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Like a Fish on a Stick:
HIV-Positive Networks and the Cultural Politics of HIV/AIDS in Post-Socialist Lao PDR

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ABSTRACT

This paper is an ethnographic account of people living with HIV/AIDS (PLHIV) involved in a network of support and advocacy groups in post-socialist Lao PDR. Through negotiations with state, NGO and other local and transnational actors, these PLHIV seek access to medical treatment and social programs, de-stigmatization of their HIV-positive status and recognition of their human rights. They adopt and adapt activist identities and strategies to their unique local context in order to negotiate Lao cultural and political structures, using a set of tactics that shift between everyday forms of resistance and active dissent. The role of culture is conceptualized as both constrictive and productive, providing schemas that can be called upon or transposed in order to achieve a goal, thereby providing opportunities for strategic action. This paper then draws conclusions about the potential for an expanded civil society in Lao PDR.

Keywords: HIV/AIDS, Lao PDR, HIV support groups, Civil society, Social movements, Southeast Asia, Post-socialist politics
INTRODUCTION

Although Laos is considered a country of low prevalence, HIV/AIDS has nevertheless become a complex social, medical and political problem. This problem engages a diverse set of actors, including international humanitarian donors, state agencies, international non-governmental organizations, Lao people living with HIV/AIDS (PLHIV), local and international PLHIV support groups and the global bio-medical industry. These complex assemblages create HIV/AIDS as a site of unique biopolitical relations in a contemporary, post-socialist context, shaped by both local cultural understandings and transnational social movements. It is a site of dissent and compliance, of bodily discipline and biological deviance, of the push toward development and the casualties of modernity, and of the global interconnections that allow ideas and social movements to transcend national boundaries.

Following other PLHIV worldwide, Lao people living with HIV/AIDS have formed local community support groups and a national network, called the Lao Network of People Living with HIV/AIDS (LNP+), which links their support groups together. Globally, PLHIV support groups have provided space for PLHIV to discuss their illness and its treatment and to find support in their struggles. They have also advocated for greater participation of PLHIV in their own treatment and care and for access to good quality and affordable medical care. In many examples worldwide, they are credited with lowering the costs of HIV/AIDS medications and with changing social perceptions of PLHIV, thereby decreasing the disease’s stigma and improving the lives of PLHIV.1

These AIDS activist organizations have become part of the landscape of civil society groups in many countries worldwide, including in Thailand, which is Laos’ closest physical, cultural and linguistic neighbour.

In countries with socialist regimes, such as Laos, there is limited potential for civil society; if it is to exist at all, it must etch out space from pre-existing political structures. However, as Lyttleton points out, in Laos this has been “akin to scraping at a rock with a blunt instrument” (2008: 267). The state places considerable restrictions on civic association and monitors the establishment, membership, mandate and activities of all groups. The Lao “civil society” organizations I encountered during my research typically did not view themselves as struggling for autonomy

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1See, for example, the 2012 Academy Award nominated documentary “How to Survive a Plague” on the impact of the US-based group AIDS Coalition to Unleash Power (ACT UP). ACT UP used protest and direct action tactics targeting government policy and the pharmaceutical industry, successfully changing the way that medicines are developed and distributed.
from the state, even if they expressed frustration with state restrictions or bureaucracy; most continued to express their relationship with the state in terms of cooperation. Active protest is rarely a goal for Lao groups, who generally see the kind of large-scale protests that occur in neighbouring Thailand as a sign of deep social disunity. After suffering through more than two decades of war in recent memory, Lao informants reported a preference for relative stability, rather than instigating political conflict.

With significant cultural limitations on discussing sexuality and publicly identifying as HIV-positive, and with these political restrictions on civic association, PLHIV in Laos face many barriers to raising their concerns over discrimination and the other social and medical problems they face. There is very little social and political space for them to form an identity-based coalition through which to advocate for rights and social inclusion. And yet, PLHIV in Laos are doing this very thing.

LNP+ must negotiate both the restrictive political environment in Laos and the Lao socio-cultural understandings of sexuality and HIV/AIDS. The group has been somewhat bolder and more politicized in its activities than other Lao non-profit associations (NPAs). Its objectives match those of other PLHIV groups in places like Thailand, such as improving access to treatment and care, advocating for PLHIV rights and reducing the stigma associated with HIV, but it is limited in its ability to advocate in the same ways. What, then, are the strategies they use to try to meet their objectives? How do they understand and negotiate within their relationships with the state and the international AIDS industry? How do they act to accomplish their goals, and what social phenomena do they produce in the process?

**METHODOLOGY**

This paper is based on ethnographic data acquired through research with PLHIV in Laos between 2009 and 2010. It is further informed by previous fieldwork in Laos in 2004-2005. The practice of conducting ethnographic research involves observing people in their lives and communities and attempting to pull apart the hidden logics behind their actions, to put together the whole picture of people's social and conceptual universe. Ethnography is an excellent method for researching activists, because it is capable of capturing the nuance and “messiness” so common in activist practices. This is particularly relevant for studying ways in which activists engage that are less visible, and social activity that may be more fluid or rapidly shifting. These types of interactions are often missed by macro-level analyses.

The research for this project entailed participant observation at LNP+ support group meetings, in their Vientiane office on a daily basis, at strategic planning sessions, in staff meetings and during social occasions. It also included in-depth interviews with key informants, including LNP+
staff, volunteers and members, as well as doctors and representatives of international NGOs and donors. During my stay, I contributed to LNP+’s work and made a place for myself in their community by editing funding proposals, assisting with English translations and building a website for their network. My position as an outsider – a white Canadian woman studying at a Thai university – was in some ways beneficial to the research process, even as it provided cultural barriers to overcome, as it allowed me to access people and spaces that may be off-limits for most locals. For example, it was not difficult for me to make appointments to meet with project managers at the United Nations. My experience was also that as a white woman I was gendered differently than Lao women are, and I was accepted in spaces typically reserved for men.

RESULTS

HIV and development in Laos

With a relatively small population of 6.9 million, Laos has a low rate of HIV infection compared to neighbouring countries, with an adult prevalence rate of 0.3% (UNDP, 2013). However, testing rates are also low, and most PLHIV do not discover that they are positive until they have been ill for some time, so the prevalence could in fact be higher than reported (USAID, 2010). International health authorities, such as USAID, consider Laos to be at risk for an epidemic, as infection rates are rising and social behaviours are changing. The state of health care in Laos is quite poor and largely dependent upon foreign aid. Hospitals in urban areas are substandard, and in rural areas clinics are either non-existent or under-staffed and lacking in basic medical supplies (Stuart-Fox, 2009: 157). Those who can afford to seek care elsewhere typically travel to Thailand or another nearby country for medical procedures. HIV medications called anti-retrovirals (ARV), which can greatly improve the quality and length of life for PLHIV, are currently available at five clinics and three satellite locations around the country, but are still inaccessible for much of the mostly rural population. According to a 2013 UNDP report, only 55% of eligible PLHIV in Laos were taking ARV as of 2012; while the drugs are free, treatment for related illnesses are not, and the cost of regularly traveling to the nearest clinic is too expensive and time consuming for many (UNDP, 2013: 124).

The media coverage of HIV/AIDS is limited and what does exist is largely focused on monogamy and abstinence as prevention strategies. Members of the media report that they are restricted from running stories about sexuality, safer sex, prostitution and sexual health by the Ministry of Information and Culture (Khamkhong et al., 2005: 16-17) and do not want to be perceived as encouraging promiscuity or other immoral activities. Media discourse about HIV/AIDS therefore appeals to Lao national identity, promoting abstinence and monogamy as traditional Lao values (Khamkhong et al., 2005).
A consequence of this emphasis on monogamy as a traditional Lao value is that it affirms PLHIV as having questionable morality and engaging in un-Lao behaviour. Many PLHIV do not disclose their HIV-positive status, but those who do often face social exclusion of some form. Lack of knowledge about the disease and the association of the disease with activities that are considered immoral, such as sex work and promiscuity, have led to a broad stigmatization. Women are particularly stigmatized, as their HIV status is associated with sexual conduct that is considered socially unacceptable for women, while men’s promiscuity or extra-marital sex receives much more social acceptance (Shizawa et al., 2004).

The national response to HIV/AIDS is wrapped up in the drive toward development, which has become a top priority in contemporary Laos. In this context, HIV/AIDS is understood as having a negative impact on the national goal of development, as is illustrated by the 2001 national policy on HIV/AIDS, which states its goals as “(a) prevention of HIV infection, (b) care and support for those infected with and/or affected by HIV/AIDS, and (c) mitigation of the adverse impact of HIV/AIDS on the social and economic development of individuals and the nation” (Chancy and Khandhanouvong, 2004: 95). As individuals who require expensive medical treatments and who are thought to be limited in their ability to work due to illness, PLHIV are not seen as good, productive citizens who contribute to the nation’s neoliberal development trajectory. By placing HIV in opposition to the objective of development, the Lao state constructs a discourse of PLHIV as undesirable and disruptive to the social order, similar to the way that marginalized ethnic minorities in Laos are stigmatized as producers and users of opium (Cohen, 2013).

Because the government does not have the financial capacity to regulate PLHIV’s condition medically, they must rely instead on the international community of HIV/AIDS donors to determine and provide appropriate medical intervention. PLHIV, therefore, exist outside of the state’s regulatory grasp.

Although HIV is understood as an impediment to development, it is also in some ways considered a consequence of development and is associated with more developed places, particularly nearby Thailand. It is also associated with the practice of leaving Laos to work in the bars, factories and construction sites of a more developed neighbouring country (Lyttleton, 2002). A number of scholars have argued that the rise in HIV rates in Laos has a direct relationship with the current economic policy of the Lao government, which emphasizes neoliberal-style development through free market growth and increased economic integration with the region and the world (Rigg, 2005). Laos has encouraged major foreign direct investment and introduced large-scale infrastructure developments, such as the construction of large hydroelectric dams and highways, as well as other
projects for increasing regional economic interactions. Chris Lyttleton argues that development interventions not only transform people’s economic lives, but also their intimate relations, and therefore their health (Lyttleton, 2014: 6-7). His new book (2014), as well as a number of other studies in the Mekong region (Lyttleton et al., 2004; Lyttleton, 2002; Chamberlain, 2000), have now shown that one of the unintended consequences of policies that stimulate increased population mobility, such as infrastructure construction projects, is the spread of HIV. HIV/AIDS is, therefore, understood as both a product of development and, at the same time, a drain on the country’s development potential.

HIV/AIDS is also perceived by many Lao people as a foreigner’s disease. The common perception is that it comes from “outsiders” such as Thais, Vietnamese or Chinese, and that Lao people are not at risk of contracting it from one another, but only from interactions with non-Lao (Lyttleton, 1999: 119; Beyrer, 1998: 78-80). For many years, Lao state officials denied that HIV was present in Laos, although local doctors reported otherwise (see Beyrer, 1998). As HIV is still perceived as a disease contracted and spread by non-Lao, Lao PLHIV have become associated with this “outsider” status.

As in other places in the world, PLHIV are commonly perceived as unclean, immoral, and ‘other.’ Some quotes from my fieldwork illustrate this well. One 39-year-old Lao woman, whose two children are living with HIV and whose husband died from AIDS-related illness, told me, “When (my friends and neighbours) found out I was HIV-positive, I could not go visit them in their houses or be friends with them. Wherever I walked, wherever I went, people stared at me and they talked about me behind my back. When I went to the hospital the nurses and the doctors also didn’t want to talk to me or treat me, because I was very thin and very sick.”

On the topic of changing Lao attitudes on HIV/AIDS in recent years, the President of LNP+ told me:

“I think that society is becoming more accepting of (PLHIV), but there is still a difference between people’s actions and their minds. They might say ‘we accept these people,’ but in reality there is still some evidence that shows that they don’t really accept them. Like, people may describe HIV-positive people as sex workers or bad people or something. If (PLHIV) disclose their status, they might end up in that situation, so there are a lot of people who do not disclose themselves because they’re afraid of being perceived that way.”

HIV/AIDS support networks and civil society in Laos

The formation of an identity-based coalition of PLHIV is further complicated by the post-socialist, single-party political landscape in Laos, which puts considerable con-
straints on the formation and activities of non-state organizations. The perception of state-society relations in Laos, as fostered by socialist state discourses, is one of a parent caring for a child. However, the state suffers from extensive corruption, which permeates society at every level, including bureaucrats, officials, police and civil servants of all stripes (Stuart-Fox, 2009: 158). Martin Stuart-Fox argues that “the increase in corruption in Laos is linked to a resurgence of Lao political culture, which seeks to concentrate power and wealth through patronage networks centred on senior members of the ruling Party. To oil these networks resources are needed, which are transferred from the state to favoured individuals” (ibid: 159). However, jealousy is now starting to fracture the Party as the wealth accumulated through corruption is unevenly distributed.

Although many of the most severe restrictions on social life initially imposed by the Party have been revoked over the years, the state still strictly controls civic association and regulates the establishment, membership, mandate and activities of all groups. ‘Non-governmental organizations’ are not recognized, but recently citizens groups have been allowed to form what are known as ‘non-profit associations’ (NPAs), which must be registered with a government agency. Mass organizations such as the Lao Women’s Union, Federation of Trade Unions and People’s Revolutionary Youth Union, extend from the state level all the way down to every province and district. These organizations are meant to act as mechanisms by which people at the local level can participate, while projecting the Party’s influence out to the village level (Evans, 1990: 184).

The term ‘civil society’ has a different meaning in Laos than it does in non-socialist polities. Civil society is typically defined as the space that exists between the state and society, where individuals interact and can organize toward goals (Mcllwaine, 1998). However, this is a Western conception of civil society, and is not compatible with Laos, because there is no space between state and society within socialist. Whether or not this is a useful term to use in relation to Laos is a matter that requires further academic attention, but it is currently in active use to refer to that arena of society that is organized around social issues, although they are under government supervision. Many international development agencies operating in Laos now have programs aiming to support civil society, although “authorities are worried about the influence of foreign non-government organizations (NGOs) and aid workers, who are empowering local, rural communities in a way that is perceived by some as a threat to the existing order. (The) country’s main dilemma (is) how to balance... the influx of outside influences with the desire on the part of the ruling party to remain in control of most aspects of life and society in Laos.” (Lintner, 2008: 172) The few people and groups who have organized protests or criticized the
Lao government openly have been punished swiftly, with lengthy jail sentences or even disappearances.\(^2\) Social movements typically do not reach Laos, and participation in activism is nearly unthinkable for Lao citizens.

LNP+ is the only organization of its kind in Laos – it is a network of HIV-positive people that stretches across the country, with support groups in 14 locations in 12 provinces, and a national office based in Vientiane Capital City. Its stated objectives, according to a pamphlet distributed to members, are to improve the quality of life of PLHIV in Laos, to contribute to a reduction in HIV transmission and to be the representative of all Lao PLHIV in the national response to HIV/AIDS. It is directed by a committee comprised of one member from each of the 12 provincial branches, and the majority of its staff members are also people living with HIV. LNP+ began in 2001 as a small number of community-based support groups and was formally established in 2003 as a project of the Australian Red Cross (ARC), together with the Lao Red Cross (LRC), which is a mass organization. Because Lao organizations are not allowed to exist independently from the state, LNP+ remains under the authority of the LRC.

Since 2006, LNP+ has been trying to register as a non-profit association through the Lao government’s changing legislation on civil society organizations. According to LNP+ coordinator Phon\(^3\), their initial application was made through the Lao Union of Science and Engineering Associations (LUSEA), but was deemed more appropriate for registration under a different mass organization. Their application was passed around between government agencies and mass organizations until 2009, when the government announced it was creating a new decree on NPAs that would centralize all NPA registrations under the Public Administration and Civil Service Authority (PACSA) (IRIN, 2009). At the time of writing, LNP+ had submitted the first stage of its application for the lengthy new non-profit association registration protocol and was waiting for acceptance and permission to advance to the next stage. The registration pro-

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\(^2\)In 2009, there was a protest in Vientiane calling for political reform that resulted in the arrest of hundreds of students. The leaders of the protest were sentenced to 10 years imprisonment, one of whom was reportedly tortured to death in prison, while the others remain in prison even after completing their 10 year sentences (FIDH, 2012: 7). More recently, Mr. Sombath Somphone, a well-known Lao participatory development and land rights advocate, who has been called an activist by many, went missing in December 2012. His whereabouts are still unknown, but video footage has surfaced of him being pulled over and getting into a police vehicle (Hodal, 2013).

\(^3\)Names of informants have been changed to protect their privacy, with the exception of the LNP+ President, Kinoy, who requested to be named.
cess is intensive, requiring a security clearance, complex application forms, home visits and family visits for key members.

Previously, funding for LNP+ came from the Australian Red Cross (ARC). They provided funds to the Lao Red Cross for an HIV/AIDS program, which in turn provided USD 32,000 annually to LNP+. By applying for small grants, LNP+ nearly doubled this annual operating income. However, funding from the Red Cross ran out in 2011, when the ARC shifted the focus of their programs in Laos. That same year, LNP+ was approved for funding through the Global Fund for AIDS, Tuberculosis and Malaria (GFATM), a major funding agency worldwide, but they received only enough for their basic office costs and once again have had to top up their income through grants. These moves have not gone unnoticed by state agencies, and the LRC has made attempts to reign them back in, for example by pressuring them to allow the LRC to manage their GFATM grant for them.

LNP+ is similar in its objectives and structure to its Thai counterpart, TNP+, as well as the Asia-Pacific Network, APN+, and other HIV-positive peoples’ networks around the world. All of these groups consist of networks of smaller, locally-based groups of PLHIV, which provide support to members and advocate for rights and access to care. The Thai networks are particularly influential on LNP+, as they have been active since the early 1990s and have developed a strong leadership and extensive knowledge of medical and political workings relevant to PLHIV, which they frequently share with LNP+ in the form of training and workshops. LNP+ is in a similar position now to where the Thai groups were 20 years ago; their members are mostly poor, many of them farmers, day labourers, market vendors, etc., and therefore lack the complicated management and
administrative skills and specialized knowledge to run a successful HIV advocacy organization. The Thai example shows how capacity is built when individuals, bringing their own motivations and experiences, use the groups to pick up new information from other PLHIV and in turn contribute their own experiences to the knowledge pool, thereby enhancing the efficacy and quality of knowledge that is shared by the group (Tanabe, 2005: 186).

Thai PLHIV groups have earned a reputation for their political activism and lobbying efforts, which are credited with success in launching a nationwide campaign for affordable medicines and significantly decreasing the discrimination against PLHIV. They have received international recognition for their significant and positive impact on the lives of PLHIV and for their influence on Thailand’s public health system. Although LNP+ is unable to be politically active in the way that Thai and other groups are, they have been relatively outspoken compared with other Lao NPAs. For example, they have actively tried to gain representation on decision-making bodies in order to influence government policymaking.

Their connections with international and transnational HIV/AIDS networks have exposed them to activist discourses and strategies that would be considered very subversive in Laos. By participating in training and conferences internationally, from Bangkok to Bali, and with their funding and support connections to advocacy groups overseas such as the Australian Federation of AIDS Organizations, LNP+ has become connected to a transnational movement of HIV+ people. They have even attended protests and political demonstrations in neighbouring countries, such as a recent protest in Bangkok against a free trade agreement being negotiated between India and the European Union that may threaten India’s ability to produce inexpensive HIV medicines. LNP+ members now sport T-shirts declaring “Europe! Hands off our medicine!” and a poster on the front window of the LNP+ office makes the same plea. Exposure to progressive politics, and to activist organizing strategies, has had an impact on how LNP+ members view their own situation and on what kinds of actions and strategies they employ themselves. For the staff and volunteer leaders, this has meant coming to see themselves as activists involved in a transnational movement of PLHIV.

4For more detail on their work, see Niwat, Kanjana and Waraluk, 2008.
DISCUSSION

Given the complex social and political circumstances around HIV/AIDS in Laos, any advocacy on this issue must be approached with subtlety. The word “advocate” itself is sensitive. Although the Thai and Lao languages are extremely similar, Thai activists often use the term gan phlaak dan, which means to push, promote or pressure, while in Laos, according to LNP+’s coordinator, Phon, this word is perceived as too strong, too demanding. Instead they use a different term, kor sanap sanoon, which means to ask for support or assistance, and is softer and less confrontational.

Indirectness is a key part of advocacy in Laos; in order to reach a goal, it is not possible to make demands or even to directly ask for what is needed. Instead, gentle, creative and subtle strategies must be employed. An LNP+ volunteer named Vieng succinctly described it using simple hand gestures – he drew a straight line in the air with his finger to represent a direct demand, the way Thai activists might behave, and a curving line in the air to illustrate the preferable way to behave in Laos. According to him, in order to be successful in Laos one must “work smart. Many people do not have the skills that are required here; they just say what they think, but that is not the right way to work.” Instead, one must carefully manoeuvre toward the goal, while maintaining important relationships, and exercising extreme patience.

Despite the constraints they face, LNP+ has become a leader among Lao NPAs and has been known for being particularly rebellious by Lao standards, particularly in their recent past. When I visited Vientiane in 2009 to explore options for a research project on civil society in Laos, I heard from several individuals working on civil society projects with international NGOs that LNP+ was the only local group that referred to themselves as activists, and that they were known for being assertive. I found this intriguing. How would PLHIV, given their marginal status, develop strategies for asserting themselves? And why would they take the associated risks?

Among all of the Lao NPAs working on environmental issues, indigenous issues, women’s issues, etc., why is it the HIV/AIDS group that stands out? The answers to these questions are complex. One consideration is the high stakes that PLHIV face, including social exclusion, illness, death and the death of their children or spouses – the life and death nature of their cause has led them to take bolder actions. It is also notable that LNP+ is part of an international tradition of HIV/AIDS activism that is decidedly radical. Following ACT UP and other groups in the US during the 1980s and 1990s, HIV/AIDS activists around the world, and in Thailand in particular, have been inspired by the impressive efficacy of ‘direct action’ protest tactics. LNP+ members, volunteers and staff have a close relationship with these Thai groups and frequently visit them in Thailand for training, workshops and collaboration. This exposure has
had a significant impact on LNP+. Although they will not articulate it publicly at home in Laos, the staff and local leaders of LNP+ that I interviewed for this project consider themselves to be activists for the rights of PLHIV, even though this runs contrary to Lao culture.

One theoretical concern in the study of activism has been how to understand the role of culture as something that reproduces social structures, but is also used by activists to challenge the status quo. To what extent are actors constrained by their culture, and is it possible to operate within one's culture in a manner that creates change? How do we acknowledge the importance of culture in shaping social life and actors’ actions and intentions, without treating activists as ignorant or impotent? According to Francesca Polletta, “By paying attention to the trade-offs (activists) face both in conforming to cultural conventions and in challenging them, as well as to the calculi by which they rule options in and out of consideration, we can get at how culture sets the terms of strategic action, without simply locating those processes in people’s heads” (Polletta, 2008: 80).

During my fieldwork I observed that Lao culture, rather than simply constraining LNP+ members’ thoughts and actions, provided a framework for the group to choose what actions to take by allowing them to understand the meaning and consequences of their actions within their context. LNP+ members have a complex interpretation of Lao culture – on one hand they are marginalized in their communities and perceive Lao culture around sexuality and dissent as being an obstacle to achieving their goals. On the other hand, they frequently defend Lao culture, particularly in contrast with Thailand, and their identities as Lao people are deeply ingrained. A common characteristic of PLHIV and many other marginalized people worldwide is the contradictory experience of identifying with a culture that rejects them. Ultimately, theirs is a struggle to change Lao society, not to leave it or reject it outright. In the meantime, aspects of their culture are used as tools for working toward particular goals. One way they navigate their cultural and political context is by transposing what Polletta (2008: 90) refers to as “institutional schemas,” in strategic ways. Activists borrow ‘schemas’ from one cultural arena and apply them to new paradigms, allowing them to strategize in culturally intelligible ways. They thereby claim agency in spite of structures that would constrain them, by borrowing from those very structures.

I describe LNP+’s subtle but active way of pursuing a course of action as a serious game of HIV/AIDS advocacy, wherein the practices and intentions of players operate within a particular set of rules, goals and expectations on a given playing field. Anthropologist Sherry Ortner explains that the concept of the serious game embodies the following:
...that social life is culturally organized and constructed, in terms of defining categories of actors, rules and goals of the games, and so forth; that social life is precisely social, consisting of webs of relationship and interaction between multiple, shiftingly interrelated subject positions, none of which can be extracted as autonomous “agents”; and yet at the same time there is “agency,” that is, actors play with skill, intention, wit, knowledge, intelligence. (Ortner, 1996: 12)

The “rules of the game” include the socialist perspective on state-society relations and the practices that go with it, social taboos around sexuality, the state’s nationalism project that defines good Lao behaviour, political restrictions on advocacy, the objectives of international funding agencies, the endless bureaucracy that NPAs must navigate, and the cultural practices around work and social hierarchy that dictate how things get done. This set of social structures shapes LNP+’s possibilities for action and forms the conditions for the way they play the game. These rules would appear to greatly limit their ability to make any significant progress, and in fact most of the time LNP+’s actions tend to reproduce these social structures. For example, LNP+ tends to comply with official state regulations pertaining to their work, and generally also with unofficial, cultural work practices. When LNP+ wants to have a meeting or training session that includes members from other provinces, they are required to receive letters of permission from the National Commission for the Control of AIDS Bureau (NCCAB) at the provincial level for each person who will be traveling out of their home district. PLHIV in Laos are not allowed to come and go freely if they wish to join a meeting or conference outside of their district. Regardless of how unjust LNP+ staff find this regulation to be, they consistently comply and dutifully request NCCAB permission when required.

However, LNP+ is not always so docile – particularly not in their past. The coordinator before Phon was a man named Ton, and he earned a reputation for being a troublemaker. According to Phon and current volunteers, Ton was an honest man and passionate about the plight of PLHIV in Laos, but he attracted unwanted attention to the organization. He would regularly disregard the bureaucracy and go ahead with his plans outside of official channels. In meetings with government representatives, he would complain about human rights problems in Laos, which angered government officials. Although Phon, Kinoy and other current LNP+ members concede that he had the best intentions of PLHIV at heart, their work was becoming more difficult because government bodies did not want to work with them, the LRC was unhappy with them, and partnering with them became a risk for any other Lao NPA. It became impossible to accomplish anything
because their relationships with other actors were poor. There was a tangible change in direction after Ton left. Kinoy, as LNP+’s president, aimed to bring the organization closer to the state in order to overcome these problems. Even though Kinoy felt as strongly about the injustices faced by PLHIV as Ton had, the shift in tactics to maintain a closer relationship with state organizations was deemed necessary for meeting their other goals.

During a particularly stressful morning at the LNP+ office, Phon said to me that she felt “like a fish on a stick.” She was referring to a popular Lao style of cooking river fish by splitting a stick of bamboo, wedging the fish in between the two halves and then cooking it on a grill. The fish on the stick is held in place by the pressure on either side of it. Like the fish, Phon is caught, unable to move, gripped and suspended by forces confronting her from either side. On one side is the desire to actively push for change in her country in an open and public way; on the other side is the desire not to be perceived as a troublemaker, and an overwhelming pressure to maintain the status quo. That morning, Phon was preparing to lead a meeting of Lao NPAs on the subject of the ASEAN People’s Forum (APF), which is a meeting of civil society groups held in tandem with the annual Association of Southeast Asian Nations (ASEAN) meeting. Phon had attended the forum on behalf of LNP+ and was tasked with summarizing the proceedings for NPAs that were unable to attend.

At the APF, the discussions involved considerable criticism of ASEAN, particularly focused on the destructive nature of large-scale development projects, and called for a more “people-oriented” ASEAN. However, such an unapologetic criticism of ASEAN, and implicitly of the Lao government’s policies, would not be looked upon kindly by some in attendance at the Vientiane meeting.

Phon wrote and re-wrote her description of the APF, alternately trying to make the criticism appear softer and then rewriting to try to be true to the aims of the APF. She struggled to find a balance between maintaining a respectful tone toward the Lao government and its interests, and engaging in an activist critique. This is the sort of tightrope that LNP+ walks, somewhere between Laos’ post-socialist politics and the transnational activist communities. Their tactics in ‘playing’ the game of HIV/AIDS advocacy reflect this ambivalence. Some examples illustrating their tactics will be examined here.

One way that LNP+ has approached political and cultural barriers has been to subvert the hierarchies that shape them. Laos is a distinctly hierarchical society – although the socialist revolution eliminated the monarchy and did away with many of the old social relations, it did not succeed in eliminating hierarchies, only in altering them (see Evans, 2002). While LNP+ does not have a high social status, and in fact its members are particularly disenfranchised, they are sometimes able to
use the hierarchy to their advantage in order to reach their goals.

For example, they are sometimes able to use their relationships with particular actors with greater social capital to their advantage, such as the transnational organizations that have HIV/AIDS programs in Laos. These include United Nations agencies, Population Services International, World Health Organization, and Red Cross organizations from Norway, The Netherlands, and several other Western countries. The local directors of these organizations tend to be Western expatriates, and their staff is a mix of foreign and Lao people. These actors fund many programs in Laos and are well respected, but they are not entirely embedded in Lao culture. They are particularly interested in working with LNP+, as recent trends in the development industry tend to emphasize “participatory” approaches that involve affected communities in the planning and implementation of projects. International HIV/AIDS organizations typically subscribe to the idea that PLHIV should be meaningfully involved in the prevention, care and treatment of HIV/AIDS (see UNAIDS, 2007 for their policy briefing). The concept of “greater involvement” or “meaningful involvement,” long fought for by HIV+ activists, is now incorporated into most international NGO’s programming on HIV/AIDS, in principle if not always in practice. LNP+ is frequently called upon by international organizations wishing to meet this requirement in Laos.

In turn, LNP+ can call upon these institutions for help with their own projects when they wish to circumvent Lao cultural hierarchies. For example, they recently sought to establish a women’s HIV group similar to the one they encountered in Thailand. Doing so through official channels would mean proposing the idea to the Lao Women’s Union (LWU) and the Lao Red Cross (LRC), both state-controlled mass organizations, which might reject the project altogether, or else take charge of the project and lead it in a direction that LNP+ would have no control over. There is no space within the Lao cultural/political environment to simply create a group for HIV-positive women to discuss their lives and needs, without receiving state permission to do so. As Kinoy and Phon explained during my fieldwork, it is not possible to gather female support group members, even informally, to talk about what their needs are, as all gatherings require permission, and particularly for PLHIV, their movements and activities are carefully watched.

Instead of going directly to the LWU and LRC, LNP+ met with consultants from UNAIDS and the United Nations Development Fund for Women (UNIFEM) first, for a discussion of how such a group could be organized, who would lead it, what funding it might need, etc. A plan was therefore already developed by the time it was presented to the LRC and the LWU. This communicated to the LWU and LRC that the project was credible and viable, and had the
support of international organizations/donors with considerable social and material capital. For the LRC and LWU to reject the project would put them in direct conflict with these organizations and would potentially complicate their social position—a fact that LNP+ was well aware of. By aligning with foreign organizations with a strong social position, LNP+ was able to ensure that their project passed through the Lao bureaucracy successfully, without losing control of it.

Another example shows how LNP+ members use gossip to “speak truth to power” without doing so directly, and thereby avoiding conflict or negative attention. At the APF meeting mentioned previously, Phon felt frustrated when a government official criticized some attendees from other countries for being “disrespectful” in criticizing neoliberal development practices. Phon felt obligated to apologize for their bad behaviour, even though she did not interpret it as such, but quickly pointed that none of those making the criticisms were from Laos. Her comment was interpreted by those present as being somewhat subordinate—a subtle jab at the government officials for always casting blame on them, and a defense of the Lao NPAs.

During a break in the APF meetings, Phon and other NPA members chatted and drank coffee within earshot of a group of government officers. The other NPA representatives complimented Phon on her presentation and she replied, aware that she was being overhead, that she thought it was good for everyone to learn about the negative side of the ASEAN projects. She then loudly complained that the morning’s meeting had been very boring and predictable because nothing ever changes in Laos and no one is really listening to one another anyway. Part of the game, for LNP+, is being able to get their point across without the appearance of having done something wrong. Gossip is a useful tool as it is generally considered to be frivolous and innocuous, and yet it is capable of communicating a great deal.

**CONCLUSION**

This concept of the serious game illuminates the tactical and strategic aspects of LNP+’s activities. The game’s “playing field” entails a variety of constraints related to Lao culture, religion, history and politics. As marginalized people, PLHIV are embedded within complex relations of power that shape their possibilities for action and dictate the rules by which they must play. Through their strategies, LNP+ in some ways reproduces the social structures that dictate their actions. However, they also attempt to manoeuvre around these structures, use them to their own advantage, and even sometimes challenge them.

LNP+ plays this game with subtlety by, for example, transposing cultural schemas. Their resistance, if we can call it that, sometimes appears to be of the “everyday” variety (Scott, 1985), although, as the examples here illustrate, it is often more intentional
and assertive. If there is a continuum between everyday and active forms of resistance, LNP+’s tactics would most often exist somewhere in the middle. Their resistance is both quiet and strategic, reliant upon their culture for meaning, while challenging that culture.

In Laos today, there is little space for groups of citizens to organize toward their common goals, particularly if it entails any criticism of the status quo. The current state of Lao society, while more open than in previous years, still poses considerable restrictions on civic association. Great risks are associated with activism, and for most NPAs, confrontational tactics are not desirable anyway, as they are interpreted as being contrary to Lao culture. For the rare ones, like LNP+, whose exposure to transnational activist ideologies has radicalized and politicized them, the only way to get along with the state while also pursuing their objectives is to play the serious game of advocacy with skill and creativity.

My research shows that LNP+ is capable of using these subtle tactics to meet some of their immediate needs or to communicate a particular message, and they have seen some success in achieving their goals. For example, they were some of the first to seek access to ARV in Laos, and have contributed to the current successes in introducing life-saving drugs to the country. They also take credit for improving public knowledge of and attitudes around HIV. To some extent, for them to simply exist in public, for example by “coming out” as HIV-positive and choosing to be present in hospitals, public health meetings and civil society events, they make positive advances toward de-stigmatization.

Although cultural practices and political ideologies are deeply entrenched in Laos, they are not unchangeable. In rural areas, neoliberal development practices steadily enclose the forestlands and waterways (Barney, 2008), taking a toll on the livelihoods of what was formerly an ideologically indifferent peasantry. Urban areas are expanding and an educated middle class is emerging, which may soon be seeking political participation (Lintner, 2008: 172). Together with outside pressures, both from concerned foreign trade partners and from international organizations that Laos has membership in, there is potential for Laos’ political system to be reformed sooner rather than later. In fact, there is no doubt that change is coming in Laos; the question is whether or not these changes will result in the expansion of space for a public sphere from which LNP+ and other NPAs may engage in new, more direct forms of advocacy and activism.
REFERENCES


Determinants of Borrowers of the Village and Urban Community Fund in Thailand

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ABSTRACT

To help alleviate poverty, Thailand created the Village and Urban Community Fund (Village Fund). To determine whether the Village Fund has been able to reach the truly poor, this paper applies a Logit model, using data from Thailand’s Socioeconomic Survey at the household level in 2009, to investigate the determinants of borrowers and whether being poor is significant for borrowing from the Fund.

Our analysis reveals that The Village Fund targets near-poor and moderate-income households, not the poor. The Village Fund cannot be said to be pro-poor. However, the program has its merits, particularly in lending to women and less-educated heads of households. For near-poor households, the most likely borrowers are farmers, especially landless farmers in rural areas with income slightly above the poverty line. For moderate-income households, the most likely borrowers also have access to other sources of credit. While not directly pro-poor, the Village Fund, in lending to near and moderate-income groups, helps them avoid falling into poverty.

Keywords: Microcredit, Village fund, Urban community fund, Rural development, Poverty reduction.
INTRODUCTION

Background

Microcredit – programs that provide small loans for self-employment and consumption to the poor, especially women without access to formal financial services – is a popular tool for poverty alleviation in developing countries, such as Bangladesh, Bolivia and Indonesia. Microcredit grew significantly in the 1990s (Robinson, 2001). In 1997, the first Microcredit Summit took place in Washington, D.C., with more than 2,900 delegates from 137 countries participating. The conference committed to reach the world’s poorest families with microcredit. Later, the United Nations declared 2005 the “International Year of Microcredit” and linked microcredit to the achievement of the Millennium Development Goals (MDGs), including reaching 175 million of the world’s poorest families with credit for self-employment and other finance and business services and helping to raise 100 million families above the US$ 1 a day threshold by 2015. In 2006, Muhammad Yunus, the founder of the Grameen Bank, received the Nobel Peace Prize for his efforts to create economic and social development from the bottom up, increasing microcredit’s visibility even further. Microcredit reached one hundred and fifty million individuals worldwide in 2007 (Daley-Harris, 2009).

Most microcredit programs state that their primary mission is to alleviate rural poverty by delivering credit and other financial services to poor households. Khandker (2005) found that microcredit reduced poverty in Bangladesh, as the poor borrowed for income-generating activities, education and health, all of which significantly increased well-being. Microcredit resulted in local economic growth, as well. Microcredit programs, originally designed to serve the unbanked poor, are important tools for poverty reduction.

In Thailand, government has supported microcredit programs for more than 30 years. Most of the programs developed from community-based credit schemes that focused on social capital in the community (Worakul, 2006). In 2001, the Thai Government created the Village and Urban Community Fund as part of its poverty alleviation policy. It is the largest government microcredit program in Thailand, with THB 1 million allocated per village.

Empirical studies have shown the positive effects of microcredit. For example, microcredit can raise household income and reduce poverty (Berhane & Gardebroek, 2011; Nader, 2008; Khandker, 2001) and can improve household consumption such as health and education (Coleman, 1999; Nader, 2008). However, not everyone can or does access the programs, with considerable debate as to who really benefits – the poor or non-poor – from microcredit programs like the Village Fund. While many studies have shown that microcredit benefits poor households (Boonperm et al., 2009; Khandker, 2005), some studies
argue that non-poor households and wealthier villagers are more likely to receive loans (Coleman, 2006; Li et al., 2011; Suriya, 2011).

This question – who benefits? – leads to the research questions in this study: What are the determinants of borrowers in the Village Fund? Are poor households included in the Village Fund program? The answer will help the Thai government improve the program to be more effective at reaching the poor and reducing poverty.

The Village and Urban Community Fund in Thailand

The Village and Urban Community Fund, the largest government microcredit program in Thailand, has been operational since 2001. The Village Fund is a populist policy that has created political support for the Thai Rak Thai Party. The government revolutionized the local credit market by allocating THB 1 million (about USD 22,500 at the average exchange rate of USD 1 = THB 44.5 in 2001) per village to over 77,000 villages and urban communities throughout the country. The program is a semi-formal financial institution, and the second-largest microfinance program in the world (Boonperm et al., 2012), contributing approximately 1.5 percent to Thai GDP in 2001 (Kaboski and Townsend, 2009). After the general election in 2011, the government increased the Village Fund allocation to THB 2 million (about $65,800 at the average exchange rate of USD 1 = THB 30.4 in 2011) per village. As a result, this program is highly important in credit markets, especially in rural areas and for people who cannot access formal financial services.

The Village and Urban Community Fund operates under the philosophy of values and wisdoms of local communities. The focus of the Village Fund program is on community empowerment and self-reliance, which is based on flexible and adjustable rules that meet the community’s needs. It links public, private and civil society to develop the rural economy through the credit market and awareness in local communities. The official objectives of the Village Fund, according to the “Act of National Village and Urban Community Fund (B.E. 2547)” of 2003, are as follows:

- Provide loan funds for investment, job creation, income generation, welfare improvement and expense reduction.
- Provide emergency funds.
- Provide deposit services for members.
- Supply loans to other village funds for economic and social strengthening.
- Develop the rural economy.

The central regulation states that loans cannot exceed THB 20,000 per borrower (increased to THB 30,000 in 2011). In some cases, this can be extended to THB 50,000 (increased to 75,000 in 2011). Emergency loans cannot exceed THB 10,000 (increased to 15,000 in 2011). The interest rate must not exceed 15 percent per year. The repayment has to be made within
one year (increased to two years in 2008). Repayment must be guaranteed by at least two persons. A borrower will receive the money and repay the debt via the Bank for Agriculture and Agricultural Cooperatives (BAAC) or the Government Savings Bank (GSB).

The Village Fund is administered at two levels. First, at the national level, the National Committee of the Central Government, including 76 provincial and 928 district sub-committees, oversees the Village Fund. Second, at the village level, local committees consist of 9 to 15 members elected from villagers who have lived in the village for at least two years. Half of the local committee members must be women. The local committees establish the regulations, rules and procedures concerning the management of their own funds. The local committee also decides who receives the loans. The primary loan conditions include a member’s ability to repay, the purpose of borrowing and the loan size. The close relationship between the local committee and its members reduces risk, because they know each other. In particular, the committee is able to identify the risk of each borrower and his or her ability to repay the loan (Boonperm et al., 2009; Kaboski & Townsend, 2009; Menkhoff & Rungruxsirivorn, 2011).

Determinants of microcredit borrowers

Previous empirical studies have analyzed the factors that affect household participation in microcredit. Households and individuals with similar characteristics – e.g., age, education, household size and income – might have different levels of entrepreneurial spirit or ability. These may lead to a difference in probability to borrow. For example, Evans et al. (1999) presented a conceptual framework of barriers to participation in the microcredit program in Bangladesh. Program-related barriers, such as membership requirements, and client-related barriers, such as health, household size, dependency ratio, income and assets of households, were taken into account. The study found that determinants of borrowers were gender, education, household size and land ownership. Khandker (2001, 2005) examined determinants of participation in microfinance programs in Bangladesh; the results showed that resource-poor households, both in landholding and formal education, demand more loans from microfinance programs than resource-rich households. This means the landless households were likely to receive more loans from microfinance programs than landed households.

In a study of financial exclusion in Canada, Simpson and Buckland (2009) concluded from Probit that unbanked households had lower income, wealth and education. They were older, more likely to have a larger family with fewer earners and more likely to have a lone parent with children aged 5-17 years old. Blasio and Nuzzo (2010) used data from an Italian survey of household income
and wealth to identify determinants of social behavior. Their results suggested that age, sex, education, employment, home ownership and urban residence were determinants of participation in groups and associations.

In addition, Li et al. (2011) conducted an empirical study to investigate the accessibility to microcredit of rural households in China. The analysis, which was based on the Logit model, showed that the demographics and socio-economic characteristics of rural household, such as income, dependency ratio, location of household, access to other credit sources and attitude towards debt, were determinants of the access to microcredit. Supply-side factors such as interest rate and loan processing time were also determinants. While they found that microcredit programs improved household income and consumption, the main beneficiaries in China were non-poor households. They also concluded that the significant impacts of microcredit on increasing household welfare did not necessarily mean that microcredit reduced poverty, since the programs did not target poor populations.

In Thailand, Coleman (2006) investigated the determinants of village bank members in Northeast Thailand. He used a Logit model to analyze whether household characteristics and credit worthiness scores influenced the decision to be members, and found that credit worthiness scores, value of land owned by women and female household heads were significant determinants. Moreover, results indicated that wealthier villagers are significantly more likely to participate than poorer ones.

In previous studies, Chandoeywit and Ashakul (2008) and the World Bank (Boonperm et al., 2009) evaluated the Village Fund’s impact. They used household variables to construct the propensity score to match the non-participants with household characteristics similar to those who participated in the Village Fund. They included characteristics of both the household head (including gender, age, status and education) and household (including size, number of income earners, marital status, assets and main sources of household income). Menkhoff and Rungruxsirivorn (2011) compared characteristics of borrowers between the Village Fund and six other financial institutions in three provinces in Northeast Thailand using Multinomial Logit. They found that age, female household head, number of children, occupation, income, assets, landholding, ratio of defaulted loan and loan characteristics were determinants of the decision to choose the source of loans.

According to the World Bank, the impact of Village Fund borrowing is strong for the poorest quintile and they categorize the Village Fund as pro-poor policy (Boonperm et al., 2009). Suriya (2011) pointed out from the survey data of a village in northern Thailand that most of the poor households reached the loan limit because they did not payback
previous loans, making them ineligible for new credit. Only the richest or second richest quintiles of households in a village were capable of applying for microcredit. This current paper tries to answer who benefits from the Village Fund by including household head characteristics, demographics, socio-economic occupations, income and assets and other related factors as control variables to test the significance of the determinants of borrowers. It also includes a poverty index, poverty gap and interaction term of being poor without access to other credits as key testing variables to test the significance of the accessibility to the Village Fund by the poor households. The extent of poverty of this study follows the Foster-Greer-Thorbecke (Foster et al., 1984) concept, which measures poverty as follows:

i. Poverty index:

\[ P_0 = \frac{1}{N} \sum_{i=1}^{N} I(y_i < Z) \]

ii. Poverty gap:

\[ P_1 = \frac{1}{N} \sum_{i=1}^{N} G_i / Z \]

where I(.) is an indicator function that can be set to 1 if the bracketed expression is true, and 0 otherwise. \( y_i \) is the average monthly consumption expenditure per capita, including food, beverages, tobacco and other good and services. \( G_i = (Z - y_i)I(y_i < Z) \) and \( Z \) are the poverty lines in 2009 (National Economic and Social Development Board of Thailand, 2012). The decomposition of the lines for particular provinces were calculated (Appendix A).

**METHODOLOGY**

**The Logit model**

Logit is frequently used for cases in which the dependent variable is binary. It assumes the logistic distribution of the error term and provides a good estimator, which is both consistent and efficient (Maddala, 1983; Li, et al., 2011). This paper chooses Logit over Probit because it is more convenient to read its coefficients as the log of odds ratio and easier to see the marginal effects (Suriya, 2011). In addition, when the sample size gets large, the results from Logit and Probit will be very close (Maddala, 1983).

Logit is commonly used to examine household accessibility to credit (Li et al., 2011). The household chooses to borrow when utility of borrowing exceeds utility of not borrowing and their difference depends upon a vector of household characteristics \( X \). Let \( p \) be the probability that a household chooses to borrow from the Village Fund, it can be written as:

\[ \Pr(Y = 1) = f(X) \]  

(1)

This paper uses the observed information of household choice (borrow or not borrow) and household characteristics to estimate the probability of the household choice, conditional on the household characteristics using the Logit model. The empirical model
can be expressed as follows (Maddala, 1983):

\[
Pr(Y = 1) = \frac{1}{1 + \exp(-X\beta)} = \frac{\exp(X\beta)}{1 + \exp(X\beta)}
\]

(2)

It is clear that the dependent variable, \(Y\), is binary choice, with a borrower from the Village Fund program classified as one, otherwise it is zero. Explanatory variables, \(X\), is a vector of household characteristics including household head characteristics, demographics, socio-economics class, income and assets and other variables.

Equation (2) represents the cumulative logistic distribution function in a non-linear form. For the purpose of interpretation, its coefficients can also be read as the log of odd ratio (Maddala, 1983). With a transformation, the estimated model becomes a linear function of the explanatory variables, which is expressed as follows:

\[
\log\left(\frac{Pr(Y = 1)}{Pr(Y = 0)}\right) = X\beta
\]

(3)

where the parameters, \(\beta\), is a vector of coefficients for the explanatory variables. It will be estimated by maximum likelihood.

**Data collection**

The data in this study are from the Thailand Socioeconomic Survey in 2009 conducted by the National Statistical Office, Ministry of Information and Communication Technology. The survey interviewed 43,844 households (both borrower and non-borrower) throughout the country. Since 2009, the survey includes a section on Village Fund participation. The key question is, “During the previous year, did any household members have debt from the Village and Urban Community Fund?” This question allows for separating the data into borrowing households (one or more members having borrowed from the Fund) and non-borrowing households (no members borrowing from the Fund). The data were collected monthly. The survey collected a variety of household socio-economic data including detailed information on household income and expenditure. For this study, households with incomplete data were dropped, leaving a sample size of 41,296 households.

**RESULTS**

**Household characteristics**

Out of 41,296 samples, 9,827 households borrowed from the Village Fund. The average loan size was THB 16,148. The mean annual interest rate was 6.0 percent. Around 40 percent of borrowers used the loan for farm-related business. Only 17 percent used it for non-farm business. Six percent of borrowers used the loan for refinancing or house improvements. More than seven percent of borrowers were overdue on their repayments.

Table 1 summarizes the household characteristics. A t-test determined whether the mean values of household variables between borrower and non-borrower were statistically different. Chi-square tested the
Table 1. Characteristic of the respondents (borrower and non-borrower).

<table>
<thead>
<tr>
<th>Household head characteristics:</th>
<th>Non-borrower</th>
<th>Borrower</th>
<th>All respondents</th>
<th>Statistical test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (^1)</td>
<td>50.60</td>
<td>52.30</td>
<td>51.01</td>
<td>t = -11.7**</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>11,115</td>
<td>2,876</td>
<td>13,991</td>
<td>(\chi^2 = 122.5**)</td>
</tr>
<tr>
<td>Male</td>
<td>20,354</td>
<td>6,951</td>
<td>27,305</td>
<td>9.2</td>
</tr>
<tr>
<td>Education (years)(^1)</td>
<td>8.16</td>
<td>5.84</td>
<td>7.60</td>
<td>t = 55.2**</td>
</tr>
<tr>
<td>Single</td>
<td>3,586</td>
<td>206</td>
<td>3,792</td>
<td>21.0</td>
</tr>
<tr>
<td>Married</td>
<td>20,977</td>
<td>7,860</td>
<td>28,837</td>
<td>(\chi^2 = 953.4**)</td>
</tr>
<tr>
<td>Widowed/divorced/separated</td>
<td>6,906</td>
<td>1,761</td>
<td>8,667</td>
<td></td>
</tr>
</tbody>
</table>

| Demographics:                  |             |         |                |                 |
| Household size\(^1\) (persons)| 3.02        | 3.69    | 3.18           | t = -36.3**     |
| Dependency ratio\(^1\)        | 0.36        | 0.37    | 0.36           | t = -0.4        |

| Socio-economic occupations:   |             |         |                | \(\chi^2\)      |
| Landed farmers                | 2,536       | 2,280   | 4,816          | 11.7            |
| Landless farmers              | 440         | 695     | 1,135          | 2.7             |
| Fishery and agricultural      | 436         | 200     | 636            | 1.5             |
| services                      |             |         |                |                 |
| Entrepreneurs                 | 7,701       | 2,070   | 9,771          | 23.7            |
| Professional & technical      | 4,686       | 555     | 5,241          | 12.7            |
| services                      | 1,070       | 402     | 1,472          | 3.6             |
| Farm and general workers      | 9,103       | 2,265   | 11,368         | 27.5            |
| Other employees               | 5,497       | 1,360   | 6,857          | 16.6            |

| Income and assets:            |             |         |                | \(\chi^2\)      |
| Monthly income\(^1\) (THB 1,000) | 24.82      | 17.36   | 23.05          | t = 22.6**       |
| Land tenure                   |             |         |                |                 |
| Yes                           | 21,888      | 9,189   | 31,077         | 75.3            |
| No                            | 9,581       | 638     | 10,219         | 24.7            |
| Home business                 |             |         |                | \(\chi^2 = 2,300.0*\) |
| Yes                           | 6,791       | 2,293   | 9,084          | 22.0            |
| No                            | 24,678      | 7,534   | 32,212         | 78.0            |
| Number of motorcycles\(^1\)   | 1.08        | 1.40    | 1.16           | t = -33.3**      |
| Number of cars\(^1\)          | 0.49        | 0.36    | 0.46           | t = 16.8**       |

| Other variables:              |             |         |                | \(\chi^2\)      |
| Rural household               |             |         |                |                 |
| Yes                           | 9,484       | 6,036   | 15,520         | 37.6            |
| No                            | 21,985      | 3,791   | 25,776         | 62.4            |
| Accessibility to other credit sources |         |         |                | \(\chi^2 = 3,100.0**\) |
| Yes                           | 14,081      | 6,580   | 20,661         | 50.0            |
| No                            | 17,388      | 3,247   | 20,635         | 50.0            |
| Difficulty getting emergency loans |         |         |                | \(\chi^2 = 70.7**\) |
| Yes                           | 5,298       | 2,019   | 7,317          | 17.7            |
| No                            | 26,171      | 7,808   | 33,979         | 82.3            |

Total                        | 31,469      | 9,827   | 41,296         |

Note: \(^1\)entry for mean values. ** and * represent significance level of 1% and 5%, respectively.
relationships between the groups of household variables and the borrowing. The t-test results were statistically significant at the 99 percent level, except for the dependency ratio. This demonstrates that the mean value of age of household head, household size and numbers of motorcycles in borrower households are significantly higher than non-borrower households. Education of household head, household monthly income and numbers of cars in borrower households have less mean value than that of non-borrower households.

Borrower households are strongly associated with women, marital status, socio-economic occupations, land tenure, home business, rural household, accessibility to other sources of credit and difficulty getting emergency loans (chi-square tests on these variables significant at the 99% level).

Eighty percent of the borrowers and two-thirds of the non-borrowers were married. Just over two percent of the borrowers were single, much lower than for non-borrowers (11.4%). The chi-square test in Table 1 indicates a strong association between borrowing and socio-economic occupations. Of the respondents, 27.5 percent relied on employment in the commercial, service, production and construction sectors, while 23.7 percent worked in the business, trade, industry and service sectors. For the agricultural sector, 15.9 percent of the respondents were engaged as landed farmers, landless farmers or fishery and agricultural services. The results also suggested that borrowers were more likely engaged in agriculture than non-borrowers (32.3% versus 10.9%). Professional, technical and managerial services respondents were usually clients of formal financial institutions, with a higher ratio of non-borrowers (14.9%) than borrowers (5.7%).

Borrowers were more likely to own houses or land (93.5%). They also used their home for business purposes more than non-borrowers (23.3% versus 21.6%). However, non-borrowers had higher monthly income (THB 24.82 thousand per household) than borrowers (THB 17.36 thousand per household).

The majority of borrowers (61.4%) lived in rural areas while the majority of non-borrowers (69.9%) lived in urban areas. Borrowers had better access to alternative credit sources (67.0% versus 44.8%). For emergencies, borrowers had more difficulty accessing loans (20.5% versus 16.9%).

**Determinants of borrowers of the Village Fund**

The testing variables for this study are the poverty index, poverty gap and an interaction term, which shows the poor households who cannot access other credit sources (microcredit’s target group). To avoid multicollinearity among the poverty index, poverty gap and their interaction, we use three models to test the different variables as shown in Table 2. The Logit model successfully predicted the probability of borrowers in all three models. It rejects the null hypothesis.
Table 2. Logit estimates for household borrowing from the Village Fund.

<table>
<thead>
<tr>
<th>Dependent variable: Household borrowing during 2008</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Testing variables:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty index (poor)</td>
<td>0.0062</td>
<td>-0.0047**</td>
<td>-0.0047**</td>
</tr>
<tr>
<td>(0.10)</td>
<td>(-3.58)</td>
<td>(-3.58)</td>
<td>(-3.58)</td>
</tr>
<tr>
<td>Poverty gap</td>
<td></td>
<td>-0.2560**</td>
<td>-0.2560**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-6.39)</td>
<td>(-6.39)</td>
</tr>
<tr>
<td>Poor and cannot access other credit sources</td>
<td></td>
<td>0.1097</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.46)</td>
<td></td>
</tr>
<tr>
<td><strong>Household head characteristics:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.0047**</td>
<td>-0.0047**</td>
<td>-0.0047**</td>
</tr>
<tr>
<td>(2.39)</td>
<td>(12.21)</td>
<td>(12.21)</td>
<td>(12.21)</td>
</tr>
<tr>
<td>Female</td>
<td>0.0792*</td>
<td>0.0787*</td>
<td>0.0798*</td>
</tr>
<tr>
<td>(2.38)</td>
<td>(2.38)</td>
<td>(2.38)</td>
<td>(2.38)</td>
</tr>
<tr>
<td>Education (in year)</td>
<td>-0.0641**</td>
<td>-0.0640**</td>
<td>-0.0641**</td>
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<tr>
<td>(-13.35)</td>
<td>(-13.33)</td>
<td>(-13.33)</td>
<td>(-13.33)</td>
</tr>
<tr>
<td>Single</td>
<td>-0.9264**</td>
<td>-0.9263**</td>
<td>-0.9260**</td>
</tr>
<tr>
<td>(-11.90)</td>
<td>(-11.90)</td>
<td>(-11.90)</td>
<td>(-11.90)</td>
</tr>
<tr>
<td>Widowed/divorced/separated</td>
<td>-0.2560**</td>
<td>-0.2558**</td>
<td>-0.2555**</td>
</tr>
<tr>
<td>(-6.39)</td>
<td>(-6.39)</td>
<td>(-6.39)</td>
<td>(-6.39)</td>
</tr>
<tr>
<td><strong>Demographics:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household size (persons)</td>
<td>0.1298**</td>
<td>0.1325**</td>
<td>0.1276**</td>
</tr>
<tr>
<td>(12.21)</td>
<td>(12.57)</td>
<td>(12.34)</td>
<td></td>
</tr>
<tr>
<td>Dependency ratio</td>
<td>-0.4486**</td>
<td>-0.4480**</td>
<td>-0.4493**</td>
</tr>
<tr>
<td>(-8.87)</td>
<td>(-8.86)</td>
<td>(-8.88)</td>
<td></td>
</tr>
<tr>
<td><strong>Socio-economic occupations:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landless farmers</td>
<td>0.5199**</td>
<td>0.5209**</td>
<td>0.5188**</td>
</tr>
<tr>
<td>(6.96)</td>
<td>(6.97)</td>
<td>(6.94)</td>
<td></td>
</tr>
<tr>
<td>Fishery and agricultural services</td>
<td>-0.4971**</td>
<td>-0.4938**</td>
<td>-0.5011**</td>
</tr>
<tr>
<td>(-4.92)</td>
<td>(-4.89)</td>
<td>(-4.96)</td>
<td></td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>-0.4583**</td>
<td>-0.4622**</td>
<td>-0.4552**</td>
</tr>
<tr>
<td>(-9.82)</td>
<td>(-9.91)</td>
<td>(-9.77)</td>
<td></td>
</tr>
<tr>
<td>Professional and technical services</td>
<td>-0.6482**</td>
<td>-0.6504**</td>
<td>-0.6471**</td>
</tr>
<tr>
<td>(-9.78)</td>
<td>(-9.81)</td>
<td>(-9.76)</td>
<td></td>
</tr>
<tr>
<td>Farm and general workers</td>
<td>-0.6791**</td>
<td>-0.6814**</td>
<td>-0.6770**</td>
</tr>
<tr>
<td>(-9.32)</td>
<td>(-9.35)</td>
<td>(-9.29)</td>
<td></td>
</tr>
<tr>
<td>Other employees</td>
<td>-0.6135**</td>
<td>-0.6172**</td>
<td>-0.6103**</td>
</tr>
<tr>
<td>(-14.19)</td>
<td>(-14.28)</td>
<td>(-14.13)</td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>-0.3489**</td>
<td>-0.3508**</td>
<td>-0.3473**</td>
</tr>
<tr>
<td>(-7.16)</td>
<td>(-7.20)</td>
<td>(-7.13)</td>
<td></td>
</tr>
<tr>
<td><strong>Income and assets:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly income (THB1,000)</td>
<td>-0.0146**</td>
<td>-0.0147**</td>
<td>-0.0145**</td>
</tr>
<tr>
<td>(-7.00)</td>
<td>(-7.07)</td>
<td>(-7.03)</td>
<td></td>
</tr>
<tr>
<td>Land tenure</td>
<td>1.3330**</td>
<td>1.3338**</td>
<td>1.3325**</td>
</tr>
<tr>
<td>(27.24)</td>
<td>(27.26)</td>
<td>(27.23)</td>
<td></td>
</tr>
<tr>
<td>Home business</td>
<td>0.2503**</td>
<td>0.2505**</td>
<td>0.2505**</td>
</tr>
<tr>
<td>(7.11)</td>
<td>(7.11)</td>
<td>(7.11)</td>
<td></td>
</tr>
<tr>
<td>Number of motorcycles</td>
<td>0.1495**</td>
<td>0.1469**</td>
<td>0.1515**</td>
</tr>
<tr>
<td>(8.86)</td>
<td>(8.70)</td>
<td>(9.00)</td>
<td></td>
</tr>
<tr>
<td>Number of cars</td>
<td>-0.1715**</td>
<td>-0.1730**</td>
<td>-0.1707**</td>
</tr>
<tr>
<td>(-5.85)</td>
<td>(-5.89)</td>
<td>(-5.80)</td>
<td></td>
</tr>
<tr>
<td>Dependent variable: Household borrowing during 2008</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
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<tr>
<td>Independent variables</td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 3</td>
</tr>
<tr>
<td>Other variables:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural household</td>
<td>0.7441**</td>
<td>0.7435**</td>
<td>0.7445**</td>
</tr>
<tr>
<td>Accessibility to other sources of credit</td>
<td>(26.29)</td>
<td>(26.28)</td>
<td>(26.33)</td>
</tr>
<tr>
<td>Difficulty getting an emergency loan</td>
<td>0.9028**</td>
<td>0.9012**</td>
<td>0.9122**</td>
</tr>
<tr>
<td>Constant</td>
<td>(31.39)</td>
<td>(31.34)</td>
<td>(31.06)</td>
</tr>
<tr>
<td>Pseudo R-squared</td>
<td>0.2116**</td>
<td>0.2127**</td>
<td>0.2102**</td>
</tr>
<tr>
<td>Log pseudo likelihood</td>
<td>(6.13)</td>
<td>(6.16)</td>
<td>(6.09)</td>
</tr>
<tr>
<td>Wald chi2 (23)</td>
<td>-2.1516**</td>
<td>-2.1493**</td>
<td>-2.1588**</td>
</tr>
<tr>
<td>Total observations</td>
<td>-18,139.6</td>
<td>6,325.7**</td>
<td>41,296</td>
</tr>
</tbody>
</table>

Note: Dependent variable equals 1 if household borrowed from the Village Fund, and 0 otherwise. Numbers in parenthesis indicate z-statistics. ** and * represent significance level of 1% and 5%, respectively.

that the parameters estimated in the model equal to zero at the 99 percent level of significance. It can be concluded that the explanatory power of the Logit model is satisfactory and the model can explain the probability of borrowers.

The primary goal of most microfinance programs, including the Village Fund, is to alleviate rural poverty by delivering credit and other financial services to poor households. All three models showed that being poor was not a significant determinant for borrowing from the Village Fund (Table 2). The results indicated the failure of microcredit to include the poor, especially those who could not access other credit sources.

For other borrower characteristics, the results showed that households with younger female heads were more likely to borrow. Less educated household heads were also more likely to borrow. The significant negative signs on marital status indicated that single, widowed, divorced or separated household heads were less likely to borrow than married ones. In turn, a larger household with less dependency ratio was more likely to borrow from the Village Fund.

Dummy variables for household occupations concluded that farm-operating household tended to have a higher probability to be a borrower. The effect is more pronounced for landless households (rented the land). The near poor households, the households with low income but above the poverty line, borrowed from the Village Fund. Assets of household assets were determinant for borrowing. Home ownership increased the probability to borrow. Furthermore, households that used their home for business purposes were more likely to borrow. In terms of vehicle ownership, households with a high number of motorcycles was more likely to borrow, while households with high number of cars was less likely to borrow.
Table 3. The marginal effect of the Logit estimates for household borrowing.

<table>
<thead>
<tr>
<th>Dependent variable: Household borrowing during 2008</th>
<th>Independent variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Testing variables:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty index (poor)</td>
<td>0.0009</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty gap</td>
<td>(0.10)</td>
<td>-0.0360</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor and cannot access other credit sources</td>
<td>(-0.96)</td>
<td>0.0160</td>
<td>(1.41)</td>
<td></td>
</tr>
<tr>
<td><strong>Household head characteristics:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.0007**</td>
<td>-0.0007**</td>
<td>-0.0007**</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>(-3.58)</td>
<td>(-3.59)</td>
<td>(-3.59)</td>
<td></td>
</tr>
<tr>
<td>Education (in year)</td>
<td>0.0112*</td>
<td>0.0112*</td>
<td>0.0113*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.37)</td>
<td>(2.36)</td>
<td>(2.39)</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>-0.0090**</td>
<td>-0.0090**</td>
<td>-0.0090**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-13.15)</td>
<td>(-13.16)</td>
<td>(-13.16)</td>
<td></td>
</tr>
<tr>
<td>Widowed/divorced/separated</td>
<td>-0.0343**</td>
<td>-0.0343**</td>
<td>-0.0342**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-6.73)</td>
<td>(-6.72)</td>
<td>(-6.71)</td>
<td></td>
</tr>
<tr>
<td><strong>Demographics:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household size (persons)</td>
<td>0.0183**</td>
<td>0.0186**</td>
<td>0.0179**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(12.37)</td>
<td>(12.47)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependency ratio</td>
<td>-0.0631**</td>
<td>-0.0630**</td>
<td>-0.0632**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-8.93)</td>
<td>(-8.94)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Socio-economic occupations:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landless farmers</td>
<td>0.0853**</td>
<td>0.0855**</td>
<td>0.0851**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(6.09)</td>
<td>(6.07)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishery and agricultural services</td>
<td>-0.0593**</td>
<td>-0.0590**</td>
<td>-0.0597**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-5.89)</td>
<td>(-5.96)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>-0.0595**</td>
<td>-0.0600**</td>
<td>-0.0591**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-10.56)</td>
<td>(-10.50)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional and technical services</td>
<td>-0.0775**</td>
<td>-0.0777**</td>
<td>-0.0774**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-11.41)</td>
<td>(-11.38)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm and general workers</td>
<td>-0.0770**</td>
<td>-0.0772**</td>
<td>-0.0768**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-11.85)</td>
<td>(-11.80)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other employees</td>
<td>-0.0789**</td>
<td>-0.0793**</td>
<td>-0.0785**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-15.25)</td>
<td>(-15.18)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>-0.0454**</td>
<td>-0.0456**</td>
<td>-0.0452**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-7.70)</td>
<td>(-7.66)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Income and assets:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly income (THB1,000)</td>
<td>-0.0021**</td>
<td>-0.0021**</td>
<td>-0.0020**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-7.19)</td>
<td>(-7.21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land tenure</td>
<td>0.1514**</td>
<td>0.1514**</td>
<td>0.1513**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(35.50)</td>
<td>(35.49)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home business</td>
<td>0.0369**</td>
<td>0.0369**</td>
<td>0.0369**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(6.80)</td>
<td>(6.81)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of motorcycles</td>
<td>0.0210**</td>
<td>0.0207**</td>
<td>0.0213**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(8.86)</td>
<td>(8.71)</td>
<td>(9.01)</td>
<td></td>
</tr>
<tr>
<td>Number of cars</td>
<td>-0.0241**</td>
<td>-0.0243**</td>
<td>-0.0240**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-5.78)</td>
<td>(-5.73)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Rural households tended to be clients of the Village Fund. Moreover, households with access to other sources of credit, but difficulty getting emergency loans, were more likely to borrow.

Table 3 summarizes the marginal effect of the Logit model, providing the direct effect of the explanatory variables on borrower household characteristics. For example, the marginal effect of age indicated that an increase in age of the household head decreased the probability of borrowing by 0.07%. For each additional household member, the probability of borrowing increased by 1.83% on average. If a female household head, the probability increased 1.12% on average; if a landowner, 15.14%; if access to other credit sources, 12.80%; and if a rural household, 11.14%.

**DISCUSSION**

Non-poor households, especially near poor and moderate-income groups, accessed the Village Fund more than the poor households (as shown in Table 2). These findings confirm empirical evidence previously reported by Anuchitworawong (2007). Although some of the poor households reported that they chose not to borrow from the Village Fund, many others were excluded against their wishes because the committee or a personal guarantor felt they could not repay the debt.

The results showed that female borrowers, who the local committees felt were lower credit risks, had a higher chance of borrowing. The finding that single, widowed, divorced and separated household heads had a lower probability of borrowing from the Village Fund is consistent with Coleman (1999), who studied group lending in Thailand. Coleman (1999) argued that these categories were viewed as lacking credit worthiness and their households appeared unstable.

Households with more members had a higher probability of borrowing from the Village Fund as they had more income sources and, as a result, are more capable of repaying debts. Households with a high dependency ratio tended to borrow less from the Village Fund. These households allocated money to take care of children, the elderly and disabled, possibly

<table>
<thead>
<tr>
<th>Dependent variable: Household borrowing during 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent variables</td>
</tr>
<tr>
<td>Other variables:</td>
</tr>
<tr>
<td>Rural householda</td>
</tr>
<tr>
<td>Accessibility to other sources of credita</td>
</tr>
<tr>
<td>Difficulty getting an emergency loana</td>
</tr>
</tbody>
</table>

Note: $dy/dx$ is for discrete change of dummy variable from 0 to 1. Numbers in parenthesis indicate $z$-statistics. ** and * represent significant level at 1% and 5%, respectively.
affecting their ability to repay the loans.

Farmers were the primary borrowers of the Village Fund. One explanation is that rural farm households were familiar with the financial system, through loans offered by the Bank for Agriculture and Agricultural Cooperatives (BAAC). Moreover, other occupations had easier access to other financial services, such as bank and non-bank personal loans.

Although poor versus non-poor households was not a determinant for borrowing from the Village Fund, the results showed that near poor household, lower-income household with income above the poverty line, were more likely to be borrowers. As found by Menkhoff and Rungruxsirivorn (2011), the Village Fund reached lower income households, while commercial banks appeared to serve households with higher income.

Home ownership was associated with Village Fund borrowing. This confirms the suggestion from Grameen Bank in Dowla (2006) that...

...A house is like a factory building where all household-based production occurs and as such owning a house is an important input of production.

Households with higher number of motorcycles were more likely to borrow.

Although the Village Fund loaned money throughout Thailand, rural households were more likely to borrow. Furthermore, accessibility to other formal, semi-formal and informal sources of financial institutions also increased the probability of borrowing.

Households that had difficulty getting an emergency loan were able to borrow from the Village Fund, achieving one of the Fund’s objectives.

The principle of microcredit programs to fight against poverty focuses on providing loans to the poor. However, the Village Fund, the largest government microcredit program in Thailand, differs from those microcredit programs. The Fund does not claim to target the poor, but instead to
provide a new source of financing for rural and urban community members with limited or no access to other funding sources.

REFERENCES


Thailand Socioeconomic Survey in 2009 conducted by the National Statistical Office, Ministry of Information and Communication Technology.
### APPENDIX A

Decomposition of the provincial poverty line in 2009

(单位: Baht/person/month)

<table>
<thead>
<tr>
<th>Region/Province</th>
<th>Poverty line</th>
<th>Region/Province</th>
<th>Poverty line</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Rural</td>
<td>Urban</td>
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<tr>
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<td>Samutsongkhram</td>
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<td>Phetchaburi</td>
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<tr>
<td>Prachuap Khiri Khan</td>
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<td>North</td>
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<td>Northeast</td>
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<td>Nakhon Rat Chasi</td>
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<td>Buriram</td>
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<td>Surin</td>
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<td>Sisaket</td>
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<td>Ubon Rat Chani</td>
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<td>Phuket</td>
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<td>Surat Thani</td>
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<td>Ranong</td>
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<td>Chumphon</td>
<td>1,689</td>
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<td>Songkhla</td>
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<td>Naratiwat</td>
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<td>1,416</td>
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</tr>
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Note: Calculated from NESDB poverty line.
none
Responding to Higher Education Change through the Lens of Governance, Risk Management and Compliance (GRC): the Case of Autonomous Public Universities in Thailand

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ABSTRACT

Due to changes in the economic, political and educational landscape in Thailand over the past 15 years, higher education institutions are being mandated to shift from fully public, civil service entities to autonomous, quasi-public universities that require significant management changes. This research considers the likely challenges associated with future educational impacts and utilizes a case study at the College of Arts, Media and Technology, Chiang Mai University to show the current ‘as-is’ and desired ‘to-be’ management scenarios. The paper investigates potential solutions through the lens of a Governance, Risk Management and Compliance (GRC) framework to facilitate sustainability within Thailand’s affiliated universities. While the management challenges of higher education are specific to individual faculties and universities, the case study presented in this paper acts as a microcosm of Thailand’s higher education challenges. The aim of this paper is to promote discussion and consideration of the likely challenges and solutions to Thailand’s changing higher education.

Keywords: Public autonomous universities, Governance, Risk management and compliance, Higher education, Chiang Mai University

Doi: 10.12982/CMUJASR.2014.0003
INTRODUCTION

In recent years, education has globalized (Hershock et al., 2007), affecting public universities in Thailand, which have been required to become autonomous organizations with limited government supervision. Before these changes, the Thai government provided centralized budgets to public universities, and staff were civil servants. Staff felt secure and safe in their jobs and as a result often lacked motivation or encouragement for imagination or ingenuity in their work. Ultimately, this led to stagnation within Thailand’s higher education sector and the quality of education suffered (Kirtikara, 2002). In 1997, Thailand faced an economic crisis, which in turn led to a crisis in education, resulting in the Thai government applying for financial assistance from the Asian Development Bank (ADB). One suggestion from the ADB was to let public universities manage themselves to reduce government spending, while also minimizing bureaucracy in higher education. Nitikraipot (1999) showed that bureaucracy, in particular, was reducing the effectiveness and global competitiveness of Thai universities. As a potential solution to the economic difficulties and bureaucracy, the Thai government mandated that 14 universities transform into autonomous public universities. The transformation from fully public, civil service organizations, to affiliated quasi-public entities, presents significant management challenges. This paper utilizes a case study approach to outline the challenges associated with the transformation to public autonomous status and highlights the gap between current and desired management practice, specifically focusing on the potential of a Governance, Risk Management and Compliance (GRC) framework to close this gap. The objectives of the paper are to highlight the management challenges faced by public autonomous universities, introduce the disparity between current and desired management scenarios, and promote debate about how to build sustainable higher education organizations in Thailand.

Public autonomous universities in Thailand

The Thai government commonly uses and prefers the term ‘autonomous universities’ when describing the new higher education management structure, but this paper prefers the term ‘affiliated universities’. The word ‘autonomous’ does not truly reflecting the status of these newly organized Thai universities, which despite being offered significantly more autonomy than traditional public universities, are still bound by government directives and restrictions. Thailand has 92 public universities, 14 of which have received mandates to become public affiliated universities as of 2011 (The Office of the Higher Education Commission, 2010). Among this group, 10 have finished their evolution from public to affiliated public status and four are new universities, which were conceptualized as affiliated universities from the outset. The process of
transforming from a public, to an affiliated public university, initially results in two main challenges. First, some lecturers and staff are fearful of losing their perceived permanent employment status due to the new infrastructures and systems. Second, there is a bureaucratic legacy, where it is well ingrained to blindly follow leaders rather than be creative and productive at work. Such a mentality is not commensurate with the new affiliated status. In an attempt to overcome these challenges, a significant number of management tools have been applied to universities in Thailand (e.g., Public Sector Management Quality Award, Thailand Quality Award and Results-based Management). These tools are mainly concerned with piecemeal improvements in quality management for specific university stakeholders, and have achieved limited success (Suvanasarn, 2010). GRC, which attempts to integrate organizational ethos and allow universities to successfully identify and meet their objectives, is a potential framework for addressing these issues more systematically. The key advantage of GRC is that people, processes and technology are central aspects of the framework and are in alignment with the philosophy of the affiliated status, as well as its aim of achieving successful and sustainable management (Suvanasarn, 2010; PricewaterhouseCoopers, 2004; Tarantino, 2008). Therefore, if Thai affiliated universities can successfully implement and maximize the potential of GRC, the gap between current and desired management scenarios could be reduced to secure their future as higher education institutes in Thailand. This is of particular importance in relation to the single ASEAN Economic Community (AEC), which is to be established in 2015 and will significantly impact Thai higher education. Before assessing how a GRC framework might help Thai affiliated public universities meet their management challenges, there is a need to understand the current higher education management situation and potential management requirements of the affiliated status.

Management requirements of the affiliated status

The central management challenges of Thailand’s affiliated university status are related to seven scenarios set out by the Thai Ministry of Higher Education (2008), which are based on global, regional and local socio-economic factors. These scenarios represent the key future challenges for Thai higher education, especially affiliated universities that, with their relative autonomy, are more fully exposed to these risks. The seven scenarios identified by the Thai Ministry of Higher Education Commission (2008) are:

1. Demographic change
2. Energy and the environment
3. Future employment
4. Decentralization of the country and development of local administrative bodies
5. Peaceful conflict resolution and violence
6. Post-modern/post-industrial
7. His Majesty the King of Thailand’s initiative on ‘Sufficiency Economy’

Each of these scenarios is presented in Table 1 with regard to its context and the potential impacts on Thai public affiliated universities. These impacts are based on a review of appropriate literature.

Table 1 highlights the key challenges and potential impacts for Thai higher education and affiliated universities. In summary, significant future impacts stem from the forthcoming AEC in 2015, the requirement to build a stronger regional and international research profile, pressure for secure financial operation, domestic and international competition, and systemic organizational weaknesses within institutions. Some of these challenges are also common to universities internationally, but all have specific idiosyncrasies related to Thailand. To better understand how Thai higher education institutes might respond to these challenges, the next section presents a case study at the College of Arts, Media and Technology (CAMT), Chiang Mai University (CMU).

Table 1. Challenges of the public affiliated status based on future educational scenarios, along with the potential management impact on Thai public affiliated universities.

<table>
<thead>
<tr>
<th>Thai MoE educational scenario</th>
<th>Context</th>
<th>Potential impacts on higher education institutions</th>
<th>Relevant literature</th>
</tr>
</thead>
</table>
| 1. Demographic change        | • Aging population  
• Declining birth rate  
• Immigration/ emigration  
• AEC 2015 | • Challenge to retain knowledge of retiring academic staff  
• Shortage of labor or lack of appropriate skills (brain drain)  
• Smaller number of students wishing to study in Thai higher education  
• Mobility of students and academic staff requires new skills  
• International mobility puts pressure on university competitiveness and domestic/global ranking | • The Bureau of Policy and Strategy, Ministry of Public Heath, 2010  
• Association of Southeast Asian Nations, 2008 |

| 2. Energy and the environment | • The Thai Government’s Energy Conservation Program (ENCON)  
• The Energy Conservation and Promotion Act, 1992  
• National Education Act, B.E. 2542 (Thailand, 1999)  
• Global climate change | • Restrictions on energy use and resource limitations  
• Global warming  
• Educational quality index affected by energy and resource usage | • Yamtraipat et al., 2004  
• Potar et al., 2000  
• Ministry of Education, 1999  
• Office of Higher Education Commission, 2008 |
<table>
<thead>
<tr>
<th>Thai MoE educational scenario</th>
<th>Context</th>
<th>Potential impacts on higher education institutions</th>
<th>Relevant literature</th>
</tr>
</thead>
</table>
| 3. Future employment         | • Economic structure of Thailand  
                              • Globalization  
                              • Technological development  
                              • Information/knowledge-based society | • Information technology becomes an instrument for public understanding and consumer protection  
                              • Dominant labor force works in international service and industrial sectors  
                              • Requirement of employers both in public and private sectors  
                              • University must change to meet technology transformation in productivity and innovation in manufacturing and services  
                              • Universities must adhere to information technology accountability  
                              • International education level  
                              • Increased mobility of labor –domestically, regionally and internationally  
                              • A large university division of size, budget, maturity, quality of staff, students and reputation | • Office of Higher Education Commission, 2008 |
| 4. Decentralization of the country and development of local administrative bodies | • Thai local government administrative bodies (Aor-Bor-Tor)  
                              • Ministry of Education’s One University - One Province (OUOP) project  
                              • Rajabhat University Act, 2004  
                              • Rajamangala University of Technology Act, 2004 | • Universities must seek cohesion and direction with local public agencies  
                              • Collaboration of local/regional higher education institutes  
                              • Inadequate planning  
                              • Lack of proper funding  
                              • University networking issues  
                              • Educational quality index  
                              • Increased number of higher education institutes | • Office of Higher Education Commission, 2008  
                              • Ministry of Education, 2011 |
<table>
<thead>
<tr>
<th>Thai MoE educational scenario</th>
<th>Context</th>
<th>Potential impacts on higher education institutions</th>
<th>Relevant literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Peaceful conflict resolution and violence</td>
<td>• Local/global conflicts&lt;br&gt;• Political instability/community relationships</td>
<td>• Complex socio-historical factors&lt;br&gt;• Violence in Southern Thailand&lt;br&gt;• To ensure good and meaningful employment&lt;br&gt;• Opportunities in ASEAN and the world’s Muslim community&lt;br&gt;• Lack of harmony in relationships with community</td>
<td>• Office of Higher Education Commission, 2008</td>
</tr>
<tr>
<td>6. Post-modern/post-industrial world</td>
<td>• Globalized economy&lt;br&gt;• Multicultural society&lt;br&gt;• Work-based education&lt;br&gt;• Community-based education&lt;br&gt;• Internship/apprentices&lt;br&gt;• Economic uncertainty/crises</td>
<td>• Socialization platforms need to be created within and outside of universities&lt;br&gt;• Information-based society, knowledge-driven society, life-long education and learning environment will affect university teaching and research&lt;br&gt;• Stakeholder expectations&lt;br&gt;• To change from public university to affiliated university&lt;br&gt;• Proactive learning infrastructure&lt;br&gt;• Information Technology accountability&lt;br&gt;• Public expects universities to contribute to national competitive advantage</td>
<td>• Office of Higher Education Commission, 2008</td>
</tr>
<tr>
<td>7. His Majesty the King’s initiative on ‘Sufficiency Economy’ (The philosophy means to lead a balanced life without excess.)</td>
<td>• Sufficiency Economy philosophy&lt;br&gt;• National Economic and Social Development Plan (2007-2010)&lt;br&gt;• The 10th National Economic and Social Development Plan</td>
<td>• Challenging budget allocation, which aims for balanced and sustainable development&lt;br&gt;• Educational quality index&lt;br&gt;• Good governance and management</td>
<td>• Ministry of Education, 2011&lt;br&gt;• Chitaporn, 2010</td>
</tr>
</tbody>
</table>
METHODOLOGY

CMU was established in 1964 as the first higher education institute in northern Thailand. In 2008, it became an affiliated public university, self-governed by a University Council. The vision of CMU is to be “a leading university with academic excellence in International Standards, focusing to become a research-oriented institution of higher education and producing graduates with high moral and ethical standards, equipped to practice good governance under the Sufficiency Economy Philosophy and Sustainable Development” (CMU, 2010). As an affiliated public university, CMU has recently become more independent, with requirements to remain competitive and reach international standards in education and research.

The College of Arts, Media and Technology (CAMT), established in 2003, is one of 21 faculties at CMU. It currently has over 1,000 students and 100 faculty and staff. CAMT is subject to the same challenges as other faculties and higher education establishments throughout Thailand. In this research, CAMT was utilized as a case study to investigate how Thai higher education institutes might respond to challenges presented by affiliated status and acts as a micro-cosm of the wider university environment.

To fully harness the potential of CAMT as a case study, the ‘as-is’ management situation and associated challenges were determined. Following this, current management solutions were investigated before considering a ‘to-be’ framework for CAMT, which was based on the potential impacts identified in Table 1. To promote the sustainability required by the affiliated status, future impacts and solutions were then considered through the lens of the GRC framework. The case study methodology is outlined in Figure 1 and detailed further in the corresponding sections.

This paper's main aim is to highlight the current (‘as-is’) management issues and challenges associated with changing to public affiliated status for one university faculty. The research then illustrates the desired ‘to-be’ management state, before finally outlining how a GRC framework might help to close the existing gap and move from the ‘as-is’ toward the ‘to-be’ situation.

Figure 1. Outline of the research methodology.
Stage 1: determination of the ‘as-is’ situation

Without determining the ‘as-is’ situation, the requirements for change cannot be ascertained. With this in mind, this stage of the research collected data to determine the ‘as-is’ management situation of CAMT, including current challenges and solutions. From September 2009 to January 2010, CAMT undertook a self-assessment process, which generated information relating to aspects of the organizational profile, leadership, strategic planning, customer focus, workforce focus and process management. The first step of CAMT’s self-assessment involved an identification of strengths, weaknesses, opportunities and threats via a SWOT analysis. Information obtained from this SWOT analysis constituted key data in this research.

Data collection also consisted of interviews and group discussions with staff from all three of CAMT’s organizational levels – operational, middle and executive (Figure 2).

In-depth interviews and group discussions took place with the Dean (executive level); Vice Dean, three Assistant Deans and the Head of School (middle level); and the head of administrative department, ten lecturers and fifteen general staff (operational level). The lecturers and general staff were specifically chosen based on recommendations from CAMT management on their knowledge of the organization. The focus of the interviews and group discussions varied according to the organizational level (Figure 2), with the aim of providing a comprehensive overview of CAMT’s current management status and challenges. The structure of questions was based on the 2009-10 Education Criteria from the Thai Performance Excellence Framework, which focuses on assessing performance, specifically within educational institutions and was generated by the Office of the Higher Education Commission (2009). The data collection process determined the current situation of administration and management at CAMT through self-assessment questions described in this framework.

In addition to primary data collection, literature reviews in quality management were conducted (especially pertaining to higher education) in order to fully inform and understand the ‘as-is’ situation.

Stage 2: determination of the ‘to-be’ situation

Determining the ‘to-be’ situation was based on literature showing potential future impacts on Thai higher
education (shown in Table 1), as well as further in-depth interviews with 31 staff at all levels in CAMT. The 'to-be' situation was conceptualized in the CAMT management tree (Figure 3), showing the future direction of CAMT according to the problems, solutions and scenarios identified from the literature and presented in Table 1.

Stage 3: using the lens of GRC to close the gap between the 'as-is' and 'to-be' management situations

One of the crucial aspects of the affiliated university status in Thailand is autonomy (Ministry of Education, 2008). Along with this autonomy, sustainability is a key issue for higher education institutes in Thailand. In response to this requirement of sustainability and in line with the importance of people process and technology in higher education, the final step of this research assessed how CAMT might achieve its desired 'to-be' scenario through the lens of a GRC framework. GRC was selected as it effectively links the concept of sustainability with people, process and technology, and has potential to help CAMT respond to both the challenges of the affiliated status and wider educational change (as identified in Table 1). GRC can be defined as:

...A capability and a culture that enables an organization to achieve principled performance by: prioritizing stakeholder expectations, setting and evaluating objectives, ensuring that objectives are achieved with responsibility and integrity, managing the desirable and undesirable effects of uncertainty on objectives, operating within voluntary and mandatory boundaries of conduct, communicating with internal and external stakeholders about system performance, and providing assurance that the system is effective, efficient and agile” (OCEG, 2009, p.4).

The GRC operating model helps leaders visualize success and understand how such an approach could be realized within their own organizations. To begin the implementation of GRC at CAMT, a ‘kick-off’ meeting was held to inform CAMT staff about GRC. At this meeting, a GRC expert was present to emphasize the importance of GRC in Thailand’s education system. Following the meeting, CAMT staff were given a copy of the draft GRC policy. The 'as-is' situation and 'to-be' situations at CAMT were then compared to envision how the gap might be closed.

As well as relevant literature, in-depth interviews were used to ascertain GRC trends and benefits from experts in Thailand. To further assess the gap between the 'as-is' and 'to-be' situation, and any future GRC implementation, a GRC expert provided consultancy to CAMT. Following this consultancy, researchers interviewed staff to assess their understanding of GRC.
RESULTS AND DISCUSSION

CAMT ‘as-is’ situation

Following the SWOT analysis, meetings, group discussions and interviews, a set of six key management challenges were identified, as well as CAMT’s current solutions. These are shown in Table 2.

The key challenge identified in the ‘as-is’ situation is how to align stakeholders’ expectations with effective processes by using technology to meet organizational objectives. The aspects where CAMT is currently performing competently are focusing on risk management and effectively using technology in the organization – for example, a program evaluating student risk to reduce drop out rates and promote high grades, and

<table>
<thead>
<tr>
<th>Current challenges</th>
<th>Current solution</th>
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</thead>
<tbody>
<tr>
<td>1. Skill of students</td>
<td>• Internationally accredited English program for all students</td>
</tr>
<tr>
<td></td>
<td>• Student contests to promote skill awareness</td>
</tr>
<tr>
<td></td>
<td>• Students organize/use cooperative education programs</td>
</tr>
<tr>
<td></td>
<td>• Visiting professors from e-Link community (a European project, aiming to develop and enhance existing co-operative teaching and research links and establish a sustainable virtual learning platform to promote collaboration)</td>
</tr>
<tr>
<td></td>
<td>• Visiting lecturers from industry</td>
</tr>
<tr>
<td></td>
<td>• Student risk program to identify and improve specific skills</td>
</tr>
<tr>
<td>2. Skill of staff</td>
<td>• Utilize Quality Assurance (QA) and Thailand Quality Award (TQA) to benchmark and maintain skill</td>
</tr>
<tr>
<td></td>
<td>• Use e-Learning systems to teach lecturers and maintain their skill</td>
</tr>
<tr>
<td></td>
<td>• A focus on research with academic classes and PhD research opportunities for lecturers</td>
</tr>
<tr>
<td></td>
<td>• e-Link program with European Community for staff development</td>
</tr>
<tr>
<td></td>
<td>• Lecturer/staff scholarship opportunities with European Community Erasmus partners</td>
</tr>
<tr>
<td>3. Community links</td>
<td>• Use of a Knowledge Management System (KMS) to capture and share knowledge throughout the organization</td>
</tr>
<tr>
<td></td>
<td>• Align business intelligence with management decision making</td>
</tr>
<tr>
<td></td>
<td>• Utilize a Management Information System (MIS) to share information and documents with people in CAMT and the wider CMU community</td>
</tr>
<tr>
<td></td>
<td>• Participate in University Social Responsibility (USR) and represent CAMT through the assistance of local communities</td>
</tr>
<tr>
<td>4. Financial operation</td>
<td>• Increase revenue through increased number of students, revenue from research and academic services provided for both public and private sectors</td>
</tr>
<tr>
<td></td>
<td>• Use QA processes to control expenditure</td>
</tr>
<tr>
<td></td>
<td>• Tight management of cash flow</td>
</tr>
<tr>
<td></td>
<td>• Asset management</td>
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<tr>
<td>5. Management structure</td>
<td>• Creation of a Research Center</td>
</tr>
<tr>
<td></td>
<td>• Creation of an Innovation and Knowledge Management Center</td>
</tr>
<tr>
<td>6. Sustainability</td>
<td>• Design of GRC program to sustainable meet needs of CAMT and the University</td>
</tr>
</tbody>
</table>
a business intelligence program to help decision making in CAMT. The vital steps for future sustainability are good governance, which is related to the alignment of management and policy and is ultimately related to the compliance of all sections in the organization. This need for compliance once again highlights the potential usefulness of a GRC program to universities and faculties faced with challenges of the affiliated status. Staff and student skill at CAMT are increased through placement opportunities with international universities and companies, while community links

![Diagram](image)

**Figure 3.** CAMT ‘to-be’ management tree and relationship to the Thai MoE’s seven future educational scenarios. The ‘to-be’ situation is based on the future educational scenarios and challenges identified in Table 1.
are cultivated through support for local communities. All projects focus on revenue to promote self-funding and self-sufficiency. Despite CAMT’s current solutions, there is still a need to improve and respond more appropriately to the challenges, hence the ‘to-be’ situation.

CAMT ‘to-be’ situation

Figure 3 shows CAMT’s key challenges, which constitute the ‘to-be’ situation and are related to the seven future educational scenarios identified in Table 1.

The ‘to-be’ situation is symbolized as a tree, representing the growth required to meet the challenges of the future educational scenarios and affiliated status. Each branch of the tree is weighed down and dependent on the current management challenges. At CAMT, there is an identity and awareness amongst staff and management of what constitute the ‘as-is’ and ‘to-be’ situations, but a lack of coherence and understanding about how the ‘to-be’ scenario might be achieved. Figure 3 illustrates that the ‘to-be’ situation is characterized by understanding future change and current management challenges, but at CAMT current challenges and potential future change have yet to be integrated. The current challenges are therefore shown as weighing down or impeding the change required to reach the ‘to-be’ situation. These current challenges are not unique to the case study at CAMT, as literature shows higher education across Thailand is constrained by similar issues when striving to meet higher education changes (e.g., Biyaem, 1997; Chulalongkorn University, 2000). In this regard, the lens of GRC offers potential for Thai universities to meet their management challenges and move closer towards the ‘to-be’ scenario.

Developing a GRC framework at CAMT

The requirements captured from the literature describe Governance, Risk Management and Compliance as both separate and integrated terms. When designing a potential model at CAMT, GRC knowledge was collected and analyzed, along with in-depth interviews with a GRC expert. Results showed that GRC could be defined in a number of ways depending upon the objective of the individual or organization responsible for the interpretation of a GRC remit. While many business management tools are well defined in terms of their scope and application, GRC has been described as, “… a large black box: a mysterious container full of improved processes and software for automation...” (Broady and Roland, 2008, p.22). The problems in defining a suitable and consistent GRC framework have led to a variety of models being developed by management consultancies (e.g., PricewaterhouseCoopers, 2004; Deloitte Touche Tohmatsu, 2011; SAP, 2011). The emphasis placed on GRC by these models and the wide-ranging literature illustrates that despite the difficulty in defining and structuring GRC, an implicit business need to apply GRC princi-
Ples often remain.

With a focus on Thailand, Su-vanasarn (2010) described GRC as a new standard, which provides a single consolidated framework to provide benefits and meet the expectations of stakeholder governance, with an emphasis on ethics. Thailand’s state enterprises maintain a focus on GRC in business, and in 2011, GRC was a key performance indicator to measure risk management at the top levels of enterprise (The Committee of State Enterprise Performance Evaluation, 2010). In contrast, within the education sector, no higher education institutions currently apply GRC in their management (Suvanasarn, 2010). This is particularly surprising given that affiliated public universities manage themselves under supervision of the state, where quality and transparency in management should be used to drive sustainable organizations.

This research used GRC definitions and a literature review to investigate and initialize a suitable GRC project at CAMT. A GRC expert noted that this is the first such project within the education sector of Thailand and signaled that GRC has significant potential to add value to the management of public universities, especially affiliated universities, which have new and complex management requirements. Public affiliated universities should initialize GRC models of management parallel to global changes and in alignment

Table 3. Analyzing the gap between CAMT’s current situation and GRC context/requirements.

<table>
<thead>
<tr>
<th>GRC context</th>
<th>Gap analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>People</td>
<td>CAMT staff do not currently align people with processes and technology. Problem = piecemeal approach.</td>
</tr>
<tr>
<td>Process</td>
<td>CAMT uses processes such as Enterprise Risk Management (ERM) in an attempt to enhance its internal control system. However, ERM does not fully meet the process needs of CAMT. For example, it fails to consider risk from Information Technology (IT), audit and corporate governance. Problem = lack of full integration.</td>
</tr>
<tr>
<td>Technology</td>
<td>CAMT focuses on QA which, in turn, focuses on lagging indicators (measuring processes in the past), whereas GRC focuses on leading indicators and studies current management in an integrated, not piecemeal way. Problem = focus on the past.</td>
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<tr>
<td></td>
<td>CAMT uses many technologies to manage the organization. For example, Internet Data Center, e-Learning, Intranet Management Information System (MIS), Knowledge Management System, Business Intelligence, Software Rational Suite, Library management through RFID and the CAMT Student Risk Management Program. However, all technologies are separate and in silos. CAMT is also concerned about risk in IT and follows Thailand’s Computer Related Crimes Act (2007) and ISO 27000 for information related to security matters, which is one part of GRC, but a lack of technology integration is the biggest issue. Problem = lack of integration and piecemeal approach.</td>
</tr>
</tbody>
</table>
with the Thai MoE’s seven future scenarios (Table 1). It is important to note that while a GRC model was investigated and carefully considered in this research, it has not yet been fully developed and applied at CAMT. This research, therefore, considers how the lens of GRC might be used to respond to higher education challenges. Future work will further develop, apply and test a GRC model.

Results presented in Table 3 illustrate the gap and highlight the problem between the people, process and technology requirements of GRC and CAMT’s current management.

After CAMT reviewed, discussed and analyzed GRC data, the ‘CAMT GRC Tree’ was developed to assist CAMT in the design and implementation of a GRC program. Figure 4 shows the proposed ‘CAMT GRC Tree,’ which is similar to the CAMT ‘to-be’ tree (Figure 3) and shows the general aims of GRC, along with how CAMT might address these aspects. An effective GRC model could help CAMT meet its management challenges.

Figure 4. CAMT GRC Tree.
processes are sorting, straightening, systematic cleaning, standardizing and sustaining academic utilization to help staff understand how to work in CAMT. In addition, CAMT must satisfy office utilization, office inventory, building and place, and utility costs. CAMT also uses Information Technology (IT) to manage its organization – for example, MIS, Knowledge Management Systems (KMS) and e-office.

- Customer: CAMT uses Customer Relationship Management (CRM) to support and encourage customers. This encourages CAMT to support its customers via public relations, marketing and information. Additionally, up and cross selling and retention, as well as a loyalty program and animation services delivered for the Government Office of Chiang Mai are the main external services.

An effective GRC model must consider the variations and nuances of an organization, if it is to drive sustainability and growth. This presents a dilemma within universities, given their complex management structures, with faculties, schools and departments each presenting different management needs. The GRC approach in this paper is not designed to present a homogenous, one-size-fits-all model for affiliated universities in Thailand. Rather, it attempts to highlight the forthcoming challenges to higher education in Thailand, showing how a systematic investigation of challenges might be undertaken. GRC is an important approach to drive
sustainability given that the affiliated status provides autonomy and exposes these universities more fully to the risks associated with local, regional and global change.

CONCLUSION

Higher education is changing locally, regionally and globally. Universities must respond, if they are to remain competitive and meet the needs of the society they serve. This paper has initially highlighted the changes that are likely to affect higher education in Thailand and has considered the potential impacts on higher education organizations, particularly the newly formed affiliated universities, which are likely to be more exposed to these impacts. By leveraging a case study, this research has shown the ‘as-is’ situation of one university faculty to underline the current challenges faced by higher education in Thailand, as well as how they might respond and create sustainability via a GRC framework. While the challenges identified in this case study are specific to CAMT at Chiang Mai University, the challenges are likely similar to those faced by other faculties and universities across Thailand. In this light, it is hoped that the processes presented in this paper and the importance of effective GRC can be considered by other higher education organizations in Thailand, so they can respond to future challenges with a view toward achieving sustainability. With the recent globalization of education, and specific impacts on public universities in Thailand, this paper has presented research, which in its most general sense should generate discussion about how Thailand’s higher education system can respond to change and become sustainable.

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Increasing Opportunities in Physical Education for Students with Disabilities

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ABSTRACT

Thailand’s National Education Act (Ratchakitchenubeksa, 1999; 2002; 2010) states that all students at all levels of compulsory education – K to 12, including those with disabilities, must have equal opportunity to fulfill all basic education core curriculum requirements. Students with disabilities must receive special education services with careful consideration to their limitations and special needs. Therefore, basic education teachers at all grade levels are responsible for appropriately adjusting their teaching content, activities and physical environment to serve each student’s academic and life skill needs. By doing so, they endeavor to attain the ultimate goal of education, which is to provide all students with an equal opportunity to learn. Physical Education is one of the areas that should receive special attention and specific curriculum design, and should be made available to every student with any disability.
Physical Education enables the students to develop physical fitness and fundamental motor skills and patterns as well as acquire the skills essential to participating in aquatics, dance, individual and group games, and sports in general (including intramural and lifetime sports). To meet the aforementioned educational goals for students with disabilities, proper preparation for all Physical Education teachers is necessary.

This study examined the National Curriculum for Physical Education, a requirement for all students in Thailand, and three Physical Education curricula for teacher training of the Faculty of Education, Chiang Mai University; the Faculty of Education, Chiang Mai Rajabhat University; and the Institute of Physical Education, Chiang Mai Campus, in order to analyze: (1) the content and objectives of the National Curriculum for Physical Education as it relates to students with or without disabilities; (2) the content and objectives of major courses in each curriculum that are targeted to students, both with and without disabilities; (3) views and experiences of specialists in a focus group providing services to students with disabilities in PE classes and (4) the relevant laws in Thailand and the United States that mandate Physical Education at all levels of compulsory education – K to 12. Based on this background, the study then proposes ways to manage constraints and increase opportunities in physical education for students with disabilities, based on research findings and a focus group of educators, school administrators, special education teachers and paraprofessionals.

Keywords: Education, Physical education, Curriculum, Special education, Student disabilities
INTRODUCTION

Physical Education (PE) is a subject that is advocated as a source of many positive developmental characteristics for youth, through adolescence. However, there is a worldwide recognition that PE in schools has declined and students with disabilities receive little or no Physical Education. The Berlin Education World Summit in November 1999 confirmed a decline in and/or marginalization of physical education in many countries – with perceived deficiencies in curriculum time allocation; subject status; material, human and financial resources; gender and disability issues and the quality of program delivery (Hardman and Marshall, 2000). The report went on to state that persistent and pervasive barriers to inclusion and/or integration of students with disabilities existed. Such barriers included lack of appropriate infrastructure, facilities and equipment, as well as qualified or competent teaching personnel (Hardman and Marshall, 2000).

Studies in the United States (USDHHS, 2010) found youth with disabilities participated profoundly less in physical activities at school than their able-bodied counterparts. According to Rimmer (2008), the participation of youth with disabilities in any physical activity was 4.5 times less than their peers without disabilities. For many students with severe and profound disabilities, PE teachers – who possessed little or no training in how to best include them – regarded participation in any physical activity as unnecessary (Rimmer, 2008). This lack of training and inappropriate attitudes raises the concern of how competent the PE teachers are in developing appropriate PE programs for their disabled students (Rimmer, 2008). Fleming (2010) goes further to question the wisdom of using results from research conducted on children without disabilities to develop guidelines for physical activity programs for children with disabilities.

In Ireland, the Children’s Sport Participation and Physical Activities Study (SCPPA) by Woods, Moyna, Quinlan, Tannehill and Walsh (2010) found that 80 out of 1275 primary school students and 269 out of 4122 secondary school students could not participate in any PE activities together with their able-bodied peers because of their varying degrees of physical or learning disabilities.

In the United Kingdom, Coasts and Vickerman (2008) found that students with disabilities did actually enjoy participating in PE activities, if they were fully included with their able-bodied counterparts. However, that was not the case in the majority of schools with disabled students in their population. Their study also pointed out that the lack of PE participation by students with disabilities was due to widespread PE teacher discrimination, limited or poorly trained PE teachers and limited resources available to develop and implement appropriate PE activities for students with disabilities.

In Japan, while students with disabilities did participate in wide
ranging PE activities, they did so in their own class, separate from their able-bodied counterparts, and as such, there was no opportunity for interaction between the two groups. Moreover, the support and accommodations that would make it possible to integrate disabled and non-disabled students were not provided (Sato, Hodges, Murata and Maeda, 2007). A study by Hodge, Ammah, Casebolt, LaMaster, Hersman, Samalot-Rivera and Sato (2009) examined PE teachers’ beliefs about inclusion and teaching students with disabilities. The 29 study participants were PE teachers from Ghana, Japan, the United States and Puerto Rico. Their findings indicated that nearly 40% of the teachers disagreed with full inclusion in PE classes, while 24% were unsure, and 34% agreed that all students with disabilities should be included in PE classes with their able-bodied counterparts. The study also stated that PE teachers tended to vary in their level of acceptance in teaching students with hearing impairments, visual impairments, learning disabilities and physical disabilities. The participants believed that the difficulties they faced in teaching students with disabilities were mostly related to the nature and severity of students’ disabilities, their level of professional preparedness and contextual variable, e.g., large classes. The authors undertook the current study to examine: 1) the content and objectives of the National Curriculum for Physical Education and the existing teacher-training curriculum in Thailand as regards to students with disabilities. Then it analyzed three curriculums – the Faculty of Education, Chiang Mai University; the Faculty of Education, Chiang Mai Rajabhat University and the Institute of Physical Education, Chiang Mai Campus – to determine the teacher-training core courses relevant to students with dis-
abilities. Telephone invitations were extended to specialists in Physical Education (n=10); Special Education (n=3); Physical Therapy (n=2) and Occupational Therapy (n=2) asking them to participate in a focus group. Seventeen voluntarily attended and formed a natural sample of specialists from different disciplines dealing with students with disabilities in schools. During the proceedings, their views and experiences delivering services to students with disabilities in PE classes were explored. The focus group proceedings lasted for about four hours to allow for in-depth discussion of important issues. The proceedings were audio-recorded, transcribed by trained staff and then summarized and analyzed in detail. Finally, relevant laws in Thailand and the United States that mandate Physical Education for all students, with or without disabilities, at all levels of compulsory education (K to 12), were reviewed and contrasted.

RESULTS AND DISCUSSION

Basic Education Core Curriculum and Standards for Physical Education

The Basic Education Core Curriculum (Ministry of Education, 2008) aims to fully develop students in all aspects, i.e., morality, wisdom, happiness and potentiality for further education and enjoyable livelihood. The students’ five key competencies include communication, thinking, problem solving, life skills application and technological application. The eight subject areas are: Thai; Mathematics; Science; Social Studies, Religion, and Culture; Health and Physical Education; Arts; Occupations and Technology; and Foreign Languages. For each subject area, the standards serve to guide the process of developing students as good citizens. It also prescribes what the students should know and how they should be able to perform what they have learned. This paper focuses on the standards for PE.

The authors reviewed the content and objectives of the Basic Education Core Curriculum and its Standards for Physical Education as it relates to students with special needs. Under the topic of Educational Provision for Special Target Groups, it stated:

...Regarding educational provision for special target groups, e.g., specialized education, education for the gifted and talented, alternative education for the disadvantaged and informal education, the Basic Education Core Curriculum can be adjusted to suit the situations and contexts of each target group, on condition that the quality attained shall be as prescribed in the standards. Such adjustment shall meet the criteria and follow the methods specified by the Ministry of Education. (p. 26)

This is difficult to understand, because the language is too broad and it lacks specific steps for PE teachers to follow when developing activities for students with disabilities. It is our
consensus view, based on the information from the focus group, that the standards must specifically describe:

- What all schools, public or private, must do if they have enrolled students, both with and without disabilities. For example, providing PE services to every child in the same grade level and, if necessary, designing a special program for the students with disabilities.
- What all schools, public or private, must do if their enrolled students with disabilities cannot participate in regular physical activities with other students without disabilities. For example, arranging with other schools that have appropriate facilities to provide such services to them.
- What responsibilities all schools, public or private, and their respective PE teachers have with regard to their enrolled students with disabilities. For example, making sure that the assigned teacher to deal with any disabled students is competent in modifying the PE activities, selecting the appropriate equipment needed and/or providing a suitable environment to enable the disable students to participate fully in all appropriate activities conducted in the school or in other arranged facilities outside the school.
- What action must be taken by the agency responsible for the education of the students with disabilities. For example, ensuring that any student sent to receive physical services at another facility outside his or her enrolled school, is actually provided with the appropriate PE services.

The Basic Education Core Curriculum and the Standards for Physical Education also described the role of teachers, including PE teachers:

...Teachers should study and analyze students individually, and then use the data obtained to plan the learning management in order to stimulate and challenge the learners’ capacities and teachers should design and organize learning processes to serve individual differences and intellectual development, so as to enable the learners attain the goals of learning. (p. 28)

Here, a PE teacher’s role in dealing with disabled students is not specifically mentioned. Seven provisions were described in the Basic Education Core Curriculum and its Standards for Physical Education. However, only two of those, if implemented, would positively affect students with disabilities. But even this is only possible if the PE teachers understand individual student differences and the limitations of his or her disabilities, if the teachers have received relevant training in teaching PE to students with disabilities and if they are skilled in modifying existing activities, the curriculum and the learning environment to meet student needs.

**Physical Education Teacher Training Curricula**

The Faculty of Education, Chiang Mai University (ECMU), the Faculty of Education, Chiang Mai Rajabhat
University (ECMRU) and the Institute of PE, Chiang Mai Campus (IPECM) are well-known higher education institutions in Northern Thailand. The first two universities are under the Ministry of Education and the Institute is under the Ministry of Tourism and Sports. IPECM focuses specifically on training PE and health education teachers, while the other two universities mainly prepare undergraduate students to become teachers across a multitude of disciplines. The three different curricula provided by the three institutions are academically intensive, five-year, teacher preparation programs following the guidelines of the Teachers’ Council of Thailand and the Office of the Higher Education Committee. PE is one of the curricula offered by the three institutions. The three current PE curricula are similar in structure and content. All require students to undertake a one-year student teaching experience in a school setting. In terms of structure, all three PE curricula consist of three parts: general education courses; field of specialization courses, which are a combination of core courses or teaching professional courses and minor courses; and a broad selection of free electives. To graduate, students are required to complete 175 credit hours at ECMU, 166 at ECMRU and 160 at IPECM.

The IPECM and the ECMRU PE curricula were revised in 2010 and 2012, respectively, while the ECMU curriculum is currently revising its 2005 version. After carefully reviewing the objectives of major courses offered in each curriculum targeting students both with and without disabilities, only a single course was specific to students with disabilities, as shown in Table 1.

PE teachers who teach students with disabilities in schools raised some concerns during focus group proceedings. They were all in agreement that two to four credit hours did not provide sufficient training to teach, adjust curriculum, develop appropriate activities, select and/or modify equipment and create a conducive learning environment for students.

Table 1. Physical education courses relevant to students with disabilities.

<table>
<thead>
<tr>
<th>PE Curriculum</th>
<th>Courses</th>
<th>Credit</th>
<th>Teaching Profession</th>
<th>Major</th>
</tr>
</thead>
</table>
| ECMU*         | 1. Special Education (EDPF 100303)  
2. Adapted Physical Education (EDPE 057413) | 2  
2 | ✓ | ✓ |
| ECMRU         | 1. Psychology for Children with Special Needs (SPE 1102)  
2. Physical Education for Individuals with Disabilities (PE 3104) | 2  
2 | ✓ | ✓ |
| IPECM         | Special Physical Education (ED 082005) | 2 | ✓ |

*Note: ECMU PE curriculum revision in 2013 will replace Special Education (2 credits) with Contemporary Special Education (3 credits).
with disabilities in their PE class. In addition, the courses provided no hands-on experience, only lectures. While the respondents indicated 2-4 credit hours were inadequate, they also thought adding more classes would be impractical as the curriculum was already overloaded.

The authors, therefore, reviewed further documents that might be helpful in preparing special education teachers. One of the documents was the Criteria and Method of Adapting the Core National Curriculum for Specific Groups Booklet (2012) published by the Academic and Educational Standards Sector, Office of the Basic Education Commission, Ministry of Education. One of its main objectives was to set criteria and methods or practical ways for teachers to adapt the core national curriculum for specific groups of students, including students with disabilities. It states: “…Adaption of contents, teaching methods and activities, and evaluation of individuals with special needs was up to each teacher’s judgment and collaboration with parents, families and communities.” (p. 21) As with the National Curriculum for Physical Education before, these criteria are too broad and provide no guidance for PE teachers to develop content, methods of teaching, activities or evaluation tools appropriate for students with disabilities. This is especially the case given PE teachers are provided little if any formal training in special education.

**Laws and their effects**

The right of children with disabilities to develop to their full potential was first recognized in the United States when they enacted the Education for All Handicapped Children Act in 1975. It was reauthorized and renamed in 1990 as the Individuals with Disabilities Education Act, or IDEA (US Department of Education, 1990; 2004). IDEA is a federal law that governs how states and public agencies provide early intervention, special education and related services to children with disabilities. It addresses the educational needs of children with disabilities from birth to ages 18 or 21.

Globally, the mandate of the United Nations (UN) Convention on the Rights of the Child (1989) and the World Conference on Special Education held in Salamanca, Spain in 1994 called for inclusion to be the norm in education (UNESCO, 1994). This UN mandate has brought inclusion into a wide moral framework by urging inclusive orientation in all school settings because it is, by far, the most effective way of combating discriminatory attitudes and/or tendencies, creating welcoming communities, building an inclusive society and achieving education for all. It also argued that inclusive schools provide effective education to the majority of students and improve educational efficiency, and ultimately are the most cost-effective for the entire educational system.

The IDEA (1990; 2004) and UN (1989) mandates have had a
tremendous impact on special education in Thailand as the Ministry of Education, in 2008, instructed all regular schools to enroll students with disabilities. After educational reforms, including the National Education Act of 1999 and the Education Provision for Individuals with Disabilities Act of 2008, many more students with disabilities have been accessing educational services. These reforms mandated students at all levels of disabilities have the right to equal access to free and quality public education. In 2009, 325,692 students with disabilities were enrolled in 7,764 inclusive schools, 76 Special Education Centers and 43 special schools for students with intellectual disabilities; hearing impairments; visual impairments; and physical, movement, and health impairments throughout Thailand (Office of Basic Education Commission, Ministry of Education, 2012; Bureau of Special Education, Ministry of Education, 2012).

Disabilities are grouped into seven categories: visual, hearing, physical movement, and health impairments; intellectual disabilities; autism; learning disabilities; language and communication disorders; behavior and emotional disorders; and multiple disabilities. In 2009, the most common disability categories of the students attending inclusive schools were learning disabilities, physical movement and health impairments, and intellectual disabilities (Office of Basic Education Commission, Ministry of Education, 2012).

The National Education Act (Ratchakitchanubeksa, 1999) also delineated the duties and responsibilities of all parents for their children’s overall well-being and education. Also, for the first time, the law mandated the implementation of the Individualized Education Program (IEP) in schools for all students with disabilities. Following both the National Education Act (Ratchakitchanubeksa, 1999) and the Authorization of the Education Provision for Individuals with Disabilities Act (Ratchakitchanubeksa, 2008), many schools started mainstreaming students with disabilities, both to meet the mandate of the law and be eligible for additional government funding. However, increasing enrollment of students with special needs in regular schools was no guarantee of delivery of appropriate services. In fact, appropriate services were not made available to these students because there were very few special education teachers and para-professionals available in the schools. For the first time, the law mandated that some specialty courses be developed to train teachers, including PE teachers with specific skills appropriate for dealing with students across a range of disabilities.

The two aforementioned Thai laws neither address the concerns over the lack of training for PE teachers nor provide any practical approach in connection with PE and special education. In Thailand, if a child has a disability and is enrolled in an IEP, the school must provide PE as part of that child’s special education.
program. Therefore, the PE teacher should be included as a member of the IEP team, but they lack the training to be effective in providing services to students with disabilities.

The IDEA (US Department of Education, 1990) defined Physical Education as the development of physical and motor skills; fundamental motor skills and pattern skills in aquatics and dance; and individual and group games and sports (including intramural and lifetime sports). The term 'special education' means a specially designed instruction to meet the unique needs of a child with a disability, including: (a) instruction conducted in the classroom, home, hospitals, institutions and other settings and (b) instruction in PE. The individual states must ensure that they comply with the following:

(a) PE services, specially designed if necessary, must be made available to every child with a disability receiving Free Appropriate Public Education, or FAPE, unless the public agency enrolls children without disabilities and does not provide PE to children without disabilities in the same grade level.

(b) For regular PE, each child with a disability must be afforded the opportunity to participate in the regular PE program available to non-disabled children unless the child is enrolled full time in a separate facility; or the child needs specially designed PE, as prescribed in the child’s IEP.

(c) For special PE, if specially designed PE is prescribed in a child’s IEP, the public agency responsible for the education of that child must provide the services directly or make arrangements for those services to be provided through other public or private programs.

(d) For education in separate facilities, the public agency responsible for the education of a child with a disability who is enrolled in a separate facility must ensure that the child receives appropriate PE services in compliance with this section.

These can be interpreted that PE must be made available equally to children with disabilities and children without disabilities. If PE is specially designed to meet the unique needs of a child with a disability and is set out in that child’s IEP, those services must be provided, whether or not they are provided to other children in the agency. The role of the PE instructor is to adapt or modify the curriculum, task, equipment and/or environment so the child with disability can participate in PE.

The American approach to physical education and students with disabilities can serve as a benchmark for other countries to follow. It ensures that both students with or without disabilities receive equal experiences and services regarding PE. Schools are mandated to have competent PE teachers to teach the general student population as well as those who have disabilities. The PE teacher’s competencies include the ability to adapt or modify the curriculum, learning activities, teaching strategies, equipment used and the learning environment itself to enable every student with disability to fully
participate in physical education.


The mission of APENS is to promote all of their 15 standards and administer the national certification examinations for PE teachers. APENS’s goal is to ensure that all students with disabilities receive PE services from competent teachers skilled in curriculum development and capable of modifying existing curriculum, equipment used for various activities and the learning environment to effectively accommodate students with disabilities.

Ways to manage constraints and increase opportunities

Currently, numerous research studies exist on inclusive PE, adapted physical activity (Crawford, 2011) and PE teachers’ views on inclusion (Harold and Dandolo, 2009; Morley, Bailey, Tan and Cooke, 2005; Vickerman, 2007). Their findings pinpointed that teachers were faced with the challenge of developing and implementing practices to increase the participation of children and youth with disabilities in Physical Education.

Examination of the objectives of the Basic Education Core Curriculum and the Standards for Physical Education relevant to students with disabilities revealed that the objectives were broadly stated and lacked specific steps for PE teachers to follow when developing learning activities for students with disabilities. The curricula of the Faculty of Education, Chiang Mai University; the Faculty of Education, Chiang Mai Rajabhat University; and the Institute of Physical Education, Chiang Mai Campus offered only one PE class relevant to teaching students with disabilities, out of the combined five classes.

From the focus group discussions, all participants indicated that the PE class offered in the three teacher training institutions in the study was not sufficient to prepare them to teach students with disabilities. In addition, all PE teachers indicated that teaching students with disabilities was not easy since they had not been provided any special education training and/or experience. Most of them had to learn through experience, using an activity-based curriculum. In terms of teacher training programs, they all stated that proper training in both content and skills development on how to handle students with various disabilities was paramount.

All PE teachers exhibited positive attitudes and tolerance toward students with disabilities. They were aware that many students with disabilities had not yet developed the skills necessary to participate in some physical activities, and that it would take longer for some students than
others to learn the skills and concepts required. This was reflected by one of the focus group participants, a PE student who was still undergoing training to become a teacher, recounting his experience dealing with a learning disabled student in a class he taught. He said that one of his students became very aggressive by hitting and scolding his classmates when he (the disable student) failed to carry a basketball. Luckily, the aggressive student voluntarily separated himself from the classmates while the student teacher stood there hopelessly speechless and motionless because he did not know what to do in such situation.

All special education trainers, PE trainers, and physical and occupational therapists unanimously agreed that the PE teacher-training curriculum should encompass more than lists of content standards, objectives, strategies or assessment methods. It should include implementation strategies of day-to-day activities, which require flexibility in dealing with the content and context. Therefore, all three teacher-training curricula in this study must be modified to address these deficits.

All participants reached a consensus agreement that PE must be a requirement for all students, with or without disabilities, in every school as mandated by the law. They also agreed that the possession of proper knowledge of special education, positive attitudes and effective skills by PE teachers were the primary elements that would foster increased opportunities in PE for students with disabilities.

CONCLUSION

Many students with disabilities cutting across different categories have a wide range of physical problems and difficulties that may affect their motor skills development. Therefore, Physical Education classes that integrate all the necessary components of special education, as supported by laws and regulations, will best develop disabled students’ motor skills. Unfortunately, examination of the teacher training curricula in this study, as well as expressed views from our focus group experts in Physical Education, Special Education, Physical Therapy and Occupational Therapy revealed that very little time was devoted to training PE teachers to teach students with disabilities. As a consequence, PE teachers were not competent in selecting and applying effective teaching methods, modifying curriculum, developing appropriate activities, selecting appropriate PE equipment, adapting the learning environment to suit disabled students and developing suitable assessment tools to help determine the success or failure of various physical activities in meeting the needs of students with and without disabilities in their classes.

Nonetheless, the participants were optimistic that personnel development in Adapted Physical Education could provide them with the essential skills necessary to properly facilitate meaningful success and positive ed-
ucational outcomes for students with disabilities. They were also convinced that by participating in personnel development, PE teachers could benefit from sharing resources or guidelines on how to keep students with emotional or physical disabilities actively engaged during class.

ACKNOWLEDGEMENTS

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none
Promoting Resilience in Schoolchildren in Urban Slums

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ABSTRACT

This research used a mixed methods approach to examine the process of resilience promotion for schoolchildren in urban slums. The specific objectives were to examine: (a) resilience traits; (b) protective factors of family, school, peers and community; (c) adaptive outcomes; (d) factors predicting resilience and adaptive outcomes and (e) processes of resilience promotion. The respondents in the quantitative study were selected from secondary students living in urban slums in Bangkok. Data were collected from 306 respondents using a questionnaire and analyzed using descriptive and inferential statistics. The qualitative study was conducted on a purposively selected sample of cluster groups using in-depth interviews and content analysis.

From the quantitative results, the mean resilience scores were high for the resilience traits of sense of purpose and ethics, protective factors of family and school, and adaptive outcomes in learning achievement. They were low for the sense of self, problem-solving and social behaviors. Protective factors could predict resilience traits by 37.2%; some of the resilience traits could also predict adaptive outcomes. The qualitative results revealed three resilience promotion processes: (a) promotion and competency development was important to establish and maintain self-esteem and self-efficacy and promote positive behaviors; (b) risks were reduced by prevention or suppression, so children could deal with problems and (c) the process of problem-solving and healing management occurred in children exposed to risk factors, including problem-solving management and reducing negative impacts from exposure to risks.

This research indicates that child competency development, risk prevention, problem-solving and healing management are important for promoting children’s resilience traits by the family, school, peers and community.

Keywords: Resilience traits, Risk factors, Adaptive outcomes, Schoolchildren
INTRODUCTION

Resilience is a positive trait that utilizes the capacity to efficiently cope with any problem by successfully dealing with the problem encountered, in terms of behaviors and emotion, with a structural characteristic associated with specific potential under a high level of stress. Resilience is a broad concept that generally refers to positive adaptation in any kind of dynamic system that comes under challenge or threat. Promoting resilience can help embed the trait/strength in individuals. Resilience is not a static trait or characteristic; rather, it arises from many processes and interactions that extend beyond the boundaries of the individual, including close relationships and social support (Masten, 2009). It is a process and a characteristic that needs to be cultivated in the environment.

The three protective factors (external assets) are clusters of caring relationships, high expectations and meaningful participation, each of which includes a set of home, school and community-based protective factors. An additional protective factor involving peers is included in the caring relationships and high expectations clusters.

Thus, we can promote resilience in children through a long development process (Winfield, 1994), involving the cooperation with the family, school and other stakeholders in the community (Grizzell, 2006). Two methods that promote resilience are increasing individual capacity or ability and increasing external protective factors. The factors that help children succeed is a complex challenge, requiring researchers to consider a wide range of personal, family, social and environmental factors that could contribute to developing resilience and successful adaptation or adaptive outcomes, despite challenging and threatening circumstances. Children in urban slums face multiple risk factors. A good understanding of how best to develop and promote resilience is critical for this vulnerable group.

This study analyzes: (a) resilience traits in schoolchildren in urban slums; (b) family, school, peer and community protective factors and the factors that predict resilience; (c) the adaptive outcomes related to learning achievement and social behavior and (d) the process of promoting resilience in schoolchildren in urban slums.

METHODOLOGY

This study used a mixed methods approach, collecting and analyzing both quantitative and qualitative data. In the first phase, quantitative data related to resilience traits, protective factors and adaptive outcomes were collected using a questionnaire. The study population included 923 students in three secondary schools in the slums in Bangkok. A sample size of 306 was calculated using the Taro Yamane method. The respondents were selected using a stratified random sampling technique by the proportion of schoolchildren from each grade and a simple random sampling method from each of all schoolchildren.
Resilience was indirectly measured by four traits: ethics, sense of self, sense of purpose and problem solving. Four protective factors were considered: family, peer, school and community. The questionnaire of resilience and protective factors contained 32 close-ended questions with a 5-point rating scale. The questionnaire of adaptive outcomes contained open-ended and close-ended questions about a student’s learning achievements and social behaviors. The questionnaire was validated by seven specialists and yielded a reliability coefficient of 0.905. The quantitative analysis involved descriptive statistics (percentages, means and standard deviations) derived by computer program. The average scores of the protective factors, resilience, learning achievements and social behaviors were ranked as either high or low. The resilience traits were grouped by resilience level (high and low), using cross-tabulation. The factors predictive of schoolchildren’s resilience and adaptive outcomes were determined by multiple regression.

The qualitative data were collected from cluster groups and involved individuals, including caregivers, teachers and peers selected using purposive sampling. The questions were semi-structured for in-depth interviews by the researchers to explore resilience promotion by family, school, peers and community. The program Atlas.ti version 6.2 was employed to analyze the qualitative data, including coding, content analysis, thematic analysis and analytic induction.

The research proposal and material were approved by the Mahidol University’s Ethics Committee on Human Research (Social Sciences Branch) with project code MU-SSIRB 2011/073.2903.

RESULTS

Less than half (46.3%) of the respondents had the overall traits of resilience at a high level. The analysis by each of the individual traits revealed that the proportion of students with a very high level of sense of purpose was 58.2%, followed by ethical feelings (56.1%), sense of self (46.0%) and problem-solving (26.3%). By gender, females showed a significantly higher level of resilience than males (p-value = 0.001).

The protective factors that promote resilience include the protection power of the family, school, peer and community. Less than half (47.9%) of the children had a high level of overall protective factors, while more than half (61.7% and 59.6%) had very high levels of school (61.7%) and family protective factors (59.6). The analysis of the protective factors to predict the resilience of the children using stepwise multiple linear regression analysis showed that the combined protective factors could predict the resilience of the students by 37.2%. The protective factors of family, school, peers and community could predict resilience according to the following equation:
Resilience = 0.219 Z_{\text{school}} + 0.274 Z_{\text{family}} + 0.212 Z_{\text{peer}} + 0.137 Z_{\text{community}}

This study assessed the adaptive outcomes in learning achievement and social behavior. About half of the children (50.5%) had a better learning achievement – their grade point averages were higher than the class average; whereas less than half (47.1%) had a high level of adaptive outcomes. The average levels of social behaviors, from highest to lowest, were: “I have a sense of humor”, “I can smile easily”, “I follow the rules or regulations”, “I do not engage in bullying at school”, “I can control my emotions during any dispute or conflict”, and “I’m not angry and frustrated when I am displeased”.

The results of the process of resilience promotion were obtained from the qualitative study. Three major processes promoted resilience.

**Promoting and developing a child’s capacity.** This is the most important process and fundamental to all others. It includes strengthening and supporting self-esteem, self-efficacy and positive talent/ability expression. This can be carried out in various ways such as practicing self-responsibility, encouraging volunteerism, promoting praying and meditation according to religious guidance, providing activity spaces for the children, supporting the children to develop their abilities in their interests, and providing opportunities for the children to demonstrate their ability to compete.

**Preventing risk factors.** This is the prevention or suppression for the children to avoid facing problems or reducing the risks. This process is usually the result of caregivers or schools caring about the children with respect to risk factors that could have happened to the children. This includes close rearing, attention or supervision by parents, caregivers and teachers.

**Problem solving and remedies.** This occurs in children exposed to risk factors or who exhibit behavior problems, including those related to problem management and reduction of negative reactions from risk exposure. It has been accepted that the problems occurring in children include allocating time for thorough child care, pursuing activities that can draw children’s attention away from the problem being faced, providing warmth, performing joint activities and sharing lessons learned or experiences among peers of the same or different age groups.

Based on the findings from this study, the process of resilience promotion can be summarized as shown in Figure 1.

**DISCUSSION**

This study found that promoting children’s resilience requires interactions among protective factors. Agencies involved in child development should be better linked and networks developed among families, schools, peers and communities. The family protective factors, illustrated by this study, influence resilience promotion
and greatly affect the adaptive outcomes of the children. This indicates that the family – whether both parents, a single parent, stepparents, or relatives are raising the children – is a significant institution that should be supported to understand and value the development of resilience in children. The school protective factors also influence resilience promotion in this study. As the children in this study were students, teachers and administrators have to pay attention to the problems and organize both curricular and extracurricular activities in accordance with current conditions and children’s needs. Peers, as a protective factor in this study, also influence resilience promotion in children. However, interviews revealed that the peers that matter are close friends, either in the same class or school. Children are encouraged to participate in school activities to build good relationships. This study also found that community protective factors can predict the resilience of children. Interviews with community
leaders indicated that activities and public spaces for children as well as surveillance of harmful things have not been provided consistently.

This study found high levels of the resilience traits of ethics and a sense of purpose in life. This is consistent both with the studies of Patcharin Arunruang (2002) and Suriyadeo Tripathi (2009) and Thai culture, which adheres to a morality in Thai society that is still viewed as a virtue to be practiced. This is probably the result of caregivers, teachers and peers strengthening and supporting self-confidence in children by encouraging them to express their skills positively. When children come across such situations, ideas and experiences repeatedly, and in a positive way, they gain self-confidence and positive emotions (Ronnau-Bose & Frohlich-Gildhoff, 2009: 314-315). This is an action or activity that satisfies children, resulting in the discovery and fostering of a child’s own resources in physical, mental, intellectual and social forms. These endure and affect children’s resilience.

The adaptive outcomes of this study are consistent with the findings of Grizzell (2006), whose study showed that children were exposed to various risks such as poverty, violence in the community, parental separation and parents with alcohol addiction or mental illness. These children had undesirable adaptive outcomes or mental conditions and poor academic performance. In contrast, children who received good care from parents showed better adaptive outcomes.

A study by Martinez-Torteya et al. (2009) found that certain characteristics of children such as good temperament, good intelligence and personal potential were positively correlated with the characteristics of child caregivers as having positive mental health and also correlated with good adaptive outcomes.

The promotion of children’s capacity for resilience includes strengthening and supporting their self-esteem and self-efficacy and encouraging them to express their skills and capabilities in a positive way. This is a positive self-feeling towards a sense of self. Pravech Tantipiwattansakul (2007: 3) noted that people felt good about themselves if their childhood was a positive experience. To love and create resilience through self-esteem and self-efficacy trains children to think positively, search for and understand their own selves, and develop their talents a source of pride.

Promoting resilience by promoting responsibility is consistent with the resilience model of Fergus and Zimmerman (2005: 403-404). They suggest that children exposed to risk factors at a moderate level can learn how to overcome such risks. Exposure to risk factors that are not too excessive can help children practice problem-solving skills. This model suggests that exposure to a low level of repetitive and continuous risk factors can prepare a child to overcome the risk factors in the future.

The prevention of risk factors is the process of preventing or separating children from risk factors. This
can take place in the family, school, community or networks. Those close to children must pay attention to the problems or risk factors they face and help them learn how to deal with the risk factors. This study found that family, school and community can help reduce risk factors through close relationships with children, surveillance of risk factors, parenting, counseling, and providing good community space. Healthy Cities for Children (Nakornthap, 2007) is a concept that integrates the development of children and youth under the framework of comprehensive child development of fundamental rights, family, learning, use of social space conducive to providing quality experiences for children and collaboration among various agencies at the provincial level.

Problem solving and remedies occurs after the children are exposed to risk factors, helping children adapt to and pass through hardships. The protective factors support, restore and provide remedies for the children to continue to overcome the problems. This study on resilience in children was conducted with a specific group of children – students in an urban slum in Bangkok. It should be extended to other groups of children, such as those outside the formal education system, including homeless children, to obtain a clear understanding of the resilience traits, protective factors and processes that promote resilience by group.

This research has shown that most children who possess a high resilience trait are good learners, display positive social behavior and have a high level of protective factors. Most children with a low resilience trait show the opposite. Families and schools are important protective factors that strengthen the process of enhancing their self-confidence and positive skills. This study found three key resilience promotion processes: promoting competency development, preventing risks, and problem solving and remedies.

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Improving Personal Mastery Through a Nurturing Program for First Year Students at a Private University in Chiang Mai, Thailand

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ABSTRACT

Student dropout rates during the first year of university are a problem globally, and particularly in Thailand, where some research has highlighted dropout rates of up to 35%. This paper aims to tackle university dropout rates in the first year of university at a private university in Thailand. The paper argues that general education courses provide an ideal platform from which to launch a nurturing program aimed at curtailing student dropout rates. Two theories of personal mastery and mastery learning are investigated as potential approaches to designing a nurturing program that can be used to assist students in their transition from high school to university, and in turn reduce the chance of dropping out of university. Results show how the nurturing program was designed based on an investigation of classroom problems and discussions with experts. Example activities and lesson plans from the resulting mastery learning nurturing program are shown, before introducing future work which will go a step further to analyze the effectiveness of this program. It is envisioned that this work could be built upon to improve students’ personal mastery and lifelong learning, which could eventually have effects on university dropout rates and wider society.

Keywords: Personal mastery, Mastery learning, General education, Dialogue, Dropout rate
INTRODUCTION

Background

Globally, the dropout rate of undergraduate students is particularly significant between the first and second year of university; for example, a dropout rate of 33% in the United Kingdom and a similarly high dropout rate in the United States (Kingston, 2008; Barefoot, 2004). This is a particular problem in Thailand, where research has shown dropout rates of up to 35%. Most literature shows that high dropout rates arise from individual and personal factors, not from the university environment itself (Need & Jong, 2001; Lowe & Cook, 2003). The external environment provided by the university can, however, support students who cannot easily adapt themselves to new surroundings introduced through university study. Students face high risks and problem behavior as they are challenged by unfamiliar social, academic and vocational aspects in their lives. Frequently, they do not have the essential skills and abilities to reach social or personal goals. Additionally, students often cannot reduce the gap between their needs and current situation; tension emerges from study and examinations. The ultimate problem associated with the disconnect between students’ current situation and their eventual goal is that some students, with low motivation or low personal vision, withdraw or dropout in the first year. Dropout rates are characterized by students who do not attend class regularly, do not complete homework and do not realize or comprehend the effects on themselves and, in turn, on society (Bridgeland et al., 2006).

A potential solution to these dropout rates is to create adaptable students who have a well-developed sense of personal mastery and empowerment. This could potentially be achieved through effective general education courses. Programs in general education represent the most suitable mechanism to improve dropout rates and the reasons why are discussed further in section 1.2. One way to address dropout rates within the design of general education courses is through personal mastery, which is defined by Senge (1990) as the practice of articulating a coherent image of personal vision, complete with the results an individual most wants to create in their life, alongside a realistic assessment of the individuals’ current reality. Senge (1990) goes on to state that this can produce innate tension that, when cultivated, can expand an individuals’ capacity to make more effective choices and to achieve more of their desired results.

The aim of this paper is to develop a nurturing program to reduce student dropout rates by improving personal mastery and student adaptability through a program within the general education course. The research focuses on first-year students at a private university in Chiang Mai Province, Thailand. Before considering the case study and methodology, it is necessary to outline what is meant by general education and its importance in undergraduate education,
especially in Thailand.

**General education**

General education originated in American universities with the objectives of providing:

1. Knowledge and philosophies to new students through problems to study.
2. An ability to perceive the difficulties of society, as well as the knowledge of science influencing human life.
3. An understanding of how to be effective human beings.

The curriculum of general education is varied, and depends on the mode of study and the particular definition being considered. One clear definition from Harvard University (1945) analyzed and developed a report about general education. “General education in a free society” is defined as education in which learners should have responsibility and be effective human beings (Sinlarat, 2007; Wehlburg, 2010). General education aims to develop learners as ideal citizens, with wisdom and morality, in addition to their special education and training within specific fields. Today, employers demand that their employees use a broad set of skills and have higher levels of learning and knowledge than in the past in order to meet the increasingly complex demands they will face in today’s society and workplace (Hart Research Associates, 2010). General Education can help to achieve this and is considered the ideal subject from which to develop students’ personal

mastery through a nurturing program. Thailand’s general education courses were influenced by higher education in America. The courses built on two concepts related to the development of ideal humans with knowledge, thought, skills, appropriate morality and responsibility in work and society (Sinlarat, 2007). General education in Thailand began in 1957 at Chulalongkorn University. The ultimate objective of general education courses is, firstly, to create effective humans with responsibility and morality and, secondly, with the appropriate vocational skills to gain employment (Dronov & Knodakov, 2010). When these two parts blend, they promote each other without conflict. In Thailand, the general education curriculum is a single course, integrating content from the humanities, social sciences, mathematics and sciences. In addition, the Thai Ministry of Education (Ministry of Education, 2005, p. 25) defined the goal of general education as, “providing the student with deep understanding, broad vision, an understanding of themselves, others and society, with rational thinking, meaningful communication, morality and an understanding of Thai and global culture”. Thailand should also be suitably prepared for the free trade associated with the ASEAN economic community in 2015. General education is important in the preparation of students (Payap University, 2006). As the aims of general education are in line with the philosophies of personal mastery and reducing university dropout rates, the general education
course provides a useful and suitable platform from which to launch a nurturing program aimed at reducing student dropout rates and increasing personal mastery. This paper utilizes a case study at Payap University, located in northern Thailand, to develop a nurturing program for first-year students within the general education program.

The case study: Payap University

Payap University, established in 1974, is a private institution founded by the Church of Christ in Thailand. The university strives to adhere to its motto "Truth and Service" by seeking academic and moral excellence to create understanding through truth and an attitude of service to all. The philosophy of both Payap University and General Education are in alignment in terms of preparing students to develop their life skills and attempting to balance a well-rounded education with knowledge and skills in a specific field. Payap University aims to develop undergraduates with “a passion to grow, academic leadership, ethical hearts, and students who are society’s servants” (Payap University, 2006, p. 17). To achieve this goal, Payap University applies the general education course as a tool in developing first-year students. Nurturing students in the first-year general education course, therefore, represents an ideal opportunity to assess and develop students’ personal mastery.

METHODOLOGY

The methodological approach utilizes two theories, personal mastery (as noted previously) and mastery learning. Despite sounding similar, these are fundamentally different theories. Personal mastery was a concept introduced by Senge (1990); researchers tend to apply personal mastery to internal aspects of student development, in order to promote adaptation as individuals (personal vision, holding creative tension, commitment to the truth and using the subconscious). In contrast, mastery learning is a theory applied to provide high quality group-based instruction and instructional strategies within the curriculum that permits all learners to be successful (Gentile & Lalley, 2003; Guskey, 2007, 2010).

This research will utilize mastery learning (ML) to develop personal mastery and will do so within a nurturing program in general education. The aim of the Mastery Learning Based Nurturing Program (MLN) presented in this paper will be to place the main personal mastery concept (personal vision, current reality, and creative tension) into an instructional plan via mastery learning in order to make students more clearly aware of an array of goals and results (Senge, et al., 2000; Butler, 2006; Darnon, et al., 2007). To improve personal mastery and reduce dropout rates though a nurturing program, this research implemented a methodology consisting of four steps. These are illustrated in Figure 1.
Figure 1 illustrates that the initial design of a nurturing program is a classroom diagnosis (Guskey, 2010). In this research, such a diagnosis included assessing current student problems and lifestyles. The second stage of the methodology involved planning and conducting lessons that follow a systematic plan of the mastery learning format. The third step involved developing and checking the resulting MLN with experts. The fourth step in this research is future work, which will aim to implement, test, revise and evaluate the nurturing program.

Diagnosis of classroom issues
In this initial step, students were surveyed to collect data regarding aspects of demographics, life skills and learning style (including their learning goals). The sample consisted of the whole population of 80 students who were registered for the GE101 course at Payap University (General Education 101: The Path to Wisdom). The interviews took place in small groups of approximately ten students. When recording answers, Likert scales were used to gauge student attitude and feeling towards specific aspects of learning style and skill.

Figure 2 shows some example questions from the interviews. Future adaptations to this research will also involve interviewing parents about their expectations and attitude towards financial support of their children. Financial support is considered particularly important, given Payap University is privately funded. All data from the interviews were collected and analyzed using simple descriptive statistics (e.g., cumulative percentage, mean) and then analyzed to draw out patterns relating to life skills, student learning styles and learning goals.

Figure 2. Sample interview questions in the diagnosis stage.
Planning and design of a MLN

The second step is the planning and design of a nurturing program. The data from stage one were applied in designing and writing lesson plans, emphasizing learning-based activities for motivation and engagement. Motivation was developed through enrichment activities based on mastery learning theory (Gentile & Lalley, 2003). Of particular importance, the students themselves identified their learning goals, self-pacing, monitoring and feedback, including evaluation (Leonard, 2002).

The learning process based on the mastery learning principle is an appropriate tool to combine with the core teaching concept of general education, which explains why teaching general education can help students to explore their learning goals independently, and from various resources, using their preferred learning styles in order to most effectively achieve goals. The general education philosophy is often characterized by the phrase, “the instructor is the Good Shepherd” – or although one sheep might miss its group, the good shepherd must catch it safely. This is consistent with the main principle of mastery learning theory; applying mastery learning offers remedial instruction to students who wish to develop their capability, acquire new skills or identify their mistakes (Gentile & Lalley, 2003; Buacharoen, 2001).

Mastery learning is necessary when students are faced with major differences in transition from high school to college, along with a shift from a teacher-directed environment to a more independent learning style (Dembo, 2003). In college, students are expected to manage their own learning and become self-motivated; therefore, instructors should focus on developing first-year students to achieve personal mastery, which they can apply to the remainder of their university life and potentially beyond. Based on results from stage one of the methodology and the theory of mastery learning, instructors wrote 15 lesson plans that offered enrichment activities aimed at helping students learn more effectively and correct their own mistakes in the classroom, using dialogue in the form of an e-learning system.

Development of MLN

The third step of this research involved integration of stage one and two of the methodology to develop a MLN. The MLN was produced by integrating the lesson plans from stage two as well as using GE101 content, dialogue techniques, forums/social network communication tools (e.g. Facebook) and enrichment activities. The researcher provided lesson plans along with a questionnaire to professionals who had general education as part of their core responsibility. Five professionals then checked and examined this program (one from the Faculty of Education and two from the College of Arts Media and Technology, Chiang Mai University; two from Payap University). After the researcher made corrections based on professional feedback, the
research created an e-learning system for GE101, creating a forum for dialogue with students throughout the semester, and preparing the learning tools and associated media.

**Implementation, testing, revision and evaluation of the MLN**

The fourth step will include implementation, testing, revision and evaluation of the MLN, which is the basis of ongoing and future work. However, the results of the diagnosis, planning and development of the MLN are shown in the next section.

**RESULTS AND DISCUSSION**

**Diagnosis of classroom issues**

Table 1 shows the key student problems identified via stage one of the methodology (classroom diagnosis).

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**Planning and designing a nurturing program**

Data analysis from step 3.1 found that the primary learning goals of students were related to their future careers and completing their education quickly. The score level pointed out they had the highest scores, so students required more support for life skills, method development and working process development in order to achieve their goals. After identifying goals, enrichment activities were selected and are shown in Table 2.

After analyzing student behavior and support activities, students were grouped into activities. The activity plan for the first-year students in the “GE101: The Path to Wisdom” class was split into five groups, with 20 total activities.

After selection and grouping of activities, they were elaborated and linked to the literature based on the objectives and procedures for each activity.

---

**Table 1.** Results from step 2.1: The problems identified during the diagnosis stage.

<table>
<thead>
<tr>
<th>Key student problems</th>
<th>Components of mastery learning with potential to reduce these problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Student goals: students want to complete the degree in a short time, however, as time passes, their attention decreases.</td>
<td>- Specify learner goals in terms of what is to be learned and how the learning activities will be evaluated.</td>
</tr>
<tr>
<td>- Student behavior: students skip classes, cannot manage their time, are often lazy, play games and spend less time reading than they should.</td>
<td>- Permit learner self-pacing. - Monitor student progress and provide immediate feedback. - Evaluate to ensure that the final goal of the learning activity is achieved by each student.</td>
</tr>
<tr>
<td>- Students: students need support from society (anger coping skills, problem-solving skills and refusal and negotiation skills).</td>
<td>- Enrichment activities of mastery learning based on life skills concepts.</td>
</tr>
</tbody>
</table>
Table 2. Analysis of students’ problems matched with enrichment activities.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Instrument</th>
<th>Who are the theorists?</th>
<th>What do Payap students lack or where do they need support?</th>
<th>Backup activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery learning</td>
<td>2010-2011, data gathering</td>
<td>Caroll (1963)</td>
<td>- Plan time and follow time</td>
<td>Wheels of learning</td>
</tr>
<tr>
<td></td>
<td>from questionnaire</td>
<td>Bloom (1969)</td>
<td>- Suitable study tools</td>
<td>- Time capsule</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hotchkis (1986)</td>
<td>- Different aptitudes achieving the same goals</td>
<td>- Setting goals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leonard (2002)</td>
<td>- Prior experiences of the students</td>
<td>- My Learning Diary</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- KWL Topic Grid</td>
</tr>
<tr>
<td>1. goal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. spacing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. monitor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. evaluate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3. The enrichment activities of lesson plans in the MLN.

<table>
<thead>
<tr>
<th>Activity Group</th>
<th>Name of activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life skills (3 activities)</td>
<td>- Anger Measurement&lt;br&gt;- Problem-solving &amp; Refuse&lt;br&gt;- Negotiation</td>
</tr>
<tr>
<td>Personal mastery (3 activities)</td>
<td>- Wheels of Learning&lt;br&gt;- Mapping the students’ current reality&lt;br&gt;- Demystifying the Learner</td>
</tr>
<tr>
<td>Self-esteem (2 activities)</td>
<td>- “See You See Us”&lt;br&gt;- How to be a “WINNER”</td>
</tr>
<tr>
<td>Motivation (6 activities)</td>
<td>- The Highest Dream&lt;br&gt;- The Bright Future&lt;br&gt;- You Speak I Speak&lt;br&gt;- Life Management&lt;br&gt;- Map to the Success&lt;br&gt;- A Covenant of Beliefs About Learning</td>
</tr>
<tr>
<td>Mastery learning (6 activities)</td>
<td>- River of Life&lt;br&gt;- Setting Goals&lt;br&gt;- Things That Help Me Learn&lt;br&gt;- My Learning Diary&lt;br&gt;- KWL Topic Grid&lt;br&gt;- Time Capsule</td>
</tr>
</tbody>
</table>

Table 4. Examples of activity details and links to the literature/theory.

<table>
<thead>
<tr>
<th>Activity name</th>
<th>Concept and Theory</th>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mapping the students’ current reality</td>
<td>Senge (2000).</td>
<td>1. To consider the whole life situation of students</td>
</tr>
<tr>
<td>Setting goals</td>
<td>Read (2007)</td>
<td>1. To identify and set yourself short-term personal learning goals</td>
</tr>
<tr>
<td>Things That Help Me Learn</td>
<td>Read (2007)</td>
<td>1. To reflect on learning styles and strategies related to specific areas of learning, 2. To develop awareness of your own learning preferences 3. To begin to develop personalized learning styles and strategies</td>
</tr>
</tbody>
</table>
Table 5. Example assignments showing summary of lesson plans.

<table>
<thead>
<tr>
<th>Date/Month/Year</th>
<th>GE101 Content</th>
<th>Activities</th>
<th>Tools and procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/7/2011</td>
<td>Analytical thinking</td>
<td>-Time Capsule #1</td>
<td>Short story “Rice of one hand”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Worksheet “Time Capsule”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1. Lecture 90 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Time Capsule 45 minutes</td>
</tr>
<tr>
<td>14/7/2011</td>
<td>Mind map</td>
<td>- My Learning Diary</td>
<td>1. Lecture 90 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. My Learning Diary 30 minutes</td>
</tr>
</tbody>
</table>

In this step, a mapping of students’ current reality must be completed before setting the learning goals within the “Setting Goals” activity. This is because students must know the current situation of their learning and be able to compare their goals. Following this, the activity “Things That Help Me Learn” could be conducted in class in order to encourage students to learn with success. Reinforcement activities and activities focusing on self-awareness were designed every 2-3 weeks to regularly create positive reinforcement in trying to achieve their goals.

The next step was to design the 15 resulting lesson plans for each week of the MLN. Example assignments at this stage are shown in Table 5.

Development of MLN

Experts made several suggestions at this stage; the most notable were writing weekly learning objectives, the main daily concept, learning activities and an evaluation of all student assignments with rubric scoring by adjusting the description of the rubric-scoring assessment criterion in numerical format. As an example, students wrote their five learning goals on “The Highest Dream” worksheet and students posted eight items to the “Things That Help Me Learn” forum within three days.

Implementation, testing, revision and evaluation of MLN

As explained in section two, implementation, testing and evaluation are future work. The MLN is currently being implemented. Preliminary results from testing and evaluation are expected within four months.

CONCLUSION

Payap University is a private institution founded by the Church of Christ in Thailand (a religious education institution) and the philosophy of the university is concerned with students’ spiritual wellbeing. Reducing the dropout rate is in line with this overall philosophy. Preliminary work in this paper has shown the potential for developing a MLN to meet the aims of this philosophy. Ultimately, the MLN should help Payap University develop learners as students with career goals, ideal citizens, and an effective educational management system through general education.
ACKNOWLEDGEMENTS

My sincere appreciation and gratitude go to my committee members and five experts for assisting me in completing this research. I would like to especially thank Paul Goldsmith for his assistance, and the other researchers mentioned in this paper.

REFERENCES


none
Cultivation of Numerical Thinking in Early Childhood Education Using Folk Games in Rural China

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ABSTRACT

In early childhood education in rural areas, including ethnic minority areas, children’s folk games often play an important role in cultivating numerical thinking. The establishment of number sense is a concrete representation of the development of numerical thinking. Accordingly, this study evaluated the number sense of senior kindergarten and grade 1 students with and without the influence of playing folk games. The results showed that the groups of students exposed to the games were significantly superior to the non-influenced groups in counting, calculation, arithmetic cognition and number transformation, among other areas. Therefore, under the premise of the unbalanced development of education in rural China, it is necessary to emphasize the development and expansion of children’s folk games to reduce the delay in cultivating mathematical thinking.

Keywords: Rural education, Early childhood mathematics, Children’s folk games, Numerical thinking, Number sense.
INTRODUCTION

Due to geography, history and politics, economic development lags in parts of rural China, especially the areas of the southwest, northwest and northeast with minority or ethnic populations. With a weak educational foundation, inadequate investment in education and a lack of high-quality resources, the quality of teaching is in decline. The education gap to the more developed urban centers is growing, affecting rural development, including the ethnic areas. This gap includes mathematics education, and starts from early childhood.

The formation and development of numerical thinking is one of the goals of early mathematics education. However, the cultivation and development of numerical thinking is not limited to the classroom, and should be extended to daily life. Cultivating numerical thinking in rural daily life can complement classroom teaching, and make early childhood education more effective. Children's folk games play an important role in linking these two: the classroom and daily life.

Johan Huizinga (1955), in pointing out the relationship between culture and play, meant the play element of culture, and not the play element in culture – “It was not my object to define the place of play among all other manifestations of culture, but rather to ascertain how far culture itself bears the character of play.” (Foreword, p. 1) Mathematics education belongs to a part of culture, so its origin also bears the character of play. Research is limited on the relationship between children’s games and mathematics education. NAEYC & NCTM (2002) expressed, in their joint position statement, that people must “provide ample time, materials, and teacher support for children to engage in play, a context in which they explore and manipulate mathematical ideas with keen interest” (p. 10). Jennifer Taylor-Cox (2003) expressed, as with the concept of change, that children could construct knowledge about each of the major components of numerical thinking through play. They saw mathematical situations and structures as they compared the amounts of juice in each other's cups. Furthermore, they also found algebra in stories, songs, poems and finger plays (pp. 14-21). Some Chinese scholars have proposed the educational value of traditional games and applications for young children (Qiu Xueqing, 1997).

From the perspective of folk mathematics, many children's folk games directly or indirectly involve numbers and graphics; these games can exert a subtle influence on the development of children's number intuition, or number sense. Since Dantzig formally proposed the concept of number sense in 1954, it has become a widely used term in the fields of psychology and mathematics education. In China, it is first mentioned in Compulsory Education Mathematics Curriculum Standards (Trial version) in 2001. Here it mainly refers to general understanding of numbers and operations. These curriculum standards state that
...the number sense contains to understand the significance of the number; to use a variety of methods to represent the number; to grasp the relative size of number in a concreted context; to use the number to express and exchange information; to select the appropriate algorithm to solve the problem; to estimate the result of operation, and make a reasonable explanation for the results (Mathematics Curriculum Standard, 2001, p. 2).

For rural children, especially ethnic children, folk games can help them better develop this sense and meet the standards. The construction of number sense is a reflection of the acquisition of numerical thinking, which directly affects numerical problem-solving ability. It is important for the development of high-level arithmetic and algebraic thinking.

For Bergeron and Herscovics (1990),

...the focus on what should be learnt in order to acquire numerical competence has moved further away from a view that emphasizes the mastery of particular concepts, procedures and their skilled application, towards a dispositional view of mathematical competence involving the integrated availability and flexible application of different components. This notion of disposition involves, besides availability of conceptual schemes and strategies, notions of inclination and sensitivity, as nicely reflected in the increasingly popular construct of “number sense”(or “numera-cy”) (Ángel Gutiérrez et al., 2006, p. 72).

Numerical thinking involves the construction and expansion of numbers.

Jordan summarized the main components of number sense as follows: counting, number knowledge, number transformation, estimation and numerical patterns (Jordan et al., 2006, p. 154), most of which can be interpreted through children’s numerical folk games. The corresponding relationships between key elements of number sense and folk games in young children are shown in Table 1.

Content, type and game play of folk games are influenced by national social history, geography, customs, culture and morality, and reflect national social attributes, thus forming a certain cultural context. With the aid of the cultural tools, it can be seen that cultivating numerical thinking is closely linked with folklore. Chinese researchers have seldom emphasized the relationships between children’s games and the cultivation of numerical thinking. Incorporating folklore mathematical thinking in the math curriculum will not only allow students to experience the process of mathematics development in different cultural contexts, but also to follow the process of individual mathematical cognitive development (from
Table 1. Corresponding relationships between key elements of number sense and folk games in young children

<table>
<thead>
<tr>
<th>Area</th>
<th>Components</th>
<th>Corresponding children’s folk game</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting</td>
<td>- Grasping one-to-one correspondence.</td>
<td>- Riddle of hand: Five brothers, live together, flesh and blood, height not neat.</td>
</tr>
<tr>
<td></td>
<td>- Understanding stable order and cardinality principles.</td>
<td>- Han nationality: Hopscotch (Jump the lattices).</td>
</tr>
<tr>
<td></td>
<td>- Knowing the count sequence.</td>
<td>- Oroqen: Counting the number.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Mongolian: Counting the sheep dung.</td>
</tr>
<tr>
<td>Number knowledge</td>
<td>- Discriminating and coordinating quantities.</td>
<td>- Manchu: Gachua, Han nationality, others: Children troop into city.</td>
</tr>
<tr>
<td>Number transformation</td>
<td>- Transforming sets through addition and subtraction.</td>
<td>- Mongolia: “Shah”.</td>
</tr>
<tr>
<td></td>
<td>- Calculating in verbal and nonverbal contexts.</td>
<td>- Oroqen: Grab small stones.</td>
</tr>
<tr>
<td></td>
<td>- Calculating with and without referents (physical or verbal).</td>
<td>- Han nationality: Game of chicken.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Mongolian: Xitari (chess), Tibetan chess</td>
</tr>
<tr>
<td>Estimation</td>
<td>- Approximating or estimating set sizes.</td>
<td>- Oroqen et al: Guess the size of thin stick.</td>
</tr>
<tr>
<td></td>
<td>- Using reference points.</td>
<td>- Han nationality: Guess the apricot pit.</td>
</tr>
<tr>
<td>Number patterns</td>
<td>- Copying number patterns.</td>
<td>- Manchu and Han nationality: the diagram away from winter.</td>
</tr>
<tr>
<td></td>
<td>- Extending number patterns.</td>
<td>- Mongolia: Counting multiplication tables.</td>
</tr>
<tr>
<td></td>
<td>- Discerning numerical relationships.</td>
<td></td>
</tr>
</tbody>
</table>

concrete to abstract), so that students may have the opportunity to feel the essential attributes of mathematics as human culture. As a result, in the mathematics curriculum, folk mathematics should be used as a supplement or the cornerstone of academic mathematics. This is an important prerequisite for the all-round development of children’s early mathematical thinking.

Interpretation of concepts

In this research, rural area refers to the underdeveloped rural areas where the Han nationality lives, such as southwestern, northwestern and northeastern China. China is also a multi-ethnic country, with the majority of ethnic minorities living in these same rural areas. Children’s folk games refer to the ones children play together in early childhood, including the games of the Han nationality as well as minorities.

In mathematics education, number sense refers to a person’s general understanding of number and operations along with the ability and inclination to use this understanding in flexible ways to make mathematical judgments and operations (McIntosh et al., 1992, pp. 3). Number sense is difficult to define, but easy to rec-
ognize. Students with good number sense can transfer easily between the real world of quantities and the mathematical world of numbers and numerical expressions, invent their own procedures for conducting numerical operations, and represent the same number in multiple ways depending on the context and purpose of this representation.

Numerical thinking is based on the development of number sense, and the process of discovering useful connections between numerical analysis and other fields in computing. According to Verschaffel (2006), numerical thinking is related to several aspects of number concept and number sense: arithmetic operation, grasping the basic arithmetic facts, mental arithmetic, written calculation and application of numerical arithmetic knowledge and skills to solve word problems (p. 72). In fact, the development of arithmetic and algebraic thinking is a benefit of good numerical thinking.

In China, kindergartens are part of the preschool system of early childhood education. Children ages 5 to 6 years old attend senior kindergarten; this grade level is often integrated into primary schools.

METHODOLOGY

Selected children’s folk games

The researchers selected some children’s folk games as case studies, including Gachuha, Hopscotch (tiao fangzi) and Guessing Riddle. Gachuha is derived from the shank or shinbone of sheep, pig, Mongolian gazelle, cattle or other animals, which is scraped clean of meat and fat through boiling. Mongolians call it "Shah" or "Shiah". Gachuha is surrounded by different shapes called “zhenn, beir lunn and kengr” in Pinyin of Chinese. The game of "Gachuha", a traditional source of entertainment for Mongolians, Manchu and Daur, is still popular in some areas of northern China. After selecting the case study games, we reviewed the literature (some of our case studies are sourced from the book “Chinese Folk Games and Sports”, Guo Panxi, Shanghai Sanlian Publishing House, 1996) and analyzed data to find the relationship between the cultivation of numerical thinking and children’s folk games under the context of social culture. Gachuha and hopscotch represent number sense games (Table 2).

Participants

Selected participants included: 1) 30 senior kindergarten children who could not count fluently nor understand number decomposition and combinations up to the number 10 and 2) 30 first grade students who failed in their examinations to understand the relationship between addition and simple multiplication. The students were from a nine-year coherent education school in Laogan tuo, Liao Zhong County, Shenyang Municipality, Liaoning Province in northeastern China. The school included Han, Manchu, Korean and other ethnicities. The participants were drawn from a senior kindergarten class of 60 students (25 boys,
Table 2. The procedure of the children’s folk game and number representations in game play.

<table>
<thead>
<tr>
<th>Name</th>
<th>Game play</th>
<th>Showing and presentation of number</th>
</tr>
</thead>
</table>
| Gachuha    | (2) Pick a small sandbag and toss into the air and then set the Gachuha straight according to the same location, pull one piece one at a time or pull 2-3 pieces together.  
            | (3) According to the four positions of “zhent, beir, lunr, and kengr”, all Gachuha are set straight again.  
            | (5) The player continues his/her turn as long as he/she can seize pieces of Gachuha on the ground and catch the bag in the air simultaneously. | (1) Several (usually 5-10 pieces) Gachuha are scattered.  
            |                                                                                                                       | (4) Toss the sandbag in the air and immediately seize, with the same hand, the number of Gachuha according to the players’ prior agreement (usually two pieces of the same shape) while catching the bag before it drops to the ground.  
            |                                                                                                                       | (6) The player who quickly sets the Gachuha straight and grabs the most Gachuha wins. |
| Hopscotch  | (1) The player draws a lattice of six squares (about 2 ft x 2 ft each) on the ground. Each square represents one year (or room).  
            | (3) The player hops into the lattice on one foot, and then kicks a tile to the next square. The player who can hop to all six squares wins the game.  
            | (4) As long as the tile is not kicked out of the lattice or over a line, the player continues.  
            | (6) The winner may beat the loser’s palm.                                                                 | (2) Fill the squares in the lattice with numbers (for example, 1, 2, 3, 4, 5 and 6).  
            |                                                                                                                       | (5) After all players have jumped, the loser can continue from the last completed number (2, 3, 4...). |

Note: Numbers represent the serial order for playing each game.

35 girls) and a first grade class of 58 students (30 boys, 28 girls). The school, in the corresponding author’s hometown (which helped ensure the tests ran smoothly), was selected based upon the recommendation of the school mathematics resource teacher, who felt that the principal and teachers would be interested in participating.

Experimental procedure

The researchers conducted interviews and tests to collect data and analyze the relationship between children’s folk games and number sense. The participants were divided equally into an experimental and control group. The tests were conducted in April 2012, requiring four weeks to complete.

Interview

During the interview, the researcher asked the children questions about folk games (for example, “Do you know how to play the folk games Gachuha and hopscotch?”) and number sense.

Tests aimed at senior kindergar-ten children

Test K1: The researchers taught 15 children in an experimental group to play hopscotch, and let 15 children play common games in a control group during morning recess. After one school week (Monday-Friday), the researchers asked the children in both groups to count from 1 to 10.
Test K2: The researchers then taught 15 children in an experimental group to play Gachuha, and let 15 children play common games in a control group during morning recess. After two school weeks, the researchers asked the children in both groups to decompose the number 5.

Test K3: Finally, the researchers presented the students in the experimental group with the riddle: “The face of long hook, head hanging fan, four thick pillars, one little pigtail” (answer: elephant). The game was then further expanded by asking the students how many pillars and pigtails the two elephants had? The following day, the researchers presented the senior kindergarten children with two math problems ($2+2=\Box$, $4+4=\Box$) to test whether the children understood addition through the riddle.

Tests aimed at grade 1 primary school children

Test P4: The researchers set the same procedure and conditions as test K3, but only explained the connection between addition and multiplication for the children in the control group while providing some mathematical examples. The next day, the researchers presented the grade 1 children with two math problems ($2 \times 2=\Box$, $4 \times 2=\Box$) to test whether the children understood multiplication through the riddle game.

Test P5: The game of “hopscotch” can be appropriately extended; the number on the lattice can change into the game’s score. The researchers divided the experimental group into two teams. When playing the game, team 1 raced team 2. After several rounds of the game, children calculated their scores (high score wins). The 15 students in the grade 1 experimental group played the game for one week. Afterward, the children in both the experimental and control groups were tested with 10 addition problems to check whether the game strengthened the children’s number transformation skills.

RESULTS

Interview results

According to the interviews, 95% and 80% of the students were not familiar with “Gachuha” and “hopscotch”, respectively. They seldom knew others folk games.

Test K1: Fourteen (of 15) children in the experimental group counted from 1 to 10 correctly. Only seven (of 15) in the control group did so.

Test K2: With the teacher’s guidance, 13 (of 15) children in the experimental group decomposed the number 5 (2 and 3, 1 and 4, 3 and 2, 4 and 1) correctly. Only eight (of 15) children were able to do so in the control group.

Test K3: In the experimental group, all of the children provided the correct answer; 13 children within 2 minutes and the other two children within 5 minutes. All of the children in the control group were also able to provide the correct answer, but after considerably more time than the experimental group.

Test P4: Fourteen (of 15) students in the experimental group gave
the correct answer to the problems (2×2=□, 4×2=□), but only nine (of 15) students did so in the control group (the remaining six students saw the multiplication problems as addition, so their answer was 6 in the second case). The students understood the meaning of multiplication and the relationship between addition and multiplication more easily in the experimental group than the control group.

Test P5: Thirteen (of 15) students in the experimental group solved the addition problems correctly, while only nine (of 15) in the control group did so.

The test showed, whether senior kindergarten or grade 1 students, the experimental group that received instruction and practice in numerical folk games was superior to the control group in counting, calculation, arithmetic cognition and number transformation.

DISCUSSION

“Number sense primarily involves knowledge of and facility with numbers, knowledge of and facility with operations, applying knowledge of and facility with numbers and operations to computational settings” (Mcintosh, 1992, pp. 5-8). In cultivating number sense early in children, the first two are easy to develop and strengthen through folk games. This also provides an initial attempt for children to solve mathematical problems, seen as part of children’s cognitive development, enabling them to understand and solve more complex mathematical situations. Then, how do we strengthen number sense in rural areas through folk games, thus cultivating numerical thinking? An entertaining way is required through appropriate guidance; game components and frameworks are added and expanded upon in order to enhance the effect.

The former Soviet psychologist Vygotsky reasonably explained the dialectical relationship between folk games and children’s mathematical cognition. Lev Semyonovich Vygotsky (1987), although building on the interest in mental development in the field of cognitive psychology since Jean Piaget, thought that cognition could not be solely understood on the individual level, because psychological function and cognitive construction started from social relations and social interaction, gradually internalized by individuals; in other words, the development of mental capacity is the result of social interaction and social experience, first appearing at the level of social relations in human interaction, then entering the inner psychological level of children. Emotions driving imagination, illusion and achievement to non-realistic desires are often hidden in games; they can promote self-confidence, sense of control and social cognition and interaction.

In children’s folk games, the cultivation of numerical thinking is different from formal schooling; after all, the game’s main purpose is not for children to understand the specific significance of numbers,
the size of numbers or the rules of computing from the perspective of numerical thinking. However, in the process of the psychological development of individuals at an early age and the development of numerical thinking, experience and common sense also play an irreplaceable role in the games, compared with formal school education. Representation of numerical thinking is mainly reflected in number cognition and expressions, as well as the reification of number sense components in the popular games. On the surface, it is superficial senses of the expressions that have the characteristics of intuition; but in the significance of enlightened education, the representations let children grasp and understand numbers, gradually building early numerical thinking.

In this study, the children paid more attention to number recognition, counting and operators through game play. The pleasure of playing helped make abstract concepts more easily understood, which is particularly important for the establishment of early number sense. The folk games provided a natural and relaxed platform for cultivation and development of numerical thinking.

The identification and study of a single number is the primary form for accumulating number knowledge. When some children begin to recognize numbers, they do not correctly understand the number sequence. In the cultivation of numerical thinking, the sense of numerical sequence is particularly important, such as the number sequence of 10-0, or vice versa. The “count” not only refers to children's earliest experiences with unidirectional counting, but also interval counting through the arrangement of even numbers (2, 4, 6, 8) or counting forward or backward from any number, which can be expanded in the game of “hopscotch” of the Manchu, Xibo minority in northeastern China. In test K1, the game strengthened children's sense of number sequence, providing a sense of the variety of numerical presentations that would present themselves during formal schooling. With this game, the senior kindergarten children happily filled in the lattice with the appropriate numbers, jumped from number 1 to 9 with their friends, and more spontaneously counted the numbers than the control group. Through several rounds of play, the children easily remembered the number sequence and their number sense was repeatedly strengthened. Obviously, the game cultivated the children's number intuition.

For number transformation, as in test K2, the game of “Gachuha” strengthened recognition and representation of numbers. The children in the experimental group learned to reinforce the changes of number in children's logical thinking, and children also began to grasp the computing method of division. Even more so, the children grasped decomposition and re-composition. Decomposition or recomposition involves expressing a number in an equivalent form as a result of recognizing how this equivalent form facilitates operating
on the recomposed numbers. For a younger student, decomposition or recomposition often manifests itself as the learner “invents” ways to solve arithmetic problems. When playing games, children always like to count the number of Gachuha. One 5-year old girl was unable to decompose the number 5 in class. However, when she played Gachuha, she successfully divided five Gachuha into (2 and 3) and (1 and 4). After she played several times, she was then able to decompose the number 5 when asked by the researcher. Obviously, she built a bridge between the quantity of Gachuha and the abstracted number. In fact, children manifest important intuitions about numbers and addition in both the invented procedure and in the ability to carry out the procedure of playing a game.

Imagination in game play enables languages and actions, or substitutes, deliver information to activate representation and diagraming in a child’s long-term memory, helping to restructure them. However, games are the combined effect of information processing and control processes. Among them, perception and memory play essential roles. In test 3, the researcher presented the elephant riddle, which highlights cognition with the numbers 1, 2 and 4. As they children liked the lovely and gentle animal, they were able to think positively about the mathematics problem with the researcher’s guidance. A 5-year old boy said he liked solving mathematics problem like the elephant riddle, but did not like to solve the more traditional $4+4=\square$ or $2+2=\square$ in class. Other children in the experimental group agreed with this opinion. The children in the experimental group guessed the riddle. They understood the information to mobilize their imagination, perception and memory capacity. The numbers that appeared in the riddle were strengthened in the brain and children, in combination with life experience, guessed specific things related to the numbers.

Numbers appear in different contexts and may be expressed in a variety of symbolic and/or graphical representations. Number sense includes the recognition that numbers take many forms and can be thought about and manipulated in many ways to benefit a particular purpose. For example, recognizing that $2+2+2+2$ is the same as $4 \times 2$ is a useful conceptual connection between addition and multiplication. In test P4, through guessing the riddle, children were more inspired to grasp mathematical operations; they used their imagination to transform the riddle into solving the number problem. The students in grade 1 easily understood the relationship between addition and multiplication through guessing the riddle. In the experimental group, students used their imagination to count the elephant tails, ears and legs, which was more interesting to them than the dull mathematical equation. One eight-year old girl in the experimental group did not understand the connection between addition and multiplication in class,
often confusing the two. For example, when asked what is the answer of 3 multiplied by 2, she saw 3×2 as 3+2, so answered 5. In contrast, when she played the riddle of the elephant game, she grasped multiple relationships through counting two elephants’ tails, ears and legs, and was then able to solve the problems more quickly than the control group. Numbers can be represented in many different ways, with representations in some folk games providing a valuable tool for helping to develop mathematical understanding.

In terms of early childhood education, games help children develop and establish numerical thinking. For example, in test P5, the rules of “hopscotch” can be appropriately mediated. The number on the lattice can change into the game’s score. While playing hopscotch, the students of one team constantly add numbers to compare with the other team, in the happy and relaxed setting of the game. When children calculate their scores, the game strengthened their ability to use numbers and algorithms flexibly and provided continual practice. It was particularly important that they saw the game playing process as a happy and positive one. They were engaged when studying math problems through game play, and found the learning methodology more vivid and interesting than the traditional classroom instruction; they more easily understood the mathematical concepts.

For those folk games that contain or rely on underlying mathematical thinking or concepts, they can play a fundamental role in helping children cultivate an early number sense as well as promote numerical thinking.

CONCLUSION

Children everywhere, regardless of the natural environment or socioeconomic conditions, make use of time and local materials to create and play games. Many of these contain mathematical components that can help develop numerical thinking, whether in isolation or in support of more formal classroom based methods. Using folk games can help address some of the imbalances in early childhood education in rural China, while also stimulating traditional culture.

In addition, many children’s folk games have more educational value than many modern games. Not only do they play an important role in helping children develop numerical thinking, but they also teach children about local folk knowledge. However, under the premise of contemporary heritage and protection of intangible cultural heritage, children’s folk games, especially those related to numbers, are slowly disappearing in China. These games can complement modern teaching methods, and arouse the attention of parents and teachers as children play and grow in the daily living space shared across generations as part of the national intangible culture.

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INDEX TO VOLUME 1 NUMBER 1 (2014)
ASR CHIANG MAI UNIVERSITY JOURNAL OF SOCIAL SCIENCES AND HUMANITIES

AUTHOR INDEX

Boonma, C. 1(1) : 57
Chakpitak, N. 1(1) : 39
Fongthong, S. 1(1) : 21
Goldsmith, P. 1(1) : 39
Huiying, W. 1(1) : 95
Jengjalearn, A. 1(1) : 83
Joy, A. 1(1) : 1
Meksamoot, K. 1(1) : 39, 83
Pankeaw, P. 1(1) : 83
Phlainoi, S. 1(1) : 73
Ratana, P. 1(1) : 83
Ratoran, S. 1(1) : 73
Saeng-Xuto, V. 1(1) : 57
Suriya, K. 1(1) : 21
Suriyachan, C. 1(1) : 57
Thanalerdsopit, P. 1(1) : 39
Thapthong, S. 1(1) : 83
Tongsookdee, R. 1(1) : 57
Tongthaworn, R. 1(1) : 57
Yimin, X. 1(1) : 95
Yodcome, M. 1(1) : 57
Yodmongkon, P. 1(1) : 39
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