Evidence based practice in girls’ education in Cambodia: Lessons from work in progress.

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Introduction.
Since 2002 CARE Cambodia has worked in the remote north east province of Ratanakiri in a program known as the Highland Communities Program. The education component of that program is called the Highland Community Education Project (HCEP). The primary objective of HCEP was “to address the education needs of disadvantaged indigenous children, especially girls, through the establishment of 6 community bilingual schools targeting girls and boys who have never enrolled or who have dropped out of the formal system”. While bilingual education has been shown to advantage all children from linguistic minority groups, there is a body of literature that concludes that girls are advantaged more so than boys.

The 6 original HCEP schools were all in villages that had never had schools before. As a result of the work of HCEP, MoEYS is now replicating this model of bilingual education to MoEYS community state schools, not only in Ratanakiri, but also in two other provinces in the north east, Mondulkiri and Stung Treng.

This paper will focus on an offshoot project from HCEP, known as Bending Bamboo. An important element of the Bending Bamboo project was setting up of an operational research agenda that was a response to an extensive situational analysis. There will be a discussion of the evidence based practices of CARE Cambodia as the organisation seeks to document the efficacy of its bilingual education intervention. Student performance in bilingual classrooms was compared with that of students in conventional government schools where the language of instruction is only Khmer, the national language.

The aim of the research is to test the hypothesis that ethnic minority children who receive a bilingual education in their home language or ‘mother language’ and the national language in the early grades, grades 1 to 3, learn the national language, Khmer – literacy and oracy, and mathematics, better than ethnic minority children whose education is in the national language only.
**Background.**
Ratanakiri Province in Cambodia’s north east has a population of over 150,000 people. About 57% are from indigenous ethnic minority groups: the three largest are Tampuen, Jarai, and Kreung. The balance of the population is made up of Lao, Vietnamese and Chinese (13%), and Khmer (30%). Khmers, the dominant ethnic group in Cambodia, are recent migrants from the lowlands. The percentage of Khmers, however, is rapidly increasing due to the implementation of the Royal Government of Cambodia’s economic development strategy for the north east, the Triangle Development Plan. This strategy actively encourages Khmers to migrate and develop the resources in traditional ethnic minority areas. As a result, enormous pressure is being placed on ethnic minority communities to sell land for private investment and the development of commercial agricultural crops.

Most indigenous people live in remote villages with very poor or no access to health or educational services, and extremely limited access to commercial activities. The cultures and languages of the Indigenous ethnic minority groups are distinct from mainstream Khmer culture and language. All groups in this area speak their own languages and practice their own religions.

The ethnic Khmer live in the larger towns where they are prominent in business, petty trading and government service. The highlanders residing in the remote areas are marginalised from mainstream society because of their isolated geographic location and language barriers, both of which have contributed to cross-cultural misunderstanding leading to both direct and indirect discriminatory practices against them. Government practices and the lack of endorsed policy have impacted on highland groups’ socio-cultural and economic situation. Examples include moving villages close to roads, encouraging the practice of settled agriculture, land alienation and acquisition, and logging of the forests. While Cambodia is currently drafting a new land law and a new forestry law, which do contain special sections on communal land rights and community forestry for Indigenous peoples, there is an overwhelming sense of insecurity regarding land and forest use.

Education indicators for Ratanakiri have traditionally compared poorly with lowland provinces and the situation is at its worst amongst highland communities. There are large gender disparities in participation, particularly beyond Grade 3 with very few highland children moving on to secondary education. Children of ethnic Khmer families, 30% of the population of Ratanakiri, make up 88% of the students at the provincial upper secondary school in Ban Lung while the indigenous students, 57% of the population, represent only 12% of enrolments (CARE 2008). With the right inputs this situation could change dramatically because of new improved education infrastructure. Other statistics indicating how much support the lower secondary schools in Ratanakiri need: only 22% (girls 18%) of the primary school students are enrolled in the lower secondary schools.
in this province. If we take the net enrolment figures (right age group in corresponding grades) into account, the net enrolments drop as low as 10% (Net enrolments are an important indicator for achievement in education. Especially if girls enrol at a later age, they are more likely to drop out due to increased workloads and adolescent phase).

As recently as 2003 the province of Ratanakiri had only one High School situated in the main provincial town of Bang Lung. Ethnic minority children were then, and remain so, well unrepresented amongst children enrolled at this school (see statement of % proportions above). The past few years has seen a significant building program funded by Asia Development Bank with the construction of 10 lower secondary schools. There are 137 villages without schools. Even where there are schools, they are often not complete, offering only grades 1 and 2, and classes are often not held because few government teachers will stay at such posts at current levels of salary, remoteness, and because of language and cultural barriers.

There are few ethnic minority teachers, and even fewer women to provide role models for students. There are no ethnic minority students amongst the 60 students from Ratanakiri currently enrolled at the Stung Treng Regional Teacher Training College (RTTC). None of the ethnic minority women interviewed for the UNESCO literacy survey of 2000 were literate (MoEYS-UNESCO-UNDP 2000). While this survey used a very small sample other surveys (CARE 2003) reveal very low rates of literacy.

**Some challenges in provision of education services in Ratanakiri.**

Providing basic education to all children is an obligation under the Cambodian 1993 Constitution, the Convention on the Rights of the Child and Cambodia’s commitment to the Education for All (EFA) Declaration, adopted at the Jomtien Conference in Thailand, March 1990. The Indigenous peoples of the Cambodian Highlands remain geographically, socially and politically isolated and for the most part operate within their traditional barter economy, although this is rapidly changing with the introduction of cash crops and the introduction of industrial style agricultural industries such as rubber plantations. Most women and children cannot speak or understand the national language, and the majority of men have only limited Khmer language skills (CARE 2003). Providing basic education to children from ethnic minority communities in remote provinces is one of the most daunting challenges facing the MoEYS in achieving the EFA target, because of the resources required and the social and cultural complexity of the task. The issues surrounding education for Indigenous peoples in this area can be best summarised as:

- remoteness
- a high proportion of villages in remote districts are without school facilities
- a chronic and systemic shortage of teachers
- a high turnover of teachers
• a high proportion of teachers are young and inexperienced
• very few teachers are from highlander groups
• currently there are no highlander trainee teachers at the RTTC in Stung Treng
• irregular attendance of both students and teachers
• the official curriculum is unresponsive to the reality of village life and inappropriate in bi-cultural and bilingual settings
• the school calendar is inflexible and out of step with the village farming calendar
• for much of the year, especially during the busy growing season, people live at their farms as opposed to their village. Farms may be anything from 3 to 10 km from the village. Parents are reluctant to allow children to walk through the forest by themselves as they believe that they may be harmed by the spirits.
• school closures due to teacher absenteeism
• lack of support, professional or otherwise, for teachers in remote, isolated areas
• lack of effective communication between teachers and students because of language. Khmer teachers do not speak the language of the children and children do not speak Khmer
• lack of role models for girls, as a high proportion of teachers are male
• inadequate training of teachers for remote locations and the social context
• low student enrolments
• high drop out rates, especially girls in the early grades

For any educational endeavor to be successful in such a context will depend heavily on sensitivity, flexibility, intensive financial and technical input and the commitment of a supporting agency. Lee (2001) suggested that meeting the challenges of the provision of education for ethnic minorities would be especially suited to a NGO, as clearly the Ministry has neither the resources nor the expertise to undertake such a task.

In 2003, through the funding auspices of the Australian Agency for International Development (AusAID) CARE Cambodia’s Highland Children’s Education Project (HCEP) opened schools in six remote communities in Ratanakiri province with a total enrolment of 278 students, all at the Grade 1 level and 45% of whom were girls. A number of additional projects now complement the original project and significantly extend the aims of the overall enterprise. The main complementary project is known as “Bending Bamboo” which focuses on the educational needs of marginalised girls and young mothers. The Patsy Collins Trust Fund Initiative (PCTFI), which funds Bending Bamboo, through CARE USA, aims to make a ‘lasting difference’ in the lives of girls (CARE, 2007) through evidence based research into the impact of interventions. There is a convergence in both the aims of bilingual education and the aims of PCTFI. Benson (2005) lists a number of claims ‘regarding positive effects of mother tongue use on girls’ school
participation’. These are that more girls enrol in school when they can learn in a language that is familiar to them; school use of the home language increases parent participation and influence allowing parents to participate in school activities and decision-making, with the resulting curriculum better meeting local needs, with the effect that schooling becomes more relevant for girls; teachers from the same linguistic and cultural communities as their students are less likely to exploit female students; girls in bilingual classes stay in school longer; girls learn better and can demonstrate their learning in the mother tongue; bilingual teachers treat girls more fairly in the learning process; and, more women may become teachers, and thus role models for girls (Benson, 2005, pp. 4-5).

These projects and their activities are now collectively called the Highland Communities Program - HCP. By February 2008 the original 6 HCEP schools had a total enrolment of 801 (44% girls) and were staffed by 42 locally recruited and trained, indigenous community teachers. The schools are all bilingual with initial literacy being developed in one of two vernacular languages, Tampuen or Kreung, with the national language, Khmer, being taught orally in the first year then phased in as the language of instruction over the ensuing 3 years.

The Program adapts the state primary curriculum to the local context incorporating life-skills that draw upon the knowledge and culture of community people.

As a result of the work of HCEP, MoEYS is now replicating the CARE model of bilingual education to 21 MoEYS community state schools, not only in Ratanakiri but also in two other provinces in the north east, Mondulkiri and Stung Treng. In the eyes of provincial education officials, education for ethnic minority communities is no longer seen as an impossible task, but rather a very achievable task, albeit one requiring special strategies to accommodate the cultural and linguistic needs of this target group. (CARE, Situational Analysis, 2008).

While gaining increasing acceptance with Governments in a number of countries around the world, bilingual education remains a form of education surrounded by misconceptions and considerable scepticism. That children would learn to read and write more efficiently and effectively when the language of instruction and the language they are learning to read and write is their own, might seem self evident. What is less well understood is that this approach, learning the first language first, actually helps children learn a second language (the national language) more effectively than similar children who experience a form of education in the national language only. This paper explores the research efforts of CARE Cambodia in investigating the hypothesis that ethnic minority children who receive a bilingual education in their home language or ‘mother language’ and the national language in the early grades, grades 1 to 3, learn the national language, Khmer – literacy and oracy, and mathematics, better than ethnic minority children whose education is in the national language only.
There will be specific attention given to the effect that this form of education has on girls in particular.

**Research Ethics.**
These research activities comply with CARE’s Bending Bamboo Projects’ *Ethics and Procedures Manual*, which was developed in consultation with communities and includes community approval and consent. It also has support and approval from the Ratanakiri Provincial Office of Education. In addition the mathematics component has received ethical clearance from Australian Catholic University’s Human Research Ethics Committee.

**Methodology.**
This research project is a longitudinal panel study with the research being carried out over 4 years, from 2009 to 2012. The sample group is tested in mathematics, oral Khmer and Khmer literacy. A continuous interval panel method is used, whose members complete data collection activities at one period each year over four years. The quantitative data source are ethnic minority students who speak Kreung or Tampuen as their first language and attend Bending Bamboo bilingual schools (n=50); ethnic minority students who attend HCEP bilingual schools (n=50) and ethnic minority students who speak Kreung or Tampuen as their first language and attend state schools where Khmer language is used as the sole language of instruction (n=50). The students are in their early school years (Grade 1 in 2009). Assessing the students in Khmer literacy component starts when students are in grade 2 in 2010. This is because students in the bilingual schools do not start to learn to read Khmer until grade 2. In grade 1 their literacy program is in their mother tongue only. 50% of students in all groups are girls.

**Mathematics Interview:**
The mathematics measurement instrument is modeled on the Early Numeracy Research Project (ENRP) Assessment Interview (Clarke *et al* 2002), the major data collection instrument for the ENRP. Rather than focusing on growth points though, the *Maths* Assessment Interview for this project measures students’ mathematical knowledge, skills and understandings in the strands of number, incorporating the domains of counting, place value, addition and subtraction strategies, and multiplication and division strategies; measurement, incorporating the domains of length, mass and time; and, space, incorporating the domains of properties of shape, and visualisation). The *Maths* Assessment Interview is cross-referenced with Cambodia’s Ministry of Education, Youth and Sport (MoEYS) maths curriculum to ensure curriculum validity.

The data collection interview consists of 43 authentic (rich) assessment tasks (Fig 1). The tasks are considered as authentic (rich) as they connect to some aspect of the students’ experiences, allow all students to make a start, support a range of different solution strategies and/or correct responses, and have the potential to reveal something of the students’ mathematical skills and thinking.
In the first interview students continue with the tasks step-by-step in each section until an error is recorded. In the subsequent rounds of data collection they commence the interview at the first item in each section that was recorded as an error.

Q18. A farmer at the market sells some milk fruit for 35000 riel, some papaya for 15000 riel, and some bananas for 25000 riel. How many riel does she have?

Oral Khmer Test:
The oral Khmer test is a simple vocabulary test with 32 items. The items consist of common nouns, verbs, colors and feelings. The test instrument consists of a booklet of 32 photos, one for each vocabulary item. The interviewer shows a picture to the student and asks one of 4 questions, which ever is appropriate;
- What is this?
- What colour is this?
- What is he/she doing?
- How is he/she feeling?

Khmer Literacy Test:
Most national and international assessments do not assess children’s reading skills before the fourth grade; that is they assume students can read and write. It is not possible to tell from the results of these tests whether students score poorly because they lack the knowledge tested by the assessments, or because they lack basic reading and comprehension skills. For children whose reading level is low, it is often too late by the time they are tested in the fourth grade to successfully conduct remedial instruction. Indeed, to be efficient, remedial instruction should be conducted as early as possible. Acquiring literacy becomes more difficult as students grow older; children who do not learn how to read in the first few grades are more likely to repeat and eventually drop out.

Furthermore, most assessments are based on the results of word recognition tasks (e.g. Dolch word test) or reading comprehension tests. However, research findings have clearly shown that the level of reading comprehension depends on numerous abilities including the level of listening comprehension, sound recognition and the accuracy and speed in reading isolated words.

For these reasons, RTI International, with support from the World Bank and the
U.S. Agency for International Development (USAID), developed the Early Grade Reading Assessment (EGRA) tool. The EGRA is an oral assessment designed to assess the main skills that are known to predict literacy acquisition for students in the early grades of primary school (first to third grade). EGRA provides information on the foundation levels of student learning, including assessment of first steps students take in learning to read: recognizing letters of the alphabet, reading simple words, and understanding sentences and paragraphs.

The EGRA assessment is relatively quick to conduct (17-20 minutes) per child. The EGRA instrument has already been adapted in numerous linguistic settings and the results obtained through field testing having generated considerable discussion and interest within the donor community and among ministries of education. In recent years, many countries have shown an interest in using EGRA as a springboard to improve reading and have adapted the assessment to their local cultural contexts.

Given the above it was decided to base the Khmer literacy tool for HCEP on the EGRA model. Adapting EGRA to the bilingual, bicultural context of Ratanakiri was a complex and protracted task that raised many issues for the development team.

The resulting assessment tool consisted of 7 elements;
  • Name of letters
  • Initial sounds of words
  • Word recognition
  • Nonsense word recognition
  • Listening comprehension
  • Reading comprehension
  • Dictation

The resulting assessment instrument was piloted in February 2010 with the research team consisting of Khmer and indigenous staff.

**Data Analysis.**

SPSS is used for data management and data analysis to ensure that the quality of collected data is adequate, that data are turned into useful information, and that data management problems are avoided. A feature of the data analysis is that data will be disaggregated by gender, which will provide insights to both the issue of bilingual education and the education for girls.

**Limitations, practical issues, dilemmas and contradictions.**

The team implementing the above research activities, face a host of practical issues and limitations.

One of these practical issues was the enormous staff capacity building effort that was required to prepare the team to carry out the activities. In a country
struggling to rebuild its education system after years of war and genocide, this aspect of the project cannot be underestimated. Staff had no previous experience in collecting interview data and no experience working in local languages. This language issue made it essential for the research team to include indigenous staff. Given the education situation of Ratanakiri and the lack of education opportunities for indigenous people, recruiting indigenous staff with some level of education poses a significant challenge.

The research effort described above outlines a longitudinal panel study that plans to follow students as they progress through the grades and assess their academic progress periodically. This will provide a significant challenge in the future. While it is easy to find children who are in grade 1, most of the schools the children in the comparison group attend, only offer grade 1 and 2, rarely offering grade 3.

The above issue is only one in a host the team confronted when attempting to establish a meaningful comparison group with the children who receive a bilingual education. Not only do the schools differ in the grade levels they offer, but the teachers have different training and levels of support, and the curriculum the children experience differs between the bilingual schools and the state schools where the language of instruction is in Khmer only.

The multilingual nature of the context raised many issues for the research team. Assessment instruments were initially developed in English, then translated to Khmer, then translated to Tampuen and Kreung. Once data is collected then it has to travel back across these languages, with the potential for loss of data fidelity at each step of the way. One strategy employed by the research team to attempt to ameliorate the potential for data misinterpretations was to have the initial assessment instruments ‘back translated’. This task was completed, when possible, by a different translator to the person who completed the original translation, or completed after a considerable amount of time had elapsed.

Results.
The research effort described in this paper is of a work in progress. While the first round of data collection for the mathematics and the oral Khmer test are complete, no data analysis has been carried out to date.
About the author:
Ron Watt worked in indigenous education in remote communities in the Northern Territory of Australia for more than 20 years. For 8 of those years he was the Head of the School of Education at Batchelor Institute of Indigenous Tertiary Education. This institute specialised in the training of indigenous teachers for remote communities, many of them with bilingual schools. He has been involved with the HCEP project in Cambodia since its inception in 2002. He is responsible for the oversight of the education and research components of the program.

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