraints, the researcher used a proxy indicator for SES based on the roofing material used in a student's residence. Generally, roofing material consisting of thatch, leaves, or plastic indicates a poor household, zinc roofing indicates a household with more resources and a tile roof indicates a household with even more ample resources. While this is only a rough indicator of socio-economic status, it is frequently used as an indicator of poverty among many scholarship programs in Cambodia including the one currently under study.

A second round of data collection was completed at the very end of the school year in July and was characterized by telephone interviews with head teachers about the enrolment status among students within the sample (both recipients and non-recipients). These inquiries were crucial to updating student records with respect to whether the scholarship had achieved its primary aim of reducing dropout. Students who had dropped out in both groups since the initial data collection were duly noted.

It is worth mentioning that IBCEP places a strong focus on affirmative action for girls and minorities, with special attention paid to awarding scholarships to members of both of these groups. In all, 61% of scholarship recipients are female and 14% are minority students. The sample of scholarship recipients represents this distribution in the general scholarship population.

The bar graph below illustrating the distribution of gender shows male scholarship recipient participation in the study to be about 40% (16), while female recipients make up 60% (24) of study participants. Female non-recipients make up 58% (22) of the control group and males the other 42% (16).

⁴ Minority groups include the following: Cham Muslim, Phnong (hill tribe), Steung (hill tribe).



The bar graph above shows the ethnic distribution of participants in the study of whom approximately 25% are from minority groups.⁵ Ethnic Khmers make up the largest ethnic group in Cambodia and in this sample, they comprise about 75% (30) of scholarship recipients and 74% (28) of non-recipients.

2.3 Data Analysis Method Used to Ensure Equivalent Matching

An independent-samples *t*-test was calculated comparing the means of study participants' age group, grade level, fathers' and mothers' occupational status and education levels, the distance from a student's home to school, household status, ethnicity, how many siblings subjects have in school, and the proxy indicator for SES. By and large, equivalence was statistically demonstrated for the majority of these predictor criteria identified in the study. In this respect, no significant differences were found between scholarship recipients and non-recipients for the follow-

⁵ About 20 to 25% of the population in target areas is comprised of minority groups such as Cham Muslims or hill tribe groups.

ing predictor criteria:

- Age group [$t(76) = -0.072, p > .05$]
- Grade level [$t(76) = -1.469, p > .05$]
- Mothers' occupational status [$t(75) = -1.637, p > .05$]
- Fathers' education level, [$t(76) = -0.959, p > .05$]
- Mothers' education level, [$t(75) = -1.556, p > .05$]
- Distance from a student's home to school, [$t(76) = 1.805, p > .05$]
- Household status: whom students reside with on a permanent basis, [$t(76) = 0.336, p > .05$]
- Ethnic status, [$t(76) = -0.131, p > .05$]
- Number of siblings students have in school [$t(76) = -0.778, p > .05$]

However, there were some significant differences for the variables fathers' occupational status [$t(62.002) = -2.534, p < .05$] and SES [$t(76) = -2.341, p < .05$] that were found. The disproportion of fathers' occupational status is due to the number of scholarship students whose fathers are not present in their lives due to death, where the proportion was 7:1 for scholarship recipients. The proxy indicator for low SES was also disproportionate in the fact that the number of scholarship recipient students who live in homes with roofs made of thatch or leaves outnumber non-recipients 3:1. The same is true for homes with roofing tiles in which non-recipients outnumber the scholarship recipients 3:1 as well.

Matching students across schools allowed the study to investigate the program's impact at the most local level (i.e., at school level). The process, however tended to filter out those students who are most vulnerable to dropping out of school, as their family's socioeconomic status and ethnicity left them with no comparable match; due to this, these students were viewed as most deserving of being included in the scholarship program and not included in the sample. Additionally, as the scholarship recipient sample was created prior to the first round of data collection, this filtering out process created a smaller study population than originally anticipated. The process resulted in two groups of matched pairs, one comprised of 40 scholarship students and one of 38 non-recipients. Means and standard deviations for all predictor variables included in this study can be found in Table 2.2 below. A comparison of both groups indicates highly consistent matching based on the selected predictor criteria.

Table 1.2: Means and Standard Deviations for Matching Variables of Scholarship Recipients and Non-Recipients

		Scholarship Recipients	Non-Recipients
Gender	Mean:	1.40	1.42
	SD:	(.496)	(.500)
Age Group	Mean:	1.35	1.34
	SD:	(.483)	(.481)
Grade Level	Mean:	4.70	4.45
	SD:	(.791)	(.724)
Father's Occupation	Mean:	3.21	2.89
	SD:	(.656)	(.388)
Mother's Occupation	Mean:	3.13	2.92
	SD:	(.732)	(.273)
Distance to School	Mean:	1.03	1.16
	SD:	(.158)	(.437)

Father's Education Level	Mean: SD:	2.62 (.868)	2.45 (.760)
Mother's Education Level	Mean: SD:	2.62 (.628)	2.39 (.679)
Household Status	Mean: SD:	1.58 (1.010)	1.66 (1.169)
Minority Status	Mean: SD:	.75 (.439)	.74 (.446)
Number of Siblings Attending School	Mean: SD:	4.42 (15.380)	2.47 (1.623)
Proxy Indicator for Poverty	Mean: SD:	4.80 (1.137)	4.16 (1.285)

2.4 Methodological Limitations

This study was timed so that it was possible to look at dropout rate patterns among selected students when seasonal changes (i.e., the beginning of the planting season) have historically had the most effect on school attendance. Nevertheless, the study's design presents some limitations because it did not include those students who for whatever reason may have dropped out earlier in the school year. Finding adequate matches for the sample scholarship group was difficult as many of the non-recipient students reported being better off than scholarship recipients. The matching process, as stated above, filtered out due to their family's low socioeconomic status and ethnicity leaving them with no comparable match; these students were viewed as most deserving of being included in the scholarship program and not included in the sample. This limited the number of students in both groups that could be matched. The small sample size is also a limitation to the study because it renders program impact difficult to measure. Sample size is directly affected by the fact that it was not possible to double check the demographic data that students provided. It was not possible for the team to verify that students were not providing false information by inflating the status of their father's occupational status or the type of roof on their home, which they might have been motivated to do in completing the questionnaire in the presence of their peers.

3. RESULTS SECTION

3.1 Relationship between Dropout Predictors and Inclusion in Scholarship Programming

A *Logistic Regression* was conducted to assess whether the ten predictor variables⁶ cited earlier significantly predicted whether or not a student was accepted into the IBEC Upper Primary Scholarship Program. When all ten predictor variables are considered together, they significantly predict whether or not a student was accepted into the scholarship program, ($\chi^2[11]= 25.72$, $p < 0.01$). The predictors as a group also accounted for 37% of the variance between groups,

⁶ These predictors include gender, age group (9-12 and 13-15), parental occupational status, parental education level (no mother/father, no education, primary, lower secondary or higher, ethnicity (Khmer or minority), who student permanently lives with (both parents, single parent household) number of siblings in school, and proxy indicator for SES (type of roof on house - thatch/leaves, tent/plastic, zinc, roof tiles, cement).

($R^2_N = 0.371$). Overall, this model correctly classified 82% of scholarship students into their respective treatment condition.

Tests of the individual predictors revealed five variables that significantly differentiated between students who received IBEC scholarships and those who had not. These predictors include SES, father's occupational status, distance to school, mother's education level, and household status (e.g., single parent household/orphan). Surprisingly, gender was not a significant predictor. As illustrated in Table 3.1 below, the proxy indicator for low SES was the strongest predictor for inclusion in the scholarship program ($z = 6.04, p < 0.05$). The level of vulnerability of this indicator increased their probability of receiving a scholarship by a multiplicative factor of 1.80. Students who live in homes with thatch or leaves are almost two times more likely to receive an IBEC scholarship than if their roof is made of some other material. Whether a student's 'father was a farmer or not' also predicted scholarship program participation at a level that was significant ($z = 5.65, p < 0.05$). 'Mother's education level' ($z = 4.84, p < 0.05$) was another significant predictor of scholarship reception. In this respect, as a student's mother's education level decreases, the chance of that student receiving a scholarship increases by 2.7%. The predictors relating to household status ($z = 4.55, p < 0.05$) and 'distance to school' ($z = 4.50, p < 0.05$) were also significant. Table 3.1 also lists odds ratios for predictors of whether a student is selected for the scholarship program or not. As noted above, SES has the highest odds ratio (1.80), followed by ethnicity (1.744).

Table 3.1: Predictors of Scholarship Receipt

Predictor	B (SE)	Wald χ^2	Odds Ratio
Father Farmer or not	-2.347 (.987)	5.649*	0.096
Distance to School	-3.05 (1.445)	4.498*	0.047
Mother's Education Level	-1.305 (.594)	4.838*	0.271
Household Status: With Who Student Permanently Lives	-0.928 (.435)	4.551*	0.395
SES: Proxy Indicator for Poverty	0.588 (.239)	6.042*	1.80
Gender	-0.142 (.564)	.064	0.867
Age Group	.023 (.666)	.001	1.023
Mother Farmer or not	-0.670 (1.039)	.415	0.512
Father's Education Level	0.040 (.458)	.008	1.041
Ethnicity	0.556 (.782)	.505	1.744
Number of Siblings Attending School	0.032 (.037)	.785	1.033

* $p < .05$

3.2 Scholarship Effectiveness in Preventing Dropout

An *odds ratio* analysis was conducted that compared the likelihood of scholarship recipients staying in school in relation to the control group, which had been constructed based on principles of equivalent matching. The *odds ratio* was calculated to measure the effect at grade level that receiving a scholarship has on ensuring continuous enrolment until the end of the school year. Overall, this analysis found that when considering students across all grade levels, there was *no* statistically significant difference between scholarship recipients and non-recipients staying in school through to the end of the school year, ($t [76] = 0.968, p > .05$). The *odds ratio* for those scholarship recipients randomly assigned to the experimental group was only 0.33 and was not statistically significant in comparison to the control group (see Table 3.2 below). When considering the earlier analysis above that validates selection decisions for inclusion in the scholarship program based on commonly held predictors of dropout, this outcome cannot be attributed to a frequent problem in scholarship administration where the ‘wrong’ students receive such assistance.

The researcher also carried out an *odds ratio* analysis that compared differences in enrolment status for students at each grade level where the scholarship is provided. This analysis did find a statistically significant difference between the two treatment conditions at Grade 4, but that this difference disappeared at higher grade levels (i.e., Grades 5 and 6). In this respect, the *odds ratio* for Grade 4 scholarship recipients came in at a relatively high magnitude of 4.16; that is, a scholarship recipient in Grade 4 is four times more likely to remain in school through the end of the school year than is a comparable student in the control group. This outcome was clearly magnified by the fact that none of the scholarship recipients at this grade level had dropped out of school between the period of initial data collection and the end of the school year. On the other hand, the odds ratio for students in Grades 5 and 6 was found to be only 0.11 and 0.03, respectively. The magnitude of these ratios is only a small fraction of that found for those scholarship recipients in Grade 4 and was not significantly different from students in the control group.

Table 3.2: Odds Ratio Comparisons of Scholarship Recipients Remaining in School

	Odds Ratio	Significant ($p < .05$)	Percentage of Student Drop-Out
All Grades	0.33	No	7%
Grade 4	4.16	Yes	0%
Grade 5	0.11	No	8%
Grade 6	0.03	No	25%

4. DISCUSSION SECTION

4.1 Interpretation of General Findings

The results of this study have several mixed messages for education development practitioners who are involved in programs to promote inclusive education and increased retention among vulnerable students. These messages relate to the 'effectiveness' of scholarship programs with respect to both the process through which they are administered and the overall ability of such programs to enhance enrolment of vulnerable children in school.

At the level of process, this study found that in spite of a mixed history of scholarship implementation in Cambodia where administration problems are common, it is possible for local stakeholders to be entrusted with such difficult decisions as 'effective' scholarship beneficiary selection. Effectiveness in this context has been defined as the ability to correctly identify vulnerable children based on commonly accepted predictors of student dropout (e.g., socio-economic status, occupational status of parents, single parent households, minority status, etc.). Earlier discussions noted that patronage is a common behavior in Cambodia, which greatly raises the exposure of scholarship programs to mismanagement in the way that they are administered, particularly as it concerns selection decisions. This study, however, found that in this particular programming context, there is a very high probability of being selected for a scholarship and possessing specific characteristics that predict dropout. In other words, selection decisions made by local stakeholders (mainly schools and communities) demonstrated a very high correspondence between suggested criteria defining vulnerability and the actual characteristics of scholarship recipients. Indeed, the strongest statistical predictor of beneficiary selection appeared to be socio-economic status (i.e., poverty levels). Since it is a common rule of thumb that scholarships are intended for the poor, this strong finding suggests a high level of efficiency in the process of beneficiary selection.

Although it is difficult to speculate what was done in this particular project to ensure such a close correspondence between actual selection decisions and recommended criteria, these study findings are a resounding endorsement of the idea that localization of scholarship administration decisions to the school and community level will not diminish management effectiveness. Indeed, perhaps it is the fact that increased ownership of programming is what ensured effective scholarship management as defined in this context. Although this is only speculation, it does suggest a further area of inquiry with respect to investigating the effectiveness of scholarship program management in Cambodia.

Findings relating to the second research question investigated by this study (i.e., are scholarships effective at preventing dropout) present a more complex set of outcomes. At a surface level, study findings suggest that scholarship support at upper primary school level (where dropout patterns tend to accelerate) does not prevent dropout, which is the bottom line for any inclusive education program. However, when impacts are considered at specific grade levels, scholarship support does appear to be effective in enhancing retention at the lowest grade levels (i.e., Grade 4) but not at the higher levels (i.e., Grades 5 and 6). Thus, the most optimal conditions at which scholarship support is effective in preventing dropout, as such support has been devised in this particular programmatic context (i.e., \$12 of in-kind assistance during the course of the school year) is at the lowest grade level of upper primary school. Earlier discussions in this paper speculated that older children are more susceptible to dropout because the value of their labor increases with age and intensifies an 'opportunity' cost, whereby a family loses income that could otherwise be earned if a child drops out of school. This speculation re-

flects other research sources describing issues in the effectiveness of scholarship programming. The findings of this study seem to confirm this speculation that scholarship interventions designed to address the direct costs of education have difficulty in counteracting opportunity costs, as children get older and move to higher grade levels.

4.2 Conclusions and Recommendations

Based on the findings described above, the researcher concludes that the scholarship programming supported by USAID funding in Cambodia has been successfully managed but that effectiveness in preventing dropout needs to be reviewed. The first conclusion supports the continuation of a programmatic design that stresses local decision-making and stakeholder-driven development models. The second conclusion, however, suggests that 'unitary' scholarship packages, as used at primary level in this project, will have limited effectiveness in addressing the needs of both younger and older children. Scholarship packages as they are currently construed will be effective in preventing dropout for younger children who are just starting upper primary school but will likely have little or no impact on older children. This study cannot definitively suggest that increasing the value of scholarship support at the upper grade levels will be more effective in preventing student dropout or counteracting the influence of opportunity costs on school leaving decisions. However, modifications in program design along these lines for older children do seem to be warranted. Indeed, moving scholarship packages at the upper grade levels from an exclusive focus on the direct costs of education to more incentivized programming that addresses opportunity costs associated with schooling are strongly suggested.

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