Strategies for cross-cultural health education and their effects: Training Community Health Workers in rural indigenous Ecuador

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To my family, for your unconditional support.

ABSTRACT

Introduction and Objective: Community health workers (CHWs) are key actors who provide health services to under-served populations and are often the sole port of entry to westernized healthcare for marginalized communities. CHWs training, and other forms of community health training interventions, sometimes fail in the long-term because local cultural factors are not considered. McGill University Training and Education for Andean Community Health (TEACH) project was envisioned for the training of CHWs in rural indigenous communities in northern Ecuador. Drawing on this case study, the objective of the study is to identify and understand the strategies used by health professionals from a western context to seek to reconcile cultural differences in providing healthcare in a rural indigenous non-western context.

Methods: This is a qualitative single-case study of McGill University's TEACH project between 2012 and 2017. Study participants included CHW-trainees, who were members of five rural northern Ecuadorian indigenous communities, and Canadian health professionals who provided the training. Fifteen participants and six teachers' semi-structured interviews and workshop reports were analyzed using inductive thematic analysis.

Findings: The central theme of the study is that all micro (local teaching), meso (organizational) and macro-level (broadly cultural, institutional and governmental) strategies, enacted by the teachers, showed an increasing emphasis on the macrostructural strategies as the project evolved. This chapter elaborates on the micro, meso and macro strategies through which the Canadian teachers sought to teach in a culturally aware, sensitive and competent manner. The five sub-themes are: co-designing the content and

structure of the workshops (micro-level); co-designing the assessment and evaluation strategy (micro-level); building inter-organizational relationships (meso-level); adapting the negotiation of roles of the CHWs to the needs of the communities (meso-level); and systemic cultural engagement: advocating for the roles and achievements of CHWs (macro-level).

Conclusions: The results of the study indicate that CHW-trainees and teachers identified the project's aspects that were incongruent with the communities' cultures and contexts, and the teachers were able to adapt them to the benefit of the communities. Immersion in, and knowledge of, the community and CHW-trainees' feedback were essential to identifying elements to change. This study's findings ought to inform future health training programs in cross-cultural contexts.

RÉSUMÉ

Introduction et objectif : Les agents de santé communautaires (ASC) sont des acteurs clés qui fournissent des services de santé aux populations sous-desservies et sont souvent le seul point d'entrée des soins de santé pour les communautés marginalisées. La formation des ASC et d'autres formes d'interventions de formation en santé communautaire échouent parfois à long terme car les facteurs culturels locaux ne sont pas pris en compte. Le projet de Formation et d'Éducation pour la Santé en Communauté Andine (TEACH) de l'Université McGill a été envisagé pour la formation des ASC dans les communautés autochtones rurales du nord de l'Équateur. S'appuyant sur cette étude de cas, l'objectif de l'étude est d'identifier et de comprendre les stratégies utilisées par les professionnels de la santé d'un contexte occidental pour tenter de réconcilier les différences culturelles dans la prestation de soins de santé dans un contexte rural autochtone non-occidental.

Méthodes : Il s'agit d'une étude de cas qualitative portant sur le projet TEACH de l'Université McGill réalisé entre 2012 et 2017. Parmi les participants à l'étude figuraient des stagiaires ASC, membres de cinq communautés autochtones du nord de l'Équateur, et des professionnels de la santé canadiens qui ont donné la formation. Les entretiens semi-structurés de quinze participants et six enseignants ainsi que les rapports d'ateliers d'enseignants ont été analysés à l'aide d'une analyse thématique inductive.

Résultats : Le thème central de l'étude est que toutes les stratégies micro (enseignement local), méso (organisationnel) et macro (culture, institutionnelle et gouvernementale) adoptées par les enseignants ont mis l'accent sur les stratégies macrostructurales au fur et à mesure de l'évolution du projet. Ce chapitre décrit plus en détail les stratégies micro, méso

et macro par lesquelles les enseignants canadiens ont cherché à enseigner de manière culturellement attentive, sensible et compétente. Les cinq sous-thèmes sont : concevoir conjointement le contenu et la structure des ateliers (au niveau micro); conception collaborative de l'évaluation et de la stratégie d'évaluation (niveau micro); établir des relations inter organisationnelles (au niveau méso); adapter la négociation des rôles des ASC aux besoins des communautés (niveau méso); et l'engagement culturel systémique: plaidoyer pour les rôles et les réalisations des ASC (niveau macro).

Conclusions : Les résultats de l'étude indiquent que les stagiaires et les enseignants ASC ont identifié les aspects du projet qui ne concordent pas avec les cultures et les contextes des communautés, et que les enseignants ont pu les adapter au bénéfice des communautés. L'immersion dans la communauté et la connaissance de celle-ci et les réactions des stagiaires ASC étaient essentielles pour identifier les éléments de changement. Les résultats de cette étude devraient éclairer les futurs programmes de formation en santé dans des contextes interculturels.

Content:

LIST OF ABBREVIATIONS

CaLD: Culturally and Linguistically Diverse.

CHW: Community Health Worker.

FYESTA: *Formación y Educación por la Salud de la Tierra Andina* (name of the TEACH project in Spanish).

HPV: Human Papilloma Virus.

IRB: Institutinal Review Board.

IUGR: Intrauterine growth restriction.

NGO: Non-Governmental Organization.

ORS: Oral rehydration solution.

PAP: Papanicolaou.

SDH: Social Determinants of Health.

TAPS: *Técnicos en Atención Primaria en Salud* (Spanish name for Primary Heatlhcare Technitians).

TEACH: Training and Education for Andean Community Health.

UNOCANC: *Organizaciones Campesinas del Norte de Cotopaxi* (Spanish name for the Peasant Organization of the North of Cotapaxi).

US: United States

WHO: World Health Organization.

LIST OF FIGURES

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PREFACE

The present thesis was carried out and written following the guidelines for a Master of Science traditional thesis by McGill University and the Department of Family Medicine.

Dr. Laura Catalina Rojas Rozo, MD and MSc Candidate in Family Medicine at McGill University was responsible for transcribing the semi-structured interviews, the analysis of the data and the composition of the present text with its sections.

Dr. Peter Nugus was the supervisor of Dr. Rojas Rozo for the duration of the thesis. Dr. Nugus and Dr. Alison Doucet, Director of the TEACH (Training and Education for Andean Community Health) project, were responsible for collecting the data used for this project, between 2012 and 2017.

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INTRODUCTION

Many countries have people with limited access to health services, low quality of care, and who are financially impoverished (1). Governments and health departments worldwide, formally at least, have increasingly claimed universal health coverage and the implementation of sustainable development goals as essential for effective and equitable healthcare delivery and access. The ability to provide these is largely dependent on the health, equality and stability of particular countries (2-5). To supplement deficiencies in systemic healthcare provision, auxiliary services to provide health services have emerged. For instance, community health workers (CWHs) are key actors in health systems to achieve broad-based health coverage. They are an alternative to employing more medical doctors, and professional nurses, which is sometimes impossible owing to financial and workforce shortages. Often, CHWs are the first and sometimes the sole port of entry to western health services; thus, they can provide support for an overstretched health workforce (2, 3, 5-10). Even though several CHW programs have been implemented successfully in different contexts, they still face various difficulties in implementation. There is insufficient information on how to successfully implement such programs in terms of training strategies required for the sustainable success of such training interventions (2-9).

CHWs have been ascribed different names. Alternative names include Lay Health Workers, Community Health Volunteers, Community Health Agents, Village Health Volunteers, Village Health Workers, Non-physician Healthcare Workers, Lay Birth Attendants, among others. For efficiency, they will be referred to as Community Health

Workers (CHWs) in this thesis. More specifically, because the CHWs in this study were both students and simultaneously functioning as CHWs, they are referred to as “CHW-trainees.”

Conventionally, CHWs have belonged to the same culture as those they are meant to serve. For the purpose of this study, "culture" means a pattern of beliefs, values, customs and practices among a group of people that makes them relatively distinct from another group, and that either originates with, or is strongly tied to, ethnicity, and that has developed over generations (11).

Members of indigenous communities around the world have poorer health and have a higher chance of dying younger compared to non-indigenous people (12). In Latin America, indigenous people represent 8% of the total population and have shown to have worse health and living conditions compared to the non-indigenous individuals in the region (13). In Ecuador, for instance, an indigenous family has a 13% more risk of living in an impoverished home (13). Indigenous communities also evince higher infant mortality rates in the rural and urban areas compared to non-indigenous Ecuadorians from the same region (12).

In northern Ecuador, where there are various indigenous communities, a partnership based on participatory research was instigated between the Indigenous Andean Communities and McGill University in Canada. As part of this partnership, the TEACH (Training and Education for Andean Community Health) project was implemented to train members of small villages to be guardians of the health of their communities by serving as CHWs. The Spanish name of the TEACH project was FYESTA “*Proyecto FYESTA: Formación y Educación por la Salud de la Tierra Andina*”. The training was provided by Canadian Health

Professionals, including family physicians, a nurse and a midwife (14, 15). The TEACH project allows a description of essential aspects of the CHW training process that can be used for future reference when implementing new health training programs in indigenous communities in Ecuador and similar developing countries. This study aims to describe and understand the strategies used by trainers (Canadian Health Professionals) to try to reconcile cultural differences in the training process of CHWs in Indigenous Ecuador. Given the focus on understanding strategies implemented, rather than their ultimate "success," the emphasis of the thesis is more descriptive than evaluative.

LITERATURE REVIEW

Community health workers: A pathway to improve access to health systems.

An important challenge for health systems, especially in low and middle-income countries, is to be able to provide access to health services for all (1, 3, 9) and thus match idealized health-related sustainable-development goals and universal health coverage (2, 5). However, it is difficult to achieve universal coverage only by training medical doctors and professional nurses. It requires a significant investment of money and time, which is sometimes unfeasible to implement (9). As a result, auxiliary cadres are being used, such as non-medically qualified people, to provide health services (5, 7, 9).

CHWs belong to this category, and their work can decrease the distance between formal health services (i.e. health systems) and communities (4). CHWs are community members who are trained in specific health delivery activities depending on the particular community's needs or in primary care activities (2, 3, 5, 7, 8, 10). The activities performed, and the training they receive varies considerably and can be tailored very specifically,

depending on the needs and outcomes envisioned by the particular program that engages them (16). Conventionally, CHWs are chosen because they are of the same ethnicity as members of the target community, and because of their profound knowledge of the community and shared life experience with those they would be expected to serve (2, 5, 6).

Depending on the context, CHWs may have other specific eligibility criteria to be selected for the role. In some cases, CHWs are expected to have some previous knowledge or training in health or educational topics if they are expected to train community members about specific health topics. A case in Melbourne, Australia, provides an example of this. CHWs from culturally and linguistically diverse (CaLD) communities were trained with the intention of providing education to members from their own community on diabetes, treatment and health behaviours. The women selected for the training were expected to have previous experience in education, social welfare or some topic of healthcare (17). Additionally, CHWs are often a person's first point of contact with the health system (2, 3, 7, 9). CHWs programs are intended to improve health outcomes and have been shown to be successful in redressing stigma towards or fear of particular diseases, and in modifying behaviours and conditions in communities (3, 10, 18).

CHW programs have been implemented with apparent success in various countries around the world (3, 6, 19). CHW programs have also been implemented in developed countries in an attempt to meet the needs of marginalized communities. In the US, for example, CHWs programs were implemented during the 1960s in response to the inequities the indigenous communities were experiencing in accessing health services. However, CHW programs are now tailored for many other communities in the US, for instance,

Latino/Hispanic communities. As in the present case study, these CHWs have been called "Promotoras de Salud" (20). In the US, CHW interventions have seen improvements in chronic health management, disease prevention and screening, lifestyle changes, and increased use of the health system among vulnerable communities (6). For instance, in North Carolina, Promotoras have delivered services tailored for immigrant women from Latin America who had mental health diseases such as depression or anxiety, which had worsened on account of the arrival and immigration processes, adapting to a new culture and losing family support, among other factors (21). In the US, CHWs have also been integrated into the training of Family Medicine residents in New Mexico. By working in a team with the CHWs, residents are said to "gain awareness and appreciation of the role and expertise of the CHW," intended to lead to better performance of medical tasks and improved quality of service for marginalized communities (22).

Among the Latin American countries, Brazil has made particularly extensive use of CHWs in the health system. CHWs are regarded as an essential part of Brazil's Family Health Strategy, implemented in 1994 with the intent of augmenting access to primary care (3). This model is based on the augmentation of primary care basic health units, in which professionals and CHWs work together for the well-being of the community and to collect essential data or health and social factors (3, 19). This particular program has been used as a reference point for CHWs implementation in other countries in the region as well as on different continents (i.e. Africa) (19).

CHW accomplishments and challenges

CHWs have had several tasks and roles depending on the program or region in which they are working. Their activities have variously involved health promotion and disease prevention, treatment of diseases, and sometimes the collection of health-related data (2, 23). In general, CHWs have been responsible for visiting and enrolling families into their respective health programs, helping not only to increase motivation to seek medical attention when needed but also for general check-ups (3). Such "health promotion" has been perceived by CHWs to be a challenging work (3). CHWs are often trained in recognizing healthcare needs within their community on the grounds that they "view the health of the community in the context of home and community life" (2, 3, 24). CHWs are often seen as translators and bridges or "intercultural brokers" between professional staff and the community, (2, 3, 7, 10). Intercultural brokers are groups or individuals who serve as a communication link or as advocates between groups who are culturally different to improve relationships or outcomes (25).

Although CHWs have been identified as critical pillars in health systems, they face multiple challenges when undertaking their tasks. Their performance can be conditioned by the resources available, individual competence and motivation, as well as support and recognition from the community and other actors in the health sector (2, 3, 7, 26, 27). CHWs may encounter religious and cultural barriers. For instance, in Bangladesh, during a program to improve maternal, newborn and child health, the posters used for providing information were not accepted by some community members for fear of having the same "bad fate" as the women depicted in the pictures. Also, some women were not allowed to have the

poster because their landlords were against them (22). Education and social education are important status markers, lacking in many of the CHWs. This, in turn, creates a disadvantage in communication and perceived credibility of the CHWs in the eyes of some members of their communities (28). When interviewed, some CHWs in African settings mentioned that they would like to have formal training and receive a certificate to be regarded as legitimate professionals, because such status is seen to improve the trust and credibility by community members (3, 29).

Additionally, it is crucial to have support, feedback and a strong network of communication between the formal health sector and the CHWs. Credibility in CHWs has increased when they have been supervised by recognized health professionals (3, 5, 8, 10, 26). However, supervision is often lacking, which can ultimately affect the community's confidence in the CHW, and can also contribute to CHW's low morale and productivity of the CHW (7, 8, 10, 26). Some CHW programs lack an established or regular payment or incentives for the CHWs, who often have an excessive workload (7, 8). Furthermore, the lack of financial resources in developing countries makes it difficult to ensure sustainable CHW training programs (8).

The recognition and integration of culture in the health system

Society is composed by different groups of people who have in shared beliefs, ways of acting and practices that distinguish them from others. These groups within society can be formed due to shared ethnicity, religion, or profession, among others. As a result, within a society, there are several groups that have different cultures, understanding culture as the

"collective expression for all behaviour patterns acquired and socially transmitted through symbols (including) customs, traditions and language" (30). In the context of this research in northern Ecuador, two different groups coexist, each one with its specific cultural belief values. One is the healthcare workers with a more westernized view and the indigenous communities with native aboriginal traditions. Therefore, cultural diversity gives rise to different understandings and practices around a concept such as health and disease. This divergence of worldviews can create barriers for accessing the health system for the members of indigenous communities which can be evidenced with the worst health status of these communities in Ecuador compared to the non-indigenous population (12, 13). Once again, community health workers can work in these contexts to create a bridge between two different cultures.

Most of the members of the populations served by the CHWs share a common culture among themselves and with the CWH. CHW programs are usually implemented in communities which represent minorities or vulnerable groups in their broader society, in order to improve those communities' access to primary care. As has been conveyed above, CHWs and their programs can face challenges when the culture of the intended recipients is not taken into account during their practice or education.

Social determinants of health (SDH) are the social, economic, cultural and political factors and conditions in the environment in which an individual is born and which influence their life and life chances (31). SDHs have an impact on whole communities and can create cycles of inequity (32). Various forces – historical, political, social and economic – influence health and life chances. The determinants of health can be physical conditions, including

safe housing, potable water, and adequate nutrition. Social conditions can include discrimination in various forms, including but not limited to race, gender, ethnic or religious grouping, and can influence health, education and employment opportunities (31, 33).

Members of minority or marginalized communities tend to have disadvantages in terms of finance, education and job acquisition, among others (32). Such disadvantages are the source of or reinforce inequities in access to healthcare services. Cultural differences among CaLD people can exacerbate disadvantage within developed communities, such as in the provision of health services for managing pediatric obesity (34). Additionally, such cultural differences can also be evidenced in a different understanding of concepts of health and disease, which can also affect the provision of health and access to the health services (12, 35).

A review by Betancourt et al. in 2003 (32) identified three ways sociocultural factors can contribute to health disparities. The first one is organizational barriers. Such barriers are seen, for example, in the low representation of Latinos, African Americans and Indigenous communities among health professionals. This may lead to the creation of policies and health services that are inappropriate for, and disconnected with, these populations. Partnering patients with health professionals from the same ethnicity has shown to improve health services outcomes and patient satisfaction (32). Secondly, structural barriers have also been identified. These include the lack of interpreters or ability to be served in one's own language. This has resulted in a lack of understanding by the patient of diagnosis, treatment and follow-up options, and has also realized difficulties in the process of accessing health professions and the ability to obtain medications when

needed (32). Thirdly, clinical barriers have been identified as at the individual-level level in whereby a health professionals' decision-making is affected when cultural differences are poorly understood and accounted for (32).

As a result, guidance in the provision of "appropriate healthcare delivery" for those of cultures other than that of the dominant group, demands appeal to some concepts around culture that have been developed and that will be explained briefly in the following paragraphs. Such concepts differ in their characteristics and approaches. However, all have in common the goal of making "health services more accessible and relevant" for people from a minority community, such as indigenous peoples, with the ultimate goal of improving health outcomes (36). These concepts have much in common and are overlapping, and their precise meanings and distinctions are still evolving and changing (37). Such concepts include of *cultural awareness*, *cultural sensitivity*, *cultural competence*, and *cultural safety.* These concepts reflect the aspiration to account for systemic disadvantage among those of less empowered cultural groups.

For example, cultural awareness is said to be present when an individual has some knowledge and recognition of the culture of other people around them (37). Similarly, cultural sensitivity is said to be present when, in addition to the recognition of different cultures, culture is also respected and valued (37). Nonetheless, the literature has indicated that, although being culturally aware and sensitive is essential as a starting point, it is not enough. In 2016, Smith et al. showed that, in Australia, Aboriginal communities under-utilize primary healthcare services (38). This would suggest that, beyond individual patient or citizen characteristics, health systems are not meeting the expectations of the

community. Even if primary care providers have some knowledge and appreciation of indigenous communities, Australian Aboriginal people have conveyed that there is still a lack of adequate services for them, relative to non-aboriginal Australians (38).

Furthermore, in the case of Aboriginal Australians, differences in perceptions of health professionals and patients in terms of the health consultation have their roots in culture. For instance, the majority of the staff in one particular study believed that the communication with Aboriginal patients was clear and understandable, whereas only half of the Indigenous patients thought that the health provider's communication was appropriately sensitive (38). In addition, the perceptions from the Indigenous participants of this study indicate that it is not only necessary to have a culturally appropriate consultation, but that the engagement of patients with administrative staff, and infrastructure (i.e. waiting room) need to be welcoming, culturally-relevant and culturally-appropriate for Aboriginal people (38). Culturally sensitive services require the input of community members so that health centres can tailor services for culturally marginalized communities (38).

In the US, people without private health insurance have less access to primary healthcare, prescribed medications, have higher morbimortality and lower quality of life. They tend to belong to ethnic minorities (e.g. Hispanic immigrants without legal status and indigenous communities). Additionally, racial and ethnic disparities continue to exist in terms of diagnosis and treatment of several diseases, and in access to health insurance and services in general. Cultural beliefs can also exacerbate inequitable access to healthcare,

such as in recognition of symptoms, beliefs and practices about when to seek healthcare, and how patients communicate what they feel (32).

In the 1980s, in the US, in response to the identification of sociocultural barriers that affected the quality of healthcare services, the notion of "cultural competence" was promoted as an approach to guide improvement in the provision of health to minority groups or vulnerable groups in the community. Cultural competence was thought to produce interaction between physicians and patients from different cultural backgrounds (35, 39). The concept of a "culturally competent health system" also emerged as "one that acknowledges and incorporates – at all levels – the importance of culture, assessment of cross-cultural relations, vigilance towards the dynamics that result from cultural differences, expansion of cultural knowledge, and adaptation of services to meet culturally unique needs" (32). The concept of cultural competence has been formally adopted by some countries and has been adjusted to address the different sociocultural barriers for indigenous communities in Australia and the US in particular (35). Most literature using this specific concept originates in the US (32, 35, 39-41). CHWs, owing to their closeness with, and knowledge of, the community, serve as an intermediary between health services and the community and can, therefore be expected to have the potential of transcending some barriers at least for accessing health services. Thus, CHWs are claimed to have the potential of improving community members' access to health and "improving the cultural competence of service delivery" by making a service more responsive to the needs of culturally marginalized patients (22).

In 2009, Balcazar et al. proposed four essential components for cultural competence (42). The authors suggested that, for a health practitioner, to be culturally competent, they should have developed: cultural awareness; cultural sensitivity; in-depth cultural knowledge; and fourthly, the necessary skill development to apply the foregoing three elements in a particular context (42). According to this model, critical awareness is promoted as a reflection on the understanding of one's culture, biases and position in society, and in relation to others. This assumes that health professionals' desire and have the ability to understand the other person's point of view, experiences, values and expectations of the service provided, and to communicate so as to evoke such perspectives and respond appropriately to them (42). The desire to engage in a culturally competent manner is also presented as indispensable for culturally competent practice (42).

However, the concept of cultural competence has been challenged, despite its prominence in health sciences literature and its application to a variety of marginalized communities. A framework of cultural competence, without the attention to individual diversity, risks stereotyping populations and denying the cultural diversity within groups (43). The term "competence" could mean that culture is something one can master, and failure to recognize that there are limits to how much somebody can "master" about other people's cultures (31, 43). As a result, additional concepts such as "cultural safety," have been coined in an effort to humble the individual health professional in the service of redressing systemic disadvantage of those from minority or marginalized cultural groups (31).

The concept of cultural safety emerged in New Zealand during the late 1980s. Nurses from the Maori indigenous community developed this concept as a response to the inequalities in healthcare that people from their communities had experienced (44-46). The concept is intended to address the different power relationships between the health professional and members of indigenous communities with a focus on the understanding of "health beliefs and practices of different ethnocultural groups" in a postcolonial process of engagement (44). The concept of cultural safety challenges the assumption that the practice and provision of health services are culturally harmless. Culturally unsafe practices can be defined as "actions which diminish, demean or disempower the cultural identity and well being of an individual" (44, 46), recognizing, for example, the position of the indigenous community in a multicultural society. Therefore, cultural safety ought to involve the recognition of the negative attitudes and stereotyping of particular communities and its members, and systemic reasons that particular communities experience inequalities in accessing health services

The need to know *how* culture is integrated into cross-cultural CHW teaching

The concepts mentioned above were developed initially to find ways to approach and resolve the inequalities that many vulnerable and marginalized cultural communities experience when accessing health services. As Community Health Workers represent a bridge between these communities and the health professionals, understanding how, for instance, cultural aspects are engaged and integrated during the training is paramount. In the following sections, a general description of the CHWs' training will be provided.

Community health workers' training

Available accounts of the training CHWs receive vary greatly depending on the country and region where they are carrying out their roles. Information on the length of the training received by CHWs is limited (2). However, when available, accounts have shown that CHW training varied in length. CHW training programs have been delivered over a few days (17, 47) to several weeks (18, 29). The methods used for delivering the training varied among studies. There are examples of content delivery using interactive and educational activities, role-playing and open discussions of complicated cases (29). Other programs have training on specific skill acquisition for the CHWs. For instance, some programs trained CHWs to be able to collect data for calculating cardiovascular risks, drawing on education about blood pressure, height and weight measurement (5, 18); others have focussed on activities focused related to delivering medication and advice on tuberculosis (29) or diabetes treatment. Additionally, some training programs used the communities' languages during the training (18, 29, 48). Nonetheless, the use of indigenous languages has been seen as a complement rather than integral to programme delivery, the training being provided mostly in the dominant language of the broader society (i.e. English, Spanish). Indigenous language has also been used in the material provided to the CHWs, which will be briefly described in the following section.

The literature also provides accounts of how CHW training programs carry out individual assessments and program evaluations. Programs describe the use of pre-post test as a tool for assessing the knowledge of CHWs (18, 48). This has allowed some programs to

undertake minor modifications to training programs by focusing on the areas where CHWs display weaker knowledge, or to add another session of training. The results of one particular the pre- and post-test assessment saw a passing grade rate increase from 47% and 87% before and after the two-week training, respectively (18), and an increase in the knowledge of between 7% and 39% (48). Evaluation of the CHW programmes, from the point of view of the CHWs, has been carried out using interviews and focus groups (48, 49). This has allowed the exploration of the perceptions CHWs had on specific training programs. For instance, in a multisite training for CHWs taking place in Bangladesh, Guatemala, Mexico and South Africa, CHW-trainees indicated that they would have liked to learn about other topics, other than those presented. Even though they appreciated the use of didactic activities during the training the CHW-trainees have liked more interactive activities during the workshops (48).

The selection of study participants to be trained is also diverse. Many training programs are focused on selecting CHWs who are already trained in these roles, and affiliated, for instance, to a non-governmental organization (NGOs) (47, 48), or who have had a specific educational level such the completion of high school (18). Some programs were even more specific in the selection processes by recruiting immigrants who arrived at the country in the last five years, having a previous carrier related to education, health or social sciences (17). The diversity in the characteristics of CHWs selected can also explain the diversity found in the length, content and type of activities provided in particular training programs. The literature indicates that the training duration varies between programs and contexts, as well as the tasks the CHWs are intended to be able to undertake

following their training. Various articles describe the importance of including some aspects of the CHWs' target population culture into the training for the success of the program (4, 29).

The material used in the education for, and to be used by, Community Health Workers

CHWs are expected to perform their tasks based on the needs of their community. Thus, CHWs need materials for their education and to perform activities that are tailored for their community and their needs. The description of the material used for the training of CHWs found in the literature includes dimensions of the communities' culture, including music and language. The literature also includes description of learning materials that were co-created with the aid of the CHWs with considerable success and acceptability from the communities. For instance, in Alaska, five booklets were co-created with the aid of CHWs, with information about cancer and cancer screening in the communities (50). The material was perceived as respectful of indigenous culture, understandable, and the inclusion of local testimonies was widely appreciated by indigenous members of the community (50).

CHW training has been seen as paramount in improving health services (3, 10, 18). However, there is a need for more research about the way the CHWs receive training to communicate health information, and about how they deliver the information to the members of the community they serve (4). One article described a "multi-level logic model", giving importance to training and supervision that was applied, with collaboration between various stakeholders, including community members. The article does not delve into

training, but it does acknowledge the importance of culture and context of the CHWs and their community as fundamental to the model's successful application (5).

"Sharing stories" is another strategy used in the training of CHWs. This strategy allows CHWs to share personal experiences about their work and the knowledge they have on a particular topic. The information gathered during such an activity has been used by trainers to tailor the programs that allow teachers to re-direct what they perceive to be inadequate understanding, as well as reinforcing positive actions and empowering CHWs about their role (4). Another training event that has been reported in South Asia has given importance to empowerment and context of CHWs for the screening of breast and cervical cancer, with high acceptance and satisfaction from the CHW and the community itself (24). Additional experience of training CHWs in screening for cardiovascular disease risk showed that the fact that delivery of teaching and materials in a different language than the one used in the community represented a barrier to effective training. It was also noted that it is essential to give training in the language of the CHW because CHWs will, in turn, expected to teach what they learned to other members of the community they serve (18).

The historical context of the community should also be accounted for when training CHWs and implementing CHWs program. For instance, Angola, with the active collaboration of Brazilian experts in the field, has implemented a program in which CHWs actively participated in suggesting and implementing adaptation of the program, which were tailored around the civil war the country had recently experienced. It is also recommended that importance is given to the process "of "transfer" and "translation of experiences to different contexts" to foster share learning and hence improved program effectiveness (19).

For instance, a 2013 US training program for CHWs working for a Latino/Hispanic community integrated popular culture and elements of the Latino cultural context in California, in order to engage participants in interactive activities. This included incorporating music compositions on daily problems encountered by members of the community (20). Another program trained CHWs to provide culturally sensitive intermediary health services, indicating that CHWs can integrate health information with specific aspects of their community's culture, such as language, and take account of social and economic status (16).

Thus, effective training of CHWs must go beyond imparting relevant and specific content to CHWs because CHWs must combine technical knowledge with their personal experiences and context, and the culture of those they are to serve. However, little is known about strategies used for effective knowledge transfer, in particular about how differences in culture between the trainers and the trainees are accounted for. In several articles, these issues are prescribed in a normative sense, in the form of recommendations. What is not specified – and this is a significant research gap – is what attempts are made to teach in ways that take account of cultural differences and how leaners respond to these attempts. Besides, the largest portion of the empirical literature on CHW training related relates to the delivery of the training to participants who previously identified themselves as CHWs, instead of the training for new CHWs. This is especially important when referring to the training of indigenous CHWs, whose cultures are only now starting to be recognized and appreciated. Such knowledge will have implications for teaching practice not only of indigenous CHWs but CHWs in various cultural contexts.

RESEARCH PROBLEM AND RESEARCH QUESTION

Community health workers are conceived as and found to be key players in health systems that strive to achieve universal health coverage. Even though several programs have been implemented worldwide, one of the areas for further inquiry is the CHW training itself. Most of the literature on CHWs and cultural competence focus either on describing concepts and programs or on presenting evaluation of the outcomes of programs (17, 47). A limited set of literature has focused on describing the processes of inter-cultural engagement CHW training programs (51). Very few studies have documented the efforts to provide culturally sensitive and competent training – in CHW training programs or general cultural awareness, cultural sensitivity or cultural competence training programs generally (2). Information is scarce on how training programs for CHWs are implemented, and what efforts to take into account cultural difference look like. Therefore, the TEACH project, described above, is an appropriate setting to examine strategies used by CHWs trainers to teach in a culturally appropriate matter and the way they implemented them, with the broader aim of guiding CHWs training programs for indigenous communities elsewhere.

Although this study will not account for whether actual learning increases, a better understanding of the teaching strategies used, in relation to the way teachers make sense of their understanding of trainee needs and culture, will provide indications, and thereby transferable lessons, about how cross-cultural teachers might be able to recognize whether or not that trainees understand what is being taught and are able to use and impart that knowledge to the benefit of their communities. Therefore, the research question for this

study is**:** How, and with what response, did the TEACH project seek to engage strategies to reconcile cultural differences when teaching CHWs in Ecuadorian indigenous communities? The broader objective of the study is to discern general strategies with which health professional teachers from a western context can help to reconcile cultural differences with indigenous, and other culturally, marginalized communities in health training programs.

RESEARCH DESIGN

Methodology: A Case Study

The strategies used in the training of community health workers can vary from program to program and from one community to another; thus, CHE training might be usefully approached by considering the contexts in which CHW training is delivered. Furthermore, augmenting the literature on CHWs' training programs, the World Health Organization (WHO)'s guidelines to improve the performance of CHWs recommends the use of case studies to explore the education of these fundamental health actors (51). Robert Yin described the case study as a methodology based on a particular selected sample that can be used to understand a phenomenon within its context (52). This qualitative methodology is also characterized for using various data sources, including observations, interviews and archival records, and is used in this study (52).

The first assumption of case study design is the philosophical paradigm with which reality is understood. A case study is intended to frame an analysis of the cases or cases within its context or contexts, on the understanding that the phenomenon to be studied and analyzed is bounded to a particular context (52-55). It is indeed the context-specificity of a case that renders the abstract principles it generates more widely transferable (56). A constructivist paradigm holds that reality, as far as it is meaningful to people, is socially constructed; thus, dependent on the context (57). The limits of the case and its context cannot be identified (52). Case studies are valuable for studying events for which the relevant behaviours or events cannot be manipulated by the researchers. This distinguishes

case studies from conventional experiments, in which the context is controlled so that it has less power to affect the results of the observed intervention (55).

Case studies also guide the types of questions that are asked and answered. Case studies are a way of answering “how” and “why” questions (55). Such questions are explanatory and go beyond the identification and analysis of variables or frequencies. “How” and “why” questions guide understanding of the manifestations of and explanations behind phenomena, the lived experiences surrounding the phenomena of interest and how such phenomena are perceived (55).

After identifying the case or cases to be analyzed as well as the type of questions to approach, one must decide on the type of case study to engage. The classification provided by Yin is based on two characteristics: the quantity of cases involved and of the units of analysis identified. Based on the number of cases, case studies can be single- (only one) or multiple- (two or more) case studies (55). Single-case studies can be used, for example, when the case under inquiry represents a unique event (i.e. is very rare or with particular characteristics), or it is about a revelatory event (i.e. the situation has not happened before, and now it can be observed and analyzed). It can also be used when the researcher is planning to study the case at different points in time (longitudinal case) (55). Multiple-case studies are of use when the same study is comprised of more than one case (55). For example, such a study can aid in the evaluation of a new treatment protocol that has been implemented in different hospitals and health centres. Each one of those centres would be a case inside the study (55).

The selection of a multiple case study can be base on replication, with special focus on the how and why the outcomes are similar in each one of the cases. It can also be used to compare different cases exposed to the same phenomenon that showed extreme results (i.e. positive or negative responses to the exposure) (55). After differentiating between a single- and multiple-case study, the case is classified based on how the analysis is carried out. Thus, it can be classified as holistic, in which you analyze the case without any division, or as embedded, when you identify different sub-units of analysis in the case (55).

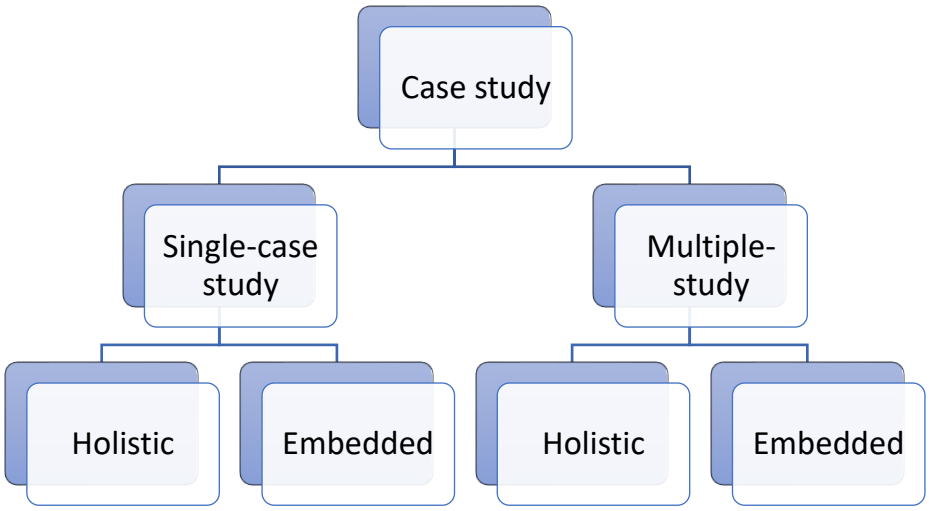

Figure 1: Case study designs (Adapted from Yin RK. Case study research: Design and methods: Sage publications; 2013)

For this study, I will be using an embedded, single-case study. The case (i.e. the unit of analysis) will be the TEACH project. This project will allow the exploration of the strategies western teachers use in a non-western, indigenous, resource-poor setting, focusing on the teaching actions of Canadian health professionals when training members from the rural

indigenous communities in Northern Ecuador, and the responses of the CHW-trainees. Based on the TEACH project characteristics, the case is unique in terms of participant culture, context and aim of the TEACH project, revelatory in the sense that it allows the team to inquire about teaching strategies in a cross-cultural context, and longitudinal as the case allows for a six-year follow-up. Also, this is only one case to be approached in this research; thus, it is a single case study. Additionally, the case will be divided in subunits to perform the analysis. The analysis will be done biannually (i.e., 2012-2013, 2014-2015 and 2016-2017); thus, this is an embedded case study. With this, I plan to present as rounded and detailed a view as possible of the phenomenon of cross-cultural teaching strategies (53).

Qualitative methodologies, including qualitative case studies, have been challenged on the grounds of rigour and trustworthiness (55). Guba proposed four criteria to guide the trustworthiness of qualitative research. The four criteria are: credibility, transferability, dependability and confirmability (58, 59). Credibility requires that the study "measures" or analyzes what was intended from the beginning (59). To enhance the credibility of the project, I used triangulation of accounts of teachers and CHW-trainees. The project took into account the point of view and perception from three active participant groups in the case, the healthcare professionals (from McGill University), program participants from the communities in Ecuador, and the Program Coordinator from Ecuador, who also participated as a CHW-trainee. Furthermore, there were monthly meetings with my supervisor and annual meetings with my thesis committee to guide the coherence of the findings with data.

All of these members are well-recognized researchers, two of them in qualitative methodologies and the other in primary care research.

The project findings have also been presented at peer-reviewed conferences. The protocol and results of the research project were presented at the North American Primary Care Research Group Annual Meeting in Chicago, USA, in November of 2018 and at the Family Medicine Research Symposium in Montreal in May of 2018 and 2019. At these events, meaningful feedback from external sources and experts enriched the project.

The second criterion (transferability) refers to the possibility of applying the findings from this research to other contexts and situations (59). The aim of this research was to illuminate the western adaptation of a program to a non-western culture, in efforts to render training culturally aware, sensitive, and competent. Therefore, the broad findings of this study are intended to apply to other specific settings where such training occurs. The study is intended to provide a rich description of the particular teaching strategies used during the training of community health workers. Analysis of the strategies was expected to provide sufficient information so that readers can determine whether or not these findings can be applied to their context, with the necessary modifications taking account of any cultural and contextual differences that might, and will, possibly exist between particular CHW's training programs.

Dependability, the third criterion, is the possibility of arriving at the same results if a different researcher were to apply the same methodology and methods in the same context (59). This criterion is difficult to achieve in a qualitative study. The context is in continuous change, and it will be challenging to encounter another context with the same

characteristics as the ones found in rural indigenous communities in Ecuador, and like the specific ones involved in the TEACH project. During the implementation and progression of the project, these communities faced different situations that will be difficult to encounter in another context. For instance, the Government of Ecuador was launching a health program involving “Técnicos en Atención Primaria en Salud” (TAPS) who are technicians in primary healthcare which started interacting with the CHWs as the project progressed. Furthermore, the staff at the hospital, as well as the members of the Cabildos (a form of municipal government in the indigenous communities), changed frequently which in many situations represented shifts in the support for the TEACH project. By describing the research design and its implementation in detail, I anticipate that the reader can determine the fit of the broad-level findings to their particular circumstances and context.

Finally, confirmability refers to the plausibility of the researcher’s interpretation of the data (59). This depends on demonstrating a variety of situations in which the data could be challenged. Conformability can also be aired by triangulation, peer revision, feedback from research team members, and a detail description of the results. In a qualitative sense, it is envisaged that sufficient information is provided to enable the reader to evaluate whether there is a plausible association between the evidence and the findings. An audit trail as also kept with records on when, how, and why decisions during the project were made.

Journaling helped me to be reflexive – modifying my approach as circumstances required it – and to recognize that, as a general practitioner, my perception could be similar to those of the physicians participating as teachers in the project. However, not only was I

aware of my positioning, any untoward bias can be expected to have been mitigated to some extent by the fact that the analysis comprised the perceptions from the various actors involved in the project. The findings were grounded systematically in the codes which came from the data provided by healthcare practitioners, as well as the participants from the community and the project coordinator. Finally, this project was subjected to ethical review and approval with The Faculty of Medicine Institutional Review Board (IRB) at McGill University and was accepted on August 27 of 2018. The IRB certificate of this study identified with the number A06-E45-18B is attached as Appendix A.

Setting

Indigenous Communities in Latin America and Ecuador

By 2010, in Latin America, there were around 42 million indigenous people – approximately 8% of the total population of the region (13). Despite the technical and economic advancement in the region, indigenous communities have not benefited from the socio-economic developments as other ethnic groups have. Indigenous people who live in urban areas tend to reside in unsafe areas and with a higher than average risks of natural disaster affections compared with the general population (13). Furthermore, the disparities are worse for an indigenous person who lives in a rural area. According to the World Bank in 2015 (13), indigenous communities have 2.7 times more risk of living in conditions of poverty than non-indigenous people in Latin America. Indigenous communities have 18% to 15% less access to sanitation and electricity services compared to non-aboriginal communities in Latin America (13).

Ecuador has 32 indigenous groups and 13 indigenous languages(13). As a nation with an indigenous population of 1.018.176 people (around 7% of the total population in 2010), Ecuador presents an example of the training of CHWs in an indigenous community. Some Governments of South American Countries with indigenous communities, such as Ecuador, understand that these communities may have higher morbimortality rates due to limited access to health services. For instance, in Ecuador, an indigenous family has a 13% greater likelihood of having an impoverished home environment compared to non-indigenous families (13). Members of 26 indigenous communities in the Province of Cotopaxi (rural Ecuador) under a non-governmental organization called “Organizaciones Campesinas del Norte de Cotopaxi” (UNOCANC), requested for community health assessments. The assessment team considered access to services, family composition, most common illnesses, family and reproductive health, and health of children under five years old. The results showed that the inequity is greater for indigenous people in rural areas. The authors concluded that all the social characteristics and traditional medicine practices should be taken into account when implementing a health program with the active participation of the community (60). Members of the current team also found that, while rural indigenous women in Ecuador exercise considerable agency to maximize their personal health, they are systematically disadvantaged by infrastructural and socio-economic obstacles (61). These results can serve as a context for future implementations of CHW programs within indigenous communities as they inform the situation of Ecuadorian indigenous communities from the point of view of the community.

The Case: Training and Education for Andean Community Health (TEACH) project.

The case in this study is the Training and Education for Andean Community Health (TEACH) project. This project was developed in 2012 by the Department of Family Medicine at McGill University by request of, and with the participation of, indigenous rural communities in Northern Ecuador to train local, indigenous community health workers (15). The five communities involved in the project are geographically close to each other and have between 60 to 120 families per village (14). The Spanish name of the TEACH project is FYESTA "*Proyecto FYESTA: Formación y Educación por la Salud de la Tierra Andina*".

The project was initiated by a medical student, Andrea Evans, during a fortuitous meeting with the Chief of the Cabildo in Ecuador during a medical student Summer research project. Dr. Evans continued to teach and take an interest in the project in subsequent years, after Dr. Doucet, as Director of Global Health Programs in the Department of Family Medicine, began formally coordinating the project. The request for the creation of this program was possible as a result to the previous projects McGill Faculty of Medicine had in the area (15, 61). In liaison with a community leader who subsequently became the local Project Coordinator, team members agreed that the training of CHWs would focus particularly on child and maternal health, as a way of advancing these communities' health generally, and of fostering the relationship between the indigenous communities in Ecuador and McGill University. This project was created in close collaboration with members of the community and was approved by the "cabildos" (their governing boards) of the villages included. The project would initially consist of three visits to the community per year, with a duration of two weeks each. The training was provided by Canadian healthcare

professionals (i.e. representatives from family medicine, midwifery and nursing) in the format of workshops. For the first cycle of workshops (2012), the aim was to start with courses on maternal and childcare and initiate home visits.

Participants

In total, the TEACH program involved up to six teaching health professionals and more than 15 participants from various northern Ecuadorian indigenous communities. The number of participants undergoing the training varied with time due to the inclusion of new members to the training group as well as CHW-trainees who withdrew from the course. Most of the students were women; the first male community health worker joined the workshops occurred in September 2014 and officially joined the group in November 2014. An indigenous program coordinator was involved. The coordinator's tasks included translating from Quechua to Spanish, actively participating in the course, helping in the planning and development of the teaching workshops, and organizing meetings with the community health workers between the workshops. Prospective program participants nominated to the Calbildo and they were chosen by a committee selection process. The Canadian teachers were all healthcare professionals who volunteered for the task. The teachers were selected for the project needed to have solid proficiency in Spanish, the language in which the workshops were to be delivered. Because this was a relatively small project, all CHW-trainees and teachers were approached and invited to participate in an interview. All accepted.

Methods for collecting data

Case studies are generally characterized by using more than one source of data. I drew on both semi-structured interviews and written reports for each visit. This study draws on both primary and secondary data. Secondary data took the form of information that already been collected from the TEACH project – namely transcripts of interviews with CHW-trainees and written project records. Primary data were interviews with teachers. My supervisor, Dr. Nugus, and his research team performed semi-structured interviews during the years 2013, 2015 and 2017. As required by the McGill University IRB, all the interviewees had the right to accept or decline the invitation for the interview as well as the possibility of withdrawing from the interview process without any consequences to their participation on the TEACH project. This study drew on a total of 25 interviews and 19 written reports.

The participants interviewed included members of the indigenous communities who participated in the CHW training and workshops and the Canadian health professionals who delivered the teaching. The teachers were involved in various phases of the project, including the creation and implementation of the project, as well as delivery of the workshops. As the participants had different first languages, each interview was conducted in the language preferred by the participant. The interviews with members of the communities (includes community health workers and local coordinator) were conducted in Spanish, because this is the language in which most of the participants were more comfortable. However, for the participants who only spoke Quechua, the above-mentioned Ecuadorian project coordinator in Ecuador was present during the interview and translated between Quechua and Spanish. Teacher interviews were performed in English (see

Appendix B and Appendix C for the interview guide for CHW-trainees and teachers, respectively).

Project records that were analyzed were the documents compiled by various participants between 2012 and 2017. The records include minutes held among the teachers and between the teachers and the local Project Coordinator, workshop records, information used for the training of CHWs as well as the learning material that was developed by the CHW-trainees. The teachers scrupulously provided daily written reports for their colleagues back in Canada. As such, these documents were the most numerous and most abundant in terms of information. These reports contained information regarding the personal lives and activities of the family at whose ranch the teacher resided during their visits (e.g. growth of children and health of pets), content of the workshops, activities undertaken, programme and content modifications made, reasons for such changes, perceived progress and circumstances of individual participants, explanations of specific situations and context, and, if necessary, comments or recommendations for fellow teachers. These documents were written in English in a Word File Format and were stored in Dropbox® at the end of each visit by the teacher in charge of the training for that visit. The Dropbox® account for the project had a secure password and could only be accessed by members of the investigation team or teachers participating in the training to ensure the confidentiality of the information collected.

The interviews were transcribed verbatim. Thematic analysis was then carried out. The interviews with CHW-trainees were transcribed by a Spanish-speaking Research Assistant. I transcribed the interviews with the teachers. I performed most of the analysis,

including solely undertaking the first level of analysis of all data used in this study. My maternal language is Spanish, and I am well-versed in English. The Spanish interviews were not translated, and the analyses were initially carried out in the language in which the interview was conducted or translated *in situ* (Spanish or English). I wrote the initial codes in English. Data quotes from sources in Spanish were only translated when used to exemplify a finding. As an ethnographer, Dr. Nugus performed these interviews with the CHW-trainees in Ecuador, and a Research Assistant conducted interviews in English with the teachers. The teachers' interviews took place at McGill University or by telephone to accommodate to the interviewees' busy agendas. Before the interviews with the Ecuadorian participants, verbal consent form was obtained, allowing for audio-recording of the interviews, and voluntary participation, negotiable consent and anonymity were reassured during the interview and at the conclusion. Drs. Doucet and Nugus were permitted by the IRB to seek oral rather than written consent, given the relative illiteracy of the participants and apparently negative associations the Project Coordinator said that indigenous people had with written documents (such as fear of transferring property titles). Before the interviews with the teachers, a consent form was completed, which also included authorization for recording the interviews and reassurances as for the CHW-trainees. No participants exercised their espoused right to decline the interview and the recording without any consequences.

Additionally, to ensure anonymity, the names of teachers and participants were also changed. This was also done for the names of the communities, which are now on as Community 1 to 5 for in the presentation of the current findings. The name of the local

hospital is also avoided in this thesis to help ensure that the communities are not identified by its proximity and helping avoid recognition of the CHWs. The reason for concealing the names of the communities and the hospital is due to the relatively small size of the village's populations. For instance, there are approximately 120, 65 and 60 families in Community 1, Community 2 and Community 3, respectively. As a result, identifying the communities by their names will easily lead to the recognition of the participants (14).

Methods for analyzing data

Data were analyzed using a thematic analysis approach. This process was performed several times as an iterative process to ensure that the coding and themes obtained were representative of, and grounded in, the data (62-64). When analyzing the files, I looked specifically for parts of the text related to training strategies used or with aspects that had an impact on the delivery of the training (62). All of the analysis was carried out using an inductive approach. This means that the codes and themes would arise from the data, instead of invoking and holding rigidly to a predefined set of codes and themes (63). To understand the degree or nature of adaptability of the program in relation to cultural factors, and to simplify the analysis, I initially approached the data in biannual cohorts (2012-2013, 2014-2015, and 2016-2017) (55, 63). Codes that were obtained in the analytical process were compared and contrasted (62). However, for depicting the results, only the themes found after comparing and contrasting all the data will be shown in this study.

Themes obtained from the analysis of the documents and interviews were organized in the form of thematic networks to identify possible relationships and interactions

between them (62). Themes were also described separately with representative quotes that emerged during the interviews when required. I carried out the first stages of the thematic analysis, over multiple iterative cycles, to discern the initial codes (see Figure 2 for the general structure of a thematic network) (62). Dr. Nugus and I independently, then collaboratively by negotiation, discerned the second and third levels of coding. Drs. Doucet and Levine also participated in the third level of coding to discern the themes presented in the Findings section.

Figure 2: Thematic network Structured (adapted from Attride-Stirling J. 2001) (62)

This collaborative analytical effort helped enhance the sufficiency, plausibility and representativeness of the findings, and their grounding in the data (64). Representative excerpts are included in the outline of findings below, and participants have been given pseudonyms to aid anonymity.

FINDINGS

This chapter provides an overview of the workshops and the training topics, followed by the presentation of themes and sub-themes, including examples from the data. The central theme of the study is that all micro (local teaching), meso (organizational) and macro-level (broadly cultural, institutional and governmental) strategies, enacted by the teachers, showed an increasing emphasis on the macrostructural strategies as the project evolved. This chapter elaborates on the micro, meso and macro strategies through which the Canadian teachers sought to teach in a culturally aware, sensitive and competent manner.

The project visits commenced in November 2012. The visits were between one and two weeks in length and were held between two and four times per year. A different workshop was held on each day of the visit. Each visit was comprised of approximately 10 workshops, divided between one and two days, which were provided by one or two teachers per visit (Canadian health professionals), among a pool of eight teachers overall. Between November 2012 and December 2017, then, approximately 50 workshops were held. The selection of the two teachers (or occasionally one) for each visit was based on their availability. As some of the teachers had profound knowledge of some specific areas (e.g. midwife in topics related pregnancy), the workshops on those topics were, as far as possible, scheduled for the visit of particular teachers who were experts in that area. The attendance by CHW-trainees during the activities and workshops varied over time. For instance, during the first four workshops, members of three communities participated, realizing attendance of six to 10 CHW-trainees per workshop. However, in 2013, a fourth

community was invited, and in 2014, yet another community joined for a total of five communities, increasing regular participation to 15 CHW-trainees.

The workshops took place in different locations in different communities. Sometimes, later in the program, workshops on specific topics were delivered at the local hospital because they were presented in collaboration with hospital staff. On occasion, workshops included participants additional to the CHW-trainees. For instance, for one of the workshops, the hospital sent TAPS (Técnicos en Atención Primaria en Salud – technicians in primary healthcare) (65) to participate in the activities and to understand more about the training and tasks of the CHW-trainees within the TEACH project. TAPs are healthcare personnel in Ecuador implemented during 2013 by the Government of Ecuador as part of the effort to strengthen and improve primary care health services in the country. Local midwives ("parteras") were also involved either as frequent participants of the workshops or who were invited to participate in particular activities.

The workshops addressed diverse topics. The topics were introduced progressively, and the majority of them were repeated frequently during the visits. As stated, the initial goal of the project was to train community members to become CHWs with an emphasis on maternal and child health. However, this aim was modified to better address the communities' expressed needs. Because the new goal of the program was ultimately to train CHWs for health promotion and disease prevention for their communities, the roles were varied and broad. The training topics included: the role of the CHW (what was expected of them); acute diarrhoea (causes, prevention, possible supportive treatment, and alarm signs); nutrition (constitution of a healthy diet, and gardening skills for maintaining a

sustainable vegetable garden); birth control (contraceptive methods for both men and women); pregnancy (causes of and myths surrounding spontaneous abortion, alarm signals after an abortion and birth, and vaginal bleeding); sexually transmitted infections; accidents and first aid; vaccination; abdominal pain (causes, alarm signs); common rashes in adults and children; respiratory infections; drug addiction; skill development (taking blood pressure, temperature and pulse measurement, physical examination, immobilization, and conducting a health-related consultation with a community member); and medicinal plants and traditional medicine. More information on the content and scope of these topics is contained in Appendix D. Although the substantive clinical topics listed above were variously addressed throughout the program, they were the major focus of the workshops during the first two years, in particular, and reflecting an early emphasis on micro-level (immediate) teaching interventions.

The strategies and actions of the teachers are divided in three themes, depending on their focus on a micro, meso, and macro level, and were evident through five sub-themes. The micro level refers to a focus mainly on the local teaching activities among the teachers and the CHW-trainees. The meso level refers to the strategies focused on the community or another local organization like the hospital. The macro level is focused on broader institutions and epistemic cultures (shared meanings) that may be represented in the communities but are also external (such as policy decisions), and with the aim of having an impact at the governmental level, within and beyond the communities. The five sub-themes are: co-designing the content and structure of the workshops (micro-level); co-designing the assessment and evaluation strategy (micro-level); building inter-

organizational relationships (meso-level); adapting the negotiation of roles of the CHWs to the needs of the communities (meso-level); and systemic cultural engagement: advocating for the roles and achievements of CHWs (macro-level).

The first two sub-themes broadly reflect micro-level activities (local teaching), which broadly dominated the first year. The third and fourth sub-themes broadly reflect the meso-level activities (engagement with local organizations and community activities), and broadly characterize the second, third and fourth years. The fifth sub-theme broadly reflects the macro-level activities (socio-cultural influences from beyond the community, institutional and governmental activities), and broadly characterizes the overlap of the fourth and fifth years. Importantly, all three levels were evident in all years. Formal teaching activities were the fundamental activity of the workshops through the five years of the project. However, as the program progressed, meso and macro-level activities and priorities were increasingly evident, relative to micro-level activities. The following figure shows the distribution of themes and subthemes found for this study.

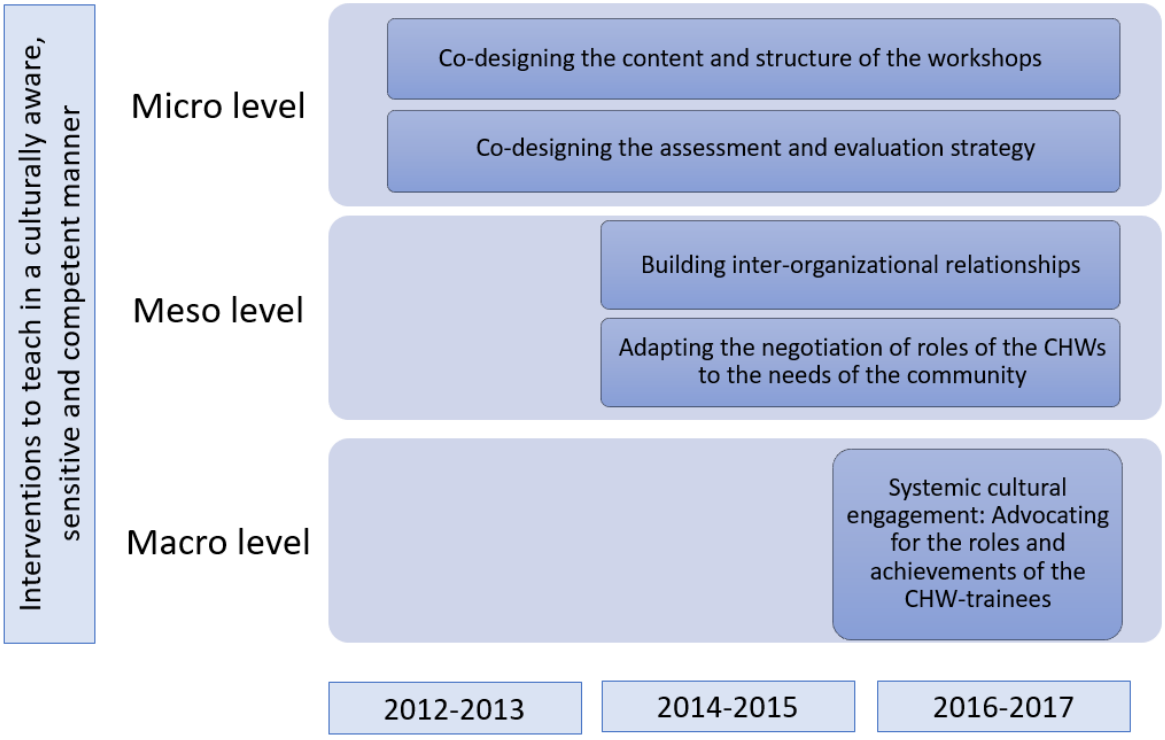

Figure 3 – Distribution of strategies used by the teachers in the TEACH project

1. Co-designing the content and structure of the workshops

To be able to provide training in a cross-cultural setting, as is the case in the TEACH project, the selection of the content and the materials used to train CHWs was fundamental. From the start of the project, teachers showed commitment and intention to developing the content and activities of the workshops collaboratively with the CHW-trainees. This section presents the local strategies and activities around co-determination of both the content and activities within the workshops.

a. Co-determining the content of the workshops

At the early stage of the program (2012), the team of teachers from Canada decided on a structured curriculum, created before the first training visit. The plan was based on the perceived needs of the community and on the previous relationship the teachers already had with the rural communities in Ecuador, developed during previous collaborative projects with the communities. The curriculum for the first two-week visit included a detailed list of what topics were to be covered during the first week, and the second week was to include practice and house visits to members of the community. However, the CHW-trainees appeared not to be ready for this progression, and so the plan was modified.

> *We kind of put on [hold] everything that [Lea] (teacher and project originator) had said to build [on in] this two-week workshop that we spent two full days building, and then it was really obsolete when we sat people down there. Truly, [time] would have been better spent to go down there – to have spent the first year having three trips down with the community focus, and building on that, and seeing what they wanted – not just based in [Lea's]: "This is what they want."*
>
> *Interview with Grace, teacher at the TEACH project (2013)*

> *There was a curriculum, but it was useless. We got together, the group of us in Canada, and we spent two or three days putting together this curriculum. And it was very much Canadian, sort of medical. Like, first we are going to introduce them to some anatomy, and then we are going to do this, and then that. And like, by the end*

of the two weeks, they will be doing home visits. And then [we thought we should bring] blood pressure cuffs and stethoscopes. And we [would] have quizzes. So Canadian.

Interview with Helene, teacher at the TEACH project, midwife (2017)

In these quotes, the teachers refer to the inadequacy of the curriculum for the context. They wished that they would have visited the community before the workshops, to be able to identify the communities' needs. Teachers identified implicitly that a "westernized" manner of relatively didactic teaching – and pursuing a linearly progressive dichotomy between theory and practice – was not applicable in this context. After collaboratively identifying the CHW-trainee concerns about the curriculum and program, teachers took steps to modify the program in an effort to be more culturally appropriate for CHW-trainees and their communities. For instance, while engaging in conversations with CHW-trainees, teachers learned that the initial expectation for the first workshop for CHW-trainees to undertake home visits during the second week was not perceived to be feasible. Teachers readjusted to CHW-trainees cautiousness. They lowered their expectations for the first visit, after explicitly asking the CHW-trainees what they thought of the workshop plan they had proposed.

The CHWs brought up on their own that it would be inappropriate to do home visits accompanied by a stranger by the beginning of the second week. They explained how they had to get to know the people in their community first, do a courtesy visit and

bring a gift (such as bread or fruit) to establish the first contacts … So, we had to revisit the planned schedule and see if we could do more workshops the second week.

Written report on a 2012 workshop (November-December 2012)

The CHW-trainees were invited by the teachers to provide information on their circumstances and culture, and to elaborate their concerns about the perceived inappropriateness of house visits during the teacher's first visit to Ecuador. Informed by these perspectives, as of the second visit in 2013, the teachers amended the training program. The teachers chose initially to create the explicit opportunity for the students to share their ideas at the conclusion of each workshop. This strategy for convening workshops had the aim of identifying and selecting, in collaboration with the CHW-trainees, the topics to be covered in the following workshops.

At the end of the workshop, I asked the participants what they wanted to do tomorrow, and they just want to keep going on the same topics. They were all very excited about continuing back for the last day. I will try to talk to [Cecilia – the project coordinator] about having a little time to evaluate the whole workshop and to discuss future themes.

We discussed topics for the upcoming workshops. Musculoskeletal problems and first aid would be appreciated and could be taught in August or September. [Emilia] wanted a workshop to learn practical skills such as difficult deliveries and stitching. I suggested that this would be a good topic for the November workshop as [Dana]

may join me. [Cecilia – the project coordinator] suggested inviting other "parteras" from the communities.

Written report on a 2013 workshop (March 2013)

The feedback was useful for teachers and the opportunity for input appeared to be greatly appreciated by the students. Through the written reports, teachers conveyed responsive attitudes; they made adjustments to the topics in response to feedback and based the program on what they perceived to be the cultural needs of the CHW-trainees. While attention to the local teaching dynamics between the teachers and CHW-trainees formed the dominant character of the teachers' activities in the first year, their active efforts to maintain and enhance the space for CHW-trainees feedback and opinions on topics continued through the life of the project. This was affirmed by the CHW-trainees, as evident in the following interview quotation. The interview ranked the attitude of openness of teachers as a "five" out of five options on a Likert scale, represented to the CHW-trainees as a particularly happy face, among five optional faces conveying different levels of satisfaction.

Here, I put this one (particular happy face) because we have had this exchange, more exchange, and more participation, and because we are suggesting the theme (for the workshops).

Interview with Cecilia, community health worker and local coordinator of the TEACH project (2013) [translated from Spanish]

Additionally, during the conversations with the CHW-trainees and local coordinator regarding the content, CHW- trainees recommended greater inclusion of their traditional medicines and herbs in the workshops. From the start the project, teachers sought to include unique cultural aspects of the community during the workshop, like reserving a space to have an opening ceremony with a traditional ritual honouring the "Pachamama," and including a spiritual cleansing. The teachers asked the CHW-trainees how engagement with traditional and indigenous cultures could be increased in the program. The CHW-trainees indicated the need for preserving their traditional medicine. Thus, teachers decided to allocate spaces during the workshops for discussing traditional medicine. The CHW-trainees voiced their appreciation of the inclusion of indigenous health knowledge in the program.

> *[The CHW-trainees] also want some sessions to exchange their own knowledge about plants and treatment for different conditions. [Tatiana] from Community 2 mentioned how much she had enjoyed tips given by the other CHWs during the workshop.*
>
> *Written report on a 2013 workshop (March 2013)*

> *When our children were sick, I did not know which plants were good for the children, and now (with) those classes we took, I know a little about medicinal plants that we have inside our own communities, that we have the plants that before we didn't*

know were a remedy for the children (…) Now we know the plants that are inside our community, around our houses.

Interview with Isabel, CHW-trainee (2013) [translated from Spanish]

Thus, even though, as the program was commencing and finding its feet, the teachers sought to adapt to the perceived local and contextual training needs to the CHW-trainees. Seeking to further adapt the curriculum to the cultural needs of the CHW-trainees, in 2014, teachers reached out to the local Union of Indigenous Peasant Organizations (*Unión de Organizaciones Campesinas Indígenas).* The organization is a union of indigenous rural communities in the region. Members of the organization were invited by the teachers to lead a workshop on traditional medicine and medicinal plants. The strategy of inviting experts and users of traditional medicine to convene the topic for the students appeared to result in strong participation and high interest from the CHW-trainees during this session. As a result, teachers managed to include valued aspects of the communities' culture and knowledge into the curriculum of the TEACH project.

A team came up from [the Union of Indigenous Peasant Organizations], [a woman and a man], both with a lot of knowledge about medicinal plants and the driver. We had 12 CHWs attend. [The woman convening] asked the students what they wanted to learn and then continued by asking them what plants they would use for different conditions such as headache, belly ache, menstrual cramps, and so on.

Written report on a 2014 workshop (March 2014)

Thus, the teachers in the TEACH project sought to be adaptable, flexible and open to modifications of the curriculum, driven by cultural needs and priorities. They showed themselves to be observant of perceptions and opportunities for such engagements and were responsive to suggestions and comments made by CHW-trainees. When preparing the workshop for each day, teachers decided to tailor the content using situations that had happened during their visit to Ecuador or around stories told by the CHW-trainees.

> *Using an incident that happened in the morning with a child with a grain of corn in a nostril that had been witnessed by the coordinator, we started the discussion with a very concrete topic.*
>
> *Written report on a 2012 workshop (November-December 2012)*

> *(During a workshop on first aid) we started with a group discussion about what kinds of accidents, wounds, and situations they have seen. The following were what they talked about bike accidents, children, falling from a height (balcony), seizures, dog bites … fainting, head trauma in a drunk man and burns and internal injuries and fractures.*
>
> *Written report on a 2013 workshop (August 2013)*

The flexibility mentioned above also saw teachers adapting the schedule to the limitations and strengths of the students collectively and individually, much of which was

culturally related. In one report in 2013, a teacher pointed out that some topics, like professionalism, did not appear to require a lot of input and intervention from the teachers. In such cases, teachers encouraged students to discuss and share ideas among themselves, following the oral cultural tradition of indigenous communities for transmitting knowledge among members of the communities (66). Other topics, like nutrition, had to be introduced progressively and repeated in different workshops. Repetition was a strategy used by teachers because it is also important in cultures with a particular emphasis on oral tradition (66). In describing each workshop's activities to their fellow teachers back in Canada, the teachers regularly conveyed the importance of CHW-trainee responses to the content and activities:

> *Then we discussed nutrition – reviewing proteins, carbs and mineral and vitamins and which foods belong in which groups. They had very good knowledge of food groups and what each is for and gave an exhaustive list of each. Then, we introduced micronutrients and what these are for. They were very interested in vitamins. We talked about the programs at the hospital, including the Vitamin A program – giving every child that comes for control every six months from 6 months to 3 years of age Vitamin A.*
>
> *Written report on a 2014 workshop (September 2014)*

In summary, the TEACH project and its teachers showed flexibility and humility in choosing the content delivered during the workshops. Teachers sought strategies that

allowed the curriculum to evolve and become increasingly flexible. Teachers came to choose to co-create the curriculum between them and the CHW-trainees, by encouraging the CHW-trainees to share their ideas. As witnessed, teachers also actively chose topics to respond to the communities' culture and needs, and to preserve their traditions, in the case of the inclusion of traditional indigenous medicine. The previous strategies were possible after teachers created opportunities during each of the workshops for CHW-trainees to share opinions and provide feedback on the activities undertaken. These strategies, followed by teachers in this project, were focused on the way clinical topics are delivered and tailored to the CHW-trainees and their culture. As such, these are examples of how teachers used strategies focussed on the micro-level, in the local realm of the training of CHWs. The following figure shows the occurrence of particular strategies in this sub-theme.

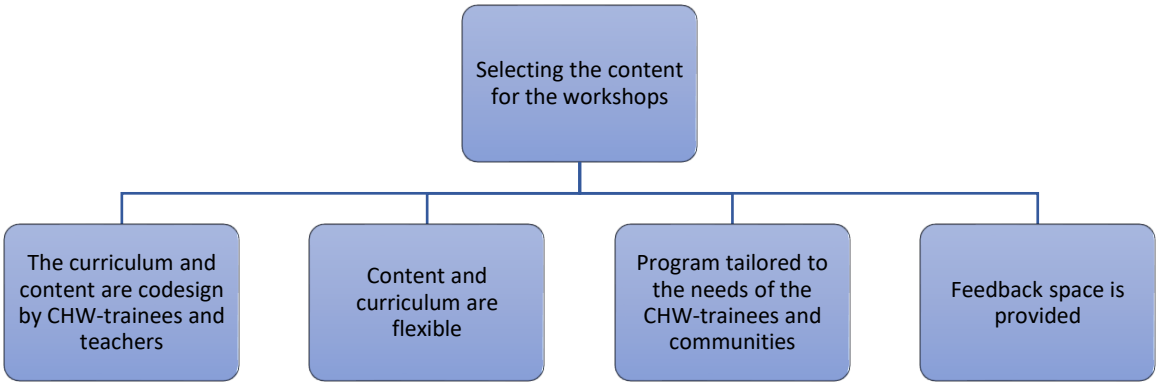

Figure 4: Subtheme – Co-determining the content of the workshops

b. Co-selecting the activities of the workshops

The teachers appeared not only responsive to the CHW-trainees' cultural priorities in selecting the content of the workshops, but also in the organized activities through which learning was intended to take place. From the first visit, teachers decided to include in the workshop opportunities for the CHW-trainees to practice their knowledge and skill. This often took the form of role-plays (*dramatizaciones*). Role-plays approximate reality, and are coherent with an indigenous perspective on knowledge, where theory and practice are intertwined, and whereby various applied and contextual elements are integrated into an inter-connected whole (67, 68). For most of the initial workshops, teachers introduced role-plays activities, providing an example of how a health intervention might be carried out, followed by practice by the CHW-trainees.

> *[Erika] and [Felicity] started with a role-play, [Erika] having a sore toe that was improving, but too shy to talk about her vaginal secretions, which were actually normal ones. We used the topic to introduce the concept of confidentiality for the new CHWs. We then had them give us all the types of secretions (colours and odour) and tell us what could cause each one of them. This allowed [Lidia] and [Isabel] to do a good role-play where [Ana] appropriately suggested to Isabel to go to the hospital. We discussed appropriate references and when to insist on the urgency of the situation*.
>
> *Written report on a 2014 workshop (March 2014)*

In shown in the above example, the teachers also drew on the role-plays to either introduce new content or to review previous ones. Through role-plays, teachers sought to exemplify situations CHW-trainees would encounter while performing their tasks. This way, teachers were able to convey sensitivity for CHW-trainees' cultures and contexts in the way they designed and delivered the formal educational activities. Additionally, some of the teachers seized the opportunity of the role-plays to have more experienced CHW-trainees teach newer CHW-trainees about subjects covered in the previous year. The role-plays also served to indicate for teachers the level of knowledge or understanding the CHW-trainees had on particular topics. To enhance comfort, confidence and resonance with "real life", teachers also encouraged the CHW-trainees to speak in Spanish or in Quechua.

> *Lastly, we asked the CHW to demonstrate, while explaining in Quechua for the new people in the group, what to do in the case of complete airway obstruction.*
>
> *Written report on a 2013 workshop (August 2014)*

Role-plays also provided opportunities for teachers to review learning from previous workshops and include or modify content.

> *Role-plays were great opportunities to review previous workshops and to add a little bit of information. We encouraged the CHWs to teach and explain to the two new ones what they were doing. In general, they had a good idea of what to do but forgot*

to address the patient. They seemed to improve in responding to the role-plays as we went along and discussed each of them.

Written report on a 2013 workshop (August 2014)

Evident in the above quotation is also the commitment by teachers to maximizing the sense of community, sharing and friendship among the CHW-trainees. This reflects the communitarian and inter-dependent values that are idealized features of indigenous communities (12). In interviews, the CHW-trainees claimed to value highly the increasing sense of community among their fellow CHW-trainees.

The way teachers also introduced the role-plays and practiced health interventions reflected their desire that CHW-trainees would be able to apply specific knowledge and skills in "real-life" situations, and to foresee how they would be using their new knowledge and skills in their communities. For instance, in one of the workshops on first aid, CHW-trainees were asked to search for elements in their natural environment to immobilize a possibly broken extremity. The role-plays also included the role they would have when interacting with another member of the community, including how to present themselves as CHWs, how to talk about delicate matters, and how to provide suggestions to members of their community.

With minimal explanation, we told the CHWs to go outside and bring in what they felt were important tools for use in immobilizing a limb. Thus, they brought wooden sticks, plant for tying, bark, hierba mora (which they stated was used for cleaning

the wounds). Then using our limbs as being fractured, we told them to immobilize different parts of the body. On [Rosalie], they immobilized a finger, forearm and lower leg. On [Erika], they immobilized a forearm, wrist and knee. The whole exercise was very effective for them to visualize what they had done correctly and what they could improve on. The forearm on [Erika] was neatly tied with sticks and tightly wrapped with a cotton tie. Her hand became quite blue with the veins popping out, which was a dramatic presentation that the cotton wrap had been tied too tightly and the CHW who had done it was able to alleviate the situation quickly. They also realized that they had used very short sticks that did not really immobilize the full arm or leg, some of which dug into our skin.

Written report on a 2013 workshop (August 2013)

As seen in the excerpts above, practice-resonant activities such as role-plays were a fundamental strategy used by the teachers to incorporate culturally derived priorities of the CHW-trainees into the course. As indicated, this included materials available in their natural environment and part of their everyday life experience. This was also evident during one of the sessions on nutrition, in which the teachers asked the CHW-trainees to classify food in their respective nutritional groups.

We reviewed nutrition. [Erika] had every CHW go to the board and write a food that they eat under protein, carbohydrate or fruit/vegetable. They placed all the food under the proper headings and forgot only the milk products as protein.

Written report on a 2014 workshop (August 2014)

During the same workshop, the teachers guided the CHW-trainees in making an oral rehydration solution (ORS). CHWs prepared their solution with materials readily available in their communities. Teachers adapted the solution after noticing that the instructions provided in the reference texts were unsuitable for the contexts of these communities.

> *During the role-plays, we had them mix the ORS with panela, which is the pure cane sugar available only in blocks and [which] they have in their homes. It needs to be shredded first in order to be measured. Just goes to show that it took us over a week to finally use the ingredients that they have readily available.*
>
> *Written report on a 2012 workshop (November-December 2012)*
>
> *First, we finished discussing diarrheal illnesses using the game I had done with flashcards (I took from the Hesperian book: Helping Health Workers Learn)* (The Hesperian Books are health guides published online, available for free or paid download, which are available in many languages, including Spanish (69). *Helping Health Workers Learn* is tailored for health educators training CHWs providing different methods (70))*. Each person had 3-4 cards that stated a symptom, or a treatment and they had to put these up when prompted by me regarding for example "red flags." It was actually quite fun and a different way to learn. It also made me realize that all that were present today knew how to read Spanish.*

Written report on a 2013 workshop (August 2013)

These excerpts convey humility and a desire by the teachers to learn and adapt their teaching content and materials to the unique needs of the CHW-trainee group. The activities mentioned above all have in common the use of elements from the CHW-trainees' natural environment and of relevance to their culture. Teachers sought implicitly to break down a potentially colonizing distinction between theory and practice to make connections between topics taught and what they will encounter inside their communities (68).

Following the advice provided by the CHW-trainees, teachers decided to delay home visits to a later point in the course. This decision allowed CHW-trainees to gain more knowledge and skills, given that they reported undesirable experiences of formal education, which challenged their confidence in relation to education and knowledge, particular as indigenous women (71). Delaying the home visits would also enhance the CHW-participants' confidence in engaging with community members in a culturally appropriate manner. The first home-visit was performed in 2014.

Teachers accompanied CHW-trainees in undertaking a visit to a woman and her child who had been discharged from the hospital. The visit was held in a meeting place, the "casa communal". Teachers spoke directly with the woman beforehand and obtained verbal consent for performing the visit. The visit appeared to proceed satisfactorily in terms of the CHW-trainees listening carefully to the mother and the mother smiling at the conclusion of the visit. The teachers acknowledge and praised the CHW-trainees, not only in the next

workshop, but also to their colleagues in Canada, for the sensitive way that the CHW-trainees engaged with the woman and her child.

> *We were able to meet in the casa communal to talk to the mother. Although the health promoters started out a bit timid, they did a wonderful job, and the conversation lasted almost one hour as the mother had tons of questions. Overall, it felt like both [Tatiana] and [Fanny], and the mother felt good about the interaction, the mother mentioning on the way out to [Erika] that she really learned a lot from the session.*
>
> *Written report on a 2014 workshop (September 2014)*

> *I emphasized the importance of home visits as an important tool in their intervention. They cannot recommend some foods if the family does not grow them and does not have the money to buy them. I highlighted the excellent interventions done by [Ana] and [Cecilia – the project coordinator], who had helped improve the health of the teenager by giving her healthy juices. Their intervention was better than any supplement or pill [that] is given in the hospital. [Cecilia] added that she would teach the girl how to cook different foods as it seems that the parents sell their beans because the children do not like them.*
>
> *Written report on a 2017 workshop (September 2017)*

The initial “home” visit (in the casa communal) served as a tool for the teachers to see the effects of their attempts to adapt the content to the context of the CHW-trainees through role-plays and other practice-based activities. As the project progressed, the CHW-trainees showed more independence during the house visits. Following this initial visit, the teachers decided to add home visits as an activity which they would request the CHW-trainees to undertaken between visits by the Canadian teachers. The teachers encouraged CHW-trainees to start carrying out home visits alone and to report their interventions and experiences during the following visit by the teachers. The CHW-trainees gradually undertook a small number of home visits. Based on the information provided, the teachers gave CHW-trainees feedback on their visits, as the CHW-trainees reported them, and responded to questions of doubt brought up during these encounters.

The TEACH project team was aware that having two to three workshops per year with a duration of two weeks each was going to represent a challenge regarding the retention of information. To cope up with this situation, the teachers decided to adapt and create cue cards for CHW-trainees with the topics reviewed in the previous workshops, and in keeping with the overt and observed responses of the CHW-trainees to such materials and approaches to instruction. CHW-trainees added these cards into the spiral books they had been compiling. Teachers sought to provide the CHW-trainees with cue cards that they believed were culturally relevant and appropriate. They based the cue cards on the Spanish version of the Hesperian Books (69), presenting details related to rural communities, and asked for feedback from the CHW-trainees to enhance the cultural appropriateness of this material.

We decided to review the subjects of diarrhoea, breastfeeding and nutrition by having them help us create cue cards. Participants preferred drawings from the Hesperian books as they are more culturally adapted. We also worked on improving the text to reflect the fruits and vegetables accessible locally. It is interesting to note that documents produced by [the local Union of Indigenous Peasant Organizations] to reach out to the members of the communities are not adequate for teaching. The pictures were pretty good, but the list of fruits and vegetables were not the ones that are readily accessible, and some women may be reluctant to use some of them [as] they are produced on the coast or in a greenhouse where they are more likely to be sprayed.

Written report on a 2012 workshop (November-December 2012)

We made them some, like, memory cards. There is a book that we made for them. They actually made it with us, in a sense that when we were covering a topic, we would say, "All right, what is important for you, and we will make some cue cards". Whenever we did these cue cards, we try to have not so much written information, to have some drawings and some pictures to make them realistic. We would print them out, take them to the group and we would validate them with [the CHW-trainees] and with the leaders and the two coordinators. And [we would] ask them if we needed to add something. "You need to add this; this you don't need". We would try to make [the cards] as user-friendly as we could. Every workshop, we would add

a few cue cards to this spiral book. This is a lot of work, [but] we created the cue cards that they wanted, with them.

Interview with Erika, teacher at the TEACH project (2015)

The teachers created and introduced the cue cards in teaching, not only to aid the CHW-trainees during the periods in which the teachers were not present in Ecuador, but also as part of the workshop materials for reviewing several subjects or to aid CHW-trainees during a given role-play. For instance, the following quote exemplifies a role-play in which the CHW-trainees appeared to perform confidently, and only used the cue cards when needed.

What we learnt was that the CHWs were not used to using their cue cards, and even when put in front of them, they only looked at it occasionally to help them. They liked using the cards after to see what they forgot.

Written report on a 2014 workshop (September 2014)

In summary, at the micro level of local teaching activities, teachers' adaptations in relation to the co-design and co-selection of the content, activities and materials were intended to align with the cultural priorities of the CHW-trainees. Students were most responsive to the role-plays; thus, teachers decided to maintain this activity throughout the duration of the TEACH project. Appropriate to indigenous, oral cultures, roleplays were intended not only to impart knowledge, but to ready CHW-trainees for situations they might

encounter in their villages (i.e. accidents, performing home visits), with examples that were also adapted to their context. The teachers encouraged the CHW-trainees only to undertake home visits when it was culturally appropriate in terms of the confidence and perceived roles the CHW-trainees, and the character of relationships that would permit, and the conditions under which one should undertake, home visits, in their culture. The following figure shows the occurrences of particular strategies evident in this sub-theme.

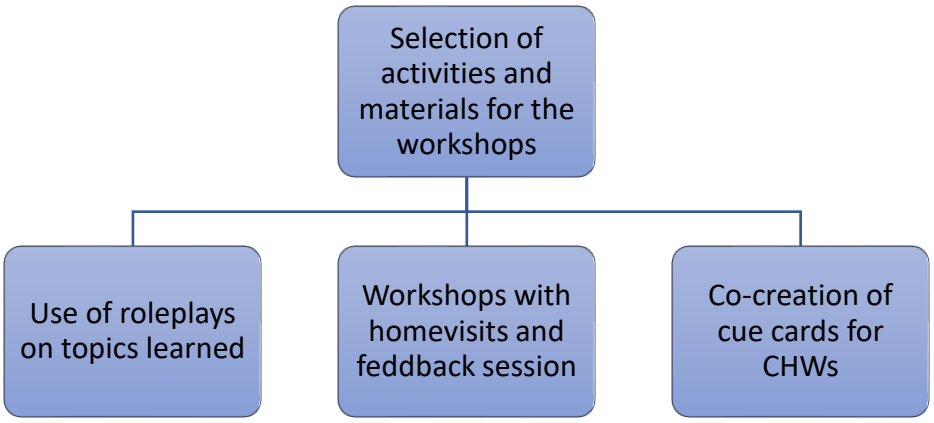

Figure 5: Subtheme – Co-selecting the activities of the workshops

2. Co-designing the assessment and evaluation strategy

Attempts at cultural sensitivity and adaptation at the micro level of teaching activities were also evident in the co-design of assessment of individuals' learning, and evaluation of the program overall. As part of the program improving process, the teachers sought to determine whether or how the material covered during the workshops was understood by, and perceived to meet the needs of, the CHW-trainees. During the first workshop, teachers

had planned, before arriving in Ecuador, the administration of two custom-made survey tests to ascertain CHW-trainees' level of knowledge before and after the workshops. The teachers decided to not carry it out during the first session so that they could gain some more trust and build rapport with the CHW-trainees. The pre-test was implemented later, but still during the first week of the first workshop. The teachers decided to modify the test so that it was undertaken verbally and as a whole group, although the answers of each CHW-trainee were recorded individually. However, the evaluation carried out by the teachers created discomfort among CHW-trainees.

> *We did a group-modified pre-test, and although it was very interesting, it was not well received by the group and the local coordinator. We did have worries about it and were very careful about introducing it and trying to be culturally sensitive. And this happened despite explaining to the group the reason for the test, having delayed the test and doing it as a group rather than individually … We had worked very hard to create a safe and stimulating learning environment the first three days and that it would be non-threatening, but there was obviously still a problem.*
>
> *Written report on a 2012 workshop (November-December 2012)*

The above quote shows that the teachers reflected on how their own cultural assumptions and beliefs might be affecting their relationships with members of their CHW-trainee community. As indigenous women, the CHW-trainees had limited formal education,

and self-identified as being unconfident in regard to imparting knowledge to others (71). The teachers also believed that the negative response to the assessment might have occurred because the CHW-trainees felt threatened or were afraid of their performance on the assessment. The teachers decided to engage in a conversation with "Cecilia", the local coordinator, to better understand the problem from the CHW-trainees' point of view. The teachers and Cecilia had an in-depth conversation about the assessment, Cecilia informing them that the process needed to be discussed with her before being implemented. The teachers, who conveyed flexibility and engaged in the execution of the project, came to understand that this type of assessment contravened the cultural characteristics of the CHW-trainees and their communities. As a result, the teachers decided to not carry out an assessment similar to the pre-post, "right/wrong", test at all, searching indeed for more culturally appropriate means for performing the assessment. The teachers also resolved that every decision involving the CHW-trainees needed to be discussed with the local coordinator.

> *We had a very long discussion with [Cecilia – the project coordinator] about the afternoon. She was upset because we had done the pre-test without discussing it with her beforehand. Apparently, while we were doing the test, there was a discussion in Quechua about the reason for the test as women were upset. We had tried to explain it as best as we could as a necessary step of the project at the beginning, but obviously, our message was not understood. The participants were worried about being evaluated on their knowledge and felt a little betrayed … Is there*

another way of doing such an assessment without participants feeling like they are being tested on their knowledge and making them uncomfortable?

Written report on a 2012 workshop (November-December 2012)

The teachers continued to seek and arrange a program evaluation that was feasible for the context, and which, at the same time, allowed them to identify the extent to which or how their training was being effective. As a result of the failed attempt directly assess the CHW-trainees, the teachers considered the possibility of delivering an assessment process that was less intrusive for the CHW-trainees, that was developmental rather than summative, and an evaluation more adequate for the cultural characteristics of the communities. This means that the decision had to be one where the CHW-trainees did not feel threatened or directly "judged" by an outsider. After consulting with a research manager in the Department of Family Medicine at McGill University, the strategy selected by the TEACH project teachers was to engage an ethnographer from McGill University.

From the get-go, we realized that surveys wouldn't work, so then we tried ethnography, and that was very helpful with Peter helping us in that. Because we felt that we were evaluating, but in a more culturally sensitive way – a more invisible way in a way. For the community members, it was better.

Interview with Rosalie, teacher at the TEACH project (2017)

The CHW-trainees reacted positively to this type of program evaluation. Accordingly, the research and teaching team assessed the knowledge acquired by the students in ways other than formal tests. Both individual assessment and overall program evaluation was accomplished in a developmental, cyclical and action-oriented fashion based on observation, perception gathering, and participatory intervention based on careful documentation (72). Over the following years, the teachers engaged the ethnographer to observe the workshops and interview CHW-trainees and teachers.

This included the micro-level, often classroom-based activities, in which the teachers sought to engage the CHW-trainees more actively in teaching activities themselves. As previously, the teachers repeated the topics during workshops at the beginning of every visit, to maximize the CHW-trainees' oral culture of learning (66). The teachers reiterated the topics using different methods. For instance, CHW-trainees were asked to talk about a specific subject, perform a role-play of a previously known situation, and, importantly, to teach new CHW-trainees topics from previous workshops. Teachers provided feedback at the end of these activities; then, they identified areas that needed to be improved or re-scheduled for a new workshop. Many of these educational interventions stemmed from documentation of perceptions and behaviours that were fed back to the teachers. As part of the ethnographic strategy for assessing individual learning, and evaluating the program, these activities were relatively unobtrusive and were intended to boost the confidence of the CHW-trainees.

[Isabel] volunteered [to role-play the airway obstruction] and did a perfect demonstration and explanation! We asked [Soledad] to do the same, and she also did very well. Two more people completed the simulation. We then did the choking scenario on [Fernanda's] daughter and showed some of the minor differences with the adult … They not only performed this task very well but were able to teach it to someone who showed up late.

Written report on a 2013 workshop (August 2013)

We started off the workshop with each CHW-trainees going through one topic that they had previously been taught. Isabel taught [William] about breastfeeding and included much detail about when and how much a baby should feed (clearly stated that a baby who is sleepy needs to be woken up to feed as this may mean the child is dehydrated). [Ana] taught [William] about nutrition. [Fanny] taught [William] about first aid (broken leg and c-spine injury. [Emilia] rotated a baby in [Lea's] stomach away from a breech position (this was quite an interesting process). [Cecilia – the project coordinator] taught [William] about the common cold. And [Soledad] taught [William] how to take care of himself if he had diarrhoea and made an ORS solution.

Written report on a 2014 workshop (May 2014)

In addition to the methods to assess the knowledge of the CHW-trainees, teachers also asked the CHW-trainees during the first workshop of each visit if they had used what

they had learned during the previous workshops, and how that knowledge was applied. This strategy gave teachers an opportunity to provide feedback as well as to identify how confident CHW-trainees were in terms of their identities and roles as CHWs. Such feedback also allowed teachers to see how the topics were understood and how adapted their teaching was to the CHW-trainees' cultures and contexts. Initially, the CHW-trainees started using the knowledge with their families.

> *[Isabel] and [Tatiana] used* [the knowledge acquired during the workshops] *with their own children. [Tatiana] said her child had diarrhoea; she made suero oral* [oral rehydration solution] *and that after 2-3 days, she noticed blood and mucus in [his] stool, and so she brought him to the hospital. The doctor told her the child wasn't dehydrated, and [Tatiana] informed* [the doctor] *that she had given the child [the ORS]. The doctor asked whether she received the pouches [of material to make the ORS] from the hospital, and she said no. She reported that [the doctor] thought she had done the right thing. The child received antibiotics and got better quickly. She also treated fever in one of her children. She used the thermometer and had no difficulty measuring temperature (38.5). She knew what to do after that. Said her children now find it a game and come to her with the thermometer on their forehead and ask whether they are sick! [Isabel] had occasion to use the CHW manual for her son twice with respect to diarrhea. He vomited once or twice but never had blood, dehydration or any signs of alarm. We reviewed these, and they both had good*

knowledge of the alarm signs. They both said they would've gone to the hospital more quickly had they not received the information in the previous workshops

Written report on a 2014 workshop (May 2014)

Over a couple of years, the CHW-trainees demonstrated that they felt able to share their expertise, and not only with members of their own families, but also with other members of their communities. In the later years, CHW-trainees started performing house visits (accompanied or alone). By encouraging the CHW-trainees to use their knowledge and share culturally unique experiences and perspectives through an unobtrusive assessment, teachers were able to further adapt their strategies of teaching to resonate increasingly with the communities' needs and cultural characteristics.

In summary, assessment and evaluation processes needed to be tailored to the cultural characteristics of the communities. CHW-trainees were uncomfortable and did not accept the first assessment performed using a pre- and post-test. As a result, teachers chose ethnography as a way to assess learning and evaluate the program and provide more practical methods for assessing knowledge and skills and providing feedback. For ensuring the latter, the teachers decided to constantly re-iterate topics during visits, allowing the CHW-trainees to lead the explanation of some of the topics in teaching other CHW-trainees. They employed role-plays and encouraged the CHW-trainees to share stories about how the new knowledge and skills had been used outside the course.

The assessment strategies used by the teachers were focused on the individuals and what they perceived through benevolent intention and feedback to be the particular needs

of the CHW-trainees. These strategies were not meant to evaluate, and thus did not transcend to, the communities. Teachers were focussed in understanding how the strategies used for adapting the topics and the activities for the workshops manifested in the applied knowledge and skills of the CHW-trainees. As a result, these teaching strategies can be identified as micro-level strategies. The following figure shows the occurrences of particular strategies evident in this sub-theme.

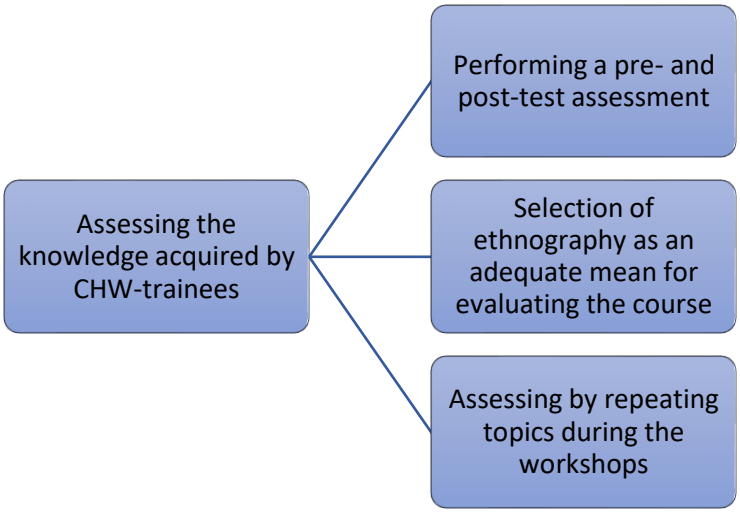

Figure 6: Sub-theme – Co-designing the assessment and evaluation strategy

3. Building inter-organizational relationships

Meso-level interventions included actions and activities to build the relationship between the teaches and the local community. Although micro-level – local, teaching-oriented – actions were present throughout the program, meso-level interventions by the teachers became increasingly apparent as the project progressed. The idea of training CHW-trainees

in specific indigenous communities in rural Ecuador arose after McGill University had already formed a partnership with these northern, rural, indigenous communities for carrying out research projects by medical students, intended to benefit these indigenous communities. However, in the TEACH project, many of the relationships needed to be improved and new ones created for the maintenance of the project and for ensuring support from the communities, as well as support from the hospital for the new CHW-trainees.

The relationship between the teachers and CHW-trainees represented encounters, between two groups coming from different communities and cultures; differences that, in many significant ways for teaching activities, can be characterized as “western” versus “non-western” (73). The teachers perceived the need, and sought to gain, the trust of the communities and the CHW-trainees. Additionally, the teachers requested general assemblies of the communities. The community leaders convened three general assemblies, which involved the participation of the President, members the of the Cabildos and other representatives of the communities.

Additionally, the teachers from the very start of the TEACH project assured the CHW-trainees that the workshops were going to be safe environments, in which the CHW-trainees were be able to share their ideas, and ask questions without judgement. The teachers also ensured confidentiality of the topics discussed and had the CHW-trainees agree to keep discussions confidential. In an effort to promote a safe environment, the teachers allowed students to provide detailed feedback, as mentioned earlier. As the students felt increasingly safe, they more frequently indicated what they liked or disliked

about the program, and what their particular interests were. This helped teachers to propose which activities might be culturally appropriate for the CHW-trainees and their communities, and which activities needed modification or replacement.

> *The workshop gave the participants an opportunity to talk freely before the official ceremony tomorrow, where they will probably be much more reserved in the presence of the others.*
>
> *Written report on a 2012 workshop (November-December 2012)*

Having members from five different communities come together for several hours during the workshops had other team-building benefits. Workshops appeared to allow CHW-trainees to create friendship bonds between "peers" and increase the trust and support they could provide each other. This was observed and encouraged by the teachers, evident in their flexibility and encouragement of conversations in Quechua and Spanish between CHW-trainees, as mentioned, without interrupting them, even if it waylaid their planned time-use for the workshop. Over time, the teachers believed that the CHW-trainees they perceived to be relatively shy, became more confident and participated more openly and actively in the workshops, and supported each other more overtly. The CHW-trainees appeared to feel supported by the teachers and other CHW-trainees, and shared a sense of camaraderie, belonging and shared identity.

[Cecilia – the project coordinator] and others mentioned that this second workshop had been better because the CHWs knew and trusted each other. They were more comfortable sharing with each other, and the new ones integrated well [into] *the group. She reiterated the notion of confidentiality around the group's discussion.*

Written report on a 2013 workshop (March 2013)

We both feel that the CHWs are becoming more comfortable with the group as most even when selected [as opposed to volunteering] *will try to take the lead role [in role-plays]. Often, they know that the others in the group will assist where necessary.*

Written report on a 2013 workshop (August 2013)

I think [what] was a surprise, within the situation, was the bond that they developed amongst each other, even within the different communities. They started to support one another; they went to one another's communities. If somebody was doing a presentation on nutrition, at one community, for … gatherings, they all got together and did it together. I think that was really part of it. It was the bond they got, to support one another, and also to be a part of, not only their own community, but also a larger group of people working within their communities.

Interview with teacher at the TEACH project (2017)

During the interviews, CHW-trainees referred to the workshops as spaces where they were allowed to ask questions without feeling uncomfortable. CHW-trainees'

perceptions were also positive when commenting on the teachers. CHW-trainees described the TEACH project teachers as very receptive, patient and respectful people. The actions carried out by the teachers appeared to evoke positive responses from the CHW-trainees. The actions and strategies of the teachers to engage culturally-sensitive ways of teaching increased the trust the CHW-trainees had in the teachers, which in turn, as part of their culture, was important for the CHW-trainees to start sharing more information with the teachers and to feel more comfortable around them.

> *It is very comfortable, sort of after I got married; I had never participated in any workshop or course. So, for me, it is something more relaxed; we are among women. We talk about a lot of things. That is what I like. I feel very comfortable. I can trust [the teachers]; I can talk about many subjects, freely*.
>
> *Interview with Jimena, CHW-trainee (2013) [translated from Spanish]*

> *We had the opportunity to participate in all the questions, Doctor [Felicity] and [Lea] asked us questions; they gave each one of us time so that we could talk, even if it was right or wrong. They never told us "shut up" because it was the wrong answer or they never told us, "you did not understand; don't say anything." They always gave us the opportunity to talk.*
>
> *Interview with Isabel, CHW-trainee (2013) [translated from Spanish]*

The doctors (teachers) have a way of making us learn; they are… how do I say it… very patient. They taught us with joy, and better than [if they were our] family; they gave us care. … The level of participation has been good because the teachers, when we don't understand, find a way to make us understand. For example, they use drawings or maybe with [practical activities]. So, it has been good. Above all, they listen to us; they listen to the needs or the questions, and they always ask again what the topics are that we want to discuss.

Interview with Tatiana, CHW-trainee (2013) [translated from Spanish]

The data have shown the adaptability of the teachers as well as their activities directed at providing a learning environment that is sensitive to cultural difference. The teachers used culturally sensitive methods and adapted their approaches based on the responses of the CHW-trainees. For instance, teachers used pictures and implemented practice-based activities to enhance learning. Furthermore, the teachers were conscious of the differences in their educational level (health professionals from Canada) and the CHW-trainees level (most of them, as stated, with primary level education). By reflecting on differences in levels of formal education, the teachers were able to provide training that was perceived by the CHW-trainees as fair, empathetic and patient. In interviews, in 2015, CHW-trainees, new and old, conveyed that they were happy with their ability to participate in the program and its decision-making. Evidently, the teachers' actions, in close collaboration with the CHW-trainees, evoked an ambiance of trust and confidence during the workshops.

I was new to the group. I was afraid of making a mistake and to talk because all of my partners already knew (the topics). When I participated for the first time, I felt like that. I was afraid to talk. But after going (to the workshops), I felt happy about being able to attend.

Interview with Nicolás, CHW-trainee (2015) [Translated from Spanish]

Our small group is very united. If one of our partners is going through something, she talks, she vents to the group; if she cries, we are there also to help her. To the protomota, if she has any problem, it is confidential; it can't go outside the group. The fellowship that exists in the group is very beautiful.

Interview with Betty, CHW-trainee (2015) [Translated from Spanish]

Furthermore, the safety for sharing information during the workshops inspired the trust of CHW-trainees in the teachers. The environment of trust enabled the CHW-trainees to articulate that indigenous people from these rural communities were afraid of going to the hospital and avoided it by all means, owing to perceived negative treatment at the hospital and by doctors.

An important point that was brought up was the fact that there are a lot of problems with the care received in the hospital. Contrary to what we had seemed to understand yesterday, indigenous people are still a victim of a lot of racism … The

participants shared many stories of difficult encounters with the doctors. This could be summarized as either indigenous people are told that they came for nothing or they are told that they came too late. A few reported that they or family members would rather stay at home and die … than have to return to the hospital.

Written report on a 2012 workshop (November-December 2012)

As I walked through the door to see the doctor, the doctor sent me back out. They said, his weight and height were fine. There isn't anything wrong with him! At the hospital they say: "why did you not come to the hospital before? You come to the hospital when you are dying". Well I said back: "that is because you only treat us if we are dying."

Tatiana's answers in the pre-test performed in 2012

We went to (name of the hospital), and he was diagnosed with cancer. They were insulting. They didn't respect people. They mistreated us because we were indigenous. They kept repeating: "why didn't you bring him before?" They ordered us around, "Lay down!" "Take off your clothes!". Therefore, I have never gone back to a hospital.

Cecilia's answers in the pre-test performed in 2012

From the start of the project, it was envisioned that the CHW-trainees would be able to go to the hospital to accompany and provide support to members of their community,

functioning as intercultural brokers between the community members and the doctors. However, given the experiences of mistreatment shared by the CHW-trainees, the teachers understood that the relationship between the hospital and the community needed to change for that role to be possible.

As a result, the teachers searched for a strategy to improve this relationship. After many visits and meetings with members of the hospital, in 2014, the teachers were granted the opportunity to assist in the morning rounds with the doctors. The relationship that the teachers formed with the hospital staff, and especially with a doctor who was from the local area, allowed CHW-trainees to start attending courses and events hosted by the hospital, some as part of the TEACH project workshops, and others between the visits, when the teachers were not in Ecuador. In addition, by participating in the hospital events, teachers gained information on both ends, about the hospital and the community, and sought to adapt the training of CHW-trainees into a focus on their roles as intercultural brokers.

> *We visited the hospital with [Carlos] [Cecilia* (the project coordinator)*] was unable to join us as she was busy with the [*health intervention*] caravan). We met the new director. He was working as the OB/GYN and has now stopped doing clinic to take on this new job. He accepted to meet with us despite the fact that no meeting had been set up. He congratulated [Carlos] as the new president of [the local Union of Peasant Organizations]. He was well aware of the TEACH project, [Cecilia – the project coordinator] our coordinator, and he spoke about the importance of developing relationships with the communities, the promotores de salud and the*

técnicos. He mentioned a few times that the pediatrician is in charge of this project and that we can count on him and keep him updated on developments … The pediatrician is originally from the area and is most concerned about the local health issues. He took time from his clinic to meet the 3 of us. He has been following the project closely and is pleased that we are keeping them informed of our work and that we are accepting to have some técnicos join some workshops.

Written report on a 2013 workshop (November 2013)

[Writing about medical rounds at the hospital] *We were very impressed with [Julian's] discussions of cultural safety with his residents. For example, he explained that they should not judge the partera's (midwives') work with [the management of] umbilical cords because the hospital has specialists that keep that work intact.*

Written report on a 2014 workshop (May 2014)

The physician mentioned above, who, as stated, was from the local area, was described by the teachers as kind. The physician was interested in meeting the CHW-trainees. Teachers considered then that he was an important actor for collaboration for the benefit of the CHW-trainees and the program. When TEACH project teachers asked, he gladly agreed to receive the CHW-trainees from the TEACH project to assist in the next workshop on breastfeeding.

The improvement in the relationship between the community and the hospital was also described by some of the CHW-trainees when interviewed in 2015. Although some of

the CHW-trainees still referred to stories and experiences of previous mistreatment in the hospital, some of them recognized and perceived that there had been an improvement in the treatment of them and other indigenous people by hospital staff. Additionally, the hospital continually faced changes in the management and the staff. As a consequence, the relationship was and continued to be, an ongoing process that required the active participation and collaboration of the community (including the CHWs) and the hospital staff.

> *I think that [the hospital staff] they treat us all the same. They know that we, indigenous people, also have the same rights and need the same treatment as the mestizos (*non-indigenous people*). Now, there is equality for both groups. They receive us and give us turns in the same way, [whereas] before it was not like that. Before, we went, and they gave us an appointment for the next week or month. Now, they attend to us as equals. And, as we are now community health workers, they know we are sending people from the community (to be seen there).*
>
> *Interview with Fanny, CHW-trainee (2015) [translated from Spanish]*

> *Another big change is the relationship between the communities and the hospital. That is an ongoing process. It is not, by any means, perfect, finished or anything like that. But the fact that we have indigenous community health workers doing placements in the hospitals, that we have knowledge exchange happening between*

hospital staff and traditional midwives and community health workers, like, that is huge.

Interview with a teacher at the TEACH project, midwife (2017)

As stated, Cecilia, the program coordinator in Ecuador, who also participated as a CHW-trainee, translated from Spanish to Quechua, and back to Spanish, during workshops and interviews, when needed. Other participants also performed this task when Cecilia was unavailable.

[Cecilia – the project coordinator] helped with the discussion as … we had discussed this topic with her before, and the discussion was mostly in Quechua with limited translation … [Felicity] and [Lea] felt that having [Cecilia] as an interpreter for the workshop was useful to create confidence and a safe learning environment.

Written report on a 2012 workshop (November-December 2012)

As stated, the teachers' regular encouragement of the use of Quechua appeared to facilitate better understanding and communication amongst the CHW-trainees.

Most of the discussion was in Quechua, and I did not request a translation, as I wanted the women to benefit from the time they had, and I don't know the plants. I was just requested to explain some of the causes of headaches

Written report on a 2014 workshop (March 2014)

Encouragement of conversation in Quechua did more than merely facilitate linguistic understanding. It helped link the teachers with the broader culture of the community, via the CHW-trainees. The specific topic for the workshop referred to in the second quotation above, conveyed a strong commitment to engaging the CHW-trainees in culturally sensitive education by linking it with their culture and traditions. Talking in their mother tongue allowed for a greater degree of comfort, confidence and clarification among CHW-trainees. Teachers were present and intervened only when CHW-trainees, who were, in this case, the experts of the topic, had a question related to health issues. In addition to the workshops and official meetings, teachers also decided to engage in non-academic activities happening in the community. Engagement in non-academic activities, although not directly related to the training of the CHWs, allowed the teachers to be trusted by members of the community, and gave the teachers the opportunity to convey to other community members who the CHW-trainees were and what topics they were being trained in. Involvement in such activities gave teachers a space to gain additional knowledge on the context and the communities from which the CHW-trainees came and in which they were intended to serve as CHWs. The strategy of community engagement appeared to improve the relationship between teachers and CHW-trainees, and between teachers and the communities. Additionally, such engagement allowed teachers to inform people of the existence of the project and the aim of promoting the role of CHWs in their local communities.

A by-product of my time spent with the health caravan, aside from seeing how this project works, is getting a sense of the peoples' complaints (as expressed in two villages to the triaging doctors through Quechua to Spanish to English to a prescription). I would say they are generally diarrhea and parasites, hunger, general pain in the joints, the back, the stomach, the head, some pain from past accidents, one case of high blood pressure and one case of Chlamydia (or perhaps, I suspect, yeast). Another nice spiral effect of my participation with the caravan is that it has helped shape some of the content for our November TEACH workshop and has, I think, started a bit of a buzz, spreading the news that there are Canadian midwives and doctors willing to spend time with people in the communities and teaching local promotores. I told many locals at the caravan about TEACH. It was useful for us to have had gone to the pharmacy and know what contraception is available and how.

<u>Written report on a 2013 workshop (November 2013)</u>

On day 2, I worked in the minga [joint communal project] alongside [Tatiana] (C2) and [Lidia] (C2). It was amazing! In fact, 7 of the 12 [CHW-trainees] were there, working in different sites, digging the trenches/canals. All of them were giggling at me, digging and getting dirty and sweaty with all of them. It is incredible to see how organized they are when they work side by side with spades and shovels, a ½ meter away from each other. There is a palpable sense of community and sharing. Oh, and, everyone drinks Coca Cola by the gallon!!

<u>Written report on a 2014 workshop (May 2014)</u>

I think... one of the very special moments that we had was when Rosalie and I actually... most of them came, on a Sunday, and went two to three hours away to the hot springs. We had a community lunch, where everybody brought different things. We took a bus, so everybody went on the bus. We stopped in a village on the way where people knew where we could buy different fruits and vegetables. So, they came with their families (...) So, there was a time where everybody got to know each other a little bit better, and people took a picture. Again, we were in the hot springs area. Some people entered into the water; some of them were timid or shy. It was a really special bonding day, I think. And that some of the things that I think I really enjoyed. I appreciated the whole aspect of the program, and I am getting to know each [of them] on a more personal level and not just we are the teachers, and they are the CHWs. It is more of a relationship and the continual relationship that each year as we go, we get excited because we are going to see the same people. I think that is relevant. A lot of the teachers feel [the same way about this] as well.

Interview with Erika, teacher at the TEACH project (2015)

In summary, TEACH project teachers implemented strategies to maintain and improve the relationships between them and the community, and between the community and the local hospital. Strategies included the integration of members of the community in important decisions about the project and allowing an adequate communication between CHW-trainees and teachers by selecting teachers who spoke Spanish, ensuring a safe

environment within the workshops and participating in non-academic activities inside the communities.

Micro-level strategies, as indicated under the first two sub-themes, centred on local teaching interventions and continued throughout the project. As the project progressed, meso-level strategies were increasingly engaged, focussing on improving the relationship with the hospital. For example, the teachers started attending hospital rounds to get to know more about the hospital context. Broadly, the teachers acted to improve the relationship between the hospital and the community, not only among individuals and within the immediate teaching environment, which had been the focus of micro-level strategies. The ultimate goal of such meso-level strategies was to allow CHW-trainees to work inside the hospital context as intercultural brokers. The following figure shows the occurrences of particular strategies evident in this sub-theme.

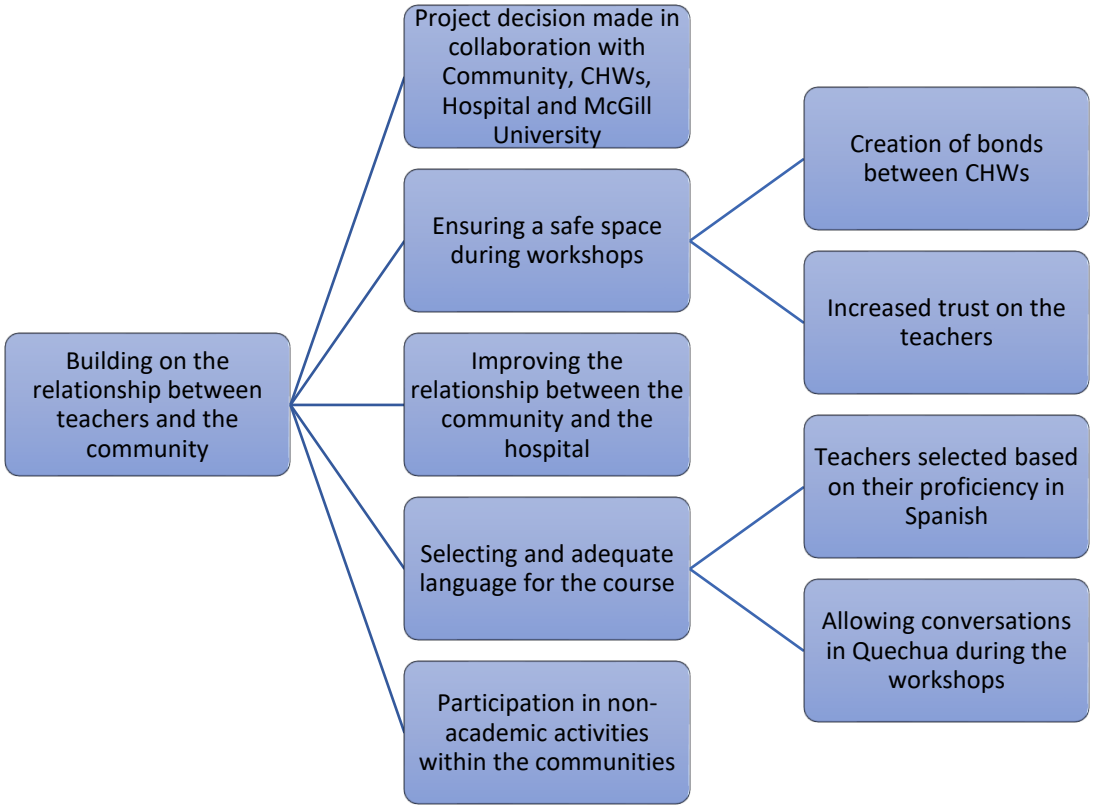

Figure 7: Sub-theme – Building inter-organizational relationships

4. Adapting the negotiation of roles of the CHWs to the needs of the communities

When the TEACH project was envisioned, the goal was to train community members to become CHWs, with an emphasis on maternal and child health. However, after teachers arrived in the field, began the workshops and received feedback from the communities, they understood that the aim of the training needed to be modified. So, from then on, the teachers modified the program and focussed the training of CHW-trainees on prevention and promotion, assuming a support role for primary health, instead of an interventional role in maternal and child health. When interviewed about the changes to the project, a leader of the project from McGill University stated:

[There was a change in] focus [to] … promotion rather than disease treatment [and] identification of diseases. It was going to be a maternal child project, and it ended being more a primary care project.

Interview with Rosalie, teacher at the TEACH project (2017)

The role of the CHWs changed enormously. Initially, when the project started … they were going to work on maternal child health… proper pre-natal care, proper emergency care. And that has changed into one with public health, one on one patient contact, and a lot more community-based stuff that hasn't been specifically about maternal health.

Interview with a teacher at the TEACH project (2017)

The role (of the CHW) is not to cure them, not to give them the medicine. It's just to show [community members that these people] care, take them out of their isolation because their kids may have moved out to Quito. Also, the other role is to promote healthy cleaning habits because that is a huge issue over there. The workshops that they have given, also in attending some event and showing how they can prepare healthy meals with their products [and] that are appealing.

Interview with Felicity, teacher of the TEACH project (2017)

As a meso-level strategy, teachers' efforts to change the expected roles for the CHW-trainees was also observed when the teachers decided to delay the house visits and the hospital visits, tailoring the timing and the activity to adjust to CHW-trainees preferences and the vital information obtained when interacting with members of the community. Having delayed the home visits allowed CHW-trainees to be better trained and confident to perform required communication and tasks. As was shown in the previous sections, community members seemed to respond well to home-visits over time. Additionally, the teachers encouraged CHW-trainees to start accompanying people to and from the local hospital. CHW-trainees, with the knowledge acquired and increased confidence gained, were sometimes able to serve their communities as intercultural brokers. Such influential intervention was also possible due to the improved relationships between communities and the hospital that the teachers put so much effort into nurture.

> *Another large part of [the CHW] role is to serve as a bit of a link between their communities and the hospital. So, you may not know, these are indigenous communities that are very traditional, and they have illiteracy rates and don't necessarily speak a lot of Spanish; they speak Quechua. And there are really high levels of racism. So, there is a huge divide between the communities and the hospital, which is run by Spanish people from the city instead of local indigenous people. So, over time, through this program, they have served as sort of cultural ambassadors and interpreters for the hospital staff.*
>
> *Interview with teacher at the TEACH project, midwife (2017)*

Teachers emphasized during the workshops that the role of the CHW-trainees was more than an individualized interventional role. The CHW role was seen by both the teachers and CHW-trainees as serving the community as a person the community members can rely on and approach for support. The teachers encouraged this role by suggesting that CHW-trainers provide support to a community member in the hospital as an intercultural broker and also when performing house visits. CHW-trainees shared, in 2015, their perceptions around their role, emphasizing how important the CHW role was for the community and how it should be carried out with empathy.

> *For me, (my role) is accompanying older adults who live alone to the hospital. For instance, a grandmother or grandfather who is alone and is having pain, I can't identify what is wrong with the person, nor I can help him or her with natural (traditional) medicine. I would like to take them to the hospital, help them to talk to the doctor and bringing them back home. That is my idea; that is my role.*
>
> *Interview with Lidia, CHW-trainee (2015) [translated from Spanish]*

> *We can help a person who I have in mind. She is an older woman. We can help her to feed, to take care of herself, to provide special care for her – because, an older adult is like a child; they require a lot of care, a lot of attention … from us, as promotoras … As we had been to the workshops, we know how to treat people. We first have to provide them affection, appreciation – talk with them about their*

problems. Then, we win their trust, and they can communicate what is wrong with them

Interview with Betty, CHW-trainee (2015) [translated from Spanish]

In 2016, teachers from the TEACH project participated in the creation of, and promoted, a project with the local hospital funded by, and linked to, the TEACH project. For this project, teachers received the authorization from the hospital that allowed CHW-trainees to go to the hospital for a day to accompany patients, a doctor or a TAPS. Some of the CHW-trainees also participated during the rounds with the doctors at the hospital. These activities realized the role of an intercultural broker between patients and the hospital. The teachers also encouraged the CHW-trainees to share their experiences during the TEACH workshops – to provide feedback and for other CHW-trainees to learn from their encounters. Below are some examples from a written report on the experiences of the first of these activities and the information shared by one of the CHW-trainees, as well as the perception of a hospital-based physician.

[Betty] loved her experience. She saw a child with failure to thrive and an IUGR (intrauterine growth restriction) born at home, breech and with some breathing difficulties to a 48-year-old mom who just wanted to go home to her other children. In both cases, she felt useful, as she was able to translate into Quechua and give explanations to the mother … Dr. [Julian] mentioned the case of a young girl with pneumonia [who] needed to be transferred, but no hospital had space to receive her

in Quito. The mother wanted to take her child home, but he felt that the CHW present was key in explaining to her the reasons she had to stay. And the child was eventually discharged home well. He also got a report of a visit to a school; the doctor (or other health professionals) started talking to the children. The CHW came forward and requested to talk and just started teaching, as all the kids were listening. The leadership of the CHW impressed the doctor. He mentioned that the CHWs should not hesitate to ask questions. The doctors make an effort to discuss the cases with the CHWs at a level adequate for them.

Written report on a 2016 workshop (April 2016)

As the project progressed, the teachers suggested advancing and formalizing the educational role of the CHW-trainees. The teachers envisioned educational tasks with two goals. The first was to train other people in the community to become new community health workers and advance the sustainability of the program. The second was for the CHW-trainees to be able to teach people from the community in fundamental health-related topics, such as nutrition and adequate cleaning habits. This second role was encouraged during the workshops as teachers asked CHW-trainees to explain to their peers and recruits the lessons from previous workshops. Their educational role developed when teachers encouraged, guided and accompanied CHW-trainees to have information sessions and workshops in their communities. The educational role, as was mentioned before, was also employed by the teachers to assess the knowledge CHW-trainees had acquired during the workshops.

One after one, the CHWs recited in front of the whole group everything we learnt yesterday about breastfeeding. It took each about 10-15minutes to recite all the information in great detail. They helped each other out, and we had written the main points on the board behind them (…) They would like to do this more often (and they don't need teachers around to do it!) … We had two participants who weren't at the last workshop, and this was an opportunity for the CHWs to teach them. We reviewed the four major take-home messages. They then recited one after another the four points with more detail. They can describe what HPV [Human Papilloma Virus] is, what a PAP (Papanicolaou) test is, and how it is done, what the possible PAP results are (normal, abnormal or cancerous), and what colposcopy is … Today at 3:30, there was a meeting in the Casa Comunal of Community 1 where all the community was invited to learn about lactation and vaccines. In total there was a small group of about 15 people. [Lea] started by giving a small lecture on vaccines and answered questions from the audience. Some questions were deferred to the CHWs who were eager to answer them. After the vaccine talk, Soledad and Lea demonstrated how a vaccine was made with lemon ("Polio") and a blender, with the analogy that when you drink the polio preparation (lemonade), you will know how it smells and tastes, and will be forewarned if you come across it again … Then each CHW gave a little talk on a dedicated subject. [Fanny] talked about colostrum, [Cecilia – the project coordinator] about introducing foods at six months and iron, [Tatiana] about burping babies and colic, for example. It was nice to see that the

other CHWs were asking questions to the CHW who was presenting in order to remind them of what to say next and asking for more detail if the person presenting seemed to forget.

Written report on a 2014 workshop (May 2014)

We started the workshop by placing everybody in pairs of two each at a table. We gave them each a mango and a knife. We asked them to assign one person as a teacher, and the other person as a student. The teacher would instruct the student how to peel and cut a mango. This relatively simple task was chosen to allow people to focus on the feedback process and to gain confidence. They were given two options on how to provide feedback – first, to give a positive, then negative, then an aspect they could improve with; or if they were uncertain, they could first ask the other person to self-reflect then build on that. The concept of feedback was one that was difficult to grasp for the group however with considerable coaching they understood, and by the end of the 45-minute exercise all students had given feedback to teachers, and all teachers had given feedback to students.

Written report on a 2015 workshop (July 2014)

As seen in the quotes above, teachers also trained CHW-trainees specifically on educational activities so that they could acquire adequate skills of teaching. Such reflectivity and reflexivity – that is, practice-changing reflection – optimized the collaborative oral modes of learning among the participants. The teachers also randomly assigned to the

CHW-trainees topics for presentations to the other CHW-trainees during the workshops. For the presentations, teachers showed CHW-trainees some guidelines about making interesting and informative presentations, with examples. In regard to their more formalized educational role, the intention was that CHW-trainees would acquire confidence and skills that would aid them when teaching other community members about health-related topics in ways that resonate with their beliefs, routines, learning styles and practices.

The educational topics expanded to cover the natural, embedded environment of the CHW-trainees. This included medicinal plants, as well as giving examples of how to acquire a balanced diet and nutrition. The teachers decided to include topics related to gardens – their creation, maintenance and production. The gardens served two purposes; as an example, for other communities' members to maintain a sustainable garden, and to have at hand medicinal plants that would aid CHW-trainees and community members with their traditional medicine. The creation of the gardens also gave CHW-trainees an opportunity to maintain their traditional knowledge of medicinal plants and traditional indigenous medicine. The teachers sought other members in the community to teach CHW-trainees about natural composting and water supply. The training also included the creation of a garden at their homes, growing vegetables and medicinal plants, and how to keep animals, such as chickens.

In summary, the teachers adapted the training in response to the perceived cultural needs of the communities, beyond the individual knowledge and skill development in the workshops. The teachers framed the role of the CHW on disease prevention and health

promotion in primary healthcare, instead of focusing on maternal and child healthcare, in response to the expressed needs of the communities, reflecting the needs of these impoverished and under-served communities. Later during the program, the teachers were flexible about the moment to start carrying out house visits and hospital visits to provide support for other members of their communities, reflecting empathy with cultural traditions and the CHW-trainees' shyness about visiting people in their homes with questionable legitimacy and limited self-confidence. The delay allowed CHW-trainees to be more confident in terms of their positions as CHWs and the knowledge acquired during the workshops.

To continue to adapt the roles of the CHW-trainees to their context, the teachers integrated the educational role progressively during the workshops, by asking CHW-trainees to teach previous content to other CHW-trainees, and by organizing talks for the communities on health-related topics. The slow progression and implementation of topics responded to the cultural characteristics of the CHW-trainees and the way oral tradition functions in their communities. Finally, as stated, teachers also included in their training information and guidance on how to maintain a garden in their backyards for vegetables and medicinal plants. The gardens were also used to teach community members about nutrition, and reflected the integration of people and their interdependent environment.

The strategies mentioned in this sub-theme continued to focus, at a micro-level on specific educational topics. The strategies were increasingly focussed at the meso level. This was evident when teachers encouraged CHW-trainees to and guided them with, presentations on specific health matters for the education of the community members. Here, the

strategies used by the teachers were focussed on impacting the communities. The meso-level was also seen when teachers created the new project with the hospital that allowed CHW-trainees to serve as intercultural brokers. The aim of that role was to serve as bridges between the hospital institution and its communities. The gardens also represent a meso-level focus in the sense that they also facilitated the role of CHW-trainees to serve as examples to follow by other community members in the endeavours of gardening. The following figure shows the occurrences of particular strategies evident in this sub-theme.

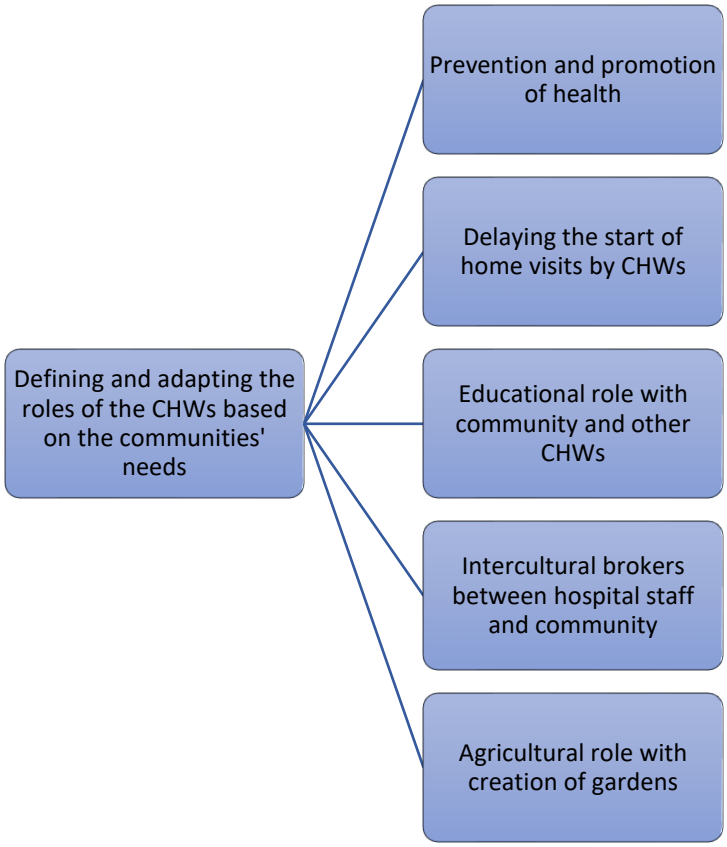

Figure 8: Sub-theme – Adapting the negotiation of roles of the CHWs to the needs of the communities

5. Systemic cultural engagement: Advocating for the roles and achievements of the CHW-trainees

The TEACH project teachers were aware of the importance of recognizing, understanding and promoting the efforts of the CHW-trainees. At a macro level, the teachers sought to have governmental influence and to embed themselves more deeply in the culture of the communities, indeed indigenous culture more broadly. This latter strategy involved a more deeply engaged participatory approach in which their teaching would be expected to increasingly reflect cultural understanding.

The teachers asked a team of representatives of different groups in the community to create a more formal, public process to select the CHW-trainees. The Canadian teachers and creators of the TEACH program involved people from the government bodies in the communities, the local CHW coordinator and members of the communities in formal and informal discussion about the project, its transformative potential, and its future. In this way, throughout the program, as especially as it progressed as a mutual learning community, the voice of the community, as well as their expectations and opinions, were accounted for by the project organizers.

During the later workshops, when the teachers asked CHW-trainees to consider how they would build their roles and sense of teamwork, CHW-trainees conveyed that they wanted to create a logo for the TEACH project. The CHW-trainees worked collaboratively to design the logo shown below (see Image 1). The teachers encouraged, monitored and scheduled the design and presentation of the logos, as a strategy to improve the CHW-trainees' confidence and shared identity as indigenous people, leaders in their community

and CHWs. By guiding the CHW-trainees to create the logo that would represent them, teachers sought to ensure the logo feasible, as well as culturally sensitive and pertinent to the communities and their contexts. The teachers described the meaning of the logo in one of the written reports.

Image 1: TEACH logo, designed and drawn by the CHW-trainees

> *They have decided on a logo! They would like [two] have to hands crossing each other, reaching out. One palm will have two medicinal plants, and the other one will have a pill. One hand will be indigenous with the traditional bracelet. They would like to have Promotora de Salud on the top and FYESTA [the Spanish acronym for TEACH] on the bottom in a circle.*

Written report on a 2014 workshop (May 2014)

As for the logo, the teachers also asked if the CHW-trainees wanted other paraphernalia, such as a backpack, and suggested that they should design it if that is what they desired. The CHW-trainees suggested, for instance, that the name on the backpack was the name of the project – "Proyecto FYESTA" – and to be gender-neutral, as there were both male and female CHW-trainees. The creation of the project logo as well as the backpack was expected to provide the CHW-trainees with a sense of belonging and more confidence when performing their roles. Also, community members and hospital staff could recognize and identify them better with the use of the materials created by the CHW-trainees. By encouraging the CHW-trainees to create such materials, teachers also advanced the cultural resonance of the TEACH project with the lives and priorities of these communities.

At the end of each one of the visits, the teachers gave CHW-trainees a certificate celebrating their participation during those workshops, which also indicated the hours received in training. The certificates were written in Spanish and were signed by the Dr, Doucet as the Principal Investigator of the TEACH project. Since the beginning of the TEACH project, teachers sought and obtained the authorization of the Ecuadorian Government to formally accredit the program. In the certificates, the name of the project also appears in Spanish ("*Proyecto FYESTA: Formación y Educación por la Salud de la Tierra Andina*"). Below is a template of the latest certificate provided for the CHW-trainees (see Image 2). This

certification represented formal legitimacy and recognition at the highest formal level – with the support of the government of Ecuador.

Universidad de McGill
Departamento de Medicina Familiar

Certificamos que **NOMBRE DEL PROMOTOR EN SALUD**
completó con éxito ___ horas de taller del proyecto FYESTA
desde el _____ hasta el_____.

El proyecto FYESTA (Formación y Education por la Salud de la Tierra Andina es un programa longitudinal que dura cinco años. El objetivo del proyecto es de hacer una capacitación de promotores de salud en los campos de prevención y promoción de la salud comunitaria. El programa tiene la aprobación del Ministerio de la Salud Pública de Ecuador y está oferto por la Universidad de McGill en Canada.

(Firma)
Dra. ROSALIE
Investigadora principal de FYESTA
Catedrático adjunto
Departamento de Medicina Familiar, Universidad de McGill
Canada

Image 2: TEACH project certificate for Community Health Workers

The certificates describe the TEACH project as a *"longitudinal program with a duration of five years. The objective of the project is to capacitate community health workers in the field of prevention and promotion of community health. The program has the approval of the Ecuadorian Ministry of Public Health and is provided by McGill University in Canada".*

The certificates were also used as a mean of introducing the CHWs to the other members of the community and raising their profile. For example, at the end of one of the

visits, the certificates were formally presented by the presidents of the communities, who also publically affirmed their role as central to the health of their communities. In this way, the teachers recognized the importance of linking the TEACH project with community and government bodies, and involved them in the acknowledgment of CHW-trainees. When interviewed, the CHW-trainees shared their appreciation for the recognition.

> *We asked the presidents [of each community] to hand out the certificates, and I introduce the [CHW] to the communities. They are obviously proud, and all want their pictures taken with me outside.*
>
> *Written report on a 2013 workshop (August 2013)*

> *After receiving the training, I acquired more knowledge on traditional medicine, basic aspects, with that I was able to improve my job. And, with the certificate they gave us… I already put it in my folder, which is an extra that I can show to my bosses.*
>
> *Interview with Ana, CHW-trainee (2015) [translated from Spanish]*

> *As everyone gave their last word, [Soledad] was on the verge of crying as she told in Quechua that she had never gotten recognition or certificates from the group of midwives but that in our group she is getting recognition and certificates.*
>
> *Written report on a 2016 workshop (April 2016)*

Another macro-level strategy engaged later in the program involved the efforts of the teachers to improve the relationship between the hospital and the communities. Beyond the meso-level relationship of CHW-trainees with the hospital, the development of the hospital-community relationship allowed entry for the CHWs to participate in workshops and to carry out their roles more effectively as intercultural brokers. As a result of the participation of the CHW-trainees during workshops provided at the hospital, as well as improvement the relationship between the community and the hospital, hospital staff came to further appreciate the roles and efforts of the CHWs. During a Health Fair at the local hospital, the hospital's Director approached the CHW-trainees and acknowledged their group and actions.

> *Before the event started, the hospital director came to meet the CHWs and asked from which communities they came. In her welcoming message, she extended a special welcome to our CHWs and mentioned the names of the five communities (although no one was present from [Community 3]). The district director expressed to the CHW how important their work in their communities is and said how she hoped they could collaborate to help with some of the health programs the hospital is trying to develop (she didn't elaborate on which). It was fascinating as she spoke directly with the CHW and never once spoke to [either of the two teachers]. We thought that was great: it showed how confident the CHW group is and how they are coming into their own.*
>
> *<u>Written report on a 2015 workshop (March 2015)</u>*

Thus, the later stages of the program, in addition to micro-level teaching, and meso-level organizational intervention, was realizing macro-level structural influence through formal recognition and legitimation. The teachers acted to ensure that CHW-trainee was legitimized, respected and recognized by other stakeholders who are involved in the healthcare of indigenous communities in northern Ecuador. The last quote conveys the positive response the hospital had to the presence of CHW-trainees at the events held at the hospital, as well as a positive response to the efforts carried out by teachers for improving cultural and institutional relationships. Although not directly related to the training of the CHW-trainees, the strategies that led to the recognition of the efforts and roles of the CHW-trainees in the TEACH project could contribute to increasing their confidence as present and future health and change agents in their communities. The certificate will enable the CHWs to demonstrate their participation in a project that had the support form their country's government as well as that of a recognized university in Canada. The following figure shows the occurrences of particular strategies evident in this sub-theme.

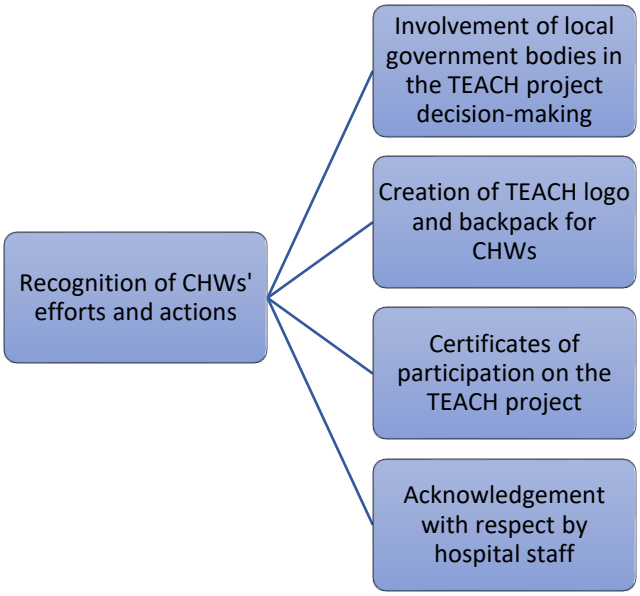

Figure 9: Sub-theme – Systemic cultural engagement: Advocating for the roles and achievements of the CHW-trainees

DISCUSSION

Contribution to the literature

This thesis contributed to the understanding of how teachers in cross-cultural contexts can take account of cultural difference and make increasingly expansive changes not only in the immediate (micro-level) teaching environment, or even that of surrounding organizations (meso-level), but in the broadly-based cultural contexts that shape values and norms (macro-level). The changes that we saw as the TEACH project developed, contributed not only as acts of individual agency by teachers and CHW-trainees. The changes contributed to systems that increasingly provided the conditions for supporting cultural competence and sensitivity in teaching across such vastly different cultural contexts.

Much of the previous literature had focused on the role, work and effectiveness of CHWs (3, 4, 10); cultural competence (35, 39, 42) and cultural safety in healthcare services(45, 46); and, cross-cultural training with few articles addressing how cultural aspects have been introduced into the training (4, 29). In countries where disparities in the access to health services occur and universal health coverage has not been achieved, community health workers can be valuable (5, 7, 9, 74). In vulnerable communities, in particular, CHWs can serve, as intermediaries between health systems and their communities – in other words, taking on the role of intercultural brokers (3, 10). However, strategies used for teaching in cross-cultural contexts for adapting CHWs training programs to the culture remained underexplored.

We learned from previous literature that CHWs fill a need in potentially over-stretched workforce, and limited access to healthcare by marginalized people in supposedly

public healthcare systems (2, 3, 5-10). The evolution and work of CHWs can occur in the context of marginalization of indigenous people, impoverished people, women, and those of cultural backgrounds outside from the dominant culture (2, 5, 6). The strength of CHWs has been in the tendency of CHWs to belong to the same cultural group as those marginalized people they are to serve (2, 3, 7, 10). The CHW-trainees in the TEACH project, as a case, fulfilled all of the above-mentioned categories of disadvantage. This exacerbated the difference between the CHW-trainees and their "western" teachers, reinforcing the applicability of the strategies discerned in this study for other educational programs that seek to foster cultural awareness, sensitivity, and competence.

Two particular gaps in these literatures gave rise to this thesis. The first was the absence of literature on CHW training. The World Health Organization identified this lack and recommended more research efforts on the training of CHWs as a guide for improving CHW performance (51). The second is the absence of descriptive, processual research – rather than solely commentary and post-hoc evaluative studies – on cross-cultural educational programs (75, 76). The documentation of efforts and effects in processes is important to understand the mechanisms that give rise to particular effects in learners, and the conditions that support or impede those efforts.

The TEACH program was implemented to train CHWs in indigenous rural communities in northern Ecuador. Teachers in charge of the training of CHWs did not share the same culture. They travel three to four times per year from Canada for the course and did not live or work in the community. Thus, as a case, the TEACH project offered a valuable opportunity to explore, in a longitudinal manner, the research question for the present

thesis: how, and with what response, did the TEACH project seek to engage strategies to reconcile cultural differences when training CHWs in Ecuadorian indigenous communities?

The major key findings of the study were as follows. First, the strategies with which the Canadian teachers attempted to deliver education in culturally sensitive and competent manner, took three different forms: micro, macro and macro-level interventions. Second, longitudinally, the teachers placed increasing emphasis on meso and macro-level interventions, even though all three types of intervention were present throughout, to some extent.

Teachers used various strategies to give effect to the three different levels of educational intervention (micro, meso and macro levels). Training CHWs is a challenging endeavour, given limitations of resources, and systemic marginalization of indigenous people and those from a cultural group that is different from the dominant culture, which a single training programme could not single-handedly address (7, 8). As a way of engaging with the cultures of the CHW-trainees in the TEACH project, teachers and CHW-trainees collaboratively designed and chose the activities and content of the workshops as well as the material CHW-trainees used during the training and while practicing their tasks. Having input from the CHW-trainees resulted in, for instance, workshops and cue cards that were applicable to, and appropriate for, the context and culture of the CHW-trainees. Such strategies can be of use in cross-cultural education more widely, to avoid cases similar to those mentioned in the literature, in which the material used by the CHW was inappropriate for the cultures of the participants, and thus undermined the training and even reinforced cultural stereotypes (28, 48).

Additionally, allowing CHW-trainees to share their stories, while ensuring a safe environment manifested further adaptation of the training topics and methods. The teachers created opportunities to identify particular components to retain and amend, on the basis of what they perceived to be culturally appropriate for the CHW-trainees and their communities, including on the basis of feedback from the CHW-trainees themselves. The TEACH project showed that creating appropriate channels of communication between the trainees and the teachers can be used to improve the understanding teachers and trainees have have about each others' culture and, overall, to improve the perception by participants of the training program. In terms of transferability, such engagement with the culturally-informed priorities of the participants should be front of mind when planning and implementing training program in cross-cultural contexts and adapted to the conditions of each particular context.

The TEACH project and its teachers showed flexibility in terms of the assessment and evaluation format. After heeding the inappropriateness of the pre- and post-test assessment for the context, teachers, deeply concerned about the response to the test assessment, adapted the assessment and program evaluation to the needs of the communities. They engaged ethnography to evaluate the program and assess the progress of the CHW-trainees. Future educational programs across cultures should structure into their programming processes to redress potential culturally derived challenges. Such program leaders should convey the humility and adaptability to align with participant and community values and practices.

As a meso-level intervention, beyond curriculum and teaching interventions in the immediate environment of the workshops, teachers also reinforced the relationship between the communities and their local hospital. Such reinforcement was identified during conversations with the CHW-trainees, who shared their experiences, most of them of discrimination, at the local hospital. Several articles have identified the relationship of CHWs with other health professionals as a challenge when there is little support and respect from professionals in formally recognized occupations for the work of CHWs (7, 8, 10, 26, 27). The TEACH project teachers, in collaboration with the CHW-trainees, sought to improve the relationship between the communities and the hospital staff. Nonetheless, the relationship with the hospital in this context is always changing. The communities and the hospital evolve continuously on account of social, economic and political circumstances.

The TEACH project teachers also promoted the cultural leadership of the CHW-trainees. They strongly encouraged interventionist and advocacy roles that were adapted to respond to the expressed needs of their communities. Teachers advocated for the roles of the CHW-trainees at the hospital and within the communities. In addition, TEACH project leaders sought and obtained authorization and support from the Ecuadorian Government for formal certification of the program. This allowed teachers to further advocate for the roles of the CHW-trainees and provide certificates acknowledging participation in this formal training. Other projects involved with the training of CHWs in cross-cultural contexts could draw on the example of the TEACH project to advocate for the roles of their trainees. This ought to involve taking into account the context, securing the support of local organizations, and providing some type of formal recognition or certification of the efforts

and achievements of the students. The efforts of the teachers, in guiding and promoting hospital-based training, direct intervention in hospital-based roles, community workshops, and engaging local and national policy-makers in formal and public recognition of CHWs, expanded the reach of cultural influence across the boundaries of the teachers, the CHW-trainees, and their communities, and into the national sphere. The TEACH project exemplified, for future cross-cultural training programs, the importance of regarding relationships between various stakeholders – including CHWs, the hospital and communities – as a mutually influential system, that needs system-level interventions rather than relying merely on relationships among individuals.

Concretely, in the TEACH project, I was able to identify the use of the following strategies to seek to reconcile the difference between the culture of teachers and that of the participants. First of all, following the WHO recommendations), participants of this program were chosen from the communities. In addition, the design of the workshops was either co-created with input from CHW-trainees and teachers (e.g.. cue cards and selection of topics), and the workshops were tailored to the characteristics and needs of the CHW-trainees and their communities (e.g. delaying home visits, practice-based learning, and re-visiting material at different times). The material created and used for the training was maintained by the CHWs for their future practice and continuation of the program within their communities. The teachers advocated change in roles, so that the roles of CHW-trainees were tailored and adapted to the needs of their communities and were advocated within the communities and at the local hospital. This was seen in the roles of prevention and promotion of diseases in primary care, support for members of the community, and

accompanying people to the hospital, as well as the educational role for the community in health matters, as well as for new CHWs.

Furthermore, based on the findings of this thesis, it is clear that the strategies and the efforts made by the teachers reflected a desire for cultural awareness, cultural sensitivity and cultural competence. The teachers displayed cultural awareness and sensibility. Through their micro, meso and macro strategies, the teachers opened possibilities to give effect to their desire to align with the cultural needs of the CHW-trainees (37). Previous research has associated a positive attitude with cultural competence (35, 39). If this is the case, the teachers clearly displayed cultural competence (42).

Since 2012, through the strategies described, the teachers in the TEACH projects evinced a desire to engage in efforts to integrate the communities' cultures and modify the curriculum based on the needs expressed by CHWs and other members of the communities. The teachers displayed the commitment and critical awareness themselves to become involved in non-academic activities to optimize the teachers' roles as facilitators of CHWs, hospital and community interaction, and promoters of community health leadership at a national level (42).

Limitations

A limitation of the thesis is that it did not directly consider the agency of the CHW-trainees. Clearly, and as one would expect, the CHW-participants exercised considerable agency, and took a great deal of initiative, in advancing the training program. Relatively less attention

was paid to the agency of CHW-trainees because the focus of the research was on the actions of the teachers.

Second, although I made clear that this was a descriptive rather than evaluative study, the presentation of "positive" actions in the direction of culturally sensitive actions may have skewed the negative aspects of the program. Indeed, if any display of culturally sensitive behaviour is acceptable – in the absence of a comparison or relatively objective indicator of cultural sensitivity or competence, it might seem that *any* positive action meant that the teachers simply could not fail to be assessed as culturally sensitive or competent. In keeping with the descriptive character of the study, the positive actions in the direction of cultural sensitivity served to show how culturally sensitive intentions do and can manifest as educational interventions at micro, meso and macro levels.

Third, it can be challenging to render transferable findings from a single case study. The topic of this thesis was broadly positioned as a study of cross-cultural strategies, but the setting was with a particular number of representatives from particular communities, in a particular part of a particular country. Nevertheless, the setting and participants provided an appropriate sample because their situation – as Northern Ecuadorian indigenous trainees of a CHW training program delivered by health professionals – reflected the broad challenges the literature review conveyed in regard to cross-cultural health training. It provides an "extreme case" of a particular phenomenon, whereby the findings are expected to be relevant to other settings addressing the same phenomenon (55).

A fourth, related, limitation, concerns the broad brushes of "culture" applied to the participants, in particular, their possible presentation as, respectively, representatives of

"indigenous culture" and "western culture". Of course, there are multiple such cultures, and the participants of this study represent certain manifestations of culture. Nevertheless, the attribution of cultural norms bore out in distinctive patterns which allowed a degree of attributability for the purpose of this study.

Lastly, I did not undertake data collection directly. Data were collected by my supervisor, Peter Nugus and a Research Assistant. However, by using data in the form of written text provided by the teachers and semi-structured interviews with both teachers and students, I was able to obtain the necessary information for performing undertaking a systematic analysis. Furthermore, I carried out the transcription of the semi-structured interviews; I read all the reports and analyzed all the data. This way, I was able to gain an in-depth understanding of the data and general circumstances of the project.

Implications and future directions

The contribution of this thesis is to link macro, meso and micro processes in a health educational training program over time. The thesis showed that benevolent intentions of individual educators are insufficient. They must have broader reach. Neither should such broader reach be accidental. A resounding finding was the evolution of macro interventions as the program progressed. The strongest implication of this for policy, practice and education is that health educational programs that aim to be culturally sensitive or competent must self-consciously design and materially incentivize the development of systemic (national, policy, financial and professional-regulatory) educational interventions

that shape the political, social and educational contexts in which individual training programs are designed and delivered.

This thesis outlined the strategies used by the teachers to reconcile the differences in the culture of the CHW-trainees from their own. The purpose of this thesis was less to provide information on the efficacy and the effectiveness of the training program, as to articulate such strategies. The strategies employed by the teachers responded to the needs described by multiple articles in the literature. Future research could combine deep understanding of the program with evaluation. In terms of evaluation, future studies could explore in depth the impact of the TEACH project in terms of health outcomes. Further exploratory research could be conducted among similar communities in Ecuador, in other countries in South America and on other continents, among various “cultures”, and even among vulnerable communities in affluent cities and countries. Such research would strengthen knowledge about the social, political, economic, regulatory, historical and institutional conditions that shape the interaction between micro, meso and macro-level interventions, and how both teachers and trainees engage with and respond to such interventions as a project evolves.

To evaluate the satisfaction of the community and the hospital staff with the services received by the CHW-trainees in the TEACH project – and other such cultural health training programs – an exploratory qualitative study might be of use. Such a study would provide access to the perceptions of members of the community, as well as the hospital staff in terms of the roles and actions performed by the CHW-trainees. In terms of individual assessment, such research could also provide insight on the knowledge and skills in which

individual CHW-trainees are stronger and weaker at particular times, stages and under particular conditions.

CONCLUSION

The findings of this thesis contribute to the literature on health education by providing information on the strategies that can work for creating and delivering training programs in marginalized communities that are adapted to, and for, local cultures and contexts. Furthermore, the findings of the present thesis show the importance of knowing and integrating the culture of stakeholder communities to be able to ensure the quality of such programs. Additionally, the findings of this project may inform similar research endeavours related to the training of these important health actors that have the potential to improve the health of vulnerable and underserved communities. Furthermore, the findings can also be used as a base for other educational programs occurring in cross-cultural contexts for other health actors, which can be expected to ultimately impact the health status of the targeted communities.

Ultimately, the TEACH project showed, in a longitudinal manner, the possibility of the creation and implementation of a six-year training program for community health workers tailored to the characteristics, culture and expressed needs of the communities to be served by the training program. The strategies and efforts carried out by the teachers involved in this training included different components of the program including the design of the program, selection of the activities and topics, expected roles for the CHWs and evaluation of knowledge. It also required an active effort in the creation, maintenance and strengthening of relationships between the actors involved in the project (including the hospital, communities and McGill University), which can also be seen in recognizing the efforts of the CHWs and certificating at a national level participation in the training program.

The evolution and adaptation of the program during the six years were possible thanks to the active involvement and participation of the CHW-trainees. Furthermore, taking a descriptive, rather than an evaluative approach, can underpin evaluative research that seeks improvement, by showing precisely the points of influence in which practitioners, managers, educators and policymakers can intervene, ultimately, to improve the health of vulnerable communities.

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APPENDIX A: Certification of Ethical Acceptability for Research Involving Human Subjects issued by the Faculty of Medicine Institutional Review Board at McGill University.

McGill

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CERTIFICATION OF ETHICAL ACCEPTABILITY FOR RESEARCH INVOLVING HUMAN SUBJECTS

The Faculty of Medicine Institutional Review Board (IRB) is a registered University IRB working under the published guidelines of the Tri-Council Policy Statement, in compliance with the Plan d'action ministériel en éthique de la recherche et en intégrité scientifique (MSSS, 1998), and the Food and Drugs Act (17 June 2001); and acts in accordance with the U.S. Code of Federal Regulations that govern research on human subjects. The IRB working procedures are consistent with internationally accepted principles of Good Clinical Practices.

At a Board meeting on 27 August 2018, the Faculty of Medicine Institutional Review Board, consisting of:

Frances Aboud, PhD	John Breitner, MD
Joséane Chrétien, MJur	Patricia Dobkin, PhD
Frank Elgar, PhD	Carolyn Ells, PhD
Catherine Lecompte	Kathleen Montpetit, MSc
Roberta Palmour, PhD	Alexandra Pasca, LL.M.
Daniel Saumier, PhD	Blossom Shaffer, MBA
Maida Sewitch, PhD	Lingqiao Song, LL.M.

Examined the research project **A06-E45-18B** titled: *Cross-cultural strategies used in health professional training processes and their effects: training community health workers in Ecuador*

As proposed by: Dr. Peter Nugus (Applicant) to _____ (Granting Agency, if any)

And consider the experimental procedures to be acceptable on ethical grounds for research involving human subjects.

27 August 2018 (Date)

Chair, IRB

Dean/Associate Dean Faculty

Institutional Review Board Assurance Number: FWA 00004545

APPENDIX B: Interview Guide for CHW-trainees

Ecuador TEACH program interview guide – Teachers

2013

Note: The following interview guide was translated to English from the Spanish Version. The interviewer used the Likert scale for rating the question from 1 to five, using five different faces conveying emotions from very sad (1) to very happy (5).

Thank you for your time to respond the questions in this interview.

1. What did you learn during the last visit?
2. Have you had the opportunity to use that knowledge?
    a. If the participant indicates they used the knowledge:
        a. How have you used that knowledge?
        b. What did you do?
3. What do you think is missing in the program?
4. What do you think about the course when we did it last time?
5. What do you expect to learn this time?
6. What is the role of a community health worker?
7. How confident are you of being a community health worker?
8. Please, rate your confidence using the following faces:

9. Using the following faces, how happy are you with the course?
10. Using the following faces, how happy are you with THE CONTENT the course?
11. Using the following faces, how happy are you with THE RELEVANCE the course?
12. Using the following faces, how happy are you with THE WAY the course IS TAUGHT?
13. Using the following faces, how happy are you with THE ATTITUDE OF THE TEACHERS in the course?
14. What do you think should be done differently this time based on the last course?
15. How do you feel with your participation in the course? (show the CHW-trainee the Likert scale with the faces)

Thank you for responding to my questions.

APPENDIX C: Interview Guide for Teachers

Ecuador TEACH program interview guide – Teachers

2013

Thank you for your time to respond the questions in this interview.

1. What do you think the participants learned this time?
2. What did you learn?
3. How confident are you in the ability of the participants to be Community Health Workers? On a scale of 1-4?

    1. Very confident 2. Partly confident 3 Partly unconfident 4. Very unconfident

4. On a scale of 1-4, how happy are you with this course?

    1. Very happy 2. Somewhat happy 3 Somewhat unhappy 4. Very happy

5. What worked well this time?
6. What would you do differently this time from last time?
7. How have the participants had input into the design of the course?
8. How happy are you that your opinion on what's in the course has been listened to?

    1. Very happy 2. Somewhat happy 3 Somewhat unhappy 4. Very unhappy

Thank you for answering my questions

Ecuador TEACH program interview guide – Teachers

2017

"Thank you for your time to respond the questions in this interview."

1. What do you see as the role of a CHW in Ecuador?
2. Can you please explain the CHW program that you're involved in?
3. What have you learned from being involved in the project?
4. What surprised you since you started working with the program?
5. What have been the challenges in the program?
6. What has changed since you first started?
7. What do you wish had been done differently? (How has the program / CHWs developed / evolved)?
8. What do you think the CHWs should do from now on (now that the program has finished)?
9. What challenges do you foresee for the CHWs continuing their work now?

At the end of the interview, ask the two following questions:

- Do you want to add anything else?
- If we have any other questions regarding this topic, can we contact you again?

Thank you for answering my questions

APPENDIX D: Workshop topics for the TEACH project

Hereunder is a list of the topics and the specifics of each one of them based on the written reports. The following list does not indicate the frequency, nor the importance that the topics had on the development of the course.

- The role of the community health worker: one of the tasks of a CHWs, is to provide preventive activities on health topics as well as to be a support for members of the community. During the workshops, teachers and participants also discussed the importance of creating and maintaining a good relationship with the hospital centre and its staff. Besides, teachers and students discussed the importance of confidentiality while performing their roles as community health workers. The educational role of the CHW was also emphasized during the workshops. Leadership was also discussed as part of their lessons as the CHWs can also be leaders within their communities with an emphasis on the qualities and challenges of being a one.
- Acute diarrhea: the causes and rehydration treatment, including a workshop on how to prepare rehydration solutions, were discussed. During the workshops, teachers included prevention of the disease, including the importance of hygiene, hand washing and use of clean water for drinking and for preparing food.
- Dietary recommendation for newborns and children: this topic included breast milk (components, importance), recommended feeding regimen, and initiation of complementary food. For children, they talked about achieving a balanced

diet. There was a specific workshop on breastfeeding that was provided in collaboration with the hospital.

- Nutrition. Three group foods, how to have a balanced diet with the food products available in the community. After the community health workers had an understanding of the food groups, teachers introduced micronutrients (i.e. vitamins). During the workshops and with the aid of local organizations, CHWs were also given materials for creating their garden for food and medicinal plants. During the talks about nutrition, anemia in pregnant women and children was discussed, especially on causes, prevention and dietary modifications.
- Birth control: Teachers provided an explanation of women's reproductive organs and normal menstrual cycle, a description of the different methods, as well as a discussion on the adequate use of those available in the context. Teachers also discussed the side effects of the methods as well as myths around several of these methods. For providing explanations on the topic, teachers and students used models done by hand by some of the CHWs. Teachers also utilized manikins that were used for teaching multiple of this and other topics.
- Men's Health: This topic referred to how men can actively participate in birth control (i.e. use of condoms, vasectomy). It also referred to general information about the prostate and diseases related to it.
- Pregnancy: causes of spontaneous abortions and myths surrounding the topics, alarm signals of complications after an abortion and after birth, vaginal bleeding.

A general description of the anatomy and the birth process took place as well as the importance of delaying the cord clamping for preventing anemia.

- Sexually transmitted infections (STIs): Teachers presented data on signs and symptoms of STIs, diagnosis and the importance of receiving adequate treatment. There was also an exclusive session for the Human Papilloma Virus and the PAP test with its possible results.
- Accidents: This topic was broad and implemented in various years. It included a discussion of the most common accidents in their villages, how to provide first aid, treatment of wounds and identification of infections signs, the anatomy of abdomen and chest with the link to trauma to those regions, and prevention of accidents.
- Vaccination. Teachers gave information vaccines, the importance of immunization and the benefits for the individual and the community.
- First aid in daycare services approaching topics of fever, febrile convulsions, skin rashes, diarrhea and constipation, and trauma (head trauma and red flags).
- Abdominal pain. Causes including gallbladder causes, gastritis and appendicitis, followed by an abdominal exam to identify the three causes, adequate referral to the hospital.
- Common rashes in adults and children were approached. The discussions occurred around causes, treatment, red flags and complications.
- Respiratory symptoms and diseases. Teachers discussed the signs and symptoms of the common cold, pharyngitis, otitis media, and pneumonia. Around these

topics, the difference between antipyretics and antibiotics was explained. Additionally, there was a workshop focussed only on tuberculosis and its treatment. This particular workshop was provided to prepare CHWs for participating in a local “Feria de Salud” (health fair) whose central topic was tuberculosis.

- Drug use in the communities. The community health workers requested the topic of the use of narcotics, especially among young members in the community. The description of the type of drugs, the risks and risk of addiction, as well as prevention was given in a special workshop that involved young members of the community. Children and CHWs shared a safe space that allowed for an understanding of the drug situation and knowledge in the community about illicit and permitted drugs.
- Skill development. During the workshops and linked to the topics discussed, CHWs received formation on blood pressure, temperature and pulse measurement, the importance of the values and how to interpret them. Additionally, they learned how to perform physical examinations focused on the symptoms or the situation at hand (i.e. abdominal pain, trauma patient) as well as the adequate technique for performing an immobilization. Teachers also discussed with the CHWs about several recommendations during a consultation with a member of the community. This included aspects like introducing yourself, asking the right questions, examine the patient, identifying alarm signs and providing recommendations.

- Medicinal plants. The topic of traditional medicine and the use of medicinal plants was usually linked when discussing the other themes as part of their treatment. However, some workshops were explicitly on the recognition and the uses of medicinal plants.