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**Strengthening support for Inclusive Education teachers in Cambodia:
Strategies for mapping and expanding teaching aid use and production**

Master thesis

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Declaration

I, Lindsey Elms, declare that this thesis, submitted in partial fulfilment of requirements for the master degree, at the Faculty of Tropical AgriSciences of the Czech University of Life Sciences Prague, is wholly my own work unless otherwise referenced or acknowledged.

April 18th, 2014

Signature

Abstract

Inclusive education (IE) is a relatively new approach to educating children with disabilities (CWDs) in Cambodia. As government-run teacher training programs do not equip teachers with the skills necessary to effectively work with such children, mainstream primary school teachers struggle with increasing enrollment rates of CWDs through IE initiatives.

Catholic Relief Service implemented an IE pilot project in four schools in Takeo province between 2010-2012 and requested this investigation in order to strengthen and expand their range of options for their 2012-2015 continuation project.

The primary objective of this study was to investigate approaches to supporting teachers in the form of teaching aids by mapping which types of aids are currently used in Cambodia and critically analyzing which factors to consider when choosing and adapting appropriate teaching aids.

Interviews, focus group discussions and site visits to specialized, integrated, inclusive and non-formal education settings were used to collect data on teaching aid use and production. A primary literature review was conducted to i) analyze the socio-cultural contexts influencing the current educational environment, and ii) survey methods used to expand teaching aid production in other cultural contexts. Qualitative data, obtained from the interviews conducted with ninety educational staff members, from diverse professional backgrounds, was analyzed using Daily Interpretive Analysis to extrapolate common themes.

A visual inventory of 120 photos of teaching aids and classroom environments, collected across eight provinces in Cambodia, and a set of sixteen criteria for evaluating and adapting teaching aids based on socio-cultural, educational and economic contexts are two useful products of this study, which local and international education NGOs can employ to develop projects concerning culturally-relevant teaching aids.

Findings from the literature review, combined with data from interviews indicate that the objectives of CRS's IE continuation project need adjustment in order for their desired outputs to be realized. We recommend that either a higher priority is given to teaching creativity thinking skills to teachers, the goal of producing unique teaching aids is shifted to focus on adapting existing aids, or the number of teachers targeted within the project is reduced.

Key words: culturally-relevant, international development, learning materials, criteria, creativity, visual inventory

Abstrakt

Inkluzivní vzdělávání (IE) je relativně nový přístup ke vzdělávání dětí se zdravotním postižením (CWDs) v Kambodži. Státní programy vzdělávání nevybavují učitele dovednostmi potřebnými pro efektivní práci s těmito dětmi a učitelé základních škol se tak těžko vyrovnávají s rostoucími počty dětí se zdravotním postižením zapsaných do škol díky iniciativám podporujícím IE. Catholic Relief Service v Kambodži realizuje pilotní IE projekt ve čtyřech školách v provincii Takeo mezi lety 2010-2012. Organizace požádala o toto šetření s cílem posílit a rozšířit své možnosti při pokračování projektu v letech 2013-15.

Primárním cílem této studie bylo mapováním zjistit přístupy k podpoře učitelů v podobě učebních pomůcek, zjistit které typy pomůcek jsou v současné době používány, a kriticky analyzovat faktory při výběru a přizpůsobování vhodných učebních pomůcek.

Ke sběru dat o využití a produkci vzdělávacích pomůcek byly použity osobní rozhovory, skupinové diskuse a návštěvy lokalit, kde probíhá specializované, integrované i neformálního vzdělávání. Revize primární literatury posloužila k i) analýze společensko-kulturních a historických souvislostí, které dnes ovlivňují vzdělávací prostředí a k ii) průzkumu, jaké metody z podobných projektů by mohly být adaptovány v kontextu současné Kambodže k rozšíření lokální produkce vzdělávacích pomůcek.

Kvalitativní data, pořízené během padesáti sedmi interview s pracovníky ve vzdělávání s různým profesním zázemím, byly analyzovány pomocí *Daily Interpretive Analysis* k určení společných témat.

Dvěma užitečnými produkty této studie jsou série 120 fotografií vzdělávacích pomůcek a prostředí učeben pořízených v osmi kambodžských provinciích a set šestnácti kritérií pro evaluaci a adaptaci pomůcek založených na socio-kulturních, vzdělávacích a ekonomických kontextech. Lokální a mezinárodní neziskové organizace mohou tyto produkty použít při vývoji vzdělávacích projektů, ve kterých jsou potřeba kulturně sensitivní vzdělávací pomůcky.

Závěry ze studia literatury, kombinované s daty z rozhovorů indikují, že cíle IE projektu CRS potřebují úpravy, aby bylo dosaženo požadovaných výsledků. Doporučujeme přiznat větší prioritu podpoře kreativnímu myšlení učitelů, cíl vyvinout unikátní pomůcky změnit na zaměření se na adaptaci stávajících, či snížit počet učitelů v projektu.

Klíčová slova: kulturně-relevantní, mezinárodní rozvoj, vzdělávací materiály, kritéria, kreativita, vizuální inventář

Preface

The basis for change comes from within. It stems from an internal change in understanding. It is a process which can be assisted but not implemented. This is as true for teaching and education as for any other field. The KAP steps (Knowledge, Attitude, and Practice) address this process directly. The foundation for change (implementation or Practice) is dependent on knowledge acquisition and a conscious decision to adapt and adopt a new perspective as one's own. In line with Edward T. Hall's iceberg analogy for expression of culture (visible part of iceberg) vs. the roots of cultural expression (the larger, unseen portion of the iceberg), the majority of the work in any process of change happens out of sight, below the water's surface. These steps are the Knowledge acquisition and internalization of a new Attitude. When we speak about Inclusive Education, the decision to move towards a more interactive, learner-centered approach represents a large portion of the path to realizing IE, however, what still lays ahead to accomplishing this transition, can still be daunting. These opinions stem from my 10 years working as an ESL (English as a Second Language) teacher with adults from around the world, photography teacher, pre-school assistant, teaching assistant for primary school children and private language teacher. Material objects play but a side role in the entire process, however, my experience with children and adults alike has shown me the joy of infusing learning with life when I have physical objects which I find relevant and meaningful at my disposal.

Objects act as a stepping stone to pulling the learning process off the two-dimensional blackboard and flat sheet of paper, giving people the chance to physically interact with their learning. We are social beings and need more than rote memorization of information. We need our teachers, our peers and our learning environments to construct our own learning. We need not only math and language skills to succeed after school, but also well-developed social skills, which help people engage in learning on a deeper level. For these reasons, CCR and CRS are two of the handful of NGOs working in Cambodia to assist children with disabilities (CWDs) in attending their local primary schools to provide them not only with the chance of a formal education, but also the chance to socialize with their peers and, equally as important, their peers to socialize with them to break down the barriers between “abled” and “disabled”.

Additionally, the learning objectives must be accessible and appropriate so that children with disabilities have not just the chance to attend school, but to learn the curriculum. Nearing the end of the first 3-year cycle of the Takeo pilot project, the

teachers requested support in this process in the form of teaching aids. It is this request which catalyzed the preparation phase leading to these 10 weeks of inquiry concerning teaching aid use in Cambodia.

By continuously looking outwards for great leaders and role models that speak to us personally, we can find the path to creating a more holistic and humane approach to children's learning process. Change happens when we find a source of inspiration and are capable of adapting it to fit into our own vision and practice. Looking outwards for inspiration is essential, however, too often in our globalized world we overlook the value of things which are close to us. In a small American town, people seek style and fashion "truths" in New York City, Chicago, and Los Angeles; in the Czech Republic eyes turn to Berlin and the US in search of lifestyle trends; in South East Asia new ways commonly arrive from Australia or Western Europe. It is unwise to perpetuate the short-sightedness of looking too far abroad before understanding what is in front of us. As the first step in teaching aid support for Takeo teachers, it was important for us to discover what teaching aids are already being used and produced directly in Cambodia.

In addition, too many times, too many organizations are doing the same thing, in the same place at the same time. We decided with Caritas CR staff that we did not want to repeat this mistake. This was the second major reason we put heavy emphasis on discovering what was already happening in the field before investing in a way to respond to teachers requests in Takeo schools. Redundancy has no place in development work.

As a teacher working at the time with primary school students with special needs in the Czech Republic, it was a real pleasure to meet and discuss teaching aids with educators working throughout Cambodia. Over 70 people working in NGOs in eight provinces across Cambodia agreed to meet and discuss teaching aids. Teachers opened their classrooms, their closets of teaching aids and their creative sides, at times role-playing how to use various materials and making time for interactive explanations. People shared openly and generously which revealed to me that a latent desire to collaborate exists among the staff who dedicate their own lives to helping improve the lives of children. As images have the potential to express more than words, I believe the appendix including more than 200 photos of teaching aids and school environments gives as much insight into the reality of the classrooms which we visited, as the written portion of this work.

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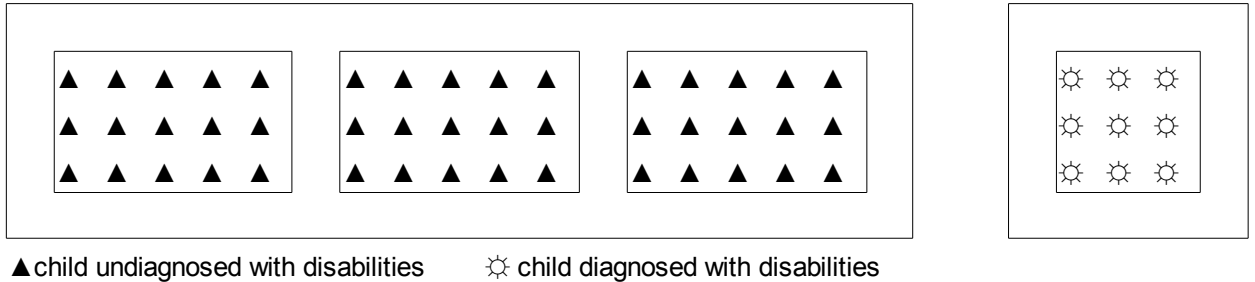
LIST OF ABBREVIATIONS

AAR Japan	Association for Aid and Relief, Japan
ABC	Association of the Blind of Cambodia
AK	Anakot Kumar
BETT	Basic Education and Teacher Training
CABDICO	Capacity Building of People with Disability in the Community Organization
CCC	Cooperation Committee for Cambodia
CDC	Community Day Center
CDMD	Cambodian Development Mission for Disability
CDPO	Cambodia Disabled People's Organization
CFS	Child-Friendly Schools
CRS	Catholics Relief Service
CT	Cambodia Trust
CV	Community Volunteer
CWDs	Child with Disabilities
DCD	Department of Curriculum Development
DDSP	Disability Development Services Program
DOE	District Office of Education
ESL	English as a Second Language
HI	Handicap International
ID	Intellectual Disability
IT	Itinerant Teacher
IE	Inclusive Education
KAKO	Khmer Akphiwat Khmer Organization
KAP	Knowledge, Attitude and Practice
KAPE	Kampuchean Action for Primary Education
KNKS	Kumar Ney Kdey Sangkheum
KPF	Komar Pikar Foundation
KT	Krousar Thmey
MIE	Mainstreaming Inclusive Education
MoEYS	Ministry of Education, Youth and Sport
NEP	NGO Education Partnership
NGO	Non-Governmental Organization
NH	New Humanity
OEC	Operations Enfants du Cambodge
PECS	Picture Exchange Communication System
PED	Primary Education Department
PEPY	Promoting Education, emPowering Youth
PEXS	Picture Exchange Symbols
POE	Provincial Office of Education
PPS	Phare Ponleu Selpak
PTTC	Provincial Teacher Training Center
PWDs	People with Disabilities
RtR	Room to Read
RTTC	Regional Teaching Training Center
SEO	Special Education Office
SSC	School Support Committee
VSO	Volunteer Service Overseas
WG	Working Group

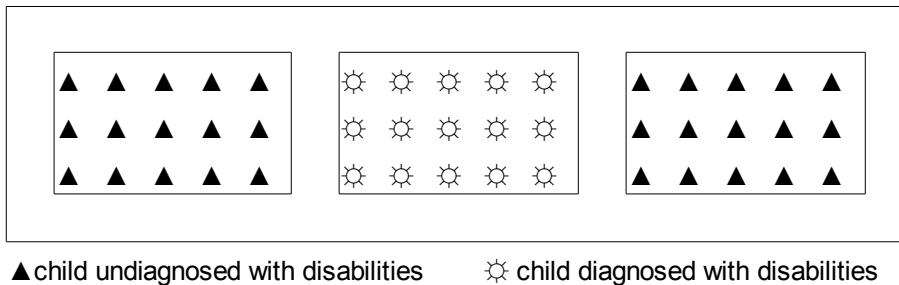
Terminology

The terminology used in the global conversation on education has not been standardized. Education specialists refer to similar forms of education using different terms depending on the country or decade they are working in. Here I define a few terms whose differences are essential to understand within the context of this work. These definitions are in line with Handicap International-France's use of the terms. (Corps, 2008)

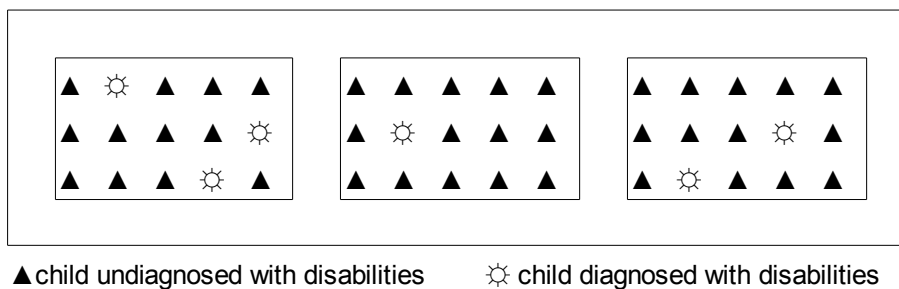
Special education – means a segregated learning environment such as a special school or centre which only accomodates children with disabilities.



Integrated education – translates into a special class for children with disabilities within a mainstream school setting. In general, contact with other schoolmates does not take place during study hours. This arrangement, however, may provide opportunities for interaction during free time.



Inclusive education – indicates that all children are enrolled in a mainstream school and, in the case presented here, means a small number of children with disabilities are in placed in a mainstream class alongside their peers. In the Global North, inclusive education (IE) mainly focuses on disability, however IE target groups in the Global South also include children living on the streets, ethnic minorities, orphans and girls.



Introduction

1.1. Motivation

The Cambodian Ministry of Education, Youth and Sports (MoEYS) officially supports Inclusive Education (IE) practices as the appropriate way to address the fact that the vast majority of primary-school aged children with disabilities (CWDs) do not have reasonable access to education. A handful of IE pilot programs have been implemented in various school districts since 2010. A focus has been put on awareness raising at the village level. It is hoped that by increasing community members' understanding of these children's situations they will be encouraged to adopt a more positive view of CWDs attending mainstream public schools. Relatively high levels of success have been reached in awareness-raising campaigns within these isolated projects. However, the vast majority of in-service teachers never received any training on how to work with CWDs. This poses a large obstacle to maintaining high attendance levels of those CWDs who have recently been enrolled through these various initiatives. At the close of the 2-year pilot project, primary school teachers involved in Caritas Czech Republic's (CCR) and Catholic Relief Services' (CRS) IE project *Strengthening Community Support for CWDs in Takeo province 2010-2012* requested *more access to teaching aids and materials and knowledge about how to produce them*. This request was the impetus for the research undertaken in this project. CCR and CRS will continue to expand their IE work in Takeo Province with an additional 3-year project.

With the goal of avoiding redundancy, this research set out to make an inventory of the culturally-appropriate materials which already exist. The aim was to map the teaching aids currently being used in Cambodia and the organizations or individuals who were producing or assisting in their development.

1.2. Background

1.2.1. Background on inclusive education in the Cambodian context

The implementation of inclusive education is extremely new to Cambodia. In fact the current state of the education system as a whole has only existed for three decades beginning with the Vietnamese occupation of the country in 1979. In the four years before, 1975-1979, the Khmer Rouge had destroyed the infrastructure for the vast majority of the educational institutions operating at that time. Following Western models of the 1980s, special schools were later created to attend to the needs of children with disabilities. As it takes time to rebuild systems as expansive as education systems, it is not surprising that only a handful of special education schools for low-vision, low-hearing and low-mobility students exist throughout the country today, predominantly concentrated around the capital city, Phnom Penh.

There is considerable ongoing debate in Cambodia, as there is around the world, over which form of education is most suitable for CWDs: special education, integrated education or inclusive education (DAC, 2005) However, the remarkable challenge faced by stakeholders in creating any acceptable form of education for CWDs in Cambodia is that by the end of the Khmer Rouge, both fields which heavily impact CWDs, education and health, had been all but dismantled. The Western approaches to medicine practiced in Cambodia during the first half of the 1970s were contrary to the Khmer Rouge's vision of absolute self-reliance, untainted by imperialistic influence and control. The healthcare system was marked for destruction. The Khmer Rouge regime targeted doctors who they viewed as promoters of this Western world view. Cambodia emerged from the 1970s with 10 surviving medical doctors (Dunleavy, 2007) and 25 % (5 000) of its trained teachers (Ayres, 1999). The failing health system in 1979, owing to a dearth of doctors and unequipped facilities, was compounded by an explosion in the numbers of children living with disabilities. This is in part owing to millions of landmines planted throughout the country during the Khmer Rouge's control and the 5 years of civil war and destruction by the US's involvement in the region prior to the KR's victory. Thousands of children became victims to these landmine explosions or to debilitating chronic illnesses caused by severe malnutrition and other conditions inherent to post-conflict situations.

It should be noted that as of 2010, the Cambodian Demographic and Health Survey revealed 40% of children in Cambodia are still suffering from stunted growth and 28% are underweight (National Institute of Statistics, 2011). The malnutrition associated with these

numbers also negatively impacts the cognitive development of children, with chronic malnutrition leading to intellectual disabilities (Mehta, 2013).

In 1979, the medical and educational fields were nearly starting from zero with few Khmer speaking experts to drive this reconstruction process. Thirty-five years later, the newness of these two fields is still very palpable. Promoters of an IE approach to education for CWDs often times use the underdeveloped state and low density of special schools across the country as a clear advantage in pushing for an inclusive education approach – the country can invest in developing IE structures, without the need to abandon an old, existing system (segregated special schools for CWDs) (Dunnet, 1993).

1.2.2. Background on CRS's inclusive education pilot project in Takeo province, Cambodia

The focus of introducing IE began with awareness raising. It is an essential first step. Starting in 2010, skills for screening children were shared with community members in order to identify the real needs of each school catchment. The lack of training provided by PTTCs regarding work with CWDs meant that teachers were struggling to work with children they did not have experience working with in the past. Accepting that K and A of the KAP (Knowledge-Attitude-Practice) process were growing stronger with time (an increase of 35% and 23% respectively among Takeo working group members between 2010 and 2012) (Kosal, 2013), teachers asked for practical ways to then put these pieces into Practice.

In some cases, outside examples can provide sources of inspiration which simply do not exist within the country. This is true for the field visits which CRS organized for working group members projects in Vietnam where Working Group members had the opportunity to see inclusive education in action. Many participants reported that this was the crucial turning point in realizing everything which is possible to achieve with CWDs. Too often, however, the solutions to local issues are imported from countries, with little regard to cultural relevance or “ownership” of the solution. Culturally specific contexts are many times overlooked when the “universal best” solution is chosen. Respecting the teachers' ownership of solutions to their challenges faced in the IE process is of utmost importance to CRS project managers and implementers. To avoid adopting culturally irrelevant approaches and designs, the focus of this work is to explore what types of teaching aids were already being used and/or produced within Cambodia. A second factor influencing the direction of this

work is the desire to reduce the redundancy among projects. Such overlap not only wastes financial resources of NGOs, but the lack of communication, which goes hand in hand with redundancy, translates into slower growth of the movement overall when organizations are not combining strengths or exchanging past experiences to build on. As IE in Cambodia is only a few years old, learning from each other's past mistakes can help build a strong foundation for the movement.

A 2012 survey of teachers from all four of the pilot schools in Takeo involved in CRS's IE project identified the top eight challenges to transitioning to IE:

1. Large class size
2. Many CWDs in each class
3. CRS training had not been sufficient
4. The training period is very short (5 days)
5. Teaching aids/materials are not readily available
6. Some teachers have limited education background (only 7th grade)
7. Low motivation to invest in teaching (many tasks paired with low salary)
8. Frequent follow-ups not feasible because of the large number of IE classes

To address these challenges, CRS, in cooperation with HI, KT and other NGOs support, created a 9-Step Module for Implementing Inclusive Education which was adopted by the Primary Education Department (PED) (Corps et al, 2014).

1. Set up Working Group (WG) and jointly create project outline
2. WG: Orientation/Training (site visits)
3. Infrastructure: include IE in school operational plan
4. School Support Committee (SSC): Orientation/Training
5. Awareness-raising: Community/parents
6. Community mapping: Screening out of school
7. In-school Screening
8. Health referrals/Follow-ups
9. Train/Provide tools to teachers/principals

J. Douglas Willms (2009) reported on several factors relevant to quality schooling and inclusive practice. Of the 5 important factors described, including Class Size and Number of Jobs a teacher has, the one that is “statistically invisible” but exerting a huge influence on the potential of IE is Positive Learning Environment. Willms (2009) goes on to explain (section 2.3.5.A), *Inclusion of students with special needs, particularly students who have been excluded from school or isolated in segregated programs, requires a high emphasis on achieving a positive school and classroom climate.* This is truly, the culmination of KAP: Knowledge, Attitude and Practice. If teachers do not understand IE or do not have the skills and resources to adequately foster an inclusive classroom, it is doubtful a positive learning environment can flourish. If any one of these is missing, the goal of inclusion is not achieved. The December 2012 final project (CRS, 2012) report showed that Knowledge about CWDs had increased and Attitude in the community had improved. The continuation of the project is now focused on supporting these same two aspects and, additionally, implementing approaches to foster changes in Practice.

1.2.3. Problem Statement

Education NGOs working in IE in Cambodia need access to appropriate and culturally relevant teaching aids and approaches in order to support teachers in their work with the growing number of children with disabilities attending mainstream public schools.

As IE practices have gained popularity since the implementation of three pilot projects in 2010, the number of CWDs enrolled in school has dramatically increased in these commune areas. As one example the number of CWDs enrolled in four project public schools partnered with CRS and CCR in Takeo Province jumped from 63 to 328 between 2010 and 2012. The growing success of IE, however, has led to a growing challenge for most teachers who are ill-prepared to work with students of varying skill levels and abilities. If this gap in necessary practical skills is ignored by implementing agencies, not only will teachers suffer from the unreasonable expectations to teach children they have not been effectively trained to teach, but the IE movement will not grow to its full potential as many CWDs who do not feel included in school activities will attend school less often and potentially drop out.

It is necessary to identify and compile an inventory of teaching aids currently being used in Cambodia which are suitable to being adapted to the IE context or used as inspiration in creating new teaching materials. This compilation will give education NGOs who are

seeking to strengthen their IE programs easier access to locally available and affordable options. It in turn increases the likelihood that these NGOs will more readily provide support to the teachers who are directly responsible for the CWDs success at school.

1.2.4. Author's background

Before my research in Phnom Penh began, I had been working as an Inclusive education primary school teaching assistant in the Czech Republic where IE is very new, with the Czech government adopting the National Action Plan for Inclusive Education only 14 years ago (Strnadova and Hajkova, 2012). In contrast to the KAP – Knowledge, Attitude, Practice approach used by many NGOs in Cambodia when addressing new and/or difficult themes for a community, the approach taken in Prague started with Practice. I worked in an educational environment, which for the most part, fought against the IE measures attempted to be implemented by the local education NGO (the funding organization in this case). With this background I easily empathize with teachers who struggle with the arrangement. Regardless of their opinion on the IE approach, it is now their daily reality. If teachers are asking for support, by all means, they deserve to receive it. Unlike the majority of Cambodian teachers I had access to white paper, colored markers, scissors, thin tape and borrowed staplers. However my official budget for teaching aid production was non-existent. The expectation from the school side was to use the pencil and paper and the textbooks, which, overall, were extremely outdated and using old methodology by Western European standards and inappropriate for the students. Most of the teaching aids which I created I created with my own salary. As full-time teaching assistants in the Czech Republic our state-defined salary is 60% of the national average. Just as Cambodian teachers take second and third jobs to make a proper living, we also take private students to teach after school hours to make ends meet. When I went to Cambodia I did not go to “develop” anyone or any place. I went with the intentions to listen to new perspectives on the same struggle. When I began my research for this study, I was working to support teachers who are asking for support. In addition, I believe there is a direct correlation between the number of teachers who feel supported and the number of students who feel supported.

1.3. Paper organization

The literature review, found here in Section One, introduces the role teaching aids can play in the primary school classroom and examines a wide variety of case studies from Asia and Africa focusing not only on teaching aids, but also on inclusive teaching practices and work with children with disabilities. Further, we open a discussion on successes in project implementation and possible adaptations to the Cambodian context. We introduce the practical application of this research, in regards to CRS' continued work in inclusive education in Takeo province and explore the roles creativity and cultural-sensitivity can play in teaching aid projects. Section Two is devoted to outlining the aim and secondary objectives of this work. In Section Three we discuss the methodology, including the methods used for data collection and the approaches used to analyze the interview content and visual inventory of learning materials. We present our results in Section Four, combined with an in-depth discussion on the sixteen criteria which we devised for evaluating and adapting teaching aids to specific contexts. In this section we also provide recommendations for the direction we believe CRS should with the remainder of their IE project. In addition, our research limitations and oversights are included in this section. In Section Five we pull out the highlights of our work and draw conclusion from our results. Recommendations to other researchers who desire to build on this work and continue with similar investigations are found in Section Six. References and Appendices are listed in Section Seven and Section Eight, respectively.

1.4. What are teaching aids? Why use them?

Ranjit (2000) defines a teaching aid as tool which facilitates learning. The word „faciliate“ here explicitly draws attention to the interaction the learner must have with the material in order for the learning to take place. Dasgupta (1997) takes her definition further when stating that “appropriate learning materials (teaching aids) help children to develop their innate abilities.“ Her definition is less concerned with standardized student evaluation and more focused on the development of the whole person. Szendrei (1996) points out that teaching aids help to build visual connections. As an example, this is especially applicable in math when learning to connect abstract concepts to concrete ones, such as the relationship among the word four (spelled out in letters), the equivalent numerical representation, 4, and the number of physical objects both are representing. Aburime (2007) showed that teaching aids do not need to be high technology in order to be effective. He compared math achievements between a group of Nigerian students who worked with 18 simple cardboard learning aids

and a control group, working without manipulatives, and demonstrated with his study, that even very simple aids can raise achievement levels of students. Werner and Hastein (2003) emphasize that the goal of a teaching aid is not to simply be used, but to influence the students activities with something else, preferably with other peers. Werner and Hastein focused their work on how teaching aids can be used to include children with special learning needs and concentrated on developing ways to adapt teaching aids so that they are more easily included in the classroom environment and therefore more frequently used. Ranjit (2000)

1.5. Critical comparison of international IE and teaching aid projects

1.5.1. Learning materials and the process of creating them: Vignettes from Nepal, Thailand, Pakistan, India, Zambia, and multi-national studies

Unfortunately, many of the resources available online for constructing useful, simplified, hand-made learning materials, such as a binder PECS style book (Cosgrave, 2014), which are cost-effective alternatives to professionally produced aids, require materials or resources unavailable in many countries, including most provinces of Cambodia and therefore are there still beyond the means of local schools. On the other hand, the resources available regarding truly low-cost, low-technology have been documented in good depth and provide a solid foundation for furthering research in this field. We begin with a discussion on different approaches to evaluating aids and designing a plan to produce them by reviewing the experience gained in six contexts.

One of UNICEF's non-formal education projects, based in Kathmandu, Nepal, is overseen by UNICEF Assistant Communications Officer, Sharad Ranjit. In 2000, Ranjit outlined ten steps to developing learning materials:

- 1.) Identification of problem and need,
- 2.) Analysis of the problem: Resistance pattern/KAP
- 3.) Analysis of the problem: Identification of need and motivating factors and Persuasion tactics,
- 4.) Objective setting,
- 5.) Selection of the topics,
- 6.) Format selection,
- 7.) Content arrangement: Script visual,
- 8.) Editing,
- 9.) Testing,
- 10.) Revision

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Pichayasathit (2002) however, recommends an eight-step approach which gives less weight to situation analysis, however moves “Revision” from the last step to the fourth from last step and includes “Evaluation” as the last step, which Ranjid's model failed to include.

Table 1 Eight steps approach (Pichayasathit, 2002)

Needs assessment	Revision and finalization
Curricular unit preparation	Duplication
Material preparation	Application
Pre-test	Evaluation

At the 20th Regional Workshop on the Capacity Building for Trainers of NFE Facilitators in Asia and the Pacific, Dr. Suvit Pichayasathit (2002) suggests four “characteristics of good materials”.

Table 2 Characteristics of good materials (Pichayasathit, 2002)

Attractiveness of format and presentation
Relevance of subject to the local conditions
Usefulness of contents and information
Appropriateness of language used for the learners

We took these characteristics into account when choosing broad criteria which we used to frame the development of the 16 context-specific criteria. The first characteristic relates to the Khmer concept of “saat” (beautiful or clean) which can be used to praise both people and things and is held in high regard and in general should be taken into serious consideration when creating or evaluating something in Khmer society (Hancart-Petit and Dumas, 2011).

Pichayasathit (2002) also proposes that there are three ways for preparing learning materials:

- 1) select** readily available materials,
- 2) adapt** already existing materials, and
- 3) develop** new materials

After thorough consideration of Pichayasathit's recommendation, it was decided that the “adaptation of already existing materials” would best suit our context. When choosing the first option, teachers' are not given the chance to make the aids most relevant to their own classrooms and teaching styles. In addition, it is almost always outside of school budgets' to rely solely on purchasing materials. While the third route for preparing materials encourages creativity, it can also lead to redundancy and importation of culturally-inappropriate design concepts. Lou's research (2002) focused on this adaptation process. The study concerned a new method for a teachers-in-training course, entitles *Design and Applications of Teaching Aids for Young Children*, where the teacher-in-training had the tasks of researching what learning materials existed and then using criteria to adapt to a hand-made version. There were four criteria (Lou, 2002) which the course facilitators used to then evaluate their finished products:

1. Creativity and novelty of teaching aids
2. Details in sewing work of teaching aids
3. Practicality of teaching aids
4. Attractiveness of the looks

We propose that Criteria 1, 3, 4 are general enough to be useful to evaluate a wide selection of teaching and that Criteria 2 should be adapted to include the entire construction of the entire aid in order to be applicable to the evaluation of teaching aids in other contexts.

In their publication, “How to make and use visual aids”, Hartford and Baird (1996) have synthesized experiences from multiple countries and produced a set of questions to assist those embarking on a teaching materials project better formulate their options and limitations.

Can you use local cheap materials?

Are there any commercially produced visual aids that would be useful?

Are they suitable for the students' needs?

Can the visual aid be made simply?

What level of formal education do the teachers have?

Do specific colours have any special significance for the students - learners?

What social, cultural and religious beliefs and practices need to be taken into account when designing and planning the visual aids?

What other characteristics need to be taken into account?

Are the necessary resources in fact available?

Does it need to be re-usable?

Will it be handled repeatedly and therefore need to be durable?

In addition, they create an interesting juxtaposition by emphasizing both the role of the teacher as a facilitator when using teaching aids (placing importance on learner-centered methodologies, which are most often imported Western ideas) and underscoring “the importance of local knowledge and talent” (Hartford and Baird, 1996).

To compliment such overarching and generalized recommended structures for the creation of teaching materials, there is also documentation of individual teachers' innovations, such as one math teacher's attempt to transform math into something concrete with his Maths-In-A-Box (STIR Education, 2013). Mr. Saha teaches 3rd and 4th graders in Delhi, India. He maximizes simplicity by including only, straws, beans, egg cartons, pins, string and cardboard. One of his colleagues reported, ““I think the idea has helped me to teach maths visually and has enabled kids to take more interest in Maths. I was initially struggling to explain the concept on the board but now it has helped in teaching better.” (STIR Education, 2013). CRS places high priority on shifting away from the blackboard as the only teaching aid in the classroom. Mr. Saha provides the opportunity to see how little it can take and acts as a needed reminder in our technology-dominated world that we can drastically scale-back and still be effective in improving learning outcomes.

The recommendations for Low-cost Instructional Materials provided in the Multi-grade Teaching Module for Zambian Teachers (2013) focus on five qualities:

- Appropriate for teachers, students and community members to be able to make
- Can be used effectively and do not require extra costs
- The production process is both simple and inexpensive
- The production process is not time consuming
- The materials for production are easily available from local environment.

These criteria are not as strongly formulated as others included in this review, however the variety of criteria available (insight into the decision-making process of different projects) is equally pertinent to this work. The cost factor here is repeated and a non-time consuming production process appears unrealistic or over-optimistic. We found the strongest contribution of their work to be the detailed suggestions of potentials materials, which can be used to inspire brainstorming for projects in other environments.

Locally-available materials (Multi-grade Module for Zambian Teachers, 2013):

plants (bamboo, leaves, etc.)

animal (shell, skin, bones, etc.)

mineral (limestone, charcoal, etc)

industrial waste (fuses, used batteries, etc)

Domestic waste (tin cans, milk or chibuku boxes, bicycle parts, etc)

The recommendations presented by the World Health Organization (WHO, 1995) are oriented toward assisting development workers produce visual aids; however, one point is also applicable to this work. They draw attention to the need for any people represented in drawings to be dressed similarly to people living in that specific community (WHO, 1995) This detail is commonly overlooked as urban images often dominate materials which will be used in rural environments and is therefore worth emphasizing.

1.5.2. South Africa: teaching aids and workbooks

Maduna's (2002) investigation into the effectiveness of teaching aids in two South African primary school revealed that teaching aids had a positive effect on teaching math in under-resourced rural classroom

One teacher valued the introduction of teaching aids into his teaching practice because he felt they save time. When he was paying attention to one group of students, others could continue with their investigations and did not need to wait for him to be available (Maduna, 2002). In his case, these different groups were different grade-levels within his one class; in the context of our work, these different groups would be arranged by skill-levels. As Dy (2004) describes the reality of Cambodian teachers who commonly hold down two or three jobs, we postulate that teaching aids which proved to save teacher's time would be popular among teachers in our target group.

The Workbook Project was rolled out by at the beginning of the 2011 academic school year. Each child was equipped with two workbooks, one in math and one in language skills, which include two pages of work per day, four days a week. This design took into consideration that many schools in South Africa are rural and do not have access to a photocopier, making it unrealistic for teachers to create or even spontaneous reproduce worksheets for their students. This is comparable to the situation of the majority of primary schools in Cambodia.

1.5.3. Mozambique: Training PWDs as teachers

Mozambique provides an example of a progressive approach to inclusive education. For the last ten years one Teacher Training College in Nhamatanda has been training visually impaired persons as primary school teachers (Ingrid and Bagree, 2013). Since 2008 Light for the World has been supporting their work (Walker, 2012). In Cambodia, while the government supports inclusive education for children on a policy level, they have failed to change the law which prohibits Cambodians with disabilities from working as teachers. The fact that other developing countries have been empowering PWDs with skills to engage in meaningful work, shows Cambodia's ministries' continuing conservative interpretation of the White Paper they have signed. Many young university students with varying disabilities reported having an interest in teaching young children, especially CWDs. (CDPO, personal communication.) This option does not however exist in Cambodia.

1.5.4. Bangladesh: Conditions for IE

The findings compiled by CSID's study team (CSID, 2005) reveal that the IE situation in Bangladesh shares many similarities with the situation in Cambodia. These include: NGOs are funding nearly every IE project, teachers lack appropriate training to understand how to work with CWDs, there are large discrepancies between government policy and its translation in the field. In line with study reports generated by NGOs and INGOs (UNICEF, 2006b) in Cambodia, CSID concludes that in order for IE to be successful, classrooms need to be child-focused, child-friendly and non-threatening. These conditions, however, are not yet the norm in either country. CSID's main recommendations for Bangladesh are also fitting for the current Cambodian context: teacher training curriculum needs to focus on inclusive education and working with CWDs, human resources need to be provided in the form of teacher training and sufficient resources need to be allocated for these initiatives. Cambodia's Ministry of Education, in cooperation with local NGOs, (Kosal, 2013) developed four new

curricula addressing teaching children with disabilities. Major strides towards inclusive education in Bangladesh have come from Center for Disability and Development's (CDD) efforts to get CWDs in school while keeping them close to home (Walker, 2012). Their first steps were to training teachers in IE approaches and ensure that schools had appropriate teaching materials specifically targeting CWDs, such as teaching Bangla sign language and providing Braille machine. These types of materials, however, are not what CRS want to focus on as they want to invest in aids which can reinforce the teachers' daily lessons for all students. CDD's second step then is more fitting to what CRS aims for. In 2008, CDD developed, distributed and trained teachers in using the "BEKAS Box" (Lont, 2013), which includes accessible materials for interactive teaching to all the children in the class. This toolbox is to support Education for All. It is a physical wooden box containing 27 teaching/learning materials, supporting students with hearing, visual, physical and impairments (Sightsavers, 2012). The materials include:

Table 3 Teaching materials to support students with hearing, visual, physical and impairments (Sightsavers, 2012)

alphabet blocks in Bangla and English	reading stand	Braille frame and stylus
a set of materials to teach children who are blind	handheld magnifier	geometry set
ten story books with colorful pictures	stand magnifier	books of rhymes
Taylor frame (Mathematics teaching aid) and dice	telescope	booklets on
equipment for children with low vision	writing guide	Braille alphabet chart
maintaining and using a hearing aid	envelope guide	Braille cube to form words
Sign Language in Bangla	signature guide	abacus

The most pertinent materials to the needs identified by CRS IE teacher could be the alphabet blocks, Taylor frame, colorful storybooks and the unspecified materials to assist children socially and emotionally.

Following CDD's evaluation of their BEKAS boxes in 2010, one recommendation for future directions was to conduct a study to identify how the BEKAS materials could be used more effectively with the entire class, not just CWDs. Considering the strong similarities between the Tool Box of Suggested Teaching Aids and the Bangladeshi BEKAS box, we highlighted this as a priority in the expansion of CRS's project.

1.5.5. Azerbaijan's experience with inclusive education

In one sense, Azerbaijan's approach towards children with disabilities shares similarities with Cambodia's educational practices in its emphasis on regimented practices,

rote memorization, and passive learning tasks (Lesko, 2010) which are inherently not supportive of the differentiation in learning materials which inclusion of CWDs require. On the other hand, the preponderance of large, specialized institutions to accommodate CWDs under Soviet rule is more similar to the Western trend of embracing specialized centers. It is a distinctly different starting point for IE pilot projects when compared to the nearly non-existent system of specialized centers in Cambodia. Western countries are faced with the dilemma of what to do with a functioning specialized education system, while non-Western countries have the “advantage” of building an entirely new path for themselves, without having to dismantle an older system. Azerbaijan, however, is an exception to this commonly accepted dichotomy and provides a notable example of countries whose system combines the segregation of Western practices (special education) with the teacher-directed classroom practices, characterized by memorization, repetition and regurgitation of information which form the norm in most non-Western conventional schooling systems. When only comparing these two characteristics within the Child-Friendly Schools framework (UNICEF, 2008) Azerbaijan's foundation for building IE is set up against more obstacles than Cambodia's. To critically compare the education history of the countries in which successful IE projects have been implemented with the target country being considered can help shed light on the necessary adaptations.

The Azerbaijani Ministry of Education highlights the need to look at the problems faces by PWDs not only from a medical perspective, but also from a social one. This approach is in line with NGOs in Cambodia's reasoning for building inclusive education. As the country's first step towards IE, Azerbaijan's Ministry of Education tackled the embedded segregation of the specialized institutions-- a decision Cambodia is not faced with. Shortly after signing the UN Convention on the Rights of People with Disabilities in 2009 (McCabe, 2011) World Vision began implementing its “Deinstitutionalization in Azerbaijan” project (Ahmadov, 2012). Azerbaijan has received international praise for its implementation of the Step-by-Step methodology to achieve promising results in its inclusive education pilot projects (Lesko, 2010). However when we evaluated the procedures used in this methodology we deduced that it is unrealistic to expect their successful integration into the current rural Cambodian primary context. In light of the multiple jobs held by Cambodian teachers and the low social status of the teaching profession, it is highly unlikely that maintaining detailed Individual Education Plans (IEPs) (Lesko, 2010) fits into the current government school context.

1.5.6. UNESCO's involvement in international education

UNESCO has extensive experience in creating various types of learning materials across the full scale of complexity, which get distributed to countries around the world in filling gaps in education, providing recommended approaches for addressing difficult education circumstances and also creating new adaptations of education theories and producing entirely new curriculum to support such initiatives as Education For All. One example of supporting the most fundamental level of education is their Teachers' Emergency Packet (Lefort, 1994) for Rwandan children ages 5-14. UNESCO distributed 9000 copies of this "classroom in a box" following the conflict ending in 1994 to get children back to school despite the lack of trained teachers, facilities and school supplies. It contains the basics (blackboard paint, alphabet posters and multiplication tables, small student boards, pencils and exercise books for 40 pupils) and although cited as appropriate for the Cambodian context (Lefort, 1994) in the 1980s, it is not a source of inspiration for the support currently sought by Cambodian primary school teachers. The next level of support provided by UNESCO comes in the form of teachers' guides focused on practical applications, such as Practical Tips for Teaching Large Classes (UNESCO, 2006) and Practical Tips for Teaching Multi-grade Classes (UNESCO, 2013). The third level focuses more on theoretical understandings of education. UNESCO is producing materials which address the introduction of new educational philosophies and methodological approaches, including publications on topics ranging from teaching children with disabilities in inclusive settings to the role of positive discipline in inclusive, learner-friendly classrooms (UNESCO, 2006b, 2009) and Child-Friendly Schools. On the highest level, UNESCO is organizing conferences for sharing and evaluating materials, for example their 1981 conference bringing together participants from seven countries in Asia (UNESCO 1981). Output from such conferences is highly relevant to the field even today. An example which can be used in this research is their Guidelines for Design, Development, Production and Use of Low-cost Educational Materials (UNESCO, 1981). Included below are three recommendations which are most relevant to this study:

1. Educational materials should be designed in such a manner that they reduce the already heavy loads of teachers

2. Initial and further teacher training programs should provide development of competency and skills of the teachers to design, develop and utilize education materials
3. Low-cost equipment should not be low quality or sub-standard.

While we find these particular recommendations to be both insightful, well-formulated and applicable to our research, we are of the opinion that the teaching aids presented in their Inventory of Low-cost Teaching Materials (UNESCO 1980) resemble ideas for arts and crafts projects when compared with Dasgupta's (1997) similarly cost-effective teaching aid suggestions.

As a result of this 1981 conference UNESCO also produced fifteen criteria which they believe best describe low-cost teaching materials:

Table 4 Criteria for low-cost teaching materials (UNESCO, 1981)

Relevancy	Time saving	Multipurpose use
Raw materials cost	Ease of handling	Durability
Simplicity	East of maintenance	Inter-changeability of parts
Production cost	Frequency of use	Suitability to local environment
Safety in operation	Transportability	Operational cost

1.6. Approaches to supporting teaching: Investing in Human Capital or Social Capital?

The emphasis of many of these international development projects is an investment in human capital or, as professor of Organizations and Management Carrie Leana (2011) defines it, “in a teacher’s cumulative abilities, knowledge, and skills developed through formal education and on-the-job experience.” As comprehensive teacher training is often lacking in many countries, there is reasonable logic behind NGOs' aim to increase teachers' competencies in creating and using teaching aids in their classroom. However, based on Leana's research on the American public education system, she warns that strengthening a school by focusing on increasing the skills of individual teachers may be overlooking the influence which the collective plays in the school's ability to teach effectively. Leana states that the conventional approach to improving a school's performance focuses on three

components: increasing the teachers' skill sets, bringing in outside help, and the strengthening the role of the school principal. These steps have also been employed in CRS's IE pilot project 2010-2012, Results from her research (Leana, 2011), however, suggest that an investment must not only be made in **human** capital but in **social** capital as well. Social capital, in relation to a school environment, can be defined as the relationship maintained among the teachers. She asserts that the more willing teachers are to collaborate and the more comfortable they feel to solve work related problems with their fellow teachers, the stronger the learning outcomes will be for the students at that school.

Can data based on relationships among U.S. teachers be applicable to analyzing the educational system in Cambodia? Which factors impact social capital in a rural Cambodian primary school context? Based on personal communications with international NGO staff, teacher turn-over in Cambodian primary schools is high. If a better teaching position becomes available, it is not uncommon for the most senior teacher to be promoted to this position, such as the example of a science teacher being promoted to librarian and the new science teacher lacking formal training in the sciences (personal communication, NGO staff, 2013). Additionally, the low status held by teachers in Cambodia, coupled by the low wage received for this work (VSO, 2002), means that if another job opportunity arises it is often an advantageous career shift, and again contributes to high teacher turn over. What effects do these trends have on a school's social capital? Can an international development project justifiably focus on both human (teacher) capital **and** social capital when the teachers' formal education skills sets are generally of low quality? One of the first inclusive education pilot projects in Cambodia made an effort to build their schools' social capital through placing an emphasis on communication among teachers. Handicap International, France, based in Battambang province, integrated communication into their schools through the role of itinerant teachers.

1.7. IE Pilot Projects within Cambodia

1.7.1. Handicap International-France

Handicap International has implemented inclusive education programs in fifteen primary schools, divided into two school clusters, in Battambang province (2010-2013). Their approach has centered around two pairs of itinerant teachers (ITs), each of which is assigned to one school cluster. The ITs act as a link between HI education specialists and the

classroom teachers. Classroom teachers are encouraged to speak with the ITs about their needs and the ITs communicate this to HI staff. HI organizes monthly meetings to facilitate this. The ITs take the identified needs/concerns of the teachers to meetings with the DOE and POE, then return to discuss their responses with the school at the next monthly meeting. Each IT receives training, specializing on a specific impairment and become the school expert in this one area. By doing this their skills compliment the classroom teachers' 'umbrella' set of skills for working with an entire class. HI puts a strong emphasis on discussing methods at the grassroots level with teachers and school directors, recognizing that it can often be very challenging for teachers to make the transition to an inclusive classroom environment.

In a 6th grade class, one blind student has become one of the top students in his class. The IT who works with him received extensive training to learn Braille and passed this knowledge on to this child. The student can follow class units using his textbooks printed in Braille.

In a 5th grade class, one student in a wheelchair fully participates in classroom activities as his teacher engages him in lessons, calling him up to the board as she would any student in the class. A strong positive attitude toward learning has been reported (HI, 2012) in these classrooms, along with a sincere sense of friendship between these two children with disabilities and other students. The ITs and classroom teachers have shown great enthusiasm for teaching aids. HI has extensive experience in piloting various IE approaches in mainstream schools and their use of ITs is unique in the Cambodian context.

1.7.2. Light for the World

Light for the World is an international NGO which works closely with Cambodian NGO, Krousar Thmey (KT) and in 2010 decided to shift its support from KT's special centers for the visually impaired to an inclusive approach to education for visually impaired students. The pilot project began in 2010 at Kampot Krong Primary School and used Outcome Mapping to collect information on behavioral changes during the change process. By using Outcome Mapping the project aimed to track changes in the behavior of stakeholders which could then be used as a model for future pilot projects. Outcome Mapping focuses on identifying "boundary partners", "progress markers" and using feedback workshops with boundary partners and short "action-reflection cycles" to keep the momentum of the project while maintaining open channels for communication. An emphasis is placed on creating a

"learning history" through talking with boundary partners and actively creating opportunities for communication. A result of such approach is a strengthening of social capital, as Leana (2011) has highly recommended for successful schools. In order to do this thoroughly, the pilot project focused on only one school with seven visually-impaired students. KT provided the training to the teachers on how to work with visually-impaired students and arranged a 10-day study tour (in conjunction with ABC) to Vietnam. A second primary school in Kampot expressed interest in receiving this training in order to implement a similar project at their school.

1.7.3. Voluntary Service Overseas

Voluntary Service Overseas (VSO) has paved a way for IE in Cambodia through its broad campaigns and projects, having partnered with over 152 organizations in 15 provinces over the last 22 years. They have a well-developed sense of how IE can look in Cambodia and are a strong source of background and hands-on experience in the field. They published a report on IE, *Reaching the Unreachable: Bridging the social divide in Cambodia through inclusive education* (VSO, 2010), a policy report on the motivation and morale of teachers in Cambodia entitled *Teaching Matters* (VSO, 2002) and produced an 8-part series of videos describing their work within their Mainstreaming Inclusive Education (MIE) project (2005-2009). They supported the creation of a full literacy curriculum for grades 1-2, Basic Education and Teacher Training (BETT) manuals, which was recognized by MoEYS, however never approved for curriculum implementation. VSO works closely with the Department of Curriculum Development (DCD) and three NGO partners, KAPE, NEP and Room to Read (RtR).

One aspect of their work which more closely pertains to this research revolves around one woman's work in Stung Treng and surrounding provinces. Linda Preston worked for 3 years with the PTTCs/RTTC, creating teaching aids directly with the teachers-in-training studying at these facilities (Batch 14, 2011). By sharing her experience she saved many hours of trial and error only to learn what is quite obvious to anyone working in the field for multiple years. In order for materials to be weather-proof they need to be totally enclosed, and building on that, in order for weather-proofing to be affordable, it needs to be made from clear tape, not lamination. Lamination, although catering well to the Cambodian appreciation for "saat", does not cater to schools' low-budgets nor to the need for electricity to operate a lamination machine. Small observations, including the quick disintegration of rubber bands in Cambodia's climate, and personal solutions, such as using plastic string instead, provide

more examples of how sharing experience and knowledge can save projects from wasting time on unnecessary trial and error and overlap. Many of the teaching aids which she used with teacher-trainers at her RTTC were considered when designing the criteria. Some examples include the Large Dice, the Number Line, and the Pocket Chart.

1.8. Practical application

1.8.1. Background on CRS's continuation project and future objectives

Findings from CRS's pilot project were used to design this highly specific research project. The final project report (CRS, 2013) enumerated some of the more serious obstacles and difficulties faced by the teachers working with CWDs in their new IE classrooms. Across the board, teachers identified working with children with intellectual disabilities (ID) as their greatest challenge. These children are often labeled “slow learners” and throughout Cambodia represent 20% of student drop-outs from primary education (Corps H et al, 2012).

Intellectual disability is defined as the delayed and/or immature intellectual development and functioning, not developed at par with the person’s chronological development, and (the conventional way of measuring this is with) an Intelligence Quotient (IQ) below the average range (100) (CSID, 2005).

Teachers from Ta Yeong Primary School (one of the four pilot schools in Takeo) reported an average class size of 43 students. Of the 307 students attending these classes, 31 were identified by their teachers as having intellectual disabilities, approximately 10% of the student body. (CRS, 2013)

At the close of the 2010-2012 pilot project, teachers requested future support in three forms:

- 1.) Fewer types of disabilities included in each class
- 2.) Annual refresher trainings on IE practices they have learned
- 3.) Practical knowledge on how to produce teaching materials to help teach CWDs

CRS decided to investigate good practices, in-country and abroad, in order to best provide their teachers with relevant support regarding access to appropriate teaching materials. The education staff at CRS has identified key points defining the structure which the 2013-2015

continuation of the pilot project should take (follow-up interviews with Mr. Sean and Mr. Ngoy).

The continuation project has been expanded from four schools to a total of eighteen schools, including all four of the original pilots. Playshops were conducted with select teachers to introduce them to the idea of teaching aids, generate their opinions and feedback and provide the chance to brainstorm adaptations and produce some of the materials which the teachers identified as feeling most comfortable using. Sixteen teachers attended a one-day playshop with all hand-made materials in May 2014 and sixty-four teachers (four teachers from the remaining sixteen schools) attended playshops in September of 2014. The selection of teachers was not random; active teachers were chosen as participants. This second round was divided into three playshops, one held in each of the three Takeo districts in which the continuation project is being implemented. The teaching aids presented, used and discussed during this second round were not hand-made models, but professionally produced materials. A focus is to be placed on grades 1-3 (and developed to focus later on grades 4-6).

Looking at the breakdown of the official curriculum for grades 1-3 (27-30 lessons per week, 40 minutes each) (Khut, 2012), the need for an emphasis on Khmer language skills is highly apparent:

- Khmer (13 lessons)
- Maths (7 lessons)
- Science & Social Studies including Arts (3 lessons)
- Physical and Health Education (2 lessons)
- Local life skills program (2-5 lessons)

The main objective is “to build the capacity of teachers in the targeted schools to produce the common teaching aids which benefit to all students, especially children with disabilities by using local low cost materials” (personal communication with CRS staff). The CRS educational team emphasized the need to produce materials responding to the **diverse needs** of the children in IE classes. They regard the use of local, low-cost materials for producing teaching aids as a way to increase the sustainability of the project and would like to provide recycled materials to teachers as needed. Not only does CRS aim to have the implementations be financially sustainable, but also expect that the activities will continue after the project is concluded.

1.8.2. Extended purpose

The results of this work will provide a clearer overview of which organizations are involved in teaching aid use and production in Cambodia. CRS, in addition to other education NGOs in Cambodia, will be able to use this information for future decision-making processes concerning how to increase not only enrolment rate, but primarily, retention rates, of CWDs in primary schools and how to best create teacher preparation strategies for working with CWDs. The results should also empower education NGOs with a stronger perspective on how to choose and adapt teaching materials such that they will most effectively suit their specific needs. Additionally, Cambodian and international NGOs can use the results from this study to further collaboration efforts with other development partners in education.

The focus of this work does not include assistive devices for CWDs, such as print magnifiers, book stands and special writing implements. The term teaching aids should be understood as physical objects which the teacher can use to accompany, compliment and reinforce her explanation of a lesson.

Kahn's (2005) work in a 6th grade classroom in Pakistan proves to be the most relevant to CRS's aims. His primary objective was to build the capacity of classroom teachers to develop teaching aids, using low-cost and no-cost materials, and integrating them effectively in the classroom. In addition, Kahn compiled a manual explaining the methodology behind each aid.

1.9. *Building creativity*

“The only limitations are your own teaching ideas, imagination and creativity” (Henrichsen, 2013). However, developing a sense of creativity is not a learning objective which one training or even a series of a few training can adequately address. As Pappano (2014) has emphasized, creativity is now recognized as one of the newest “higher order skills” and more universities have been opening entire master's programs (some PhD programs) focused on creative studies. Sir Ken Robinson (2006), during his TED talk “How Schools Kill Creativity” on the state of the British educational system, surmises that, “Much of the blame for a lack of creativity, and therefore innovation, can be traced to our traditional educational systems [which rely on teaching to the correct answer]”. Creativity is not a priority in most of the world's education systems. UNICEF's push for CFS with the 2008 publication of their CFS Manual, draws on fieldwork from 155 countries (UNICEF, 2008). It builds on a 2006

UNICEF's CFS document "Assessing Child-Friendly Schools" which states "no CFS program is yet claiming major effectiveness and 'success'", testifying to the fact that these conventional approaches to teaching are still the standard in a majority of countries around the world (UNICEF, 2006). Robinson's criticism of merely transmitting facts and rote memorization of information is not a new critique; Robinson draws on American educational reformer, John Dewey's (1902) educational philosophy from the early 1900s. Contributions to innovative approaches to addressing the limitations of linear thinking have not only come from educators in the Global North. Brazilian educator and philosopher, Paulo Freire, highly criticized conventional approaches to teaching, which he described as the "banking model of education" (making deposits of information into a student's empty head) and developed new methodologies (critical pedagogy) to reintegrate critical thinking, brainstorming and participatory approaches into the learning process (Freire, 1973). When Robinson (2006) boldly claims, that conventional schooling kills creativity and the literature (Prasertsri, 1996) repeatedly describes the Cambodian teaching structure as predominantly a one-directional, teacher-directed (not student-centered) "transfer" of information to "uninformed", what then must we do to "re-equip" adults stripped of their innate creativity such that they can approach tasks creatively once again?

1.10. The question of culture and ethnocentrism

We concur with Lesko (2010) that simply placing CWDs in classrooms is not inclusion. He goes on to emphasize the necessity of effective teaching strategies which support learning, which we also believe to be important. The question, however, which this leaves us with is whether **universally** effective teaching strategies exist or if the effectiveness of teaching strategies is culture-dependent. Kalyanpur (2011) applies this question about inclusive education in Cambodia. Many authors, including Tangwa (2005) have investigated similar questions such as whether ethics are culture-dependent and other disciplines, such as cross-cultural psychology, actively address ethnocentrism in the social sciences (Berry et al, 2002), however based on our primary literature review, we posit that this question is underdeveloped in the discourse on global education practices. Grigorenko's (2007) analysis on the impact of Western education on the non-western world, however, provides a well-developed foundation for this argument. Dasen and Akkari's (2008) work in contemporary pedagogy and educational science supports our claim that Western influence is so deeply embedded in the global education framework that it becomes invisible and unquestioned. We believe that by critically exploring these unconscious bias and new educational objectives,

which Hickling-Hudson (2006) terms “alternatives to neo-liberal globalization”, researchers and consultants working in educational sciences can contribute to increasing success rates of educational policy implementation in development projects. We believe that this additional perspective can improve our interpretation of our findings and Knamiller’s work (1983, investigating relevance in various education paradigms, supports this perspective. For this reason, we have striven to interweave this theme into our literature review and research design where appropriate. We will venture into our critical analysis of widely-praised international policies with a look at Child-Friendly School policies.

The CFS model, originally drafted and disseminated by UNESCO in 1994, is heralded as a holistic solution to poor educational practices by development agencies around the world (UNESCO, 2008). Five broad dimensions comprise the CFS framework: inclusiveness; effectiveness (relevance and quality); health, safety and protection; gender-friendliness; and involvement of students, families and communities (UNICEF, 2006).

Interestingly enough, Miller (1996) dismantles the child-centered foundation of CFS framework, when he argues that holistic education is not child-centered, but child-connecting. To focus on only child-centered is a superficial interpretation of holistic. In a similar direction, Rudge (2008) proposes that holistic education is an eclectic and inclusive movement, which emerged in the mid-1980s as a response to the then dominant worldview of mainstream education. When we critically compare the emergence of the holistic education movement (as a **response** to the dominant worldview) to the current use of its namesake, by an international organization claiming 195 member countries (UNESCO), we can propose that “holistic” education has now **become** the dominant worldview and it is necessary to ask if both uses of the word are addressing the same goal. Another valid question to ask would be- How do different cultures and societies define the work holistic? Do distinguishable western and eastern definitions exist today? While navigating the grey area between post-colonialism and neo-colonialism in which we live, we propose it is wise to heed Armstrong and Armstrong's (2010) blunt observation, that “education as a commodity for export is nothing new.” In their book, Inclusive Education: International Policy and Practice, they employ analyzes of case studies which corroborate our belief that all too often a simple “transfer of ideas” from North to South is central to a large percentage of policy development. They call for an understanding of “international interconnectedness”

and an awareness of the uneven balance of power which still carries substantial influence today, less than 100 years after the dismantling of colonialism.

One rural, multi-grade South African teacher, referred to by Maduna (2002), pointed out that he enjoyed teaching aids because they encourage creativity, curiosity and practical thinking. Although these characteristics may be widely praised by progressive educational frameworks, do primary school teachers in Cambodia have a reason to value these three characteristics? Have they experienced creativity, curiosity and practical thinking in a way which makes them worthwhile to pass on to their students? If teachers do not have a personal relationship with characteristics which are valued by implementing NGOs, how does that affect the implementation process?

Thompson (2013), however, contests the idea that learner-centred education (LCE) is only a western construct and therefore irrelevant, even damaging, to the educational needs of countries regarded as the Global South. He concedes that failures in its implementation have occurred when driven by large-scale project under national government initiatives, however supports his argument for the relevance of LCE in varying cultural contexts, with the argument that it will be more effective when it is introduced by small-scale institutions.

Miller (1996) examines approaches to learning in terms of “educational orientations” and outlines these three broad positions as transmission, transaction and transformation. His approach is similar to our belief that in order to critically contextualize a given educational situation, it is necessary to incorporate a critical analysis of other non-educational aspects of society. Miller’s (1996) three educational orientations connect not only to education, but also to philosophy, psychology and economics.

2. Aims and objectives

2.1. Aim

This research sets out to contribute to the fields of **curriculum development and teaching and learning methods** by evaluating the **current state of teaching aid use and production** in Cambodia and **critically contextualizing its position** within the global push for increased incorporation of learning materials into classroom lessons. The underlying goal of this study is to apply culturally-sensitive research approaches in order to achieve culturally-relevant results.

This study focuses on supporting primary school teachers working in an Inclusive Education setting with children with disabilities. It is a practical research endeavor and the results will be interpreted specifically to advise Catholic Relief Services on their strategic plan for supporting the 220 teachers working within the 3-year continuation of their 2010-2012 Takeo IE pilot project. In addition, however, we believe the findings will prove useful to staff in a wide range of educational contexts within Cambodia and can also be critically reviewed for applicable insights by researchers who want to carry out similar work in different cultural contexts. In order to achieve this aim, I have established four secondary objectives.

2.2. Objectives

- i) Establish which organizations are producing, using and disseminating knowledge regarding cost-effective teaching aids in Cambodia and internationally

- ii) Collect a cross-sectional representation of the types of teaching aids currently being used throughout Cambodia in the form of a photo inventory

- iii) Devise and test criteria to evaluate teaching aids based on socio-cultural, economic and educational contexts

- iv) Critically analyze related development projects from other countries and compare to Cambodia's socio-cultural and educational contexts in order to strategize the best approaches to expanding teaching aid production and use

3. Methodology

As this study was requested on behalf of Catholic Relief Service, Cambodia, it follows the guidelines for applied research. (University of Southampton, 2010)

3.1. Data Collection

The research methods employed in this study include a literature review, focus group discussions, interviews and site visits. The literature review is based on four types of secondary sources (scientific journal articles, project final reports, study reports and NGO activity summaries). Referencing the two key components found in the title of this study, “mapping” and “expanding”, the literature review can be divided into two main parts. The first part focused on identifying the current level of activity of organizations within Cambodia working in the fields of 1.) disability, 2.) inclusive education and 3.) teaching aid production. The second part examines the characteristics of international development projects outside of Cambodia which address themes related to inclusive education, learning material production, education options for children with disabilities and non-formal education initiatives. Case studies from twelve countries were analyzed to identify strategies which could be appropriately adapted to fit the Cambodian context and be incorporated in local projects aimed at supporting Cambodian teachers working in IE. Acknowledging the enormous impact which Cambodia’s recent past has had on the education system and society as a whole, an emphasis was placed on developing a culturally-relevant research design and implementation process. Scientific journal articles from a broad range of disciplines, including sociology, anthropology, religion, education theory, philosophy, economics and political history, were used to construct a multi-disciplinary perspective.

3.1.1. Choosing participants

In 2011, there were 3492 registered NGOs in Cambodia (CCC, 2012), the second highest density of NGOs in the world. Nearly 15% of them are international NGOs and a total of 38% are currently active (CCC, 2012). We contacted NEP (NGO Education Partnership) to obtain a list of all education NGOs working with children with disabilities, however these data did not exist.

Taking into consideration that IE is relatively new to Cambodia and therefore few NGOs or schools run extensive IE programs from which to gather data on teaching aid use, we chose to define 7 social service fields in which to contact NGOs to set up interviews, and where

applicable, a classroom visit. These subcategories include: Inclusive Education, Special Education centers, Non-Formal education programs, and organizations supporting integrated classrooms, proponents of Child-Friendly Schools, NGOs specializing in teaching aid production, and NGOs specifically focused on various aspects of disability. Many organizations address more than one of these issues. To ascertain which NGOs were working in one of these fields, we searched printed versions of two NGO directories operating in the country: Cooperation Committee for Cambodia and Sead's Service Directory for Vulnerable People.

We cross-checked all potential NGOs with a web search for their current activities and on-going projects and extended our search for smaller NGOs online. We selected 3 key phrases by which to evaluate if an NGO qualified for selection to be contacted: “children with disabilities”, “teaching aids”, and “inclusive education”. All organizations, whose web pages listed a project pertaining to one of these 3 criteria, were selected as potential contacts. As it is more common in Cambodia to make contact by telephone than by email, we phoned all relevant NGOs to explain the project. With interested NGOs, we followed up with an email describing in detail the aims of the work and requesting an interview.

From a total of forty-seven NGOs identified as potential resources, we contacted thirty-five. Thirty-two NGOs expressed interest in speaking more about the project and we successfully set up meetings with 94% of those contacted. We conducted interviews with 90 education staff, including two Focus Group discussions with teachers and school directors at CRS IE pilot project schools in Takeo province and two Focus Group discussions with teachers and itinerant teachers (IE teaching assistants) at Handicap International-France IE pilot projects schools in Battambang province. We visited a total of twenty-six classrooms.

3.1.2. Study area

The field research project was carried out between 5 April-16 May, 2013 in 8 provinces across Cambodia: Phnom Penh, Takeo, Kampot, Kampong Chhnang, Kampong Cham, Pursat, Battambang and Siem Reap. All organizations met with had their local headquarters in the main city of each province, which bears the same name as the province itself. All 24 provinces in Cambodia and the number of organizations met with in each province are shown in Figure X below.

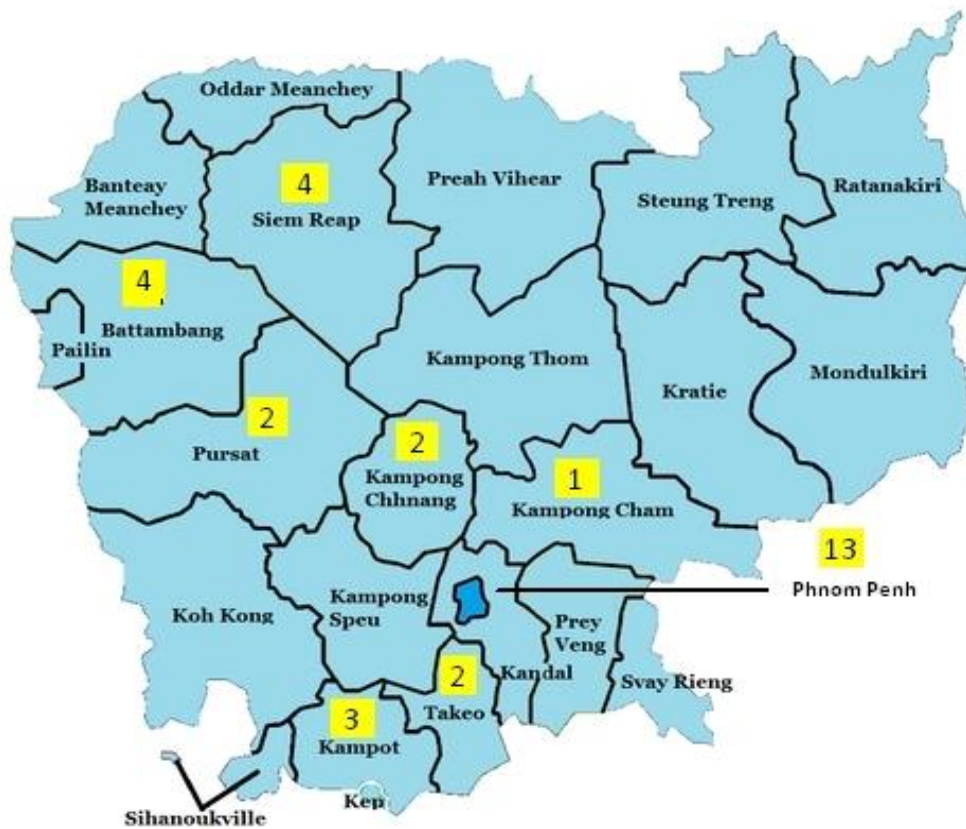


Figure 1 Number of organizations visited in each of 8 provinces

(Wikimedia, 2009)

Methodology

Our research was based in country's capital, Phnom Penh, for the 10-week duration of the study and we made six field visits to the provinces- five shorter trips and one extended 14-day trip including four cities. The time spent in the provinces totaled 21 days, representing 31% of the total field study period. Most NGOs have a headquarters in Phnom Penh and speaking with executive directors of NGOs, administrative staff and consultants is organized here. However life in Phnom Penh is not an accurate representation of the daily reality of the 80% of the population who live in rural areas (FAO, 2011). In order to understand the average primary school conditions it is mandatory to make visits to the provinces and for this reason we placed heavy emphasis on field work.

The national road infrastructure makes access to provinces with higher population densities relatively easy, however for less densely populated provinces and provinces with mountains and more forest coverage, the travel times are long and arduous. Considering the short length of the project, we chose locations for field visits which correlate with low forest coverage and high population density. (See Figure 4)

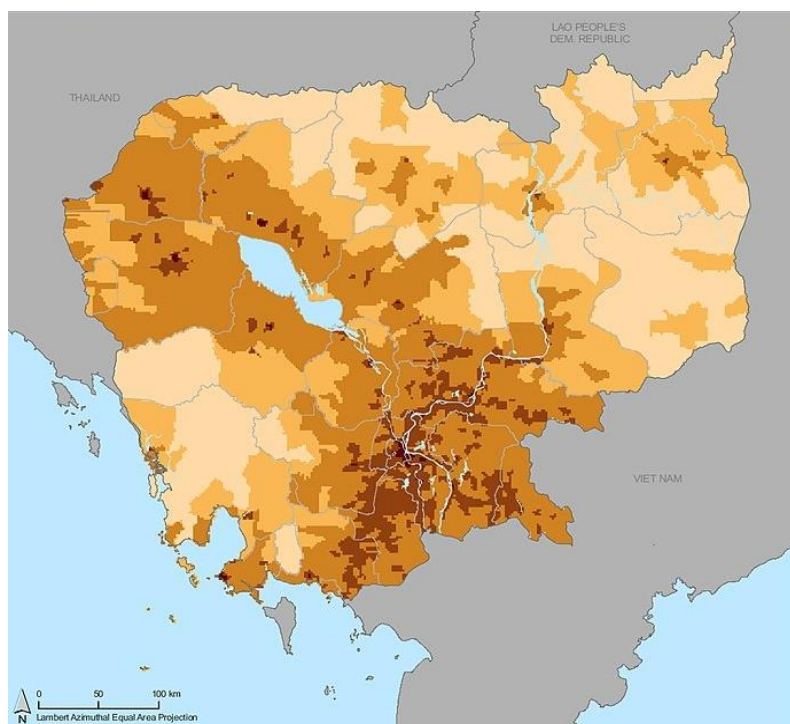


Figure 2 Population density, Cambodia, 2000. Darker shades represent higher population density (Columbia University, 2009)

Lake Tonle Sap is one of Cambodia's main physical features, located on the border areas of Kampong Chhnang, Pursat, Battambang, Siem Reap and Kampong Thom provinces.



Figure 3 Main roads (red), 2013, with six field visits listed in legend

Local transportation within the city and to site visits within 15km of the city was provided by the translator or NGO staff by motorbike.

Cambodia's climate can be divided into four seasons: hot/wet, wet/cool, cool/dry and dry/hot. The dry season brings half a year of dust; the rainy season brings half a year of high humidity. These extreme weather conditions strongly impact the types of materials which can be used in producing teaching aids. The research period fell into the last season (dry/hot) and allowed for access to sites reached by dirt road, many of which are virtually impassable by motorbike during most of the 5-6 month monsoon season, starting in mid-May. 59% of classroom visits were reached by dirt road. In order to observe how teachers are implementing/realizing skills acquired from teaching aid trainings, it is mandatory that field visits are made to rural schools, many of which are located on poorly maintained dirt roads.

It is highly recommended that any continuation of this research be conducted during the dry season in order to **lessen** transportation limitations.

All four of CRS's 2010-2012 pilot project schools are located in Takeo province, which lays directly south of Phnom Penh. An additional fourteen schools were added to make a total of 18 schools for the 2013-2015 continuation of the project. They are distributed among the three most northern districts on the province: Samrong, Bati and Prey Kabbas.

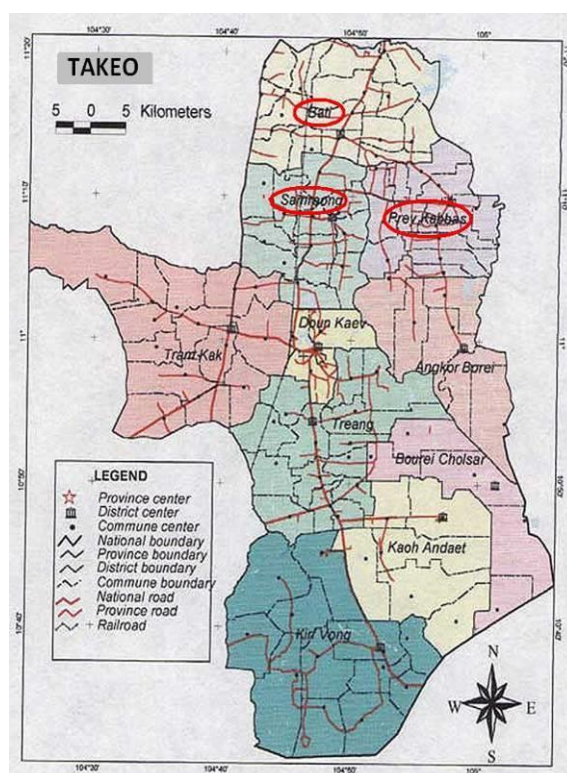


Figure 4 Districts within Takeo province (FAO,

3.1.3. Interview design

The set of questions compiled for face to face interviews included a mix of quantitative and qualitative open-ended questions (Descombe, 1998). Owing to the wide range of job positions which the interviewees held (executive directors, teachers, assistant teachers, disability specialists, education program managers, technical advisors) it was necessary to adjust the question set accordingly. Opinion and personal perspective questions were not easily answered by all interviewees. (See Appendices for copies of interview question sets.)

Table 5 Job Position of interviewees

Position	
Executive director	12
Program coordinator	9
Project manager	10
Project assistant	6
Advisor/consultant	8
Disability specialist	3
School director	3
Teacher	35*
Teaching assistant	4

* Questions were presented during small Focus Group Discussions with 26 of 35 teachers

Our overarching goal during interviews with staff in administrative positions was to expand our contact base by gathering information pertaining to the following three questions:

Who is working directly with CWDs?

Who is designing and producing teaching materials?

Is there an exchange of information among organizations who are working on similar objectives related to IE and/or teaching aid production?

3.1.4. Site Visits

We selected qualitative, empirical observation as one of the main methods for gathering data on teaching aid use and approaches to teaching the national curriculum. Direct, structured observation (Bell, 2005) was the standard method employed in school and Community Day Center classrooms. Overt observation without intervention was used while sitting in on classes, with consent given prior to observations. When possible we followed with an interview with the teacher. All conversations with teachers were arranged to be held on site, as field visits, in order to meet with them in their own teaching environment. We took jotted notes during all visits, supplemented by jotted and mental notes taken by my translator

which we reviewed together after leaving each field site and compiled together into full field notes.

Pertaining to teaching aids, site visits were structured with the following priorities:

- to be invited to look through and photograph the teaching aids on site
- to learn which teaching aids are their favorite and why
- to discover which other organizations they would recommend speaking to regarding teaching aids or work with CWDs

Pertaining to classroom environment, we observed classes with the following questions in mind:

- What types of material are being taught in rural schools?
- What types of methodologies do teachers use to teach this material?
- What types of teaching aids are teaching supporting with their lessons with?
- What are the classroom dynamics? (between teachers and students and among the students)

Both methods proved useful to ascertain how the teachers and teaching assistants interact with their pupils, how the national curriculum is being taught, and subtle details on actual teaching aid use in the classrooms. We strove to support high inter-observer reliability by discussing beforehand the specific priorities of each visit.

3.1.5. Surveying teaching aids availability at local bookstores

A total of ten bookstores were visited in three provinces to investigate which teaching aids are available to buy on the local market. During each visit a visual estimation was made of how many teaching aids were available for purchase, categorized by the three languages teaching aids are commonly found in in Cambodia: English, Chinese and Khmer.

The September sessions were facilitated by two Khmer educational staff that relayed new data collection back via online correspondence. In total, sixty-four teachers from sixteen schools (four from each school) in three districts (Samrong, Bati and Prey Kabas) attended this second round of playshops.

3.1.6. Documenting the Teaching Aids

Photographs were taken during all site visits in order to construct a visual inventory for further analysis. Permission was granted at every site. We requested an explanation of how the teaching aids were used whenever possible.

Characteristics such as where the teaching aids were stored, excessive cleanliness, and ease with which teachers described their function were also noted during the documentation process. The question, “Which is your favorite teaching aid?” was also consistently asked during this process. In order to create a comfortable sharing atmosphere, the main goal of this portion of the site visits was to effectively communicate to the teachers that this inquiry was not connected to any control from their funding agencies. Time was allocated, when possible to engage in informal exchange. (Find more related photos in Appendix 9.)



Picture 1 Mith Samlanh NFE Project Coordinator and Education Center Manager, sit down to demonstrate how to work with their Tool Box teaching aids and educational games, Phnom Penh

3.2. Data analysis

The analytic framework of this thesis refers to the following steps:

3.2.1. Analyzing the interviews

Daily Interpretive Analysis (DIA) was the primary method for analyzing the qualitative component of the interviews. The format consisted of three parts: 1) record, 2) analysis, and 3) conclusions and/or concerns. (Miami University, 2014)

3.2.2. Analyzing the visual inventory

Three main stakeholders were chosen as the basis for organizing teaching aid selection criteria: Teachers/School Directors, Students, Funding Agencies. The categories to address the needs of these stakeholders are shown in Table 6. The photo inventory, containing 225 photos, was reviewed to identify general trends in positive and negative key characteristics of the teaching aids. These key characteristics, combined with data from interviews and site visit observations, were used to further define the needs of the stakeholders, in relation to specific local contexts, which must be addressed by the selection criteria (Hsieh, 2005). The contexts chosen for consideration were: socio-cultural, economic and educational. The resulting sub-criteria were devised in order to address specific local contexts.

Table 6 Broadest categories by which to organize teaching aid selection criteria

-
1. Appealing to teachers
 2. Appropriate for pupils
 3. Attractive to funding agencies
-

3.2.3. Evaluating teaching aids

Using the resulting sixteen context-specific sub-criteria for teaching aid selection, individual teaching aids were evaluated. A point system, corresponding to the criteria, was used to identify the suitability of teaching aids for inclusion in the tool box of suggestions. With sixteen criteria a maximum score of 16 was possible. For every criterion which was not fulfilled, one point was deducted. One point was attributed for each sub-criterion which the teaching aid fulfilled in its original form OR to which it could be adapted to fulfill. One point was subtracted for each sub-criterion which the teacher aid did not fulfill. Irrelevant sub-criteria were scored as if they were fulfilled. Scores from this evaluation process were used to as a primary factor in selecting eighteen teaching aids for the tool box of suggestions.

4. Results and Discussion

4.1. What is the teachers' daily reality?

We collected the following data during focus group discussions with Takeo teachers. The average class size among the sample set of sixteen classrooms is 42 students per class. Nearly 9% of the students attending these classes have been diagnosed with disabilities by the Working Group members who received training in screening for disabilities in 2010. Teachers reported that 71% of those children have intellectual disabilities. The students diagnosed with other disabilities include children with visual, hearing and physical impairments. The teachers identified that they felt most challenged with having to teach the students with intellectual disabilities. They reported four main challenging behaviors, listed in Table 7.

Table 7 Challenging behavior of ID students for IE pilot school teachers

Interrupt and leave class
Make slow progress
Do not follow directions
Come to school irregularly

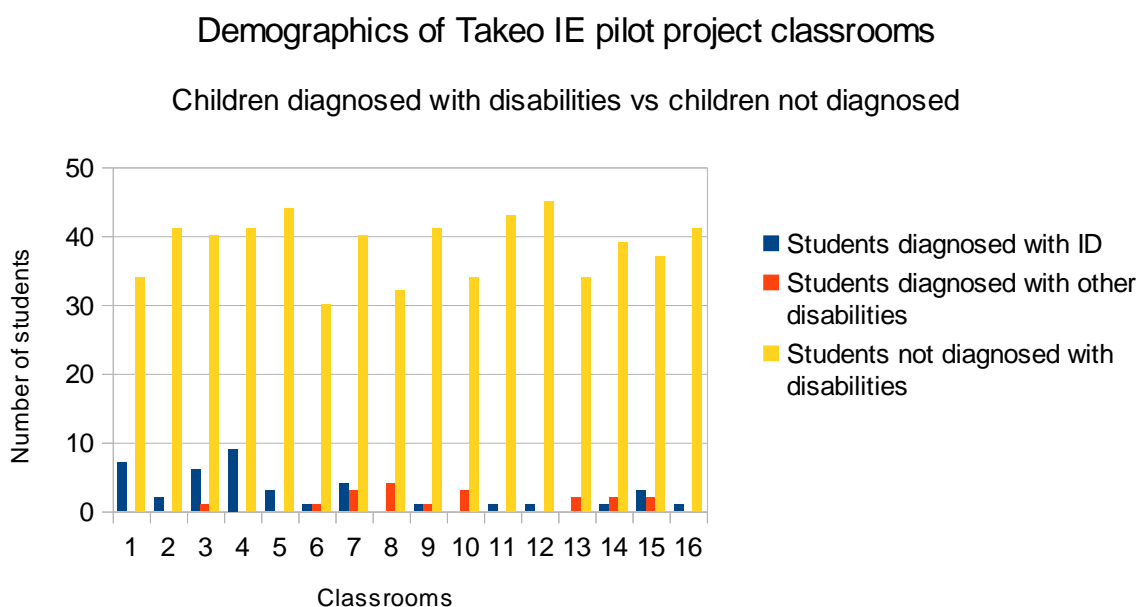


Figure 5 Children diagnosed with disabilities vs children not diagnosed

[The term “slow learners” refers to children with mild intellectual disabilities. Children with

moderate to severe disabilities were not enrolled in the pilot school between 2010-2012.] Teachers reported using three techniques learned in previous training to assist them in their work with the CWDs in their classes.

1. Advantageous seating arrangements for CWDs (near the front of the class)
2. Use light and dark color contrasts for students with visual impairments
3. Work with peers

4.2. Who has experience in IE?

4.2.1. Who has insight into working with CWDs and teaching aids?

On-site interviews provided up-to-date information on the NGOs' current projects and future directions. It was often discovered that the information listed on their website was out-of-date and did not accurately reflect their current priorities. A directory of all contributing NGOs working with CWDs, inclusive education and teaching aid production was compiled and distributed to NGOs working in related fields to be used as a networking tool and support future collaboration.

Table 8 Focus areas of NGOs contacted

Inclusive education	11
Integrated education	3
Special education	5
Non-formal education	7
Child-Friendly Schools	0
People with Disabilities	13
Teaching aid specialization	4
RTTC/PTTC	3
Mainstream education	9

* When an NGO had two or more focuses, all focuses were listed individually

4.2.2. Who is producing teaching aids?

Two NGOs, VSO and New Humanity, were facilitating workshops with teachers to collectively create teaching aids and two NGOs, KAPE and Friends/Mith Samlanh, were publishing and selling teaching aids. Through bookstore visits, we found one organization, SIPAR, who is publishing and selling relevant children's books. When asked to list NGOs who focused on teaching aid production, most respondents gave no answer. Even though this

study shows that Mith Samlanh and KAPE are most likely the two organizations in the entire country most focused on teaching aid production, not one NGO mentioned Mith Samlanh during our interviews. VSO director, John Friend, suggested KAPE and CARE. CARE is the only NGO recommended by any of the respondents as a potential source of teaching aid ideas which was not contacted. CARE works in Inclusive Education, however, with ethnic minority groups (not CWDs) in northeastern provinces.

4.2.3. Where are teaching aids available for purchase?

We determined that nine of ten bookstores visited carry a wide-selection of teaching aids. Children's learning materials geared for English-speakers were most abundant, followed by Chinese-language materials. The number of learning materials for Khmer-speakers was less than for either English- or Chinese-speakers. Monuments Books does not sell teaching aids.

Table 9 Number of bookstores inventoried which sell teaching aids by province

Bookstores	Phnom Penh	Siem Reap	Battambang
International Book Center (IBC)	4	1	0
Peace Book Center (PBC)	3	0	1

We found stationary stalls at local markets to also be a good source of simple teaching aids, such as alphabet flashcards. IBC bookstores offer a selection of KAPE materials. Mith Samlanh materials must be purchased directly through their Phnom Penh office or Siem Reap partner organization.

4.3. Photo Inventory

In regards to the visual inventory of teaching aids, a total of 240 photos were taken, sorted by organization and compiled into PDF-formatted document and made available to NGO staff and education researchers. A sample of photos is shown here in Picture 1. The full PDF can be found in Appendix 9. This photo inventory is a result, providing the basis for devising context-specific criteria for evaluating teaching aids to be selected for adaptation.



Picture 1 Hand-made teaching aids from Cambodian classrooms

4.4. Teaching aids: Criteria and Preliminary Selections

16 detailed criteria devised specifically to address socio-cultural, economic and educational contexts in Cambodia - organized under 3 categories and 8 general criteria

Table 10 Detailed criteria deviation

I. Appealing to teachers and school directors	A. Responds to teachers' identified challenges	1. Provides practical approach to teach most challenging subjects (Khmer/math)	
		2. Provides practical approach to teach most challenging students (CWID)	
	B. Easy to integrate in class	3. Easy-to-use, methodology included (short teacher training, no prep time)	
		4. Follows MoEYS national curriculum, with page references	
	C. Respects concept	5. Colorful	a. Black and white line

	of appealing/beautiful/,, Saat“		drawings (not grey-scale), to add color with pencils
			b. Color paper
		6. Strives for a professional look	a. Templates to assist teachers' precision
			b. Printable database of images (everything does not have to be hand-drawn)
II. Appropriate for students	D. Relates to children's daily lives and worldviews	7. Khmer imagery with connections to (rural) Cambodian lifestyles	a. Not European story book themes
			b. Not Western/irrelevant graphics
	8. Designs respect Khmer customs, approaches and game culture	a. Not monopoly style board games	
		b. Winning is shared, more team-playing (??)	
	E. Addresses target setting: Inclusion of CWD in mainstream classes	9. Focus on core skills for CWDs	a. Academic (Math/Khmer) and Social skills (Communication)
			b. Repeatable exercise practice/Review (plastic sheets, wall chart)
10. Encourages interaction with classmates	a. Multi-levels games (appropriate for all-levels)		
	b. Supports peer-to-peer learning/tutoring		
funding agency (good value)	F. (Extremely) Low purchasing price/cost	11. Hand-made with cost-saving design adaptations	
		12. Buy in bulk and make available	a. clear tape instead of lamination

		“materials kits”	b. double sided prints - to save copies and clear tape
G. Long lifespan	13. Weather-proofed and sturdy		a. water-proof/dust-proof, no fabric/rubber bands, minimal exposed cardstock
			b. cardboard, cardstock and higher quality materials when necessary
	14. Easily-repairable		a. locally-available materials (no velcro, no lamination, no double-sided tape)
			b. fewest moving/breakable parts (no spinners)
H. Versatile	15. Adaptable design		a. applicable for multiple grades
			b. applicable for multiple subjects
	16. Equally useful for children without disabilities		

4.4.1. Category 1: Attractive to teachers and school directors

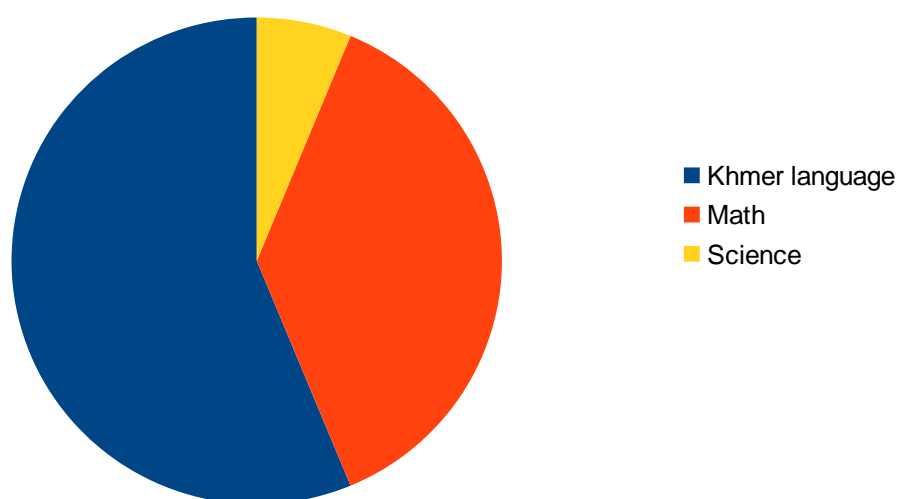
As this research was undertaken in order to support teachers, it is most important that the teaching aid suggestions were developed to be attractive to teachers. This is crucial in order for the teachers to willingly integrate them into their lessons. The reality is that without this willingness the children will not receive the added educational benefit of any teaching aids suggested, regardless of their quality. As previously mentioned and documented by (Mehta, 2005) the social hierarchy in Cambodia governs areas of life down to incredible detail. For this reason, the teachers' use of any teaching material is entirely dependent on the view of the school director. Arno, Technical Advisor to Mith Samlanh points out, “If the director is on-

board, then the teaching will be used in the classrooms.” Therefore the opinions of the school directors are of utmost importance.

4.4.1.1. Addresses teachers' identified challenges

The first criteria ensures the new material will directly respond to the teacher's articulated needs, not to the needs we believe they have, which is a fundamental reoccurring error in project design. The data collected during the Focus Group sessions revealed that the majority (89%) of teachers agree that Math and Khmer language were the two most challenging subjects to teach since the IE pilot project started in 2010.

Most challenging subjects to teach CWIDs



In defense of focusing on Khmer language, one teacher logically pointed out, “Without the basics of Khmer language, ALL subjects are hard to teach to these students.” Data collected during Focus Groups sessions also revealed which teaching aids the teachers use/have used in their classes (Table 13). The Focus Group discussions provided us with insight into what types of teaching aids these teachers believed would help them in their work in IE classrooms.

Table 11 Teaching aids which teachers identified as useful and requested

- Letter cards, consonants and vowels/ABC flashcards
- Picture and word cards to identify
- Word cards to connect to make sentences
- Pictures to use for brainstorming before writing

Pictures/Pictures relevant to textbook
Something to motivate slow learners to come to class
Number cards
Shape cards
Clocks
Scales for weighing
Plastic pocket charts
Diagrams on how to create poems
CDs for songs
Pictures to put on the board to get students to produce sentences
Guidelines to help teach Khmer language to children with ID

Children with mild disabilities were the target group of CRS's 2010-2012 pilot project in Takeo. This may include children with low vision, low hearing, minor physical disabilities (i.e. missing an arm or leg) and children with mild intellectual disabilities. We discovered that this last group of children are not always easy to identify when speaking with teachers because people commonly only recognize children with moderate to severe intellectual disabilities as CWID. Children with mild intellectual disabilities are colloquially referred to as “slow learners” and, in general, the connection with disability is not made. There was general consensus during the Focus Group sessions that the teachers are most frustrated when faced with teaching these students.

Krousar Thmey, a leading NGO working with blind and deaf in Cambodia provided teachers at all 4 pilot schools with simple techniques to assist them in their work with low vision and low hearing students, for example to seat these children in the front rows and near a window for light. As Mr. Touch, director of Rabbit School and contributor to national curriculum development for CWDs, explained four new curricula have been developed and approved by MoEYs and are now available for teachers and trainings. However no experts have yet provided the pilot school teachers with specific advice for working with CWID. For this reason, it was decided to limit the scope of suggested teaching aids to those which will assist this sub-set of the entire project's target group.

4.4.1.2. Easy to integrate into class

Owing to low salaries, teachers in Cambodia are not highly motivated to invest themselves and often spend after-school hours working a second or third job. This combination results in very little lesson preparation. Few primary school teachers have advanced education; most

have finished their basic education before attending the 2-year teaching training program. During empirical observation sessions in classrooms it was discovered that not all teachers had a firm grasp of the mathematical concepts they were teaching. For these reasons we emphasized simple design and concepts and insist that a general methodological approach is included for each teaching aid.

The strict hierarchical system dominates all structures throughout the country also influences the teachers' views of the role of MoEYs and their strong desire to obey the ministry's framework. UNESCO report mentions the importance of connecting teaching aids to national curriculum and Linda Preston, consultant for LFTW, highlighted this point during a follow-up interview. "Teachers will not feel confident using materials which are not tied to the curriculum. They may feel they are going against the ministry if they did so." Based on her 2 years' experience developing teaching aids with student teachers at the RTTC in Stung Treng, her suggestion is to explicitly connect each teaching aid with the specific page in each grade's textbook where the teaching could be integrated. In a follow-up interview, Charlotte Arno, concurred that even though their MoEYS-approved teaching aid Tool Kit does not include page references, "this would definitely encourage teachers to use the aids more." It reduces the planning teachers need to invest in order to use them and therefore increases the likelihood of use.

4.4.1.3. Respects concept of appealing/beautiful/"Saat"

The concept of "saat" is well-established in Cambodian culture. It translates into English to both "beautiful" and "clean". Other connotations included in it include: "clear", "glossy", "high quality", "about appearance". (Personal communication, Arno, Preston) It is a highly revered quality to possess and this applies to teaching aids just as to many other aspects of life. For teaching aids to be attractive to teachers, it is essential that they fulfill criteria to be viewed as "saat". In this context, "saat" could generally be achieved with shiny plastic, brilliant colors and an overall polished look. This is difficult to achieve in a project focused on hand-made products. The emphasis however must be placed on respecting the importance of "saat" and striving to achieve the highest level in all aspects of teaching aid construction. We identified two aspects which are realistic: colorfulness and striving for a professional look. Black and white line drawings are necessary in order for teachers (and their students) to be able to add color with pencils or markers. When colored images from texts are

photocopied, the grey-scale images produced do not permit the addition of vibrant color. However, all images from exercises books found in IBC/PBC bookstores, with the exception of one, (an alphabet book in the form of a coloring book, Figure Q below) were colored.

Regarding color, colored paper, although more expensive than white, is an essential component to the Tool Kit in order to satisfy the needs of “saat”. Secondly, to increase the professional look of these hand-made aids, we included templates to assist teacher with precision in creating the aids. One example is a template for creating the Large Dice. By creating an on-line database of black and white line drawings education NGOs could print images which their teachers requested. This would then contribute to replacing some hand-drawn images with printed images.

4.4.2. Category II: Appropriate for students

Many teaching aid tool kits have been developed over the last 4 decades since the idea of teaching aids began to grow in the U.S in the 1970s. The usefulness of teaching aids is slowly spreading. All too often a good idea, however, is absent-mindedly cut from one context and pasted into a new context. We need to look at the specific qualities of this target group.

4.4.2.1. Relates to/Respects children's daily lives and worldviews

We agree with Portman and Richardson (1997) that it is of utmost importance to value the skills used in the community by bringing the culture of the community into the classroom.

The literature review revealed that it is not uncommon practice to build up new libraries in developing countries with reading material from Western donations. During a site visit to one community village library we also found examples of material that represent a world far from what children living in rural Cambodia can imagine, see photo inventory, Appendix 9.

As Nigerian novelist Chimamanda Ngozi Adichie points out, it is crucial for children to see their own lives in print, warning that “if we hear only a single story about another person or country, we risk a critical misunderstanding.” Brought up reading only books with white, European (main characters) she had not realized people like herself could live in books. It is necessary that children are shown that their reality is a valid reality.

One book, *Village Earth*, published by Sipar publishers, accomplishes this by literally inserting photos of local children into their storybook. Another two books by Sipar, *Rithy the Hero* and *The Boy with Ducks*, accurately represent home life for many rural Cambodia

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children. However, in order for these images to be useful to teachers to insert in their lessons, they need to be reproducible, by printing or photocopying. For this reason it is recommended to create a database of black and white line images of characteristic imagery which reflects the children's reality. 80% of Cambodians live in rural areas (World Bank, 2012) and therefore an additional emphasis should be placed on visuals representing agricultural themes, village housing structure and rural community organization. As mentioned above, culturally-relevant black and white images were an exception.

In addition to culturally-relevant images, we need to examine culturally-relevant approaches to play educational games and learning. Mr. Bumpen, director of KAKO brought up a valid point- “How could we compile a collection of traditional children's games from the older generations before they leave and take this knowledge with them?” It is ideal if teaching aids are evaluated using a lens of local traditional game culture. Linda Preston, former VSO volunteer, noted during our interview that she constantly struggled to explain the concept of a board game design where one player rolls a dice and moves that many spaces forward on the board. She reported that after repeatedly observing teachers in training at the RTTC making mistakes in this sequence of steps, she decided to cut her board game suggestion from her own teaching aid kit. This reminds us that what seems second-nature to adults brought up in Western society, is not necessarily a general global phenomenon. One of the most popular Khmer board games is----Khmer chess, played on the same style board as International Chess but with variations in the rules. Interestingly, many of KAPE's educational games and two of Mith Samlanh's teaching aids are based on a “Monopoly-style” progression.



Picture 2 KAPE's math board game with “Monopoly-style” design

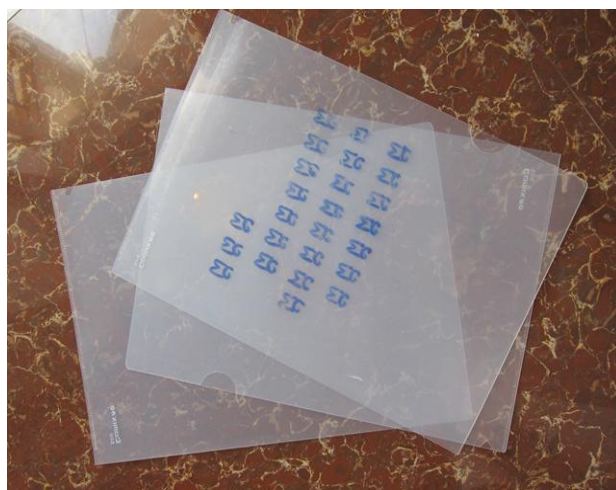
4.4.2.2. Supports inclusion of CWID in mainstream classes

Our target situation has two important components: 1.) children with **intellectual** disabilities (not, for example, physical impairments) and 2.) **inclusion** with non-disabled peers (not a specialized or integrated/segregated environment). CWID commonly struggle to grasp the material at the pace a teacher would lead a class with non-disabled students. As CWIDs live with cognitive developmental delays, mastering the simple building blocks of future learning (i.e. the ability to use written language) poses substantial challenges. Lacking the basic skills to build one's own knowledge leads to student demotivation. (Wright, 2012). KPF recognizes and emphasizes the importance of strengthening “children with disabilities’ self esteem and confidence” (Komar Pikar Foundation, 2011) and for these reasons we believe that the recommended teaching tools must specifically address CWIDs' “**mastery of the most fundamental skills**”.

During Focus Group discussions with Takeo pilot project teachers, we gathered that slow progress was not the sole challenge they faced with CWID. They also reported behavioral problems and even episodes of leaving class. Informal discussions with staff from Epic Arts and Komar Pikar Foundation in regards to working with people with ID highlighted the need to address not only academic skills but also academic-enabling skills. DiPerna and Eliot (2000) define academic enablers as attitudes and behaviors which facilitate students' participation in, and benefit from, academic instruction in the classroom and include organizational skills, study skills and social skills. This became the third target skill of the suggested teaching aid kit, following Khmer language and Math. Beyda et al's research (2002) suggests that information-explicit classroom practices are of specific benefit to students with behavioral disorders.

A two-day training organized by KPF entitled, Communication Skills for People with Disabilities provided many useful ideas such as providing students with a way to communicate how they are feeling and also techniques to help CWID follow the routine of the day.

As opposed to children with physical impairments, such as a child in a wheelchair who may benefit from a ramp to access the classroom or a child with vision impairments who may benefit from a magnifier to access written information, most CWIDs need access to review and repeatable exercise practice. Paper, however, is in short supply at schools and relatively expensive throughout the country. During a class visit to Rabbit School's integrated classes



Picture 3 Plasticized practice sheets from Rabbit School site visit

in Toul Kork Primary School in Phnom Penh, we learned about their use of plasticized sheets and white board markers for repeatable practice without using paper (Picture 3).

We observed during site visits that Epic Arts used plastic Pocket Charts to communicate and clarify daily schedules and VSO and DDSPP schools suggested them for review practice. As this teaching was requested during Focus Group discussions and mentioned as a highlight from their IE study tour in Vietnam, this aid was adopted for the toolkit without further adaptations.



Picture 4 Plastic Pocket Chart

The second important aspect of our goal is to support inclusion of these students in their learning environment which we define here as meaningful interaction with their classmates. We devised two approaches to accomplish this. The first is to provide multi-level games and

exercises such that the entire class can be practicing the same skills set, just at various levels. This approach is strongly supported by Child Friendly Schools. One of KAPE's math games was selected for adaptation.

A second route we chose to support interaction is creating an infrastructure which supports peer-to-peer learning and tutoring. Downing and Peckham-Hardin (2007), highly recommend using peers as part of the school support team. Her research (2007) has even demonstrated the benefits received by peers without disabilities when interacting and supporting a classmate with disabilities.

4.4.3. Category III: Attractive to Funding Agency (Good Value)

4.4.3.1. (Extremely) Low Purchasing price

MoEYS has supported IE since 1999, however this is primarily in policy and very few changes in the budget have been made to purchase necessary equipment. School budgets for purchasing teaching aids are nearly non-existent. Mith Samlanh's toolkit is professionally printed and made of high quality, glossy cardstock and contains pieces made from plastic, such as dice and geometry puzzles, however the printing cost for one set is 91USD. For comparison, a teacher's monthly wage is 85 USD. For international and other NGOs who can afford this, it product great value. With the launch of the toolkit in2011, there was funding available to supply partner organizations with kits for free. Since that funding ran out, this price is prohibitively expensive for many local NGOs who work with multiple schools. KAPE's cardboard board games are sold for approximately 3000 riel (75 cents US) each and yet some respondents noted this can still pose a financial obstacle when we consider the average class size is 43 students. This translates into 11 USD for one class set of one game. In order for the suggested teaching aids to reach a wide audience reducing their purchase price must be a priority. This will be achieved firstly by focusing on **cost-saving design adaptations**.

Lamination transforms paper into something smooth and glossy. It is a logical way to bring a “professional look” to hand-made teaching aids. However it was noted by Linda Preston that, although she originally purchased two laminating machines for her RTTC when she had grant money to support this work, she must recommend against lamination due to its lack of

sustainability. Instead she recommended using clear tape to cover all materials. Another cost-saving technique is to make board games and alphabet practice sheets double-sided. This is not only to save the paper, but equally important for saving half as much clear tape. A second system to decreasing purchase prices of materials would be for implementing organizations to invest in **bulk purchases of the supplies** needed to create the basics of a tool kit, compile these supplies together in “Starter Kits” and make them available for lower prices than could be found when purchasing the materials individually.

4.4.3.2. Long lifespan

Low purchasing prices are not advantageous if the product will shortly be of no use. As most of the country receives half a year of torrential monsoon rains followed by the dry season which covers everything in a layer of dust. Teaching aids in Cambodia must be **extremely weather-proof** in order to be worth investing in. Rainy season in 2013 came a bit early and hard rains poured down on the school buildings while we conducted our playshop with fifteen Takeo teachers. The relentless downpour continued for 45 minutes. While we waited water began to drip through the roof onto the desks in many places and we rearranged. As some of the demonstration teaching aids had not been covered in clear tape, by the end of the session they were ruined. This is the reality many rural Cambodian teachers face for months each year. The toolkit must limit the amount of exposed paper it contains and discourage unprotected board games. Owing to high humidity, plastic string should replace rubber bands and no fabric should be used.

To respond to inevitable damage, aids should be designed to be **easily repairable**. This means they should be made out of locally-available materials and resources and have the fewest moving and breakable parts as possible. This was also recommended in UNESCO 1981 document on teaching aid production and is especially applicable to situations, like in most of Cambodia, where schools are located in remote rural environments lacking access to a wide-range of material supplies. The Australian OT specialists who ran the Communication Skills workshop recalled how a former OT intern has noted that the velcro on the Daily Routine Chart at the KPF;s Community Day Center in Phnom Penh had separated from some of the cards. Six months later the new OT intern found the aid still unrepaired. Velcro is too hard to obtain to be easy to repair, especially for village schools. In addition, if spinners on game boards break they are not easy to repair. Also, if the cardboard

structure of the games swells from humidity, the spinner cannot turn freely and the game is rendered useless. One KAPE spinner game was selected for adaptations, Figure 7.



Figure 6 Spinner, commonly used with KAPE's math board games

4.4.3.3. Versatile

Portman and Richardson (1997) advise: “Some resources take a long time to make but can be used again and again, others take very little time to make and can also be used again and again. But some resources can only be used once and you need to think carefully about whether you have the time to make them.”



Picture 5 Teaching aid with (over-) specific teaching objective

In order for teaching aids to be attractive in such a low resources environment they need to have multiple applications. This criterion evolved to be one of the most important during the selection and adaptation process. The majority of teaching aids we encountered during classroom visits had been created for a specific lesson. Some samples are shown in Figures B, C. Regardless of how well-made or useful in supporting that activity, this is not an appropriate design practice in such a resource-lacking context. Upon discovering this trend, we began to strongly emphasize versatility when selecting teaching aids to be adapted. They should be adaptable and **applicable to various grade levels** and even useful in various subject areas. Versatility enhances a products value when approaching funding agencies.

We must address the dilemma of supporting a small percentage of the student body when the majority of students (non-disabled) in Cambodia do not have adequate access to learning materials. For this reason we placed a heavy emphasis on creating tools which, while directly supporting CWDs, would **also provide assistance to all children**. The final teaching aids would be chosen based on how appropriate they were for improving the entire learning atmosphere at school.

4.5. Applying the criteria: Scoring the teaching aids

We chose eighteen teaching aids in the Tool Box (listed below). Eight primarily focused on numeracy skills, six primarily focused on literacy skills and four tools primarily focused on communication skills.

Numeracy Skills	Literacy Skills	Communication Skills
Number Line	Loto- Consonants/Vowels	Emotion Faces
Giant Dice	Consonant Cards	Visual Schedule
Clocks	Plasticized Practice Sheets	Pocket Chart
Multiplication Game	Letter Formation	Sipar and BETT visual
Colored Number Cards	Worksheets	materials
Large Number Floor Cards (0-10)	Question Word Cards/Dice	
Water Bottles Caps	Listening TPR Game	
Tape Measures (2)	(Vowel Sounds)	

Table 12 Color-coded, point-based system to evaluate teaching aids based on sixteen criteria

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Score
Number Line	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	15
Giant Dice	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	12
Clocks	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	11
Multiplication Game	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	14
Colored Numbered Cards	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	16
Large Number Floor Cards	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	15
Water Bottle Caps	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	13
Tape Measures	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	12
Loto (Consonants/Vowels)	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	14
Consonant Flashcards	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	15
Plasticized Practice Sheets	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	14
Question Word Cards/Dice	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	13
Letter Formation Worksheets	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	14
Listening TPR Game (vowels)	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	15
Emotion Faces	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	13
Visual Schedule	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	12
Pocket Chart	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	14
Sipar/BETT/KPF visuals	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	11

.....

In Table 14, the darkest boxes represent fulfillment of a criteria with an adaptation, the second darkest signify fulfillment of that criteria without adaptation. The white boxes indicate a failure to fulfill that criteria and the lightest shaded boxes represent “not applicable”. The highest score among these aids was 16 (“Colored Number Cards”) and the lowest score 11 (shared by “Clocks” and “Sipar/BETT/KPF visuals”). (Each teaching aid begins with sixteen points and one point is deducted for each white box.)

4.6. Reflection and discussion on approaches taken to collect data

It is generally acknowledged within the field of development work that implementing organizations (in the Global South) often feel substantial pressure to present “the most favorable side” of their work when representatives from Western NGOs arrive for site visits. This commonly, and understandably, stems from a fear of having funding cut or from a hope

of receiving additional funding. This, without doubt, complicates the data collection process by means of site visits, face-to-face interviews and participatory and non-participatory observation methods. (If a local authority is present during surveying can create a similar pressure on the respondent to answer in a specific way.) That said, questionnaires are also easily embellished in response to these same relationship dynamics between implementing and funding organizations. However, when paired with attention to detail, we are led to believe that empirical observation methods can prove to be more effective in collecting reliable data for studies with a similar focus.

Vignette: Advantage of direct observation

Upon arriving in one classroom, we observed a pile of puzzle pieces on the carpet. The implication here is that the children play with puzzles. However, looking closer it was clear that the collection of puzzle pieces was not of one puzzle, but many different puzzles mixed together. The task of differentiating between the different sets of puzzles was not within the skill range of the children with moderate disabilities at this center. It can be extrapolated from this observation that this particular puzzle activity on this day was more of a prop than a learning opportunity for the children. These are some of the details which surveys do not manage to catch.

4.7. Recommendations: Continuation of the IE project in Takeo

4.7.1. Emphasize teacher feedback

The Playshop, which was held in May 2013 with 15 teachers from 2 Takeo school in which CRS and CCR ran their IE pilot project, is only the most basic first step in the entire process of integrating more teaching aids into the IE classroom. Two major rounds of feedbacks are necessary in this process and it is essential to stress here that the first of these rounds should come **from** the teachers themselves. The form of Playshop, over Workshop, was strongly recommended by Kosal Sean at CRS, based on his many years of experience working with the Child-Friendly Schools movement across Cambodia. Teachers may not have the time to invent new teaching aids themselves, nevertheless, their opinions of the suggested teaching aids will clearly determine whether or not they will be used in class. If a teaching aid does not resonate with any particular teacher, it is essential that that teacher has the opportunity to express his view on the teaching aid, point out any weakness or irrelevance his finds in it and, in addition, be encouraged to suggest ideas to improve upon it. Therefore the first round

of feedback is made through introducing the teaching aids to teachers by modeling how they can be used and then asking the teachers to either play the games or model use of the teaching aid to other teachers in small groups. Instructions should be given that teachers are expected to brainstorm new variations and time must be allotted for this process to begin.

4.7.2. Cultural translation

If we are going to adapt materials originally created in other cultural contexts it is highly recommended to become well-informed on the process which Thompson (2013) terms ‘cultural translation’. He defines it as “adapting the way in which an idea is communicated to a new audience in order to respect their **conception of the world** and **communicative habits**.” In this way, he proposes learner-centered activities can be appropriate for a wide-range of communities without being culturally invasive.

4.7.3. Examine most relevant international projects

As mentioned in the literature review, Kahn’s (2005) small-scale project in Pakistan provided promising results and a detailed analysis of his work could provide insights which CRS’s project could benefit from. However, his research focused on only one primary school class and classroom teacher and he was able to work closely with this teacher, provided support and explanation during the learning process.

4.7.4. Peer-to-peer support

Peer-to-peer support was highlighted in LFTW, KT and ABCs report on their study tour to Vietnam. In Handicap International’s IE classrooms in Battambang the peer relationship were observed to be strong and contributing to the learning environment. In addition, Downing’s (2007) research reveals that *students without disabilities can prove effective in providing needed support to a peer with disabilities without decreasing their own potential for learning*. We would strongly recommend that CRS invest energy in developing peer-to-peer strategies which can help build social skills among the students and also ensure a CWD is getting assistance while also allowing the teacher to give attention to the whole class.

The major concerns stems from CRS’s desire to have all teachers in all sixteen primary schools capable of creating teaching aids to suit their needs. We believe this is overly optimistic if not completely unrealistic. Teachers with no experience with designing or creative-thinking skills will be hard pressed to achieve such a task. In order for this

objective to be realized, we strongly recommend that an on-going course be provided, in which a step-by-step method in building creativity would be employed.

4.7.5. Focus on skills to adapt, not design

CRS staff emphasized their desire to have their teachers empowered to produce materials spontaneously to suit their needs. From the large quantities of teaching aids collecting dust in storage places, we have reservations that too much freedom in teaching materials without the guidance to understand all that goes into effective teaching materials, may lead to large quantities of dust-collecting aids in the months that follow the initial lesson (Werner and Hasen, 2003). We would prefer to see teacher's equipped with skills to creatively adapt other materials to best suit their needs and also to be able to comfortably use partially-completed materials or templates to produce versatile aids. One recommendation would be to "culturally translate" a teachers' book such as Wright's (1994) *1000+ Pictures for Teachers to Copy* into a teachers' book with relevant drawings. In this way, computer or internet connections are not needed to access graphics. Additionally it would address the dearth of black and white line images of culturally-relevant images which can be found with a Google search. From personal experience we can say that it is time-consuming enough to produce picture cards using internet images for teachers' living in the West, which the majority of images brought up by a Google search cater to. Individual schools or a cluster of schools could be provided with a "master copy", similar to Wright's book.

4.7.6. Reduce number of teacher participants?

If strong skills in creating unique teaching aids remains the objective of CRS's continuation project, then we will have to recommend shrinking the number of teachers who will be involved. Owing to the limited timeframe to realize this project (18 months), it will be advantageous in this situation to focus on those teachers who show interest and have more time to dedicate to them, rather than forcing those teachers who do not feel comfortable using teaching aids and dilute the limited resources available.

4.7.7. Acknowledgement and accreditation

The last, and very crucial, question for this work is: How to motivate teachers to invest time in learning about, adapting, creating, using and lesson planning with teaching aids? (Bennell, 2007). We have clearly demonstrated that many Cambodian primary school teachers lack motivation to fulfill their current daily teaching tasks. How do we expect to ask more of them? Can teaching aids and peer-to-peer learning actually save them time? We have

identified two paths. The first is to pay a stipendium for their additional studies. This could save them from having to take additional jobs. However, from the financial perspective of most educational NGOs, this is not plausible in the long-term. The second approach we propose is through official recognition. This means their training courses would be accredited by the highest level authority that is interested in recognizing such trainings as serious professional development. For example, the Provincial Office of Education (POE) in Takeo is both supportive and active in CRS's IE project. Certificates of recognition could be a small step towards achieving a more detailed system. For this reason we would also pass on the recommendation given to us by Mith Samlanh and VSO staff to get MoEYS' approval from the very beginning of the project's conception.

“When MoEYS supports your work, school principals support your work and your material is being used in the classroom.” –NGO staff, Phnom Penh

4.7.8. Paths to inclusion

One further recommendation we have for other Cambodian NGOs interested in developing an IE project is to re-think the 9-step approach to IE implementation which was adopted by MoEYS, and discussed above in the literature review. The very last step in the program is:

Train/Provide tools to teachers/principals (Corps et al, 2012)

As discussed in the literature review, there are many options for how to organize the introduction of inclusive education. As Miles (2000) examined in his study in Laos, one option is to prepare a school **in advance** (before enrolling children with disabilities), while other research (VSO, 2010) has shown it is most effective to first enroll CWDs to provide the real need for change. Our research did not address the advantages and disadvantages of these two paths, however we recommend that attention is given, in the form of training and tools (as outlined in the 9th step of MoEYS' IE module above) to teachers and principals earlier on in the implementation process. The teacher feedback from from the 2010-2012 IE pilot project in Takeo, clearly indicates is that it is crucial to empower teachers with a foundation of practical skills **prior to or simultaneous to** the enrollment of CWDs, but not as the last step in the process. When teacher support is not prioritized we risk enrollments rates translating into drop-out rates.

4.8. Research limitations

Limitations to this study include:

Time frame. This study began as a 7-week investigation. Owing to quick progress and success, Caritas Czech Republic extended the timeframe to a total of 10 weeks which opened up the opportunity to speak with staff from more organizations. However, the density of NGOs in Cambodia is among the highest in the world, reaching into the thousands. With more time, we would have been able to identify and contact many more NGOs working in various education sectors and give them the opportunity to contribute relevant information to this compilation of teaching aids.

Language and interpreters. We do not speak Khmer and it would be preferable to speak the local language in order to speak directly with participants, or at least have some grasp of the language to follow parts of discussions.

Owing to medium-term length of this study it was not possible to hire one Cambodian interpreter for the entire project (too short in length to offer as a permanent, full-time job and too time intensive to offer as a second, side job.) Five translators mediated the interviews during the site visits to over forty organizations. Responses were not noticeably skewed by this factor. However, it is logical to assume that more consistent interpretation of responses to interview questions would be obtained if all interviews for a given project are managed by the same team.

Internal organizational transitions. At the outset of this research, key stakeholders, including the IE project manager of the implementing organization, were out of the country, requiring us to postpone site visits to the IE pilot schools in Takeo. A new Program Manager for Education started his position at the same time as we arrived, therefore the 3 years of experience from the Takeo pilot project were lost with the former Program Manager for Education.

Khmer New Years. The official dates for Khmer New Years 2013 were 14-16 April, with 17 April added as an Official Public Holiday since New Year's landed on the weekend. Everything is closed during these days. However, in reality the holidays gets a bit stretched for schools, with few students in class the days preceding the start of the holiday (11-12 April) and extending it through the next weekend (21st of April) and even into the following week. This means that school visits for nearly two weeks in April in Cambodia are unrealistic.

4.9. *Oversights during implementation*

The largest oversight of the project was the level of importance of matching individual teaching aids to specific points in the national curriculum.

Priority should have been given to meeting with two NGOs, Krousar Thmey and CARE, as they are leaders in the inclusive education movement in Cambodia.

It would have been wise to make a more systematic approach to photographing teaching aids, had we anticipated that the collection would grow to nearly 300 photos.

Only two of the four pilot schools in Takeo were consulted. It would have been useful to spend more time at all four of these schools.

5. Conclusions

The title of this work focuses on both the **mapping** and **expanding** of teaching aid use and production. The main results of the mapping component are the directory list which acts as a networking tool for the contributing NGOs and also the photo inventory of teaching aids and classroom environments. Over the course of the 18 months of research (spanning design, implementation, analysis and recommendations), we encountered a handful of professional journal articles which included black and white line drawings of example teaching aids or written descriptions of teaching aids, however, we did not find a single visual inventory of teaching aids using photographs. We would have found it useful for our work and believe the visual inventory is a unique contribution to the field of curriculum development.

In terms of our approach to realizing this project, the gregarious willingness to cooperate and share teaching aids and classtime with us, demonstrates that, although our approach may not be the only way, it was definitely a successful one in terms of fulfilling our aim to gain exposure to as many teaching aids, from as many different sources as possible. The advantage of using empirical observation over distributing questionnaires, is that we had the opportunity to record actual behavior and not only what people report about their attitudes and patterns of teaching aid use.

In terms of expanding the use and production of teaching aids, our site visits revealed that a more systematic approach to teaching aids creation could enhance the enthusiasm teachers and NGOs have towards using and producing them. It is a demotivating factor to invest a certain amount of time, energy, creativity in something only to find it irrelevant and unmatched to your current needs within a short time span. On the other hand, it can bring great pleasure to invest in something that you continually use and become comfortable using. The results of our work give both structure and flexibility to NGOs or schools which would like to embark on a teaching aid project. The structure comes with the very-detailed criteria we produced which NGO staff can use in identifying what they desire to achieve through investing in producing learning materials. The flexibility comes with our encouragement to disagree with these criteria and brings with it the opportunity to “improve them” (e.g. adapt them) to their own specific situation. In line with the opinion we have expressed throughout the paper, we believe having something concrete to analyze and evaluate, be it a teaching aid to adapt or a criteria to adapt, is very valuable in stimulating criteria and producing

Conclusions

something relevant and meaningful. We suggest these sixteen criteria will also contribute to the international discussion on teaching aid adaptations and come under critical review by others working in curriculum development and methodology fields. We welcome feedback from our international colleagues which we can use to revise and adapt our criteria to become a better tool for inspiring creative, non-linear thinking. They have already helped facilitate ongoing follow-up discussions with Catholic Relief Services, helping to guide the direction of their continuation project. The insights gained from an extensive review of scientific journal articles and learning from the mistakes and oversights made in former project, combined with this concrete tool for evaluating what we discovered through the literature and site visits has put us in a much stronger position to make educated decisions while bringing this project forward. When such decisions affect not only the everyday lives of teachers, but also of young school children, it is crucial to become informed as possible before making such decisions. We believe the results of this study help stakeholders understand the importance of collecting many perspectives before coming to their conclusions and can contribute to more responsible, effective and human-centered development.

6. Recommendations: Future research

It must be noted that primary school teachers take the education objectives laid out by national curriculum, set by MoEYS, extremely seriously (personal communication with Linda Preston, VSO). In order for teaching aids to be more enthusiastically used by teachers in class, it is recommended that a guide is created for each teaching aid which pinpoints the exact points in the curriculum which that teaching aid can be applicable. This guide could be organized by grade and textbook page number to make it as straight-forward and user-friendly as possible. In this way, the teacher is reassured that she is fulfilling her responsibility to MoEYS, while also fulfilling her responsibility to inclusive education standards, which often will be seen as secondary in the hierarchy of responsibilities placed upon government teachers.

In addition to making contact with the few NGOs who work directly in the inclusive education field in Cambodia, this study focused primarily on contacting organizations with experience working with CWDs in a special education setting and also organizations devoted to non-formal education. It is recommended that any continuation with this research begin by mapping and contacting NGOs whose focus has been on Child-Friendly Schools and learner-centered approaches.

If educational researchers were not content with the recommendation above which suggested a printed book of images, they could pursue an online collection of line drawings which NGOs heading education projects could print from their offices and distribute to the schools they support. There is already an educational platform for exchange hosted by MoEYS (<http://krou.moeys.gov.kh/en/>). If this option were to be explored, we would also highly recommend seeking out local artists and commission them to do the black and white drawings. We can strongly recommend the community of artists, students and teachers associated with Phare Ponleu Selpak located on the outskirts of Battambang city and serving the youth living in the surrounding neighborhood. They run study programs in Graphic Design and Painting and have already created some of the teaching materials used in PPS's non-formal education center. For inspiration we would also recommend examining the artwork contained in the BETT reading and language materials as it was approved by MoEYS (just not implemented at curriculum) and also hand-drawn by local talent.

Recommendations: Future research

Werner and Hastein (2003) reported that too often they encountered potentially useful learning materials not sufficiently included in a common and versatile manner in the classroom. Our research also revealed the under-use of well-made teaching aids to be one of the most consistent trends among the classrooms visited. Werner and Hastein (2003) posit that when teaching aids do not “find their own place” among the habits and organization of the entire learning environment they are not effectively put to use. We would also add that often teaching aids were mismatched for their target groups (such as word cards instead of letter cards for groups of children who were not reading yet) implying that teaching aids may get produced and distributed without a detailed analysis of their appropriateness. Secondly, during our site visits we encountered some professionally produced teaching aids which were remarkably clean for their presence in a primary school. We conclude that this can stem from a fear of dirtying something regarded as too precious to be used in the classroom. These fates of teaching aids such as the ones listed above, are less easy to track, however more disturbing to discover than a straight-forward lack of teaching aids in a classroom. Ways to eradicate this “no-man’s land” of teaching aids, (existing in educational settings, however not being put to use), needs to be addressed in future research. There is little reason to expand production of teaching aids if only to be simultaneously expanding the under-utilization of teaching aids.

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9. Appendices

9.1. Appendix 1: Outline of topics for semi-structured interviews with teachers, teaching assistants and other educational staff

“Academic” Skills:

Which MATERIALS do you find most useful when teaching “academic skills” related to:

- math
- literacy
- storytelling
- other “academic” subjects

Which APPROACHES/METHODOLOGY/IDEAS do you find most useful when teaching “academic skills” related to:

- math
- literacy
- storytelling
- other “academic” subjects

Social Skills:

Which MATERIALS do you find most useful when teaching “social skills” related to:

- cooperation with other children in the class
- life skills (washing hands, cleaning the table, etc)
- following directions

Which APPROACHES/METHODOLOGY/IDEAS do you find most useful when teaching “social skills” related to:

- cooperation with other children in the class
- life skills (washing hands, cleaning the table, etc)
- following directions

Which part of the school day would be useful to have more materials or games or ideas?

What part of the day/activities do the children enjoy most?

What part of the day/activities do the children not enjoy very much?

Does your school/center help CwD interact with other children? If yes, please explain.

Does your school/center support government school teachers to work with CwD? If yes, please explain.

Currently there various strategies for helping CWDs access school:

Special Education--- separate centers only for CwDs

Integrated Classrooms--- separate classrooms for CwDs in a government school environment

Inclusive Classrooms-- mainstream/”regular” government classrooms with CwDs

Which forms of education do you work with?

Which forms of education work best for certain groups of CwDs?

In your opinion, what are the advantages and disadvantages of these different options?

9.2. Appendix 2: Semi-structured interview question with Handicap International's IE Project Manager and Technical Consultant, Battambang, Cambodia

How can we compare HI's comment on IE in Vietnam to the current state of IE here in Cambodia?

“Once children are enrolled in school however, questions need to be raised about the quality of education for all children. Le (2000) argues for example that in Vietnam children with special educational needs are included in mainstream schools, but almost no additions are made or support given to facilitate the learning and participation of the children with disabilities at school.” -Handicap International policy report

Can you explain more about the Inclusive Education training you have created?

Can you show me some teaching aids which your itinerant teachers have created?

What have you found helps children with disabilities study in a mainstream classroom?

Do CWD in your IE schools have difficulty in:

-in math?

-in Khmer?

-following directions?

-communicating what they want to say?

-following daily school routine?

-making friends at school?

-other?

9.3. *Appendix 3: Example of a semi-structured follow-up interview with responses (marked in yellow) Conducted with Executive Director at CDMD, Phnom Penh, Cambodia*

My name is Lindsey Elms. I'm an IE (Inclusive Education) Project Intern at Caritas Czech Republic and collaborating with Catholic Relief Service.

I was very happy to read about all the good work CDMD is doing working with people with disabilities. Thank you very much for taking time to meet with us today.

As Phearun explained yesterday CRS (with support from Caritas CR) has been working closely with 4 primary schools in Samrong district, Takeo over the last two years of their pilot project, "Strengthening Community Support for Children with Disabilities"

They are now preparing for a 3-year continuation of the project.

My work includes:

---LISTENING to difficulties the teachers at our 4 primary schools in Takeo are having when trying to include CwDs into their classrooms

---COLLECTING ideas and methodology from other Cambodian schools and NGOs

---SHARING this information with the Working Group/teachers in Takeo schools

Yesterday I was interested to learn about your change in 2010 to start working with service providers instead of directly with PwDs. You explained how CDMD is now working with CDC groups and service providers instead of directly with PwDs. Did I understand this correctly? **Yes, we started to work on capacity building.** Could you explain a bit more about the reasons behind this change in approach?

The financial crisis of 2009 led to a cut in funding. This was the main reason to thinking about how to increase funds. Also we were thinking about:

-sustainability and

-how to reach more people.

CDMD moved away from working directly with PwD and shifted focus to:

Monitoring CDCs and Volunteers

-increase partnership with Ministry of Social Affairs (who is responsible for disability work in Cambodia)

-increase partnership with District Office (to enforce the laws on disability from 2009)

"Development starts at the community level. Therefore, CDMD actively works with Commune Councils and key community members, such as elders and traditional healers." - CDMD website

This approach to Community Capacity Building is very interesting.

What does CDC stand for?

Community Disability Committee

Are there ALWAYS only 5 members of each CDC? 1- health sector, 2- education sector, 3- religious sector, 4- PwD (Self Help Group member), 5- Commune Council member.

Could you please explain the difference between the work of the Commune Councils and CDC?

CCs are the local authority (N, P, D, C, V). CDMD works with CCs to establish CDCs. CDCs are then recognized as a local structure of authority.

CDC must work with CC to integrate disability issues into community plans.

References

Members from CDC are responsible for sharing information at Community Meetings on topics such as causes of disability

How many CDCs? In Cambodia = 41.

How many in Takeo? About 10.

---"consultations with principals, teachers and other students to assist them in better understanding disability."-CDMD website

Is there a specialist in this area at CDMD? Who?

No, because this is the work of CDCs. CDCs are trained by CDMD, then it is their responsibility to screen children for disabilities. When they identify a CwD, they place them in a local school whenever possible. In every CDC there is one member who represents the education sector and this person connects the child with a school

This applies only to children with minor disabilities (example missing one or both legs), doesn't apply to children who are completely deaf or blind.

Do you have specific material which you use during these consultations with teachers? ...Such as a handbook or brochure? No handbook specifically for consultations with teachers but ALL members of CDCs are given training by CDMD in areas including discrimination and general awareness raising.

Could we receive a copy? (CDMD designed modules for training CDC members.... can be sent in soft copy later)

---"one of the first steps taken by CDMD to support children with disabilities is to enrol the child in an accessible school." -CDMD website

How many CwDs have been enrolled in schools through your program in Takeo? (to be sent later)

In which communes? (to be sent later)

How long have CwDs been enrolled in mainstream schools in Takeo through your program?

Strongly since 2010.

How are schools/ teachers approached when a CwD is identified in a community and a nearby school is contacted?

Contacted by educational sector representative in CDC.

Does CDMD provide any training materials to the school or teacher before enrolling the child? If yes, do you have a paper or electronic copy to look at? No training for teachers.

Is there staff at CDMD who are specialized in working with teachers at the IE schools?

"Since the start of the CBR program in 1993, 30% of the children that CDMD supports, go to a public school"-CDMD website

Is there communication with the teachers who have accepted CwDs into their classrooms? ...With CDC or Commune Council?

Is there some structure in place for the teachers to share their difficulties and communicate their needs to CDMD?

Teachers can communicate with CDMD or with CDCs. CDMD encourages schools and teachers to communicate with CDC, who can then communicate with CDMD.

References

Has CDMD identified any specific problems teachers with CwDs currently have?

No.

But as an example, CDMD sponsors some blind children to be sent to special school in PP which is run by KT.

"In the effort to increase involvement and make communities more responsive to the needs of all their community members, CDMD works with community volunteers. Volunteers are trained by the field staff in order to facilitate and provide appropriate services to the client and his or her family." - CDMD website

Is there a difference between Commune Council member and Community Volunteers? Can you please explain this difference?

CV works directly with PwD, for example with rehabilitation, with counselling, screening for disabilities and referrals to hospitals such as the Mental Health Care hospital run by CCAMA and eye hospital (Takeo?)

CV are usually elderly people, like retired people or young people (18, 19, 20 years old) who are looking for experience and gain skills from working with CDMD. The elderly are usually work best as CV, they stay a long time.

Have monks in your target areas ever expressed interest to work directly with teachers or in classrooms?

Monks in CDCs are expected to go back to their community (religious sector) and spread the information they have learned from CDC trainings etc with other monks and people in the religious community. Each representative from each sector has the responsibility to educate and inform "their sector" in disability awareness, etc.

What would you identify as priority to make the Inclusive Education approach easier for schools and teachers?

Easier no, but more effective I would say teacher trainings. Because we focus on many issues we don't work directly with teachers.

Does CDMD know of specific teacher trainings which exist in Cambodia? No.

Thank you very much for you time.

9.4. Appendix 4: Summary of semi-structures interviews with Executive Director at Komar Pikar Foundation, Phnom Penh, Cambodia. March 20, 2013

KPF established in 2007

Work with people with **moderate to severe disabilities**, this includes Down Syndrome, developmental delays, intellectual disabilities

Projects on 4 different levels:

Home-based

Community Day Centers (formally called Day Care Centers)

Activity Center (formally called Activity Training Center and formally located in National Borei Orphanage, PP)

Life After School

Supporting >70 families with CwDs in 2-3 communes

All projects follow the “**Pathways Program**” format:

- basic education brought to clients (at home when necessary)
- physical therapy
- counselling to whole family
- teaching of social and communication skills

Community Day Centers were est'd in 2010.

Not only skills for CwDs but also for village community-based

Also made surveys in village and works with village chief about Inclusion Community Library

3 Integrated Classrooms in Kampot Province

2 in mainstream schools

1 in Community Day Center

-started with 5 children, now 13 children

Using Integrated Classrooms as Mainstream Teacher Training for CwDs

Innovative idea: 2 teachers from local govn. schools are employed part-time as assistants in KPF Integrated Classrooms. They gain hands-on knowledge and skills for working with CwDs and are financially rewarded for this investment in their field because it is paid employment. Appears to be small-scale, but sustainable and innovative approach to capacity building of govn. teachers.

Develop **IDP , Individual Development Plan** (like IEP but broader to contain life skills, not only academic goals)

Using information also from parents to make goals, such as learning to feed themselves

Goal of this process: to make the youth independent, self-reliant and with self-esteem

Activity Center

Works with youth 12-18 years old

Focus on vocational training/skills oriented, such as:

T-shirt printing, making souvenirs, cooking, cleaning, washing, small business (selling soft drinks, etc)

Life After School

Works with adults 18-30 years old

Similar to Activity Center, but more income-generating focused.

Young People with Disabilities Self-Advocating Groups (Self-Help Groups)

Plan to make one in Bangkok in 2013

Parent Groups

References

-They work to empower parents, act as a network for parents and effect is that they make parents more hopeful.

-They organize Parent Meetings and even larger, Parent Forums and even larger, National Parent Forums (for example in 2009, 2011), and also connected with Thailand and Myanmar

Capacity Building: Cooperate with **Southern Australian University** for capacity building of KPF staff and other NGOs

University students come to KPF for 10 weeks, 6 groups total.

Each group creates 1 training open to KPF staff and staff of related orgs

April 2013 training: "Effective Communication Strategies for People with Disabilities"

Events: **Disability Awareness Day** on Autism: 11 April 2013

Teacher Training Materials

Developed with UNICEF, some with focus on autism and Down Syndrome

Explained "orange" and "green" focus on mild disabilities

Partners:

Works with CDMD in Kompot

Inclusion International

District of Education is happy to work with KPF, be part of the process and conduct monitoring

Italian NGO "Gia?" on MIE

3 Main Challenges:

1- National-level: People at the nat'l level understand policy, but not being enforced on the local level

2- School-level: Teachers do not have enough material/skills, low salary, too many students to be able to add for example 2 CwD.

No separate budget for CwDs

3- Community-level: Need support from community and from parents or else can't achieve IE.

Kong Vichetra's opinions:

-Start with Integrated Education and work towards Inclusive Education in the future

-Special Ed and Integrated Ed need to be part of the IE conversation. The IE conversation needs to include all 3 parts.

○ "We are not experts but we can learn from each other."

○ "Learning by doing."

○ Main challenge is a Lack of Commitment

▪ for example "can't build a ramp because must listen to boss. But building a ramp is not difficult or expensive. This is a lack of commitment to IE."

- CRS can have greater influence at national level than KPF. KPF is advocating, but small organisation

Kong Vichetra's suggestions for CRS:

-CRS should contact SEO for information on more teacher manuals

-Other countries to look at for inspiration: India, Indonesia (International conference in 2005), Vietnam, Laos

Past work of KPF:

-Used to work with Rabbit School. Vichetra identified that the split came because they each have different focus: Rabbit School works on center-based approach, while KPF works on in-community based approach. Continue to cooperate together, but as independent organizations.

-2009- Learn from Laos because similar cultural and economic situation as Cambodia

Future work of KPF:

KPF will compile case studies/ best practices into a booklet soon.

9.5. *Appendix 5: Outline of questions for semi-structured interview with Australian Education Consultant working at CDPO, Phnom Penh, Cambodia*

- Notes from CDMD including recommendation to partner with CDPO for their training
- How much do disability and education NGOs working to improve the situation for CWDs cooperate?
- Who are CDPOs main cooperation partners?
- What is the predominant Australian view on IE vs Integrated vs Special/Separate Education?
- In your opinion (IYO), how much could Child Rights' work contribute to improving the situation for CWD in IE settings?
- IYO, could the small Montessori network in Cambodia contribute something to the IE movement?
- IYO, why are projects focused so much on enrolling CWDs before giving much attention to training teachers how to work with them?
- IYO, which are some of the strongest organizations work in disability and education in Cambodia?
- What is your opinion on teaching assistants in the classroom as support for children with special needs?
- What about children with severe disabilities...IYO, how can the IE movement in Cambodia reconcile their need for additional attention and support with the large class size and lack of teacher training?
- Teachers in Takeo asked- "How can we get CWDs to come to school regularly?" How would you respond to their question?

9.6. Appendix 6: Excerpts from interview with Executive Director and Head Teacher of Peace and Independence classes at Epic Arts, Kampot province, Cambodia

Kanja's general advice to teachers working with CwDs'

Use short clear speech

When a child makes a mistake or wrong answer, don't punish, but encourage

When a child does a good job, appreciate it

Model everything you want the Ss to do!

Use a lot of pictures----VISUAL AIDS

PEXS—Picture Exchange Symbols

Teachers with a child with a hearing impairment can at least learn basic classroom instructions in sign language

Epic Arts sent 7-year old with mild CP and in wheelchair to government school

Peace and Independence class: 4x/ week, 2 hours/ day

6-10 year old

Start with 30 mins of Play

Storytelling (one (handmade Sensory Story repeated for 2 weeks)

Small groups for 15 minute rotation

-Sensory room (depending on disability)

-Art table project

-Play outside or in Cardboard Scenario House

Recommended NGOs to contact:

DDP

Marist Solidarity

New Humanity

9.7. Appendix 7: Photo inventory of schools, classrooms, community day centers and teaching aids

CRS, IE school, Takeo

6 fotek, březen 2013



School yard, Takeo



Classroom at CRS IE school, Takeo



Playing games during break time, Takeo



Teaching staff and CRS project coordinator, Takeo



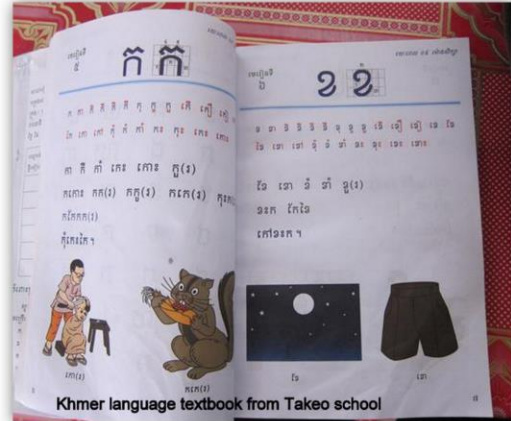
Classroom at CRS IE school, Takeo

CRS, IE school, Takeo

5 fotek, březen 2013



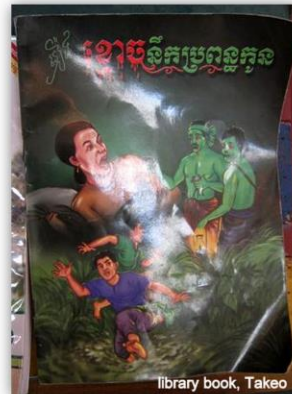
Classroom at CRS IE school, Takeo



Khmer language textbook from Takeo school



school library, Takeo



library book, Takeo



book, Takeo

DDSP IE class, Pursat

5 fotek, duben 2013



DDSP IE class, Pursat

5 fotek, duben 2013



DDSP IE class, Pursat

5 fotek, duben 2013



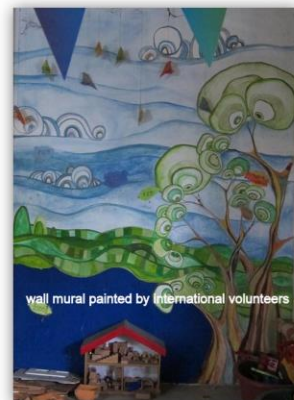
DDSP IE class, Pursat

6 fotek, duben 2013



DDSP integrated class, Pursat

6 fotek, duben 2013



DDSP integrated class, Pursat

4 fotek, duben 2013



DDSP integrated class, Pursat

6 fotek, duben 2013



Epic Arts, Specialized Center for CWDs

6 fotek, březzen 2013



sensory room, Epic Arts



tactile wall, sensory room, Epic Arts



craft table, Epic Arts



Seating arrangement for Peace and Independence classes, Epic Arts



Play-house, Epic Arts



Inside Play-house, Epic Arts

Epic Arts, Specialized center for CWDs

4 fotek, březen 2013



Inside Play-house
Epic Arts



Epic Arts



hand-decorations and
number visual aids



visual schedule board and
hand-made decorations,
Epic Arts

Epic Arts, Specialized Center for CWDs

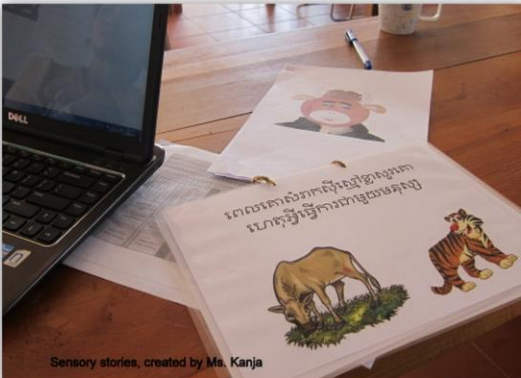
6 fotek, březen 2013



Peace and Independence classroom, with Play-house (left) and foam seating area (right)



Epic Arts, Kampot



Sensory stories, created by Ma. Kanja



teaching aids made from cardboard and paint, Epic Arts



the Shape Box



ins how the Shape Box works

HI IE classes, BTB

6 fotek, květen 2013



classroom, HI BTB



HI, BTB



Paper ball of questions energizer, HI BTB



student with severe visual impairments and classmate, HI IE BTB



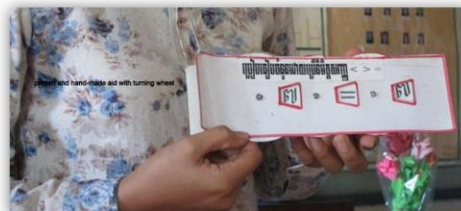
student using wheelchair participating in class activities, IE HI, BTB



school yard IE school, BTB

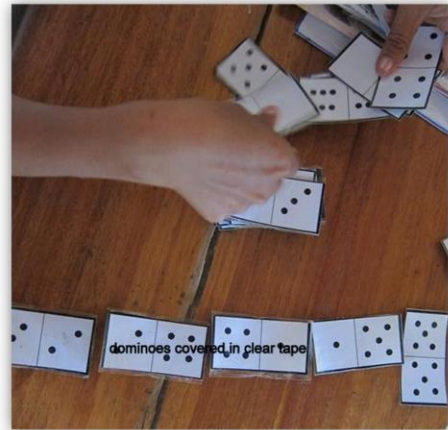
HI IE classes, BTB

6 fotek, květen 2013



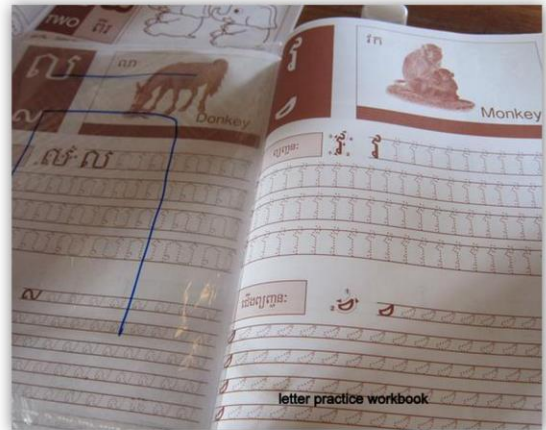
HI IE classes, BTB

5 fotek, květen 2013



HI IE classes, BTB

6 fotek, květen 2013

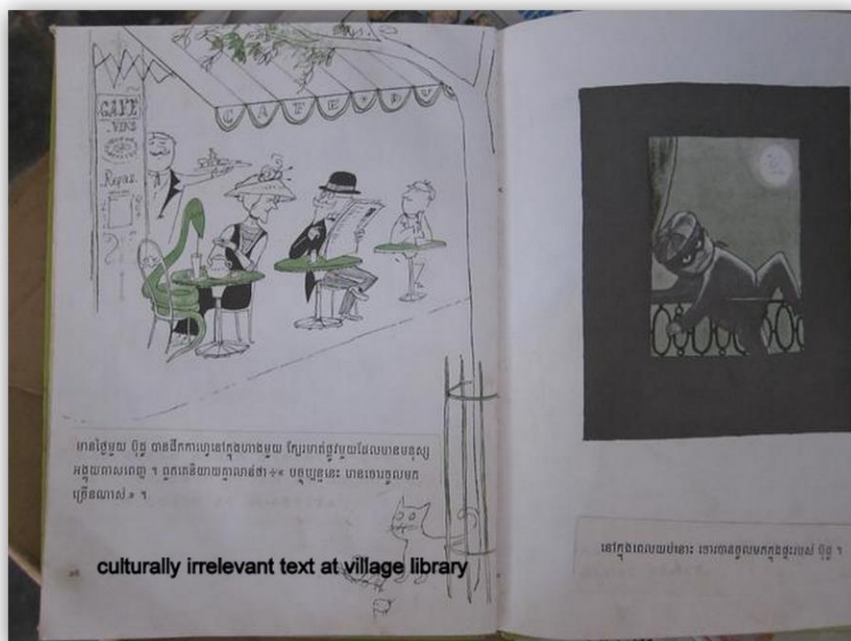


KAKO village library, Siem Reap

2 fotek, květen 2013



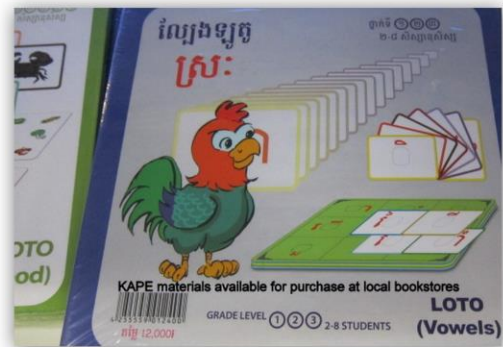
KAKO supported village library



culturally irrelevant text at village library

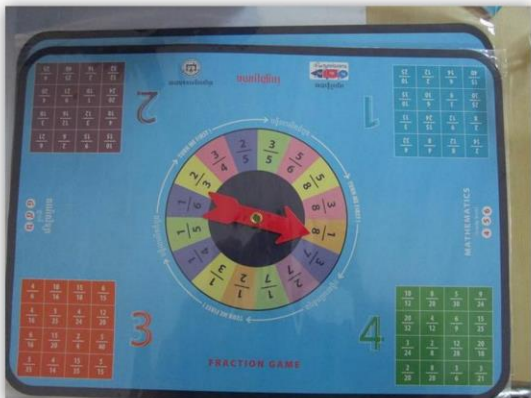
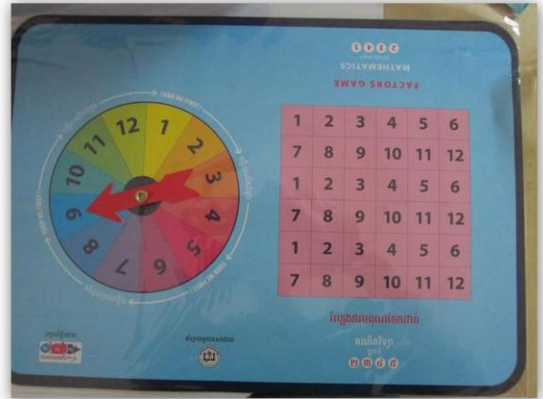
KAPE teaching aids

4 fotek, květen 2013



KAPE, teaching aids, K.Cham

6 fotek, květen 2013



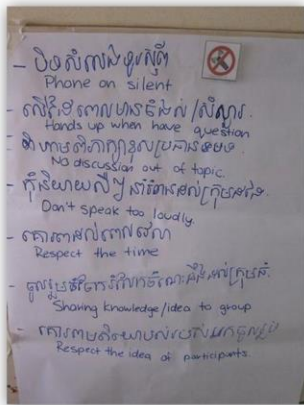
KNKS village kindergarten, Pursat

6 fotek, duben 2013



KPF Communication Workshop, PP

6 fotek, duben 2013

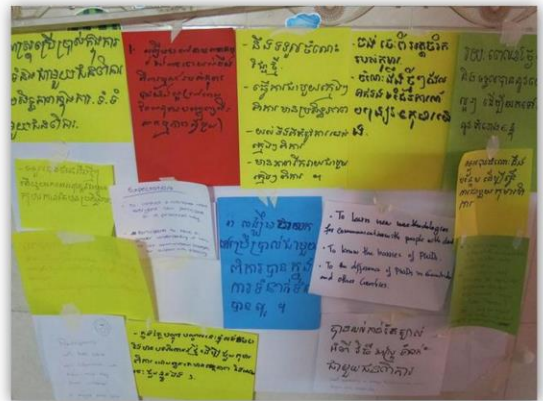


KPF, Communication workshop, PP

6 fotek, duben 2013



KPF communication workshop, practicing visual representations of school activities



KPF, independent CDC, Chhouk

6 fotek, březen 2013



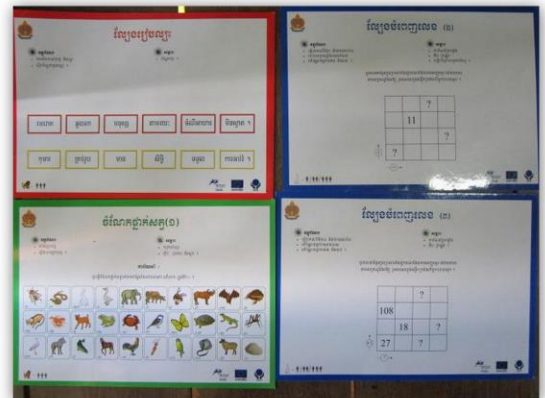
KPF, integrated CDC, Chhouk

6 fotek, březen 2013



Mith Samlanh Tool Box, PP

5 fotek, květen 2013



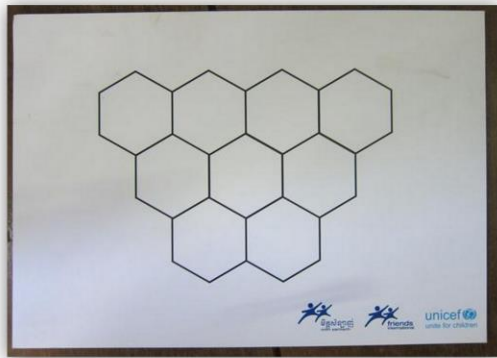
Mith Samlanh, Tool Box, PP

4 fotek, květen 2013



Mith Samlanh, PP

4 fotek, květen 2013



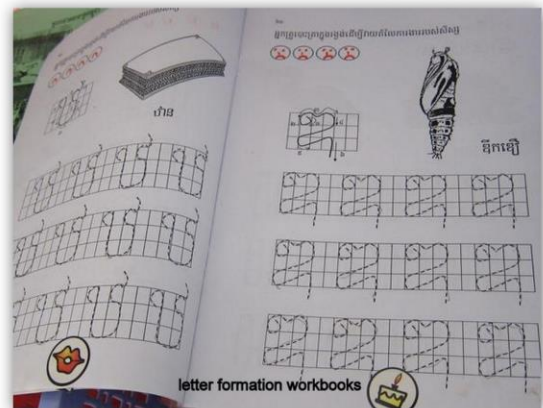
New Humanity Community Day Center

5 fotek, duben 2013



New Humanity, kindergarten, K.Chhnang

6 fotek, duben 2013



New Humanity, teaching aids from recyclables

5 fotek, duben 2013



PEPY, Siem Reap

6 fotek, květen 2013



library at local school, supported by PEPY project, BTB



play yard at village school, PEPY project



library at PEPY supported school, BTB



library at PEPY supported school



library at PEPY supported school



English presentation at PEPY supported school

Phare Ponleu Selpak, NFE, BTB

6 fotek, květen 2013



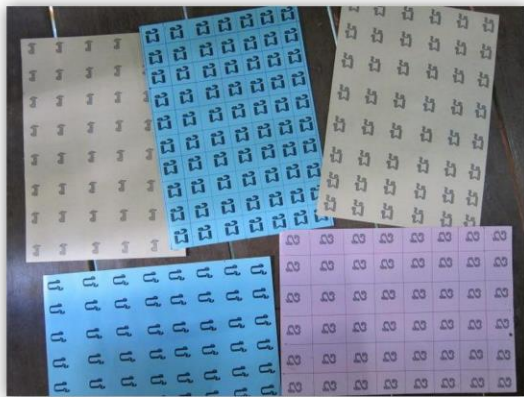
Phare Ponleu Selpak, NFE, BTB

6 fotek, květen 2013



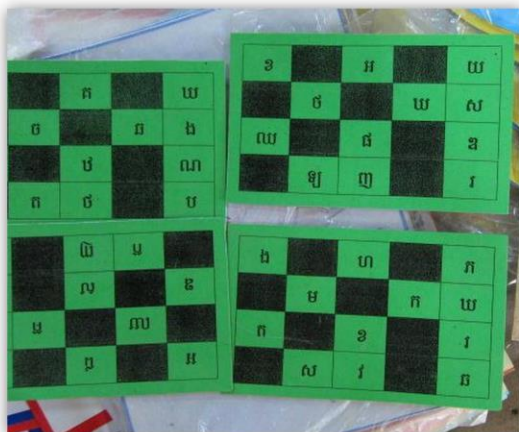
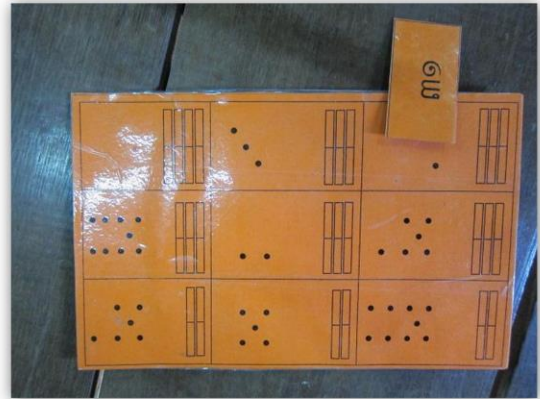
Phare Ponleu Selpak, NFE, BTB

6 fotek, květen 2013



Phare Ponleu Selpak, NFE, BTB

5 fotek, květen 2013



Rabbit School, integrated classes, PP

6 fotek, březen 2013



counting with clothes pins



math in small groups



Visual aid of everyday vocabulary



bookcase storage of teaching aids



math in small groups



Math: connecting concrete with abstract numbers

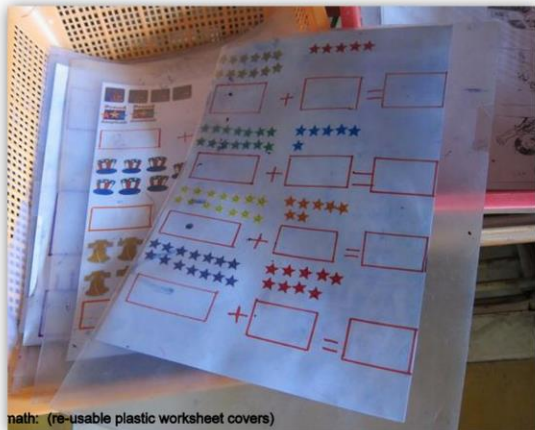
Rabbit School, integrated classes, PP

4 fotek, březzen 2013



Rabbit School, integrated classes, PP

6 fotek, březen 2013



nath: (re-usable plastic worksheet covers)



the play yard



the play yard



foreground: student practicing letter formation with plastic worksheet cover and whiteboard marker



vocabulary matching game



wooden (purchased) teaching aids

Rabbit School, integrated classes, PP

4 fotek, březzen 2013



Rabbit School, National Borei Orphanage, PP

4 fotek, březen 2013



Screenprinting Life Skills program



Beadwork LifeSkills program



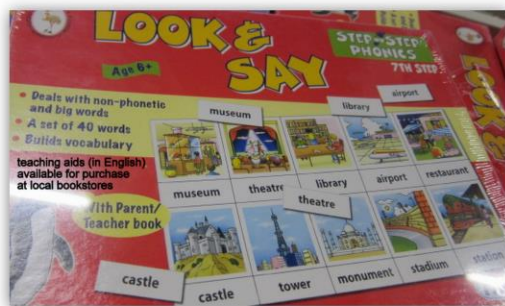
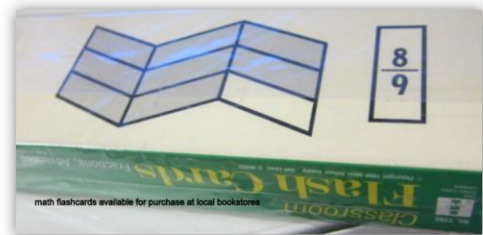
: specially designed chair



pecially-designed furniture
group work

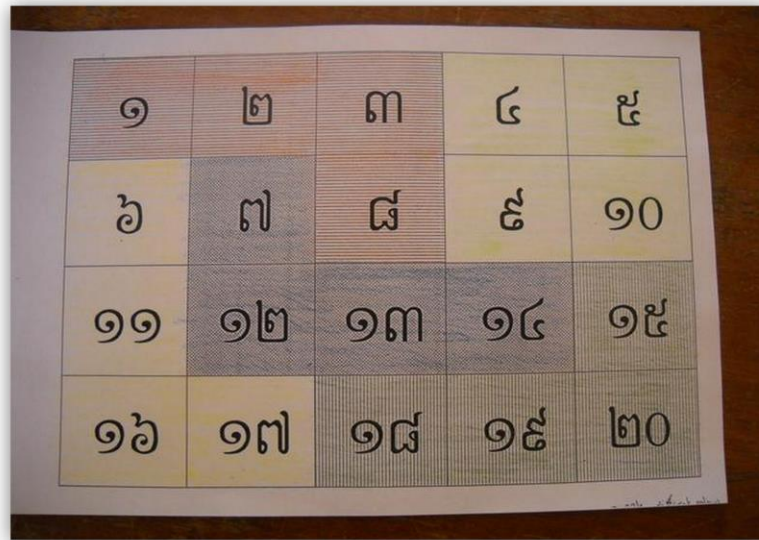
Teaching aids available at bookstores

5 fotek, březen 2013



VSO, Stung Treng RTTC

2 fotek, březem 2013



១	២	៣	៤	៥
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១៦	១៧	១៨	១៩	២០



Adapted teaching aids

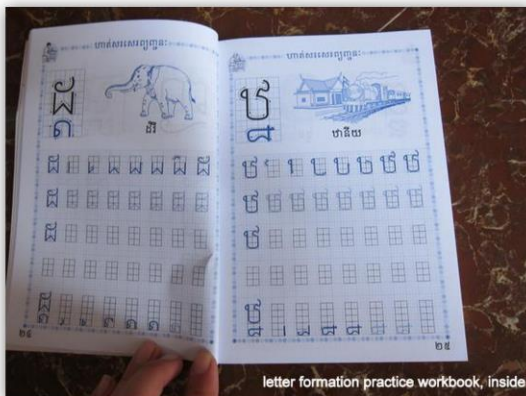
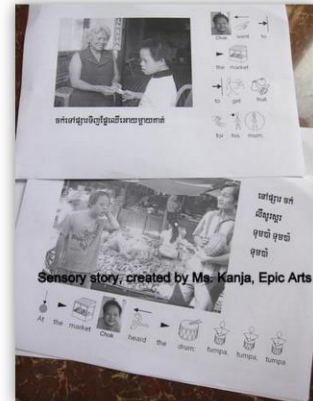
5 fotek, květen 2013



supplies for making suggested teaching aids



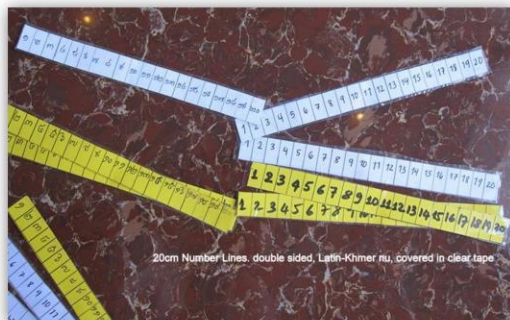
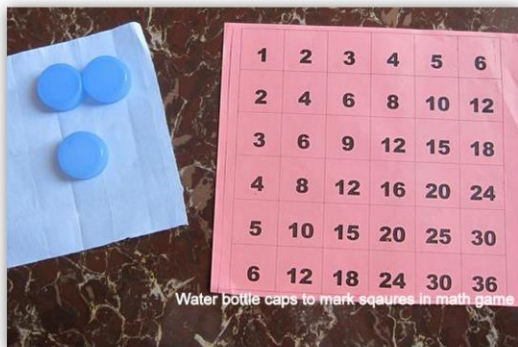
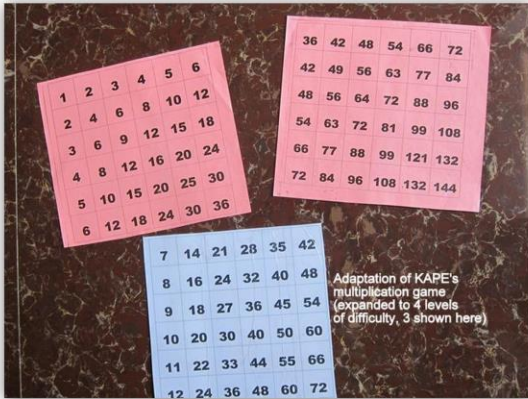
Xeroxed story by SIPAR publishers, hand-colored with color pencil



letter formation practice workbook, inside

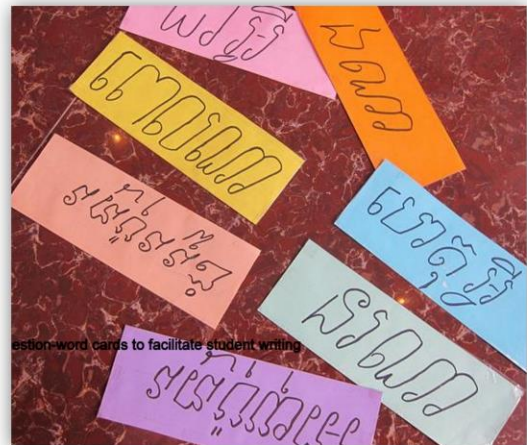
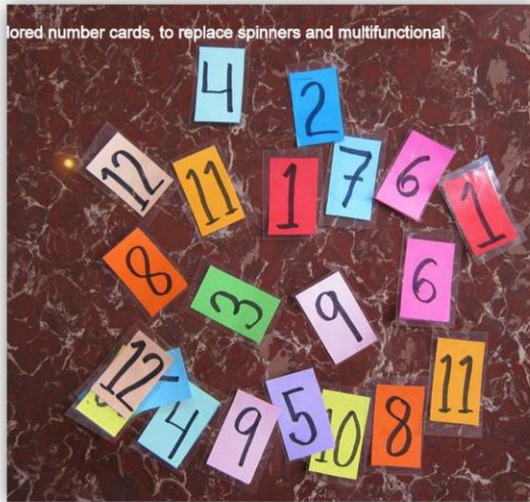
Adapted teaching aids

6 fotek, květen 2013



Adapted teaching aids

4 fotek, květen 2013

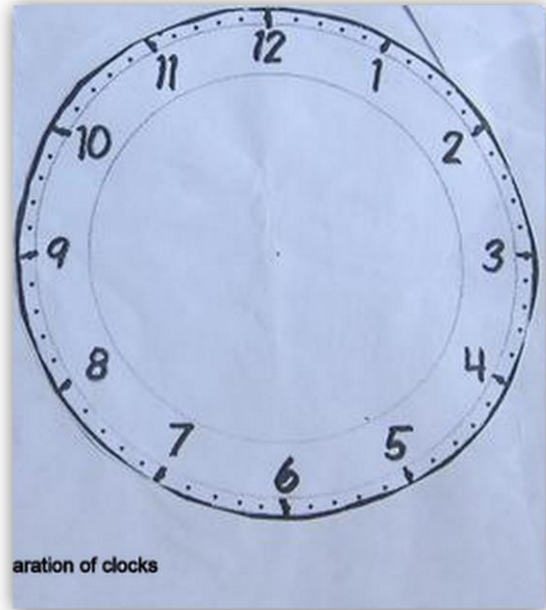
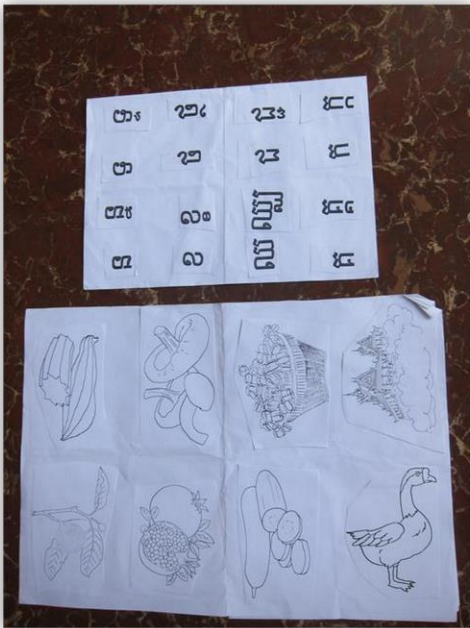


A multiplication table with Khmer numbers. The table is a 12x12 grid. The columns are labeled 1 through 12, and the rows are labeled 1 through 12. The numbers are written in Khmer script.

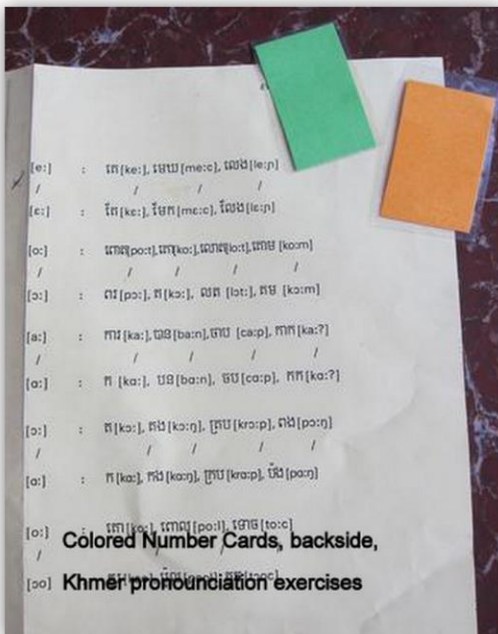
	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Adapted teaching aids

4 fotek, květen 2013



variation of clocks



Colored Number Cards, backside,

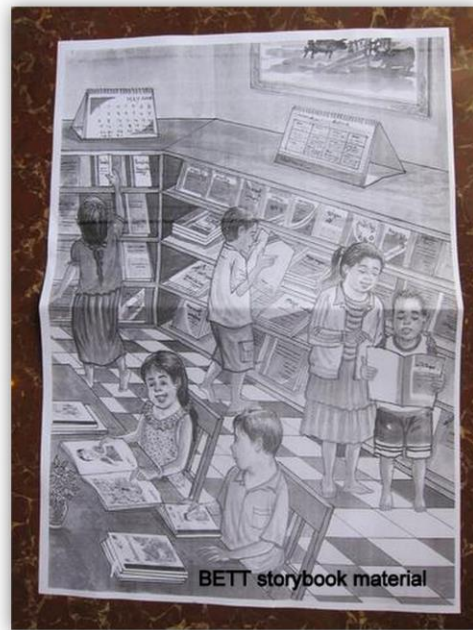
Khmer pronunciation exercises



large color cards, teacher's set

Adapted teaching aids

4 fotek, květen 2013



Adapted teaching aids

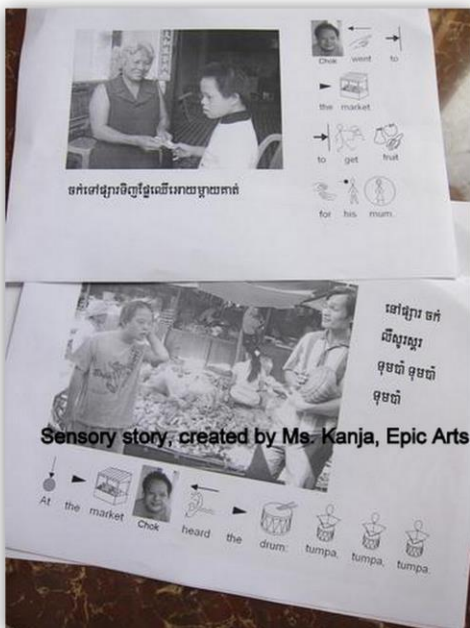
4 fotek, květen 2013



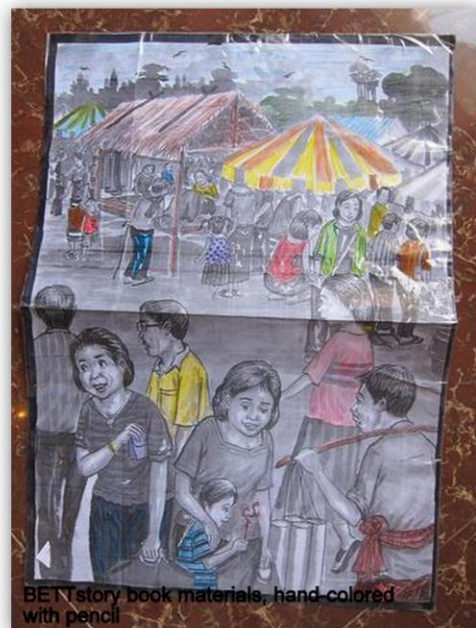
large number floor cards covered in clear tape



KAPE's alphabet BINGO card games



Sensory story, created by Ms. Kanja, Epic Arts



BE N story book materials, hand-colored with pencil

Adapted teaching aids

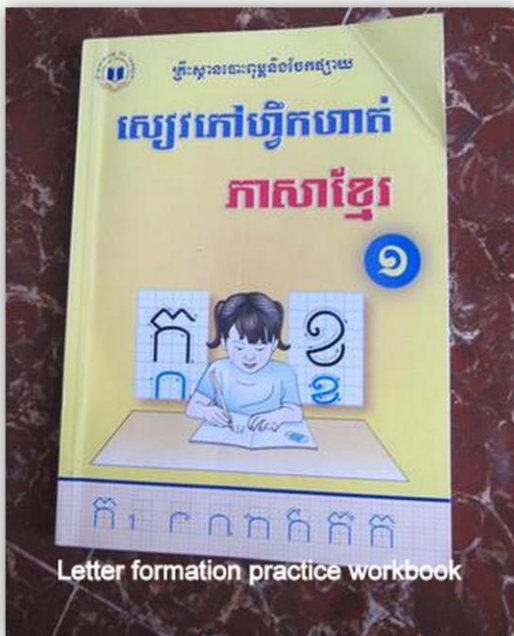
4 fotek, květen 2013



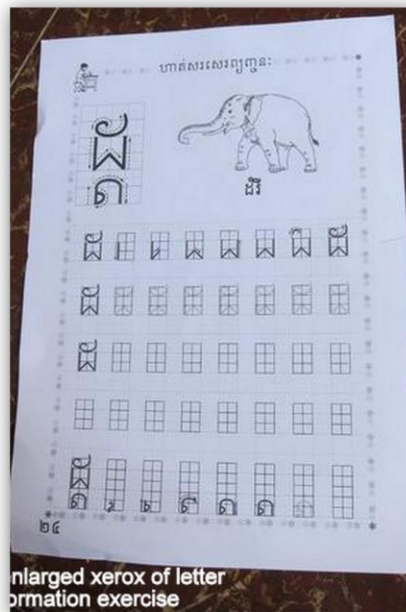
Re-useable plastic sheet covers, with white board marker



Plastic Pocket Chart



Letter formation practice workbook



enlarged xerox of letter formation exercise