DEVELOPMENT AND EVALUATION OF OCCUPATIONAL THERAPY – MAHIDOL CLINIC SYSTEM [OT-MCS] FOR POST-STROKE REHABILITATION IN THAILAND

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ABSTRACT

In 2011 it was estimated that in Thailand there were 498,800 stroke survivors of both sexes but most were over the age of 65. They were served by only 625 occupational therapists (OTs). Occupational therapy (OT) plays a key role in the rehabilitation service for stroke patients, in particular, by enabling stroke survivors to reengage with activities of daily living and to resume work or family tasks. OT needs to be culturally appropriate and relevant to the therapists, stroke patients and their families. The Occupational Therapy Mahidol Clinic System (OT-MCS) has been designed to be culturally relevant and is based on collaborative teamwork which can better address the needs of the stroke patients.

OT-MCS was introduced in 6 regional OT clinics. This study compared perceptions of stroke clients who took part in the new approach 8 weeks before and during the rehabilitation. One hundred and twenty stroke participants were divided into 2 functional groups (slow and fast stream rehabilitation). Stroke participants (N=120) and OTs (N=60) explored the arrangement of activity items into domains for creating a new activity card sort (ACS). Sixty stroke participants (slow stream rehabilitation) and 60 OTs were surveyed to investigate the attitudes of "satisfaction" and "importance" via 40 therapeutic activities. Sixty stroke participants (fast stream rehabilitation) evaluated the levels of their activity engagement in diverse cultural-therapeutic activities. Lastly, 23 stroke participants (slow and fast stream rehabilitation) were interviewed in order to ascertain their lived experiences after the use of OT-MCS and the data were analysed using thematic analysis.

The integrated analysis demonstrated strong satisfaction and engagement with OT-MCS. The use of the activity catalogue met with positive attitudes from the stroke participants and in particular the collaborative approach of OTs and participants gave meaning to the activities and a sense of self management. In addition in the fast stream rehabilitation participants reported satisfaction with the transferability of the activities to the home and external environment and their relevance to supporting family life.

The OT-MCS for Thai stroke rehabilitation is a comprehensive OT service, which improves the perception of benefit in stroke clients enabling them to perform meaningful and purposeful activities based on their local and regional lifestyles. This culturally appropriate approach helps stroke clients to re-develop their life-skills. Through the use of meaningful and relevant activities which meet their specific needs, stroke clients can lead more satisfying and fulfilling lives.

Keywords: Activity Card Sort, OT-MCS, Culturally relevant therapeutic activity, Collaborative working.

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ABBREVIATIONS

A1 – A100	Activity 1 – Activity 100
AC	Activity Catalogue
ACS	Activity Card Sort
ADL	Activities of Daily Living
AOTA	American Occupational Therapy Association
APOTC	Asia Pacific Occupational Therapy Congress
CAOT	Canadian Association of Occupational Therapists
CAP	Classification of Activity Participation
CIPM	Centre for Intellectual Property Management
CMOP	Canadian Model of Occupational Performance
DIP	Department of Intellectual Property
EBP	Evidence-Based Practice
FDI	Function and Disability Instrument
FraIM	Framework for an Integrated Methodology
HCES	Health, Community, and Education Studies
HIV/AIDS	Human Immunodeficiency virus Infection / Acquired Immunodeficiency Syndrome

IADL	Instrumental Activities of Daily Living
ICF	International Classification of Functioning, Disability and Health
ICP	Indicative care package
IHPP	International Health Policy Programme
IPA	Interpretative Phenomenological Analysis
LTP	Long-Term Potentiation
LTD	Long-Term Depression
MOHO	Model of Human Occupation
MU-IRB	Mahidol University Institutional Review Board
NSOT	National Statistical Office of Thailand
OPP	Occupational Performance Profile
OT	Occupational Therapy
OTs	Occupational Therapists
OT-MCS	Occupational Therapy - Mahidol Clinic System
SPSS	Statistical Package for the Social Sciences
WFOT	World Federation of Occupational Therapy
WHO	World Health Organisation

CONFERENCE PRESENTATIONS

During the development of this research project, a number of conference presentations have been made.

International Conferences:

Poster presentation:

Innovation in Neurorehabilitation 2011, Implementing Development, Creating Impacts, 9 September 2011, Northumbria University

Topic: 'Evaluation of Occupational Therapy-Mahidol Clinic system [OT-MCS] for Post-Stroke Rehabilitation in Thailand'

Oral presentations:

The 1st Health Challenge Thailand Conference, 2 – 3 July 2011, Office of Educational Affairs, the Royal Thai Embassy, London, United Kingdom

Topic: 'Evaluation of Occupational Therapy-Mahidol Clinic system [OT-MCS] for Post-Stroke Rehabilitation in Thailand'

The 5th Asia Pacific Occupational Therapy Congress (APOTC 2011), 19th -24th November, 2011.The Empress Hotel, Chiang Mai, Thailand

Topic: 'Culturally Appropriate Activity Card Sort for Stroke Rehabilitation in Thailand: A Participatory Approach with Users and Therapists'

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In the end, I would thank my parents for encouragement and support, and my Fiancé Kannika Promtaun (Piano) who was always there for me in times online by Skype when I was low and needed her the most.

AUTHOR'S DECLARATION

I declare that the work contained in the thesis has not been submitted for any other award and that it is all my own work. I also confirm that this work fully acknowledges opinions, ideas and contributions from the work of others. The work was done at the School of Health, Community and Education Studies.

Any ethical clearance for the research presented in this thesis has been approved. Approval has been sought and granted by the School of Health, Community and Education Studies Committee / University Ethics Committee / external committee.

Anuchart Kaunnil

Signature

Date

Chapter 1

INTRODUCTION

1.1 Background and significance of the study

Nowadays, stroke is a global health concern. The World Health Organisation estimates that 15.3 million people die of stroke and heart attacks annually (WHO, 2008). In 2004, the Public Health Ministry of Thailand estimated that the death rate due to stroke in the Thai population was 250 per 100,000 population (Prasat Neurological Institute of Thailand, 2007). Stroke caused the death of 15,648 people in 2009. This ranked fourth behind coronary heart disease, accidents and cancer (National Statistical Office of Thailand, 2011).

In 2011 in Thailand it is estimated that there were 496,800 stroke survivors across 6 regions (Thai Health Promotion Foundation, 2011). Moreover, the majority of stroke patients survive the acute phase and need care services and rehabilitation. Since Thailand is a developing country, stroke rehabilitation is not high on the priority list for resource or budgetary allocation (Jullamate et al, 2007). Rehabilitation professionals need to develop stroke management and rehabilitation within the economic context of the clinic system. The occupational therapist, as one of rehabilitation team, has a crucial role in serving stroke patients to promote restoration of function and living skills.

For the Thai population of 65.4 million, there are only 625 occupational therapists (OTs) throughout the nation (National Statistical Office of Thailand, 2011; Ministry of Public Health Thailand, 2008). Occupational Therapy (OT) education has been developed over the past 30 years in Thailand at Chiang Mai University, established in 1980, as the first school of OT (Department of Occupational Therapy, 2009). In 2006, the second school was founded in the Faculty of Physical Therapy and Applied Movement Science, Mahidol University.

In spite of this academic growth, the physical and occupational therapy outpatient clinic at the Mahidol University has to serve over 300 patients a day (Vachalathiti, 2009). Some rehabilitation centres have adopted western stroke models. However,

these models of practice do not successfully manage or serve the large number of patients, their length of rehabilitation stay and the Thai cultural lifestyles and in consequence lead to poor outcomes of intervention (Suputtitada, 2003). Therefore, the shortage of occupational therapists and the imbalance of the use of occupational therapy with Thai culture affect the treatment outcome for stroke patients.

In 2007, the College of Occupational Therapists (COT) in the Stroke Forum showed that the minimum standards for an occupational therapy service was a staff-patient ratio of 1:10 for acute units, 1:5 for rehabilitation units, and 1:15 in the community. Comparing the standard to the population of Thai stroke clients and occupational therapists, the staff-patient ratio falls far short. There are only 625 OTs to 496,800 patients. In Thailand, there is no system to produce and manage specialist occupational therapists in each OT branch. However, stroke specialist occupational therapists can be found in regional rehabilitation centres and some special hospitals.

Moreover, the Occupational Therapist Association of Thailand and Ministry of Public Health show merely a total number of OTs and number of OTs in each hospital. They do not categorise occupational therapists who are specialists for working in stroke services. The database shows information, which should be updated and combined with private and government units in order to determine a national strategy for appropriate staffing levels in the future. However, the root cause of these problems cannot be resolved in a short period of time. There are several factors related to politics, health policy, education, economics, society and culture. On the whole, the long term problem for Thai occupational therapy in stroke rehabilitation can be categorised into three main areas in conjunction with structure, management and cultural construction:-

- Firstly, several conventional western stroke rehabilitation models have been found to be incompatible with Thailand's activities of daily living (ADL) and culture (Senanarong et al, 2003). According to Cott el at (2007, pp.1566) '*some current rehabilitation models address the importance of involvement in a life situation, but they do not adequately address issues of the role of the environment, the nature of community, the importance of meaning and choice when thinking about life situations, and change in abilities across the life course*'.

- Secondly, the lack of occupational therapists compared to the number of stroke patients throughout the country (Ministry of Public Health Thailand, 2008).
- Finally, as a term occupational therapy and its relevant meaning in Thai society is difficult to explain and is often misconstrued as 'vocational therapy' or 'vocational training' which may lead to confusion in the management of stroke rehabilitation (Pongsaksri & Snow, 2005).

These issues bring major challenges for the Thai occupational therapy society in stroke rehabilitation. The lack of repertoire linking compatible administrative clinic services and inappropriate OT rehabilitation models needs addressing. This study is part of a mechanism to propel occupational therapy for stroke rehabilitation towards tackling the discrepancy of staff-patient ratio. The occupational therapists' self-development must be encouraged to focus on an efficient solution focused system, which follows operational needs, in particular, promoting relevant activities and participations.

1.2 Activities and participation for the health condition of stroke

The World Health Organisation (2001, pp. 14) has defined the meaning of activity as "*the execution of a task or action by an individual"* and participation as *"involvement in a life situation.*" Moreover, the International Classification of Functioning, Disability and Health (ICF) defines activity limitations as "*difficulties an individual may have in executing activities*" and participation restrictions as "*problems an individual may experience in involvement in life situations*" (World Health Organisation, 2001, pp. 14). "Activity" is regularly applied in health sciences research as a principle variable (Vuillemin et al, 2005; Wendel-Vos, Schuit, Tijhuis and Kromhout, 2004). The term activity is categorised into three types of health-related activities. Firstly, "activity of daily living (ADL)" which relates to self-maintenance or self-care activities, feeding, dressing, showering or bathing, and grooming (Roger & Holm, 2003). Secondly, "physical activities", which are associated with physiological exercise and neurological movements including the relationship between optimal levels of activities, which affect the brain reorganisation and physiological mechanisms (Proper et al, 2003). Finally, "activity and participation" is a part of the WHO's conceptualisation of health and disabilities;

the International Classification of Functioning, Disability and Health (ICF) (WHO, 2001).

Activity limitation and participation restriction derives from the effects of a health condition or a restrictive environment. ICF Model has emphasised the significant relationship between activity, participation and health status in people with disabilities (Katz et al, 2003). Consistent with this Model (World Health Organisation, 2001), stroke clients who present functional impairment have the dynamic interaction of activity associated with health conditions, body functions and structures, environmental facilitators/obstacles, and personal factors considerly as demonstrated in figure 1.1.

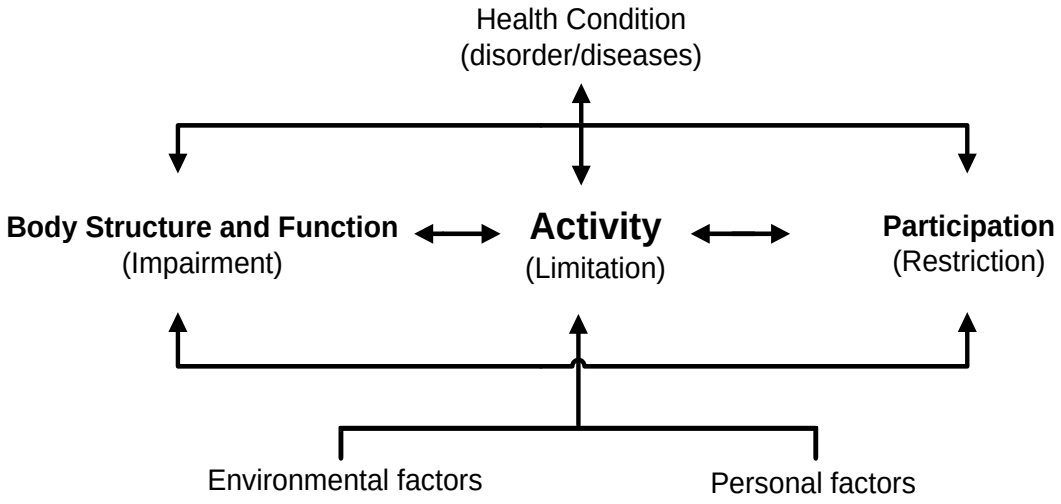


Figure: 1.1 Model of interaction between the components of ICF (World Health Organisation, 2001, pp. 26)

In 2003, Haglung & Henriksson stated that the model of interaction between the components of ICF explains the relationship between cause and effect. It enables health providers to understand comprehensively the health condition and reflect upon the means to develop their clients by motivating them to perform activities and engage in everyday life within manageable limitations in both physical and environmental settings. The ICF model can be applied in occupational therapy for stroke rehabilitation; this conceptual framework highlights the interaction of activity related to the health condition, body structure and function, personal factors and environmental involvement. Based on the ICF's conceptual framework (WHO,

2001), occupational therapy practice (Participation) for stroke rehabilitation (Health condition) needs to provide appropriate therapeutic activities (Activity) in relation to satisfaction, importance, and cultural lifestyle (Personal factors). Stroke clients can chose to engage in these activities to develop and improve their competence and skills (Body functions and structures) based on their local and regional communities (Environmental factors) in order to comply with their real world.

Thus, activity is central and plays a key role in both cultural and personal lives to serve as an important tool for stimulating stroke clients to participate in the rehabilitation process. Furthermore, culturally appropriate therapeutic media plays an integral part in helping the occupational therapist understand the patterns of a stroke client's life in different contexts and cultures.

1.3 Thai culture and the OT therapeutic intervention

1.3.1 Cultural differences

Patients differ in many ways, in particular with stroke personality, professional background, socio-economic status, and education vary, but the most profound differences are cultural. Western and Eastern cultures vary both in social behaviour and interaction. The independent and interdependent nature of society changes with cultural differences (Gardner, Gabriel & Lee, 1999). This cultural dissimilarity has been linked to the goal of the individuals involving cognitive and motivational processes within the society and service such as maintaining connectedness versus gaining independent success and distinction (Markus and Kitayama, 1991). A comprehensive understanding of cultural differences needs to be explored at the level of specific activities and practice including cognition and social structure, harmonised between the behaviour of individuals and cultural contexts (Morris, Podolny, and Ariel, 1998).

Cultural belief influences the way people fit into societal structure and community (Brewer & Gardner, 1996). In their way of life, Western countries tend to support more self-directed behaviour and give priority to individual goals over group aims. Their behaviour tends to be based on individual perspectives rather than the norms of groups. Whereas in Asian societies people tend to behave in ways that are

interdependent within groups (family, ethnicity, region, nation, etc.) and conducive to their collective community, rather than prioritising the individual (Triandis, 2001).

In harmony with Thai society, family members have close relationships together with their parents and relatives due to living in an extended family that comprises of grandparents, uncles, aunts, and grandchildren, and sometimes includes neighbours and co-villagers (Suttajit et al, 2010). Most Thai elderly people who stay with their family members look after their grandchildren and receive financial and emotional support as payback from their sons or daughters (Knodel & Chayovan, 1997). In keeping with the dominant individualistic principles, Western therapies for various health conditions tend to focus only on the patient. This study therefore aims to explore the development of occupational therapy beneficially relevant activities which fit within a Thai society and culture.

1.3.2 Client-centred approach and cultural activities for occupational therapy

In general, a biomedical model broadly defines implementation of treatment for patients by physicians rather than a focus on an individual's attitude and beliefs in health and illness (Pongsaksri, 2003). The biomedical approach does not solve all problems and is subject to the ramification and deterioration of stroke survivors in the long term (Chamber et al, 2006). An active resolution for chronic pathological conditions is to embrace the activities of daily life, which relate to the customs and beliefs of the patient which will sustain or improve health (Jungsatiansub, 1990). As a result, the integration of client-centred and multidisciplinary healthcare including family support needs to be combined with the medical intervention, religious beliefs, and cultural dimension.

A client-centred approach is created for the needs of individual clients to determine the kind of intervention provided by the course of treatment (CAOT, 2002). Occupational therapy is a client-centred approach, which uses purposeful and meaningful activities or occupations as a therapeutic intervention to address the needs of clients of varying ages in a range of physical, perceptual, cognitive, psychosocial difficulties (Tempest & McIntyre, 2006). In stroke rehabilitation, OT intervention is based on the concept of brain plasticity where it is possible to provide therapeutic activity inputs for stimulating cerebral reorganization (Hodics et al, 2006). Research in adult squirrel monkeys induced brain ischaemic injury has

revealed that a lack of appropriate external input is likely to have a negative impact due to the loss of voluntary activity and hence hinder the recovery of functional abilities by brain organisation (Nudo et al, 1996).

Sensori-motor learning and perceptual skills can be restored by the performance of task-specific activities through creativity, attention and repetition (Tallis, 2000). Hence, purposeful activity is important and meaningful when based on the stroke survivor's needs. The performance components (body function), occupational performance (activities), role competence (participation) and environment (environmental factors) are analysed by an occupational therapist (AOTA, 2002). A comprehensive analysis and synthesis of daily activities will help OTs to visualise both micro and macro views in terms of holistic solutions by encouraging stroke clients to perform activities which they choose and which reflect physical, cognitive, affective and social skills that are embedded in the nature of activities (Govender & Kalra, 2007).

Activities of daily life are necessary and meaningful for stroke individuals to perform their occupations. Activities can be specially modified to promote the re-learning process to increase the physical and mental capacities for developing and improving functional skills and abilities (Govender & Kalra, 2007). The use of activities as therapeutic media (cultural activities) can penetrate the understanding of stroke clients' needs and steer their inspiration to the optimal goal (Odawara, 2005). Drawing on cultural eating habits as an example, Thai people in rural areas tend to eat with their bare hands, whilst people who live in urban areas use a spoon and fork. Importantly, stroke survivors are offered the opportunity to practise purposeful tasks to boost the level of skilled function until a proper performance is completed. Therefore, the key principles of sensori-motor, cognitive and affective can be incorporated into meaningful and purposeful activities leading to remedy and rehabilitate these problems via the therapeutic task-specific activities, which have been demonstrated to be more effective rather than repetitive practice (Teasell & Kalra, 2004).

Occupational therapists should recognise the benefit of therapeutic activities that have a special blend of physical function, perception, cognition and appropriate socio-cultural environment in order to build up the challenges underlying optimal

conditions for stroke survivors to be achievable during rehabilitation (Walker et al, 2000). All characteristics of therapeutic activities can be refocused and practised by starting with activities of daily living in personal health care and hygiene, basic and wider domestic abilities (household activities), and social skills for community integration including leisure and return to work based on individual and cultural environments (Walker et al, 2004). Therefore, OT intervention for stroke rehabilitation is a partnership of client, family and occupational therapist to create collaborative goal setting aimed at sustaining functional skills and improving functional abilities including social re-integration.

1.4 Genesis of the Occupational Therapy-Mahidol Clinic System (OT-MCS) for stroke rehabilitation

The appropriate OT model of practice for stroke rehabilitation is very important and is meaningfully expressed by the OT profession for its evaluation and operational function. Hagedorn (1995, pp.38) explained '*OT Model is a simplified representation of the structure and content of a phenomenon or system that describes or explains the complex relations between concepts within the system and integrates elements of the theory and practice.*' Specifically, OT models are categorised as integrative, describing humans as occupational beings relating to their surroundings, who can participate in occupational therapeutic media in a problem-based model, founded on the individuals need to sequence and solve the problem in occupational and societal settings (Hagedorn, 1995).

In this way, the Canadian Model of Occupational Performance (CMOP) was created by Canadian Association of Occupational Therapists (CAOT) and the Department of National Health and Welfare of Canada in 1982 which was developed from the basis of client-centred intervention (Craik & Glossop, 1999). The relationship between the components of the model and specific components of occupation is central to this approach. Firstly, the person is considered as a combination of physical, spiritual, cognitive and affective elements. Secondly, the occupation consists of productivity, self-care and leisure. Lastly, the environment is composed of social, cultural, physical and institutional factors (CAOT, 1997). As a result, this model is used to guide occupational therapy around the world based on these various factors and criteria.

The Model of Human Occupation (MOHO) developed by Kielfhofner is possibly the best model of practice and well-known in the OT profession. It is supported by much research and strong evidence (Kielhofner, 1997). This model focuses on volition - related to human motivation, interests, value and skills; habituation - represented by behavioural human lifestyles, roles and daily activity routines; performance - referred to as sensori-motor abilities, psychological conditions and cognitive interaction with the surroundings; and environment - consisting of the physical facilities and relevant social arena (Hussey et al, 2007). Furthermore, Kielhofner (2002) analysed the conceptual practice model from which he proposed practice guidelines and identified further areas for research. The details of his analysis of the practical model concerned organisation and functions, conceptualised appearance and problem, and addressed the theoretical explanation of the occupational therapy operation. In Chapter 3 these models are discussed in detail.

However when considering activities of daily living (ADL), the routine activities of daily self-care, such as bathing, feeding, grooming, dressing, toileting, transferring and homemaking, are all set within the society and culture of the individual. The activities are performed within an individual's home or outdoor environment. There are many studies set within the western contexts (physical, social and cultural) which provide tasks related to ADL and study physical disability in elderly people (Martin, Meltzer, & Eliot, 1988; Ward, Hubert, Shi, & Bloch, 1995). But the Western OT models, establish various ADL programmes of tasks related to routine activities within the western contexts. However, adopting this Western style of ADL intervention is often inappropriate in Asian countries due to the differing nature of ADL within the client's specific and individual contexts (Mulholland &Wyss, 2000). For instance, in Asia, many ADL transferring activities are performed while squatting, kneeling or sitting cross-legged, quite different from Western ADL. Moreover, in self care Thai people are familiar with the use of a spray nozzle for toileting or a bucket and bowl as opposed to the Western approach preferring tissue paper in toilet use. Hence Western OT models need to be modified to be relevant and apply to the Thai way of life and cultural contexts.

By analysing and synthesising the well-known occupational therapy theories and models, the Western model is broadly viewed as applying to a variety of occupational therapy services and can be placed as a core principle for modification

and further development of application and implementation. The OT model of practice is not specific and is hard to fit with stroke in particular. The positive way to solve the problems of occupational therapy in Thai stroke rehabilitation is to establish an adequate OT treatment process in the Thai context. Prior to the Occupational Therapy - Mahidol Clinic System (OT-MCS), theories and applications including know-how of occupational therapy models have been derived from America, Europe and Australia. OT-MCS has taken account of the complex theoretical knowledge applied to the Thai community with real-life dimensions based on empirical knowledge from the Model of Human Occupation (MOHO) (Kielhofner, 1997), Occupational Performance Profile (AOTA, 2002), and International Classification of Functioning, Disability and Health (ICF) (WHO, 2001) to address stroke rehabilitation in the Thai cultural environment.

In 2007, an OT clinical service system for stroke rehabilitation was developed from the groundwork of OT practice to serve Thai people with stroke; this has been operationalised in the Mahidol University OT clinic to date. Considering the use of OT-MCS, it includes the rationale and practical process as an indicative care package. According to Garnham et al (2010) the OT indicative care packages are a care system which addresses the specific occupational therapy assessment and intervention that is different to the care pathway paradigm. Because the development of OT-MCS cannot embrace all methods of integrated care pathways, this model of practice requires participation from different rehabilitation professionals and stakeholders as a multidisciplinary team to carry out the treatment procedures. Hence, OT-MCS was designed to specifically tackle the stroke situation in Thailand.

1.5 Definition of rehabilitation and OT for stroke rehabilitation

In 1980, the World Health Organisation gave a definition of rehabilitation based on disability, impairment, and handicap that is a process to combat the sequence from impairment to disability and from disability to handicap embracing the boundary of both short and long-term care (Waters & Luker, 1996). Nevertheless, Oliver (1983) showed that impairment is an ‘individual limitation’, while disability relates to ‘socially imposed restriction’. According to Robinson (1988) when chronic problems of patients are not responsive to treatment in the stage of impairment, then the environment may need to be adapted to lessen the handicap.

Hence, stroke rehabilitation needs to be emphasised within both acute and long-stay services in order to improve functional abilities for short-term conditions and adapt the environment for long-term impairments. Due to the different modalities based on a principle of occupational therapy, occupational therapy for rehabilitation focuses on how to address meaningful and purposeful activities for stroke clients in order to restore and develop their functional abilities from all dysfunctions (AOTA, 1994). Moreover, OT-MCS was created from the basis of the client-centred approach and the philosophy of 'Activity and Participation' (WHO, 2001). Thus, OT-MCS provided the treatment process and mapping from the assessment, intervention and re-assessment before discharge period that is likely to be a similarity of integrated care pathways, but it could not include multiple rehabilitation pathways because it reflected merely the occupational therapy paradigm for stroke rehabilitation.

The special use of OT-MCS is comprised of different multi-therapeutic media that identify 4 domain areas of life's activities to address stroke clients: 1) Basic rehabilitation skill and activities of daily living, 2) Instrumental and household activities, 3) Socio-cultural/educational activities, and 4) Leisure activities. These activities emerged from the experiences of occupational therapists and stroke clients and their family members based on local and regional behaviours that refer to cultural activities and participation. This pattern of activity engagement is provided in the form of a photo-album, which is called activity catalogue (AC). The set of pictorial activities is used to encourage stroke clients by inspiring them to select activities, which they need in order to generate capacity and functional skills from pre-functional tasks to complex activities.

1.6 Indicative care package (ICP)

The format of the OT indicative care packages includes 8 clusters that include *assessment of performing activities*, *challenges (for service users), outcome of the therapeutic encounter*, *intervention*, *skill/level*, *contact time*, *resources*, and *added value* (Garnham et al, 2010). In order to embed and simplify these for the use of OT-MCS, the clusters were reorganised to apply more relevantly to stroke rehabilitation in Thailand.

Individualised treatment metrology clusters

OT-MCS provides modified standardised assessments which are used to identify outcome measures before and after the use of OT-MCS (***Assessment of performing activity***). This process of evaluation could monitor and measure by occupational performance (***Skill/level***). In keeping with therapy, therapeutic media are embraced from the nature of activities of stroke clients generating their competence and functional ability by using comprehensive characteristics and properties of therapeutic items. Life-skills and levels of engagement can be mirrored in the various forms of activities based on their choices that lead them to develop and apply to fit with their home and socio-cultural environments. The level of skills and approaches are broadly taken from a variety of activity items from local and regional environments, which can be implemented as a service and treatment programme.

This system framework also offers culturally appropriate therapeutic activities (***Challenge*)** as the key to occupational therapy treatment and encourages stroke clients to engage and perform activities. The key challenges are located in the forms and characteristics of each therapeutic medium arranged from simple to complex practice, which can act as building blocks of strength, dexterity and comprehension after engaging in activity. Optional activities can lead stroke clients as users to participate in activities involving 1) Pre-functional skills of ADL, 2) Instrumental and household activities, 3) Socio-cultural/educational activities, and 4) Leisure activities. The consequence to approaching an OT-MCS is to sustain and improve the performance of people with stroke in life's activities (***Outcome of therapeutic encounter***) by re-engaging in self-care, socio-cultural/educational activities and leisure activities in order to promote health and well-being. The outcome can be established on the reality of stroke performance that is linked to the capacity of brain function and possibility by facilitating functional abilities and life-skills to apply at home and different environment settings.

OT-MCS includes a collaborative goal setting, treatment-planning programme (***Intervention***) and expectation of outcome that encourages a stroke client to reflect on their satisfaction and importance in the ability for maintenance, including the level of activity engagement in the performance for improvement. Activity for practice and application is a great place from which to address intervention that

provides therapeutic media and embraces new cultural activities (***Resource***) from stroke clients and families based on their experiences, and includes local and regional strategies for effectively encouraging the rehabilitation process. Therefore, the needs of stroke clients are essential in order to comprehend their preferences. Occupational therapists must pay attention to the understanding of stroke client's need by encouraging the stroke client to share his or her ideas and experiences of life's activities based on local and regional situations. The needs of stroke clients should be adopted by using the familiar activities that refer to their culture and way of life. These raw materials and sources can help both therapists and stroke clients to understand the root nature, habits, ADL, household activities, society life and leisure preferences that can then be applied and implemented in the client's home and community.

Process/ service delivery related clusters

Delivering the OT-MCS approach, which is a system framework of occupational therapy for stroke rehabilitation, provides meaningful and purposeful activities (***Added value***) in everyday life. This process helps stroke clients increase meaning in their lives by engaging in therapeutic activities, which lead to more self-confidence, self-esteem, self-value, and improved self-management. It tends to reinvigorate stroke clients' understanding of the value of life and the awareness of activity for personal life, family and social participation on the road of post-stroke journey. The OT-MCS service not only encourages stroke clients to develop their functional skills and occupational performance, but also adds value to the dignity of human and aesthetics of meaning via activities.

Lastly, the time-frame (***Contact time***) for stroke rehabilitation is important to evaluate after involving the use of OT-MCS. A benchmark of contact time is involved with therapists (OTs), service users (stroke clients), and family members (caregivers). A stakeholder using OT-MCS should recognise that the time-frame of the rehabilitation process is based on collaborative teamwork, clinical factors, and resources all managed with the same goal in mind. The contact times should be considered in terms of preparation, supervision, training, team meetings and transportation. These will be affected by the use of OT-MCS in rehabilitation by relating to local policies, geography and staffing levels. Hence, the time management

and understanding of OT-MCS will diminish these factors by working with a clear direction.

OT-MCS divides stroke rehabilitation into 2 pathways. 1) *Slow stream rehabilitation* is a pathway for stroke clients who gradually develop or need to sustain their competence, functional skills for participating in activities by the selection based on individual decision making in terms of satisfaction and importance in therapeutic activities. 2) *Fast stream rehabilitation* is a pathway for stroke clients who rapidly increase capacity to develop life-skills and improve their functional performance toward various therapeutic activities to fit with their home, workplace and social settings of their local and regional environments (Kaunnil & Khemthong, 2008).

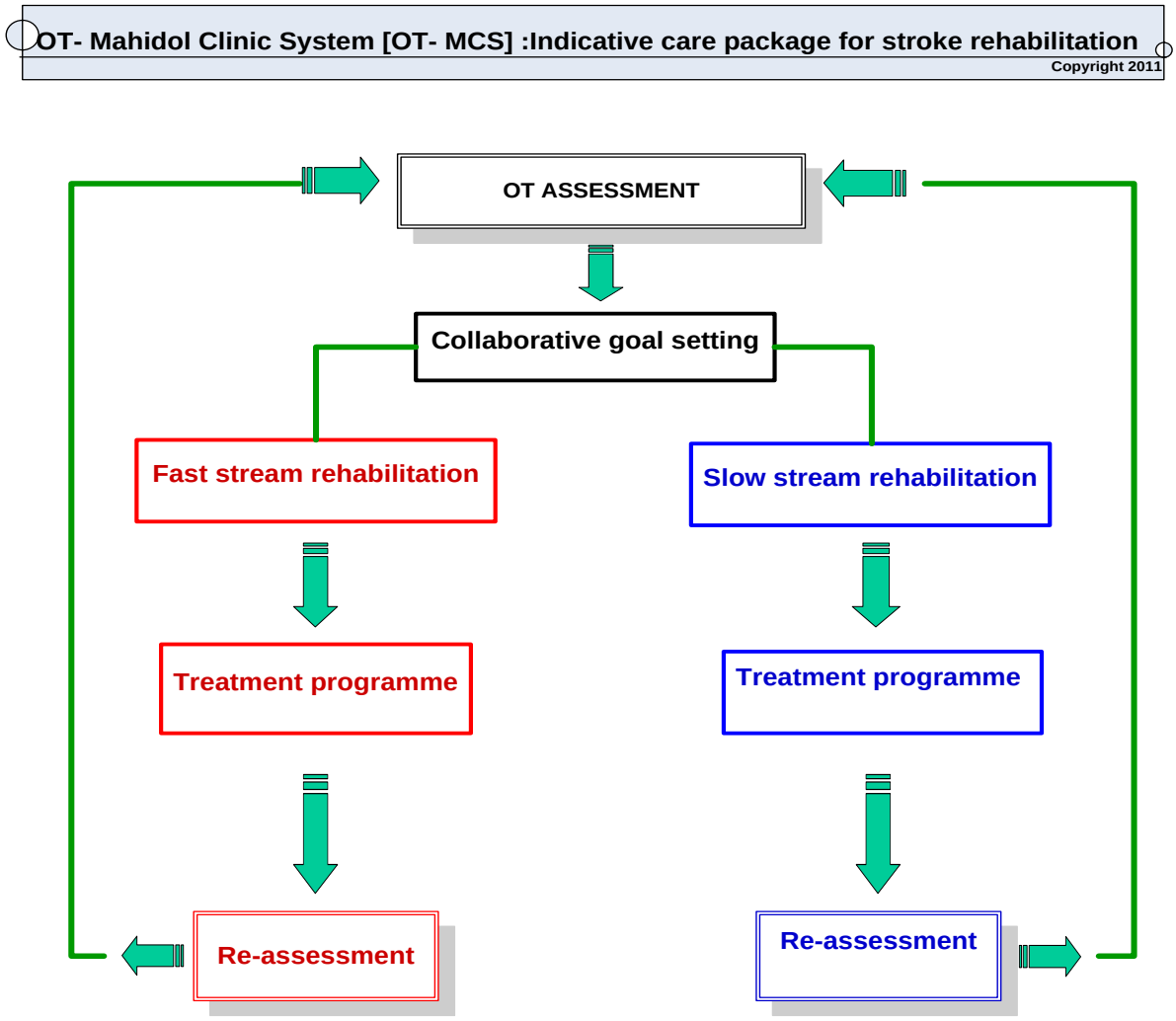
In addition, the identification of both stroke groups (slow and fast stream rehabilitation) has been determined by the criterion of the extent of brain damage and time duration since stroke occurrence.

Slow stream rehabilitation: stroke participants who are diagnosed with severe brain damage in clinical appearance such as hemiplegia, pathological condition in cerebral cortex, corona radiata, posterior limb of internal capsule, the loss of sensori-motor function in upper extremity, and post-stroke longer than a year, have good perceptual and cognitive ability (Patten et al, 2004; Shelton & Reding, 2000; Duncan et al, 2005).

Fast stream rehabilitation: stroke participants who are detected with mild or moderate levels of stroke pathology such as hemiparesis, brain damage of putamen or thalamus (deep brain nucleus), stroke less than a year ago and good prognosis in upper and lower limbs possess good self-perception and cognition (Doyle et al, 2004; Miyai et al, 2000).

The indicative care package of OT-MCS is to map direction and help understand simply both occupational therapists and stroke relatives regarding stroke rehabilitation in the occupational therapy field. The use of OT-MCS is established on a client-centred approach by pondering the occupational performance of individual stroke clients, which reflects body function, ability to perform activities and skill development. The flowchart direction of occupational therapy for stroke rehabilitation shows an indicative care package (see Figure 1.2).

Figure: 1.2 Occupational Therapy – Mahidol Clinic System [OT-MCS]: OT indicative care package for stroke rehabilitation



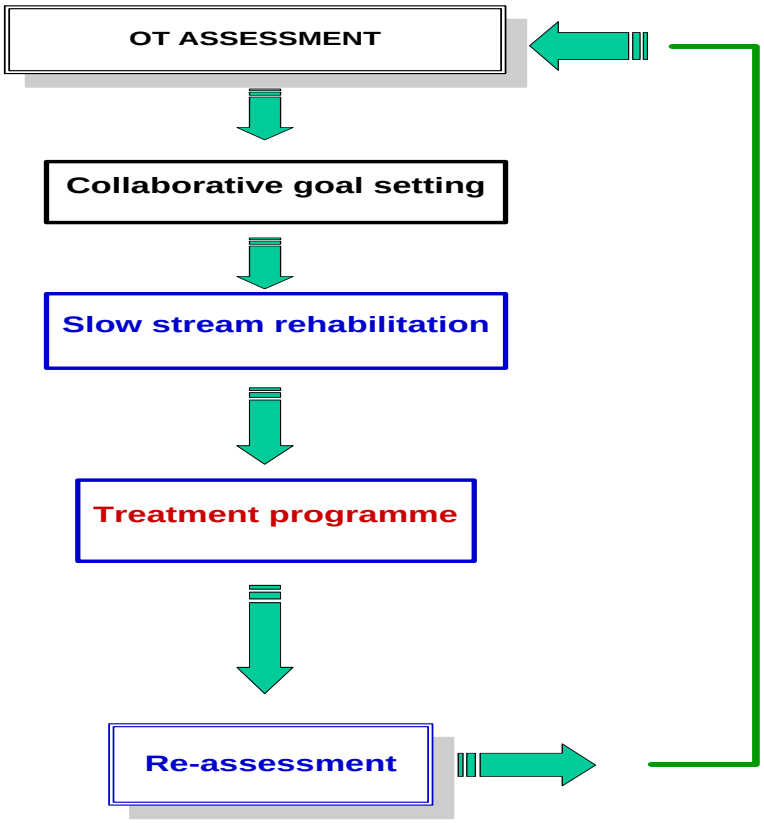
Hence, the OT systems framework is comprised of two stages of the rehabilitation process which offers a compass for the navigation of stroke clients to pursue their goals.

First stage: stroke participant is analysed by using the OT assessment for identifying competence based on clinical pathology and post-stroke duration. This test has been modified to correlate with International Classification of Functioning, Disability and Health (ICF) in order to explore performance components, occupational performance, and role competence and environment.

Second stage: this stage involves collaborative goal setting and contains 2 pathways, fast and slow stream rehabilitations.

Slow stream rehabilitation: This indicative care is designed to assist stroke clients in sustaining competence and optimising functional skills in slow improvement (Figure 1.3)

Figure 1.3: Slow stream rehabilitation

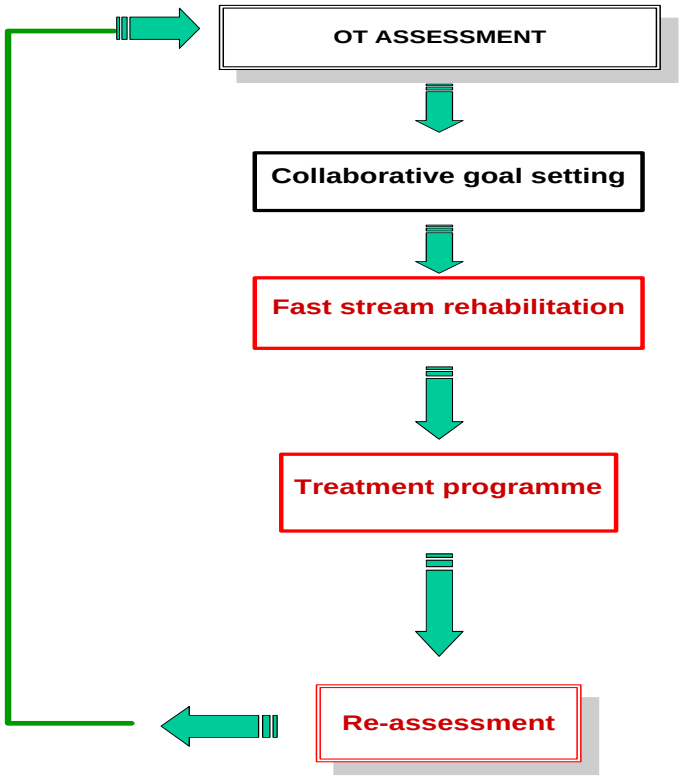


The process is stimulated by occupational therapists providing an activity catalogue (AC) for stroke participants to explore and select their therapeutic activities by themselves. Moreover, the processes of activity analysis and synthesis are undertaken by occupational therapists in order to consider the possibility and appropriateness to fit with stroke functional performance. Selected therapeutic activities are offered to stroke clients for practising optimal skills. This approach is still to explore the satisfaction and importance of stroke clients in each activity item from the activity catalogue and lead to re-assessment in a process cycle.

Therefore, the aim of this pathway is to encourage stroke clients who show little potential and performance. This route would gradually develop or sustain his/her functional skills in performing activities to preserve the meaning and value of life.

Fast stream rehabilitation: This pathway is designed to maximise the potential and improve the occupational performance for stroke clients in developing a shift in the levels of activity engagement (Figure 1.4).

Figure 1.4: Fast stream rehabilitation



Activity catalogue (AC) also encourages stroke clients to explore opportunities to take activities from their local and regional environments to participate in this fast stream rehabilitation. This approach investigates the levels of activity engagement from therapist-structured programme to apply activity programmes at home and in the community. This is an ultimate goal of fast stream rehabilitation and leads to re-assessment in a process cycle again. Hence, the aim of this pathway is to enhance the stroke client who has shown high performance to develop continually functional abilities and improved life-skills at home and community.

The activity catalogue (AC) is a part of the OT-MCS which has developed from the conceptual idea of the activity card sort (ACS) (Baum & Edwards, 2001). The ACS provides diverse therapeutic media in an occupational field by considering client participation, socio-cultural context and leisure activities depending on individual needs and recommendations (Katz et al, 2003). Furthermore, the ACS is a special

tool to evaluate participation and involvement with restriction through a variety of pictorial activities (Sach & Josman, 2003). In Thailand, there never been a concrete ACS in many kinds of occupational therapy fields and in particular stroke rehabilitation; the concept of pictorial images of stroke people performing activities has inspired OT staff of Mahidol University to develop the Activity Catalogue (AC) for stroke rehabilitation in the Thai context. (See the development of ACS in Chapter 6)

The AC (version 2008) contained 40 activity items divided into 4 domain areas 1) Basic rehabilitation training and ADL; 2) Instrumental activities of daily living (IADL) and household activities; 3) Socio-cultural/educational activities; 4) Leisure activities (adapted from Baum & Edwards, 2001; Katz et al, 2003; Packer et al, 2008). (See Table 1.1)

Table 1.1: Classification of Activity Catalogue for Thai Stroke Rehabilitation

Classification of activities into 4 domains (40 items)			
Basic rehabilitation skills and ADL (18 items)	IADL and household activities (10 items)	Socio-cultural/educational activities (6 items)	Leisure activities (6 items)
A1- Peg board A2- Incline board A3- Sliding board A4- Looping curve skill A5- Key grip skill (Turning) A6- Pinch Grip (Pinching) A7- Bimanual putting pin in a bead A8- Dressing with top (shirt/blouse and button/tie) A9- Putty activity A10- Stacking cones or rod A11- Constructing chain from plastic (small) link A12- Pick and place ball in small cone A13- Placing beads on pins A14- Pronation/supination task A15- Tennis ball pick and place A16- Bimanual holding of cone and place A17- Forceps pick and place with ping pong ball A18- Trunk control/bilateral arm movement	A19- Washing skill A20- Scrubbing and sweeping the house A21- Phoning skill A22- Scoop and pour liquid into bottle A23- Opening and closing door A24- Mouse skill A25- Pump action of lotion bottle A26- Calculation skill A27- Hammer/Axe skill (plastic) A28- Bolt-screwing (into board)	A29- Using chopstick A30- Use of spoon and fork (bimanual) to remove bead from putty A31- Writing skills A32- Sorting tidly winks with spoon A33- Picking and sorting small bead (like cleaning rice, bean) A34- Fruit pole	A35-Dart A36-Ball throwing at target with a bounce A37-Shape matching skills A38-Key board skills (computer or piano) A39- Throwing rings (quoits) at target A40- Picture mosaic skills

(Adapted from Baum & Edward, 2001; Katz et al, 2003; Packer et al, 2008 into Thai cultural context)

However, the AC (Version 2008) was drawn from only one group of OTs who were unable to visualise the suggestions from the original questionnaire due to an absence of pictures. The revised AC was created in this research project from the last version

by the collaborative group of therapists and stroke clients throughout Thailand based on multiple ways of life, cultural lifestyles, regional traditions and practices in the 6 regions of the country. Therefore, a revised activity catalogue (AC) was developed and collected in this regard from the real life context of the experiences of both occupational therapists and stroke clients who reflected their satisfaction and importance in therapeutic media of each activity item. The research study had taken this opportunity to increase and expand the therapeutic activities, which derive from the therapists and stroke/family suggestions and recommendations in various local and regional areas of the country. Whilst AC is only an element in the OT-MCS approach, the therapist can use it to elicit stroke clients' interests and cooperation in order to assist them to sustain and improve occupational performance in their natural and cultural lifestyles.

1.7 Clear statement of the purpose

The purpose of this study is to undertake the development and evaluation of the Occupational Therapy Mahidol- Clinic System (OT-MCS) for post-stroke rehabilitation in Thailand. The research is constructed to provide a new dimension within OT by considering the development of life-skills, the value of activities in daily life (importance) and the volitional engagement (satisfaction) of functional performance within varied Thai contexts. Thus, an indicative care package of OT-MCS has guided the direction of stroke rehabilitation in Thailand based on criteria for the maintenance of functional skills or the improvement of functional capacity across various dimensions of stroke participants.

Objectives:

1. To explore and analyse the perspective of occupational therapists and stroke clients in order to develop the activity card sort (ACS) to reflect the culturally appropriate therapeutic activities in occupational therapy;
2. In stroke clients who show little potential for further recovery, to investigate and evaluate their attitudes in terms of satisfaction and importance of therapeutic activities in maintaining their functional performance (see Figure 1.3) through attending OT-MCS rehabilitation;

3. In stroke clients who show more potential for further recovery, to compare the levels of activity engagement in improving their functional performance with their level of abilities (see Figure 1.4) through the use of OT-MCS rehabilitation.

Research questions

- Does collaborative goal setting through OT-MCS improve stroke client's perceptions of benefit?
- How can OT-MCS assist OTs to identify and recognise the individuals' attitudes to therapeutic activity engagement?
- How can OT-MCS using a new resource (ACS) develop occupational performance skills for stroke client?
- How can OT-MCS help stroke clients to develop their occupational performance skills?
- Are the perspectives of OTs and stroke clients congruent with respect to the range of therapeutic activities?

1.8 Overview of the study

This study uses an evaluation approach adopting mixed methods for data collection and analysis including further development of the activity catalogue from stroke participants and therapists across regions throughout Thailand. Such an approach captures the context of stroke participants in terms of the differences in various geographies and cultures that reflects individual, regional and national perspectives. The use of OT-MCS provided an individualised approach to therapy planned collaboratively by the stroke clients and occupational therapists to optimise functional performance and skills in the engagement of various activity items for rehabilitation. The evaluation was aimed to investigate the effects of occupational therapy into two specific client groups, those for whom the aim is to maintain performance and those for whom improvement is expected. The development was directed to embrace the collaboration stakeholders to organise appropriate

characteristics and patterns of purposeful and meaningful therapeutic activities during the rehabilitation as these affect health and the quality of life.

1.9 Self-reflexivity

I am Mr Anuchar Kaunnil, an occupational therapist and OT lecturer. As a child I saw my grandfather die from stroke. I am a thirty-six year old Thai man and have lived in Thailand before continuing to study abroad. I was born in a working class area in a city of the northern region. My family lived in the countryside where they flourished in the agricultural area in which my ideas relating to the village and cultural way of life were implanted. Thereafter, I graduated with an occupational therapy (Bachelor) degree and my family moved to a more middle class area. I worked as a clinician at a hospital in the Chaing Mai province that is my home town.

I have worked in the field of occupational therapy in stroke rehabilitation for the last 10 years, during the last six of which I have studied anatomy (M.Sc.). After this I moved to work in Bangkok, the capital city of Thailand. I am currently a lecturer at the Division of Occupational Therapy, Faculty of Physical Therapy, Mahidol University, and also undertake occupational therapy for stroke clients. On the stroke issue, I still remember my grandfather [mother's father] who died from stroke. When I was young, I did not know about this pathological condition and thought as a Thai village boy that he might have confronted with ghosts or the problem of evil in which I fundamentally believed. This is the doctrine of Karma.

Following this tragic event, I promised that I would find out about the cause and effect of stroke including the means of intervention and prevention. When I studied the occupational therapy programme at Chiang Mai University (the first OT school in Thailand), I liked to practice with stroke clients and felt more curiosity for a variety of therapeutic approaches and techniques. Moreover, I became profoundly interested in the module of Anatomy and Neurosciences. As this interest grew and there was no Master level for OT in Thai university curriculum, I quit the job of OT in order to study Anatomy and Neurology in Faculty of Medicine, Chiang Mai University. I think that this was a great opportunity to learn about human body and function which enabled me integrate this body of knowledge with my career path as an occupational therapist.

Since 2002, Mahidol University had a plan to produce a curriculum of occupational therapy (B.Sc.) and needed OT staff to set up the programme of education and clinical service. I was qualified and appointed to be an OT instructor at the faculty of Physical Therapy and Applied Movement Sciences, now change to be a Faculty of Physical Therapy. There were merely 3 staff in the first establishment and currently our occupational therapy division has 9 academic staff. The mission of Mahidol University is to provide the best healthcare service, based on evidence-based research has inspired me and my team to create OT-MCS (version 2008). Derived from OT-MCS for stroke rehabilitation, the indicative care package will help to develop the pattern and framework to tackle the problem (Chapter 1) in occupational therapy for stroke rehabilitation within the different Thai cultural contexts.

1.10 Expected benefits of the study

The study will contribute to the Thai occupational therapists' management of rehabilitation services faced by the disparity between the high prevalence of stroke clients and inadequate number of therapists, through client focused therapy (OT-MCS). Improving life-skills through identification of meaningful activities from the stroke client's perspective will optimise the occupational performance and better the quality of life for the individual and his or her family. Hence, OT-MCS may assist Thai occupational therapists' understanding of the nature and lifestyle of the individual stroke client by promoting activity engagement to develop their functional abilities and skills. In addition, the activity catalogue (AC) is developed as an activity card sort (ACS) and expanded continuously by adding new material of various activities from the experience of stroke clients and occupational therapists around Thailand. Consequently, this culturally appropriate therapeutic media will be an innovative media instrument for assisting and serving the OT process in stroke rehabilitation across the various regions of Thailand.

This research is important to the Thai occupational therapy society and builds upon the synchronization of OT rehabilitation models for stroke practice within Thai socio-cultural contexts. This study focuses on the means to effectively manage occupational therapy clinics within the Thai context. All regions of Thailand have been explored and the diverse ways of life of stroke clients identified which reflect

available, different resources for healthcare education and post-stroke rehabilitation. Overall the result of this research is likely to be a model of administrative frameworks for stroke rehabilitation in occupational therapy for Thailand that can be applied and shared with multidisciplinary teams in the rehabilitation arena. Outstandingly, these outcomes may lead to changes in occupational therapy policy under the Thai government agencies in the specific case of stroke rehabilitation. Therefore, the use of OT-MCS will lead to better and more effective rehabilitation for Thai stroke clients and a more satisfied and fulfilled therapeutic progression.

1.11 Summary

In this chapter, the background for the research has reflected the root of the problem in occupational therapy for stroke rehabilitation in Thailand. A model of interaction between the components of ICF has helped to clarify the cause and effect relation to activity and participation for the health condition. Applying occupational therapy for stroke rehabilitation needs to consider therapeutic activities associated with personality and lifestyle, and the influences of the cultures of individualism or collectivism. In Thai society, cultural activities are a part of occupations related to the health conditions of particular people living with stroke. Western model tends to follow individualistic concepts that are at odds with the Thai culture (collectivist society). Adopting OT models without modification and adaptation would not be relevant to stroke clients in Thailand. Indeed, it is imperative to create an indicative care package of OT-MCS for Thai stroke clients. This chapter has significantly addressed the purpose, objectives, research questions, OT-MCS flowchart and the expected benefits of this project.

Chapter 2 explores the literature on stroke and rehabilitation.

Chapter 2

LITERATURE REVIEW OF STROKE AND REHABILIATION

2.1 Introduction

With ageing populations stroke has become an increasing health issue over the past few years especially as most elderly people are vulnerable to stroke. This ailment threatens human beings and numbers second on the global ranking of cause of mortality after heart disease. This chapter provides information regarding the definition of stroke and general effects of being a victim. The incidence of stroke is presented from global, Europe and United States, United Kingdom and Thailand perspectives. Evidence provided is related to health care policies for stroke survivors who need to access the rehabilitation services. These require cost, facilities, human and material resources to aid recovery through rehabilitation. The rehabilitation debate includes the principles of neural plasticity, sensitive conditions, holistic views, and multidisciplinary team approaches. In addition, this chapter considers the occupation and activity limitations in relation to home and community-based rehabilitation. The following debated is taken from a range of sources including the Cochrane Library, MEDLINE and CINAHL. Hence, health care providers, in particular occupational therapists, must evaluate the competency of stroke survivors and assess the efficacy of relevant therapeutic interventions both in the short and long-term rehabilitation.

2.2 Stroke

2.2.1 Definition of stroke

The World Health Oraganisation (1988, pp.105) definition of stroke is '*rapidly developing clinical signs of focal (or global) disturbance of cerebral function, with symptoms lasting 24 hours or longer or leading to death, with no apparent cause other than of vascular origin'*.

2.2.2 General effects of stroke

Brain damage due to stroke is commonly caused by ischemia and haemorrhage and leads to various deficits. The deficits of brain function become apparent after stroke. The cerebral damage can lead to a number of consequences that can be explained by

the type of stroke, the part of the cerebral hemisphere affected and the size with the location of brain damage. The stroke effects may include (Sife, 1998; Royal College of Physicians, 2002):-

- Muscle weakness (Hemiparesis) or paralysis (Hemiplegia): these conditions affect the control of upper and lower extremities, with difficulties in movement, walking, handling and coordination on the affected side.
- Sensory disturbances: these problems affect stroke survivors by limiting and reducing their sensory abilities.
- Swallowing difficulties (Dysphagia): this affects the ability to control the process of swallowing when eating and drinking.
- Speech or language difficulties (Aphasia): which lead to the limitation and insufficiency of understanding, speaking, reading, writing and calculating.
- Perceptual problems: these difficulties bring about the lack of recognition, classification, time and orientation.
- Cognitive deficits: the problems relate to the mental abilities, process of thinking clearly and logically, memory, learning, attention, planning, sequencing, decision-making and problem solving.
- Behavioural changes: these impacts may change the habit, character, personality and attitude of stroke people.
- Mood changes: these effects may lead to impact on the emotion by expressing diverse symptoms such as anxiety, depression and irritability.
- Fatigue: this condition represents the lack of endurance and energy capacity for undertaking activity.

2.2.3 Epidemiology and incidence

Many people around the world are vulnerable to stroke and represents a serious threat to health due to both internal and external factors in human beings' lives. Also, the pathology has been associated with changes in lifestyle due to globalisation. According to the World Health Organisation (WHO), the number of deaths from stroke is about 5.71 million, or 9.7 % of total deaths in 2004 (Bonita & Beaglehole, 2007), and it is estimated that stroke mortality will reach 6.3 million in 2015 (Mackay & Mensah, 2004).

In the United States, there are about 780,000 incident cases each year (American Heart Association, 2008). According to European Heart Network (2008) data from across 48 countries of Europe, a stroke causes approximately 1.23 million deaths every year. Furthermore, 15 European countries display about 2.7 million prevalent stroke cases and around 536,000 incident stroke cases annually (Carlo, 2009). In the UK, stroke is a major cause of death with approximately 53,000 deaths yearly (Scarborough et al, 2009). Furthermore, there are over 130,000 people who have a stroke every year and more than 250,000 people are affected at any one time in England and Wales (Department for Work and Pensions, 2012).

In 2010, the Ministry of Public Health reported that 196,159 people died from stroke throughout Thailand (Bureau of Non Communicable Disease, 2012). More than 490,000 people in Thailand today have survived a stroke (National Statistical Office of Thailand, 2011; www.thaihealth.or.th, 2011). On the issue of cause of mortality in 2005, different causes of death were reported between the National Statistical Office of Thailand (NSOT) and a researcher group. Porapakkham et al (2010) studied the estimated causes of death in Thailand and found that the NSOT had made misclassification errors in routine death registration including ill-defined causes that should be listed separately. The accuracy of cause of death was strengthened by using Global Burden of Disease methods and the validating verbal autopsy approach leading to the final estimates of mortality levels in 2005.

This study showed that stroke was estimated as the first ranking cause of death (10.7%), around 48,000 deaths, followed by heart disease (7.8%), and HIV/AIDS (7.4%) while routine death registration (NSOT) showed that ill-defined diseases were the leading cause of death followed by others (NSOT, 2007). This controversial issue has significant implications and needs to be debated in order to clearly determine a national health policy including an appropriate health programme to tackle the target disease or illness.

2.2.4 Global stroke and health policy

Undertaking stroke rehabilitation, government policy is key to success due to their involvement of management in budget, human resources in healthcare providers, insurance and legal regulation for taking action in the target areas. In the United States, the stroke budget was subsidised approximately by $58 billion in 2006, and

the total estimate of stroke care cost during 2005-2050 will be around $2.2 trillion (American Heart Association, 2008; Brown et al, 2006). Moreover, personal and social costs for stroke survivors are increased according to the socioeconomic situation (Xie et al, 2006). The stroke 'problem' for governments requiring increased expenditure not only occurs in the United States, but has emerged in different countries around the globe including Thailand.

The World Health Organisation (WHO) and the U.S. Centre for Disease Control and Prevention have major concerns of the negative impact of stroke disease and chronic illness. They have launched a policy in order to reduce the risk of increased pathology by promoting various programmes in physical health activity to combat and tackle chronic diseases including stroke (WHO, 2008; U.S. Department of Health and Human Services, 2000). Furthermore, this policy has been adopted by stroke rehabilitation services to encourage stroke survivors to become involved in the programme of therapeutic exercise. This policy has been applied in the US and Italy as well as in several countries by expanding the networks of effective community-based physical activities for stroke people that bring about the improvement of health and the quality of life (Stuart et al, 2008).

In the UK, the National Stroke Strategy provides a core policy that public organisations support. This involves the general requirement of services for transportation and housing management where housing needs related to adaptation and modification are reviewed. The policy also indicates the need for activity participation in community life, and describes social services by assessing the needs of stroke survivors and trains the right therapists to provide these services. Importantly, the strategy is designed to empower local people through shared experiences and by working together with available public resources and facilities in the stroke community. Furthermore, the stroke policy focuses on the scope of work which is depicted by the law for employment by enforcing employers to accept post-stroke employees returning to work. Health care providers have to streamline essential skills and the functional capacity of stroke people by the use of various special supports during their work journey (Department of Health, 2008).

2.2.5 Health and stroke care policies in Thailand

In 2001, the Thai governmental policy reformed the health service by using the "30 Baht treat all" (£ 0.50 or $0.86) for the cost of health care in hospital. The National Health Security Act was enacted by parliament to run the project of 30 Baht schemes (Towse et al, 2011). This campaign has moved funds from urban hospitals to create primary health care in rural areas for improving equality of access. Following the policy launching, the practice has supported health for all, in particular poorer families who can now be served by public hospitals at a low cost.

According to Hanvoravongchai and colleagues (2003) all public hospitals were required to apply the "30 Baht treat all". This situation led to a reduction in the quality of treatment and a cost saving for the hospitals' budget. Therefore, this evidence suggests that this policy is not effective in terms of financial protection (Pannrunothai et al, 2003) for some hospitals. At present, Thailand has changed the last scheme to be "a universal health care for all" by systematic modification and adaptation to improve the standard health care services, but the long-term impact needs to be followed and considered (Bundhamcharoen et al, 2011).

In Thailand, well-being in health needs to be strengthened by using research capacity and translating knowledge into policy action in order to improve the health care system and services (Pang et al, 2003). The International Health Policy Programme (IHPP) in Thailand was launched by the Ministry of Public Health in 1998 and has impacted on Thai citizens for over a decade, but there are a lot of problems such as a lack of well-trained health professionals (Sitthi-amorn & Somrongthong, 2000). The individual health provider cannot access how to build capacity by connecting research knowledge to practice leading to some poor outcomes of services (Lansang & Dennis, 2004). The Thai government needs policies which will enable the development of human capital and provide resources for healthcare professionals through both financial and non-financial support. Research networking is needed to build official capacities based on policy-relevant research, practice services and environments (Pitayarangsari & Tangchroensathien, 2009).

The stroke rehabilitation policy in Thailand begins after stroke patients are admitted as acute inpatients to hospital to stabilise vital signs and initiate medical care. In the post-stroke period, there are limitations of rehabilitation units; some stroke clients do

not receive continued rehabilitation. Some stroke clients could apply to continue treatments as outpatients. However, a good service for stroke rehabilitation can be utilised only at provincial and regional hospitals, whereas district hospitals cannot provide a complete care package for stroke rehabilitation (Riewpaiboon et al, 2009).

With long-term care and social support, the informal care policy was delivered in 2005 by taking caregivers who had attended basic stroke rehabilitation training from hospitals to participate in the health care system. Nevertheless, there was no clear direction given to the financial management and good governance for community health volunteers. This has caused poor quality of informal care. In consequence, Thai government lost money on this project approximately 2073.4 million Baht/month (£41.8 million/month) or 24.9 billion Baht/year (£503 million/year). At this point, informal care needs to be considered by Thai policymakers and government to determine the mechanism and means to resolve problems, in particular money management, to protect the hidden agenda of long-term care rehabilitation for stroke patients (Riewpaiboon et al, 2009).

2.3 Stroke needs for recovery through rehabilitation

2.3.1 Physical needs

At the outset the first consideration, restoration of optimal physical performance is essential in stroke patients. The stroke client needs to interact with health professionals during rehabilitation training in order to recover neuromuscular function and movement capacity of upper and lower extremities. The most important physical competency is related to activities of daily living (ADL) skills and life-skills of both indoor and outdoor activities that need to be optimising potential and functional ability. Occupational therapists must evaluate the impact of sensori-motor problems consistent with ADL and life-skills such as dressing, washing and toileting (Esther et al., 2010).

However, most stroke survivors tend to have a high expectation of the rehabilitation team to draw out their physical skill and function when they begin to receive therapy. They imagine that their physical performance will be recovered and increase rapidly. In fact improvement depends on various factors, in particular the level of brain damage, ageing and neuronal plasticity (Johansson, 2000) to improve sensori-motor skills. Hence, rehabilitation should be properly explained with the reality and

possibilities for the stroke client and the family, including providing relevant treatment corresponding to the needs of individual stroke patients. In addition, healthcare providers should explain the rationale behind physical rehabilitation by justifying the rhythm of physical relearning in activity to build and teach clients to deal with muscle fatigue or spasticity.

Furthermore, therapists and experts should supplement stroke patients with assistive support for revitalisation of sensori-motor capability to increase physical movement (Riener et al., 2005). As a result, the assessment of physical needs of stroke patients should be based on the evidence of the pathological effects of stroke in individual cases and the suitability for rehabilitation.

2.3.2 Emotional and behavioural needs

The feelings and habits of stroke survivors impact on the outcome of rehabilitation treatment. The motivation and encouragement by health professionals and family members provide crucial reinforcement in stroke rehabilitation. Indeed, a lack of consideration of emotional and behavioural changes may impede the ability of stroke survivors to develop and improve their functional skills in the rehabilitation process and lead to problems when returning home and in the community (Reed & Sanderson, 1999). There is a need to work with the multidisciplinary team and relatives to solve the main problems. Roomruangwong and Thavichachart (2005) studied the emotional problems of stroke clients and therapy effects. The findings showed that new post-stroke patients tended to suffer from anxiety and distress about the future. This phenomenon influenced their rehabilitation programmes and resulted in poorer outcomes. Similarly, the study by Wain and colleagues (2008) found that some medical personnel were not concerned early on with behavioural and emotional disturbances following stroke. These then became harder to deal within long-term rehabilitation.

Emotional and behavioural expressions may change after stroke and involve panic, confusion, shock and alienation during the stay in the hospital, rehabilitation centre or home (Bennett, 2008). Furthermore, long-term follow up can induce a good rapport and maintain the patient's mood, and feelings of warmth, which in turn leads to better treatment results and thus improves the quality of life in the stroke context (Kim, et al., 1999). Consequently, emotional healthcare is complicated and difficult

to understand in stroke clients, but healthcare providers should not overlook this area in preference to involvement with physical function. Therefore, occupational therapists should learn mechanisms of behaviour processes and expressions of stroke survivors in order to prevent the negative effects and encourage positive feelings in stroke patients.

2.3.3 Cognitive/mental needs

In terms of mental health, the competence of the human brain means it can organise various aspects of life situations such as physical, social, emotional and spiritual in order to balance all circumstances (Tsai, 2008). For instance, if someone with a stroke has a mental illness even though they have a good prognosis of physical recovery in rehabilitation, they may suffer with communication, perception and cognition deficits that make it difficult to interact with the real world.

Importantly, some studies found that mental practice with stroke can help physical efficacy and improve sensori-motor function, but a minority of therapists have neglected this therapeutic dimension, which can lead to a negative impact after rehabilitative intervention (Braun et al., 2007). Therefore, occupational therapists should pay attention to the cognitive function of stroke clients and provide mental exercises to stimulate higher brain function. These interventions will help patients deal with various meaningful activities which will assist with problem solving in daily life through learning by doing in multiple practical ways using both indoor and outdoor activities.

2.3.4 Family/social needs

Family and social life are the driving force of human inspiration because humans are social animals and need to interact with others. Similarly, stroke survivors need to be taken care of and supported by their families and relatives including people in the community. According to the research by Kim et al (1999) the family of stroke survivors constitutes a major proportion of social support and influence.

The quality of life during stroke can be improved significantly by the spouse who presents as the key person who plays a crucial role in stroke treatment and recovery. The relationship within marital status can be a predictor to identify the quality of life after stroke. Furthermore, family and social needs are key areas in the rehabilitation programme. Family and social support have been found to accelerate the recovery of

functional performance and skills of stroke survivors, whilst insufficient family and social support can lead to poor outcomes of strokes' capability and development over short and long term periods (Glass et al., 1993). Consequently, family and social supports are necessary to sustain stroke clients' psychological and functional abilities toward a better quality of life.

2.3.5 Life-skills and self-management needs

Self-management was highlighted in the National Health Service report (2001, p.22) and explains that "*any formalised patient education programme aimed at providing the patient with the information and skills necessary to manage their condition within the parameter of medical regime*". The concept of self-management concentrates on self-competence, related resources and environments by encouraging stroke survivors to cope with their problems through teaching and learning for development. The study by Jones (2006) found that the key to success in stroke rehabilitation lies in self-management which produces self-efficacy and health performance to tackle the various internal and external implications.

To develop self-management, occupational therapy constitutes five skills for stroke rehabilitation. Firstly, the skill of problem-solving is to analyse problematic issues on a daily self-care, productivity and leisure to find the right skills to resolve these problems. Secondly, the skill of making decisions is to enhance the understanding of stroke performance and context to build abilities with circumstances. Thirdly, the skill of evaluation is to assess physical, mental, and psychosocial abilities of stroke clients for utilisation with suitable modalities and resources. Fourthly, the skill of communication and connection is to encourage occupational therapists to work with other health care providers by sharing information and knowledge of stroke rehabilitation. Finally, the skill of behavioural modification is to shape the habit of the stroke client to adapt their new skills for application and implementation in real life circumstance (Kendall et al., 2007). Therefore, occupational therapists, other healthcare professionals, family members and stroke survivors should work together to designate short and long-term goals for the improvement of self-management and life-skills.

2.4 Rehabilitation

Rehabilitation is intended to sustain and improve the quality of life of people living with disabilities (Mpofu & Oakland, 2010). Essentially, stroke rehabilitation is the way to promote maximum stroke patient recovery by relearning skills or new ways of performing tasks or activities to compensate for any residual disabilities. The rehabilitative intervention is to reacquire the functional ability to carry out basic activities of daily living to the more complicated activities such as work and socio-educational-cultural activities in a stroke patient's life based on culturally relevant lifestyle (Iwama, 2006).

2.4.1 Principle of neural plasticity for stroke rehabilitation

The concept of neuronal cortical connection can be reorganised by experience and activity learning that can affect the development of dendritic branching and increase the synapses of nerve cells (Hebb, 1947). In 1983, Merzenich and his colleagues addressed the aspect of brain plasticity. The network of cortical representation areas and maps can be adapted by installing the sensory input, skill learning and experience which can contribute to the recovery of brain functioning. On this principle, stroke rehabilitation has experienced a breakthrough in developing research which emphasises the establishment of a variety of skilled relearning with motor tasks from the everyday life of the patients (Jenkins & Merzenich, 1987).

The knowledge of brain capacity to compensate for lesions has been studied in experiments which found that the cortex area beside the cortical lesion can be induced to modify functional gains by compensation and application processes (Johansson, 2000). Similarly, Bear (1994) studied the development of activity-dependent modification of synaptic connections and reorganisation in the brain area of adult people. The findings revealed that the long-term potentiation (LTP) and long-term depression (LTD) of humans can be recovered by the mechanism of plasticity because all the information has been stored in the central nervous system.

Neurological studies can contribute to a paradigm shift by utilising and designing rehabilitation strategies in order to enhance the functional abilities and the performance of life-skills in stroke survivors (Hess & Donoghue, 1996; Jones & Schallert, 1994). Hence, stroke rehabilitation has adopted the mechanism of neural plasticity such as long-term potential, axonal regeneration and sprouting synaptic

systems in order to remodel the cortical mapping reorganisation (Hodics & Cohen, 2005). Using the brain plasticity model, a principle for stroke rehabilitation based on the mechanism of recovery emerges based on the following five points (Ivanco & Greenough, 2000):-

1) Cortical areas can change structural and functional organisation in reaction to the effect after brain damage for adaptation and modification.
2) The morphology of neurons in brain injury or stroke people can be changed during the recovery process by learning stimulation.
3) The development of dendrites and axons can be formed by the new synapses by skill learning.
4) The synaptic efficacy can be changed by the mechanism of long-term potential and long-term depression.
5) Motor skill learning is a mechanism to change and underpin the connection of primary motor cortex.

The mechanism of recovery further hinges on several components. Ageing is an important factor. For instance, stroke in young people can mean better restoration than in older stroke survivors with the same deterioration. Location and size of stroke relating to the level of severity must be contemplated when designing an appropriate strategy for rehabilitation. Non-dominant or dominant hemisphere of brain damage is a key element impacting on functional performance and outcome (Hodics & Cohen, 2005). In addition, the time period since the stroke onset, co-morbidities and medication have all influenced the stroke patient's capability to participate during the recovery process and must be considered.

2.4.2 Stroke as a rehabilitation sensitive condition

A systematic review of stroke rehabilitation programmes shows that therapy based on rehabilitation can reduce the risk of deterioration in functional skills of activity and participation in the everyday life of stroke survivors (Trialists Outpatient Service, 2004). Moreover, a meta-analysis of occupational therapy trials studied 1,143 stroke participants and revealed the treatment effects of different interventions (Walker et al, 2004). This study found that a group of stroke patients who obtained the targeted intervention for improving ADL produced more effective outcomes than a group of stroke patients who received the control intervention. Further findings

showed that leisure interventions can help stroke survivors to relax and enhances their functional performance leading to goal achievement. Therefore, occupational therapists need to explore relevant treatments or therapeutic media related to the competence and functional skills of stroke survivors in order to improve their occupational performance when attempting meaningful activity in the real world.

Participation in stroke rehabilitation is founded on the benefits of collaborative working between multidisciplinary team, stroke survivors and their families who together can make decisive strategic plans, focus on management, deliver action with appropriate tools and design services for rehabilitation training (Kaste et al, 2000). The stroke model of practice should learn from both its successes and failures in order to further develop a suitable framework to fit with the specific circumstance of the stroke context (Thompson & Morgan, 1990). In addition, a stroke rehabilitation plan must be based on the accessibility and availability of therapeutic instruments and resources (Dwivedi, 1997).

Having completed stroke rehabilitation, the environmental context needs to be evaluated. A strategic direction with planning to provide good home and community-based rehabilitation for the patient is vital (NHS, 2001). The detailed planning comprises of meaningful and purposeful activities in which the stroke patient can engage. These would include appropriate rehabilitative processes for promoting the physical movement in day-to-day-life activities, for example self-hygiene and cooking, communicative skills, distress/depression management, problem solving competence and sexual behaviour (Banks & Pearson, 2004). Consequently, the collaborative teamwork of stakeholders together with the need for relevant therapeutic media for stroke rehabilitation can help not only occupational therapists, but also other healthcare professionals to understand comprehensively both macro and micro levels of stroke rehabilitation.

2.4.3 Holistic perspectives (Holistic view)

Rehabilitation after stroke is a long process and needs to focus on the multilateral dimensions of *physical, psychological, cognitive* and *social environmental skill aspects*. Relevant therapeutic interventions are provided by rehabilitation teams. Therapists need to pay attention to these multi-faceted obstacles that affect the stroke client. A holistic view of the stroke client is an essential part of rehabilitation and

therapists need to understand the various impact factors on a stroke client's life. This approach helps develop a patient-therapist-family relationship which strengthens the cooperative framework of rehabilitation which in turn leads to more effective interventions.

The physical condition of post-stroke is determined by the neuromuscular impairment or dysfunction which depends on the lesion and location in the brain. Sensori-motor performance is important in the health assessment such as visual field defects, bladder control, tissue viability problems, dysphagia, sensory impairment and muscle weakness (Kalra, 2006). Also, motor paralysis is still a major problem in stroke presenting a weakness on the affected side. In particular upper and lower extremities are involved due to lack of muscle tone generation and imbalance of the nervous system leading to the flaccidity and spasticity (Fawcus, 2000). The sensory function of the somatic senses (touch, pressure, pain, temperature and proprioception) and special senses (taste smell, hearing, equilibrium and vision) coordinate directly with motor function. Therefore, activity and performance is not smooth or accurate because of the disturbances of the physical factors (Zorowitz et al, 2002).

The psychological condition of a stroke patient reflects his or her recovery and the quality of life. Cognitive, emotional, and behavioural components combine which are hard to organise when coping with the rehabilitation programme (Langhorne et al., 1993). Many studies have revealed that the physical activity is related to psychological and cognitive dimensions. The main problem is mood disorder which can bring about a hindrance of rehabilitation training which leads to poor treatment effects (Reich, 1996).

In order to accurately evaluate a stroke situation, the occupational therapist should cooperate with a psychiatrist or psychologist to assess the psychological condition of the stroke client. They should observe depression, anxiety, and the socioeconomic position including investigating the stroke's family's psychiatric history (Starkstein et al, 1989). Consequently, the data from psychological assessment is essential to advise other therapists when collaboratively monitoring emotional expression in stroke survivors. The preparation of appropriate strategies for therapeutic instruments and interventions derives from such cooperation.

The cognitive condition is a crucial issue to consider after stroke. Generally, cognitive deficits are the result of poor decision making, conceptual thinking, intellectual capacity, short and long term memory problems and orientation problems lead to the reduction of functional ability and performance in work productivity, daily living activities, leisure and socio-cultural participation (Galski et al., 1993). Moreover, the improvement of cognitive function has close association with the enhancement of life-skills and social environments (Carter et al, 1988). Significantly, post-stroke rehabilitation needs to consider cognitive performance by evaluating and providing specific task related problem solving interventions to enhance intellectual ability and further develop fruitful activities in daily life both at home and in the community (Legg et al., 2007).

Social skills are important in interpersonal interaction and relationships. They consist of three elements. Firstly, a functional dimension is related to various kinds of support. Secondly, a structural dimension includes social networks based on sizes and resources. Lastly, an appraisal dimension comprises of personal satisfaction and the volition of people after rehabilitation support (Sit et al., 2004). Stroke survivors should receive support from society or community such as structural building adaptations or area security, transportation, handrails, elevators, escalators and other convenient devices. The evaluation of such supports in terms of appropriateness and satisfaction should involve stroke users themselves. Practising social skills in recognizable familiar facilities and environmental settings could help stroke survivors improve their ability to socially interact and relate to others.

However, nowadays there is a lot of convenient apparatus and assistive technology in public areas to help stroke survivors but these are seldom enough to meet the needs of stroke clients. Problems of economics and accessibility can limit their uptake. Sit et al (2004) explored the importance of social service support to improve life in the community but real-life situations are far different from the simple accomplishment of a stroke service in the community. In Thailand, there are very few studies reporting social support for stroke clients. Jullamate et al (2006) studied social support for rehabilitation services by interviewing 20 caregivers of stroke patients. Most stroke caregivers (family members) need assistance, information and social support in order to perform informal care at home and outdoor activities. According to Oupra et al (2010) social and telephone supports helped family

caregivers understand the direction of basic care for stroke survivors at home. The social service provides the opportunity for family caregivers to exchange and discuss problems during the process of rehabilitation. Thus, social service support is only just beginning in Thailand and needs further development to fit with stroke care in both urban and rural areas.

The holistic perspective and the limitations outlined above need to be considered by the occupational therapist, the stroke client and family members and other stakeholders. The connection between each context must be understood in order to improve the quality of life for stroke survivors. Correspondingly, the linkage of physical, psychological, cognitive and social environmental skill aspects is a key principle in the occupational therapy for stroke rehabilitation. This holistic approach can more effectively respond to stroke clients' needs and aspirations in real-world circumstances.

2.4.4 Rehabilitation team perspectives

Underpinning the stroke rehabilitation service is the development of evidence-based practice. This enables the necessary engagement with stroke conditions by pondering the related risk factors of a biological and psychological nature, which can provide the multidisciplinary team with appropriate rehabilitating interventions (Gibbon, 2002). Considering the risk elements after stroke, people living with stroke should not drink alcohol, smoke, or have a poor diet. All stroke survivors should exercise appropriately and regularly, consume a healthy diet which includes green leafy vegetables and fruits and avoids salty and fatty foods (Gariballa, 2000; Renaud, 2001).

With potential intervention techniques for post-stroke, neuro-rehabilitation is a means to develop the skills of re-learning with multiple activities in different ways (Matthews et al, 2004). The concept of rehabilitative technique for stroke is established on the grounds of how to maximise functional capacity for creating optimal performance and applying activities to fit with the clients' lifestyles (Barker, 2002). As in the task-oriented approach, the functional movement has been enhanced by the organisation of brain functioning with a specific goal. The management of the appropriate environmental setting enables the provision of optimal body interaction and participation, such as walking training on the floor, treadmill training, bicycling

exercises, reaching for objects and controlling balance and mental imagination training (Shumway-Cook & Woollacott, 2001).

The content of the rehabilitation plan should include pre-functional abilities training, activities of daily living (ADL), instrumental activities of daily living (IADL), leisure, transport use, social participation, returning to home and work, as well as psychosocial support (Guidetti et al, 2010). The process is known to be complex with the various pathological expressions in stroke victims, rehabilitation within a holistic dimension needs to be undertaken. The biological and psychosocial consequences, such as body paralysis, visual disturbances, sensory losses, cognitive problem, problems solving and the difficulty of communication can only be tackled holistically (Gibbon, 2002).

In particular, rehabilitation is collaborative by integrating multidisciplinary healthcare providers to support and play an important role in engaging stroke survivors with a clear goal direction. This rehabilitative process requires evaluation and re-evaluation by using proper instruments and techniques to intervene and monitor the training programmes (Carr & Kenney, 1992). Additionally, Teasell et al (2006) studied evidence-based practice and the setting of basic standards for stroke rehabilitation. They found that post-stroke intervention and management are more likely be successful when based on early evaluation, fast access to multidisciplinary team working, proper intensity of therapies, accessibility of outpatient service and care, appropriate society and community supports, and awareness of secondary prevention following stroke.

Stroke survivors have received benefits from the functional task approach using real-life activities that bring about improved motor ability, cognitive function, visual control, motor planning and sensory perception (Davis, 2006). The intervention in this study comprised of enriched environments and various functional tasks for implementation with stroke survivors. According to Nudo et al (2000, pp. 175) "*If physiologic plasticity in cortical maps is critical for functional recovery, then it follows that tasks requiring progressively increased motor skills are more important than tasks that simply require the patient to repetitively move the limb in the absence of skill acquisition*". Therefore, rehabilitation science for stroke should be based on

the functional tasks related to meaningful activities that can be applied to real-life situations in order to improve occupational performance.

2.4.5 Occupation and activity limitation of stroke

"*Occupation in occupational therapy refers to all of the activities that occupy people's time and gives meaning to their lives*" (Neistadt & Crepeau, 1998, pp.5). A famous occupational therapist Kielhofner provided further meaning as "*doing culturally meaningful work, play or daily living tasks in the stream of time and in the context of one's physical and social world*" (Kielhofner, 1995, pp. 3). Indeed, people who live with stroke mostly suffer from pathological conditions of brain damage which impact on all aspects of life's spectrum known as "occupation".

Most stroke survivors experience restricted participation which derives from environmental settings, social involvement and transportation. Some problems emerge from neuro-anatomical structures, which bring about the unawareness of consequence. Hartman-Maeir et al (2003) studied the awareness of inadequacies in stroke rehabilitation services. Unawareness of disabilities was defined by the discrepancy between patient and therapist in a motor scale rating of the functional independence measure (FIM). This study found that the unawareness of disabilities is a significant issue in stroke patients and relates to the neuroanatomical variable in the right hemisphere deficit before the discharge from rehabilitation. This situation led to a negative impact and poor predictor for the evaluation of rehabilitation outcomes at follow-up.

In recent years clinical client-centred stroke rehabilitation has been adopted which reflects patients' interests when addressing functional engagement and a health-related quality of life. Lee et al (2010) studied the impact of stroke in Taiwan and revealed that recognition of the disabilities following stroke are essential for intervention planning and evaluating treatment outcomes. Their research showed three main factors contributing to the impact of stroke; 1) Physical aspects comprising of mobility, self-care, hand/arm function, energy, feeling of pain/discomfort and vision; 2) Psychosocial aspects included productivity, emotional distress, negative mood, leisure activities, social roles, and family roles; 3) cognitive/mental aspects including cognitive function, language and memory.

Occupational therapists need to be aware of the multi-dimensional impacts of stroke and reflect these in rehabilitation treatments. Health care providers, stroke patients and their families must challenge in appropriate rehabilitation interventions within restrictive and unfriendly environments.

2.4.6 Home and community-based rehabilitation for stroke survivors

Returning home and to their communities is a critical time for stroke patients and their families. The occupational therapist is a professional who plays a key role in home and community engagements where intervention serves to enhance social participation and community integration (Kim & Colantonio, 2010). According to Bridge et al (2006) the capability to live at home is a significant concern for stroke clients who hope to improve their autonomy when faced with real life surroundings, within which they want to gain self-confidence.

A key aim for stroke intervention programmes is to link hospital based rehabilitation to home and community which helps reduce stroke expenditure and can help patients become more relaxed and satisfied with their environmental settings (Seymour & Kerr, 1996). Moreover, the community occupational therapy service can provide a more appropriate and effective stroke approach as therapists see the real environment of activity and participation that surrounds the patient (Hale et al., 2003). Home visits and community participation are of immeasurable benefit to sustain stroke survivors and their families becoming confident and reducing feelings of social isolation, improves psychological well-being (Baskett et al., 1999; Rodgers et al., 1997).

However, some studies show different views of rehabilitation from the perspective of stroke clients and their families. In 2002, Stephenson & Wiles studied the attitudes of stroke participants in a home-based therapy service. The findings revealed that home-based services provided the convenience of privacy and reduced the stress of attending hospital including difficulty in transportation. On the other hand, the disadvantages of home-based services were a lack of equipment and space for training, which may increase anxiety for caregivers and family members.

Higgs et al (2008) studied the theoretical and practical knowledge for OT community-based intervention. They found that the vital role of occupational therapists should integrate the tacit and explicit knowledge related to local and

cultural contexts in the community with stroke rehabilitation. According to Carrier et al (2010) occupational therapy for stroke survivors in the community should be based on local knowledge and facilities which can be modified and adapted with clinical reasoning for providing appropriate intervention (Carrier, et al., 2010).

In 2007, Hartman-Maeir and team studied the assessment of a long-term community based rehabilitation programme for people living with stroke. The research showed that it is important for occupational therapists to understand the real nature of environmental settings for effective evaluation of stroke survivors' needs in their community. This then leads to the provision of an appropriate intervention for stroke rehabilitation (Hartman-Maeir et al, 2007). Mayo et al (2002) found that the long-term problems for stroke survivors were caused by the limitations and restrictions due to their inability to be able to engage in community activities. These problems result in social isolation and reduction in the level of activity leading to further negative impacts upon their functional capability and quality of life.

Similarly, Sveen et al (2004) showed a clear association between leisure activities and the level of satisfaction, whilst Lincoln et al (2004) investigated various activities of people with stroke at home compared to a group providing routine intervention. The findings revealed that there was a significant difference between the two groups in terms of "satisfaction" and "leisure activities", but did not find any significant difference between the two groups in activity of daily living (ADL) and instrumental activities of daily living (IADL). The findings indicate that leisure activity in home-based rehabilitation is essential to provides appropriate therapeutic activities for stroke survivors and determines a direction of effective intervention as well.

However, there are several studies, which show significant differences for home and community-based programmes for stroke rehabilitation. In 2003, Hershkowitz and colleagues found that stroke survivors had improved functional skills after joining basic ADL and IADL programmes. Consistent with Law and Brody (1996) and Legg and Langhorn (2004) the therapy-based rehabilitation services had decreased the risk of functional and emotional deterioration due to the familiarity with the condition that enhanced activity participation and social integration. Similarly, the Outpatient Service Trialists (2003) found that people living with stroke in their environment

demonstrated improved independence during individual activities of daily life after attending home and community therapy-based rehabilitation services.

In conclusion, home and community-based rehabilitation for stroke survivors can tackle the various problems for intervention related to real environmental settings. Such interventions are likely to be positive in terms of the combination between the forms of occupational therapy practice and activities in the real world. The lack of equipment however for OT practice at home and in the community, is a reality and requires attention. Modification and adaptation of raw materials and cultural activities in the community is necessary. Thailand, a country with strong social and community heritage integration provides the ideal setting in which to promote and develop home and community-based rehabilitation services.

2.5 Summary

This chapter has addressed the cause of stroke and its effects leading to the deterioration of the body and various functions. The epidemiological distribution shows both global and specific Thailand rates of stroke incidence and prevalence. The international and national health policy for stroke care and rehabilitative services face serious challenges. Furthermore, the needs of stroke survivors and the principles of rehabilitation in neuronal plasticity have been discussed. Rehabilitative services within a holistic approach using collaborative teamwork are all critical ingredients to propel the strategic plan to attain the ultimate goal of well-being for the stroke client. Finally, occupational therapy within the occupations and activity limitations of stroke patients has been considered. Developing home and community-based rehabilitation for stroke survivors presents a major challenge for Thailand as its population ages.

Chapter 3 focuses on the relationship between Thai culture and the health context and discusses the establishment of occupational therapy for stroke rehabilitation.

Chapter 3

THAI CULTURAL HEALTH CONTEXTS AND OCCUPATIONAL THERAPY

3.1 Introduction

This chapter documents a Thai way of life which relates to culture, health and illness beliefs. The discussion addresses the problems for the stroke survivor, the family and their needs. Occupational therapy models, framework of references, occupational performance concepts, international classifications of functioning, disability and health (ICF) and evaluation models are debated. The conceptual knowledge of models and frameworks provide the principle and direction of occupational therapy for stroke rehabilitation. In conclusion the concepts of occupational therapy and Thai cultural context are blended to construct an Occupational Therapy-Mahidol Clinic System (OT-MCS) for Thai stroke rehabilitation.

3.2 Thai way of life and culture within a health context

3.2.1 Culture and health in Thai society

The culture of Thai society is categorised by personal values which derive from merit accumulation and amusement. A Thai person's personality hinges on the well-being of others. The values of amusement (fun-loving) emerge from self-satisfaction (eating, drinking, and playing activities), and an abundance of material generosity. Merit making is at the heart of Thai Buddhist culture based on the fundamental belief in 'Karma' (actions of a previous time and past life) and predestination, which influences survival and health (Smuckarn, 1980).

Buddhism is the core religion in Thailand where around 94% of the population are believers (Mackenzie, 2007). Thai society has sustained its cultural identities by preserving and implementing Buddhist values in public areas, despite the massive influx of foreign culture (Hoare, 2004). The dominance of Buddhism is embedded in the spirit of the Thai people in diverse societies across all regions and has become the Thai culture. Globalisation and advance technologies via trade transactions are however affecting Thai cultural lifestyles.

In line with Buddhism's beliefs about health and illness, Buddhists perceive that Karma and fate drive these conditions. People must strive to be good in order to maintain and support well-being or relieve the bad things during life's journey (Miles, 1999). Moreover, Buddhist people concentrate on interdependence and co-existence, so that everyone needs to interact with each other and come to rely on the survival of others (London, 2008). According to the natural way, the organism is interdependent and co-dependent on other organisms. The Buddha's teaching adapts to consider the instability of life, which every human being must confront from birth, through ageing, illness, and death.

This is a law of nature in which Buddhists need to emancipate a sense of suffering; they must perform virtue to purify their minds until enlightenment. The consequence of practice can break a cycle of sufferings from reincarnation (Buddhadasa, 1989; Haglund, 1994). The achievement comes through capturing three key principles: preserving moral precepts (ethics), purifying the mind (meditation), and establishing consciousness (wisdom) (Buddhadasa, 1989). In addition, Haglund (1994, pp. 5) mentions that '*By knowing that life is suffering, a Buddhist has an ability to accept suffering and misfortunes in a way that I believe few Westerners have*'. Therefore, Lord Buddha's teachings are in the "Tripitaka" document and influence the Thai society in order to propel life's journey forward (Bunnag, 2007).

The law of Karma is a law of cause and effect; that the consequences of one's actions cause one's happiness or affliction (Keawkungwal, 1989). The Karma is classified into three patterns that compose of good karma, evil karma, and neither good nor evil karma. Three models of Karma are described in terms of analogies in health recovery and treatment processes during illness. The *evil karma* can affect people who suffer from disease and need to recover from morbidity. However, they are not able to cooperate appropriately during the intervention process, which leads to poorer outcomes. The karma emerges in the patient's mind who does not comply with the collaborative treatment, although they had high expectations. Hence, they still suffer from pathological effects and health deterioration (Phra Rajsuddhinanamongkol, 2000).

The *good karma* can underpin and influence the condition in the patient's mind so that he/she concentrates on treatment by conforming and practising cooperative

intervention process, which possibly results in a good outcome and tends to lead to success in the recovery period. Even though he or she faces severe disease, the mind power can help him/her to adapt rapidly to the disappointed outcome of the intervention. This situation can bring new hope to recover again, whilst people who have evil karma, cannot overcome 'failure' and may face greater disappointment after treatment effects (Phra Rajsuddhinanamongkol, 2000).

The last aspect of a Buddhist's action is neither good nor evil karma. This can occur with people who do not have a high expectation of recovery from their illness based on the condition of the disease and magnitude of its effects. These people understand themselves, an inevitability where faced with disease or ageing (a law of nature). Certainly, they can cooperate in the intervention process but sustain peace of mind. Consequently, these people will not suffer nor gain gratification from the good or poor outcomes of treatment (Phra Rajsuddhinanamongkol, 2000).

Clarifying a law of Karma from the Lord of Buddha's teaching, Thai people strongly believe and take into their way of life by the act of performing good Karma via merit making and purifying their minds in order to keep away from evil (Haglund, 1994; Payutto, 1993). Buddhism is a major pillar of Thai society and influences culture in multilateral dimensions. The fundamental belief of religion has become deeply embedded in most Thai people across the generations. Thai cultural lifestyle has blended with Buddhism and is transferred in multiple ways throughout the country. This culture underpins and upholds the values of interdependence and co-dependence in relation to behaviour, attitude, and belief in Karma in order to navigate effectively along life's journey.

3.2.2 Beliefs about illness, disability and rehabilitation in Thailand

At present, Thais' perspective on the issue of health and illness comes from a blend of Western and Thai traditional medicines from local wisdom related to culture, which is driven by the belief in Karma and destiny. Unquestionably, Buddhism is an essential basis of Thais' viewpoint in ways of well-being and morbidity (Jungsatiansub, 1990). The concepts of health and illness in Buddhism form the way for interdependence in life and the relationship between cause and effect. Within health and disease contexts, Thai Buddhists concentrate on the relationship between

body and mind conditions, interaction between health and surroundings, and Karma (human deeds) that reflect a holistic view of health (Ratanakul & Than, 1996).

On the other hand, when faced with disability and suffering in health, Thai people believe that this is a legacy derived from the devil karma and sin from the effects of past lives. Moreover, Thai culture still deems to solve illness by the use of good deeds and merit making to mitigate the implication of bad karma. For this reason, Thai people believe that the evilness of a person's actions in the previous state of existence has influenced them and brought about a painful condition. This belief enables them to accept the ill health of pathology and painful states without struggling with a new intervention. Mental pressure is minimised until the last day of their life. Hence, Thai Buddhists believe strongly in people who have the endeavour to deal with severe disease by using a peaceful mind that can help create a good karma and lead them to face with a better after life following death (Ratanakul & Than, 1996).

Nevertheless, the essence of Thai people's view of those with disabilities is negative. Sympathy related to the need for support, for those who cannot help themselves in public areas and society is lacking. This Thai attitude stems from the belief that disabled people suffer from painful conditions due to evil karma from a previous life, which negatively affects them in this present life and is responsible for the difficulty of circumstance. As a result of these beliefs, most families with disabled people feel embarrassed and do not allow their disabled relatives to take part in public society and community activities (Phongphaew, 1992). This attitude has incurred a negative impact, hindering the opportunity for disable people to develop their social skills to enable them to participate in public life. The lack of which leads to further deterioration of physical and mental abilities.

In Thailand, people living with disabilities and stroke survivors are viewed as abnormal. They are confronted with obstacles everyday which prohibits involvement in many spheres of public life. However, if those people were able to work and serve their communities, they would receive positive feedback due to their independence in self-care activities, ADL functioning, and social integration (Wiboolpolprasert et al, 1996). In reality, these effects stem from the long-standing culture which cannot be resolved in a short period. However, future health education

and better policy from the government may help Thai people with disabilities including stroke survivors. Their families can be helped to understand the situation through participation in healthcare programmes where the future benefits dominate, rather than dwelling on the past.

3.2.3 Problems and needs of stroke patients and family caregivers in Thai society

In Thailand, there are no tangible stroke rehabilitation home and community based services (Oupra et al, 2010), in which the stroke patients' families or caregivers are responsible for the continued health care and support. The health care system has concentrated on acute stroke care in hospital settings; thereby very few stroke patients gain admission to rehabilitation programmes (Jullamate et al, 2006). Some studies in Thailand show that family members and caregivers lack opportunities to deal with rehabilitation after discharge from hospitals. They lack information and healthcare knowledge to assist and train their post-stroke relatives. Very little is done before discharge to help families cope (Subgranon & Lund, 2000; Khemthong & Saravitaya, 2010; Oupra et al, 2010).

Jullamate et al (2006) mentioned that there are three primary needs in stroke patients' families and caregivers, which are assistance, knowledge information and social support. These needs are specified as low priority in stroke management from hospitals. The stroke rehabilitation system does not provide collaborative teamwork between healthcare professionals and family caregivers. The burden has fallen to family members and relatives which can lead to problems in long-term care (Subgranon & Lund, 2000). Consistent with Teel et al's (2001) findings, if family caregivers of stroke patients have insufficient knowledge and skills to provide appropriate care, they have higher rates of depression than non-caregivers. Poor mental health can engender a sense of negativity which leads to poorer care-giving outcomes.

Moreover, most Thai stroke survivors and family caregivers continue to live in the same local areas, and pursue the same cultural patterns of daily living. Nevertheless, Thai rehabilitation providers tend not to teach them with relevance to their customs and ways of life. There appears to be a gap in the understanding of each other's lifestyles which results in poorer outcomes on returning home (Subgranon & Lund, 2000; Thipsamniag, 2000). In Thailand and in most countries, most stroke caregivers

are daughters. Thai cultural belief stipulates that women display gratefulness to their families in providing a caring role. Sons are expected to pay back their parents by giving money support and work activities (Oupra et al, 2010). Therefore, insight into living patterns and cultural lifestyles of stroke survivors integrated with health care education can be comprehensively helpful and effective in reducing negative emotional impacts and physical dependence of families and caregivers in providing care (Burton & Gibbon, 2005; Forster et al, 2004).

The common physical symptoms for families and caregivers include lack of sleep, fatigue and dizziness. These are due to relentless caring duties and responsibilities as well as financial worries and patient behaviour. The hardship brings about emotional distress, hurts feelings, raises anger and discomfort, increase boredom and can lead to discouragement and family conflicts (Subgranon & Lund, 2000). A major cause of stroke health problems stems from patient behaviours such as difficulty eating and drinking, trouble speaking and taking medicine, incontinence, diarrhoea, pain and being helpless. Another important concern when dealing with stroke patients is the assistance received from the rehabilitation team. Appropriate materials and equipment are needed which provide effective care to enable stroke survivors to reach their ultimate goals which are consistent with their economic status in their local Thai community (Siriboon, 1996).

The long term care of stroke in Thailand can cause a huge burden on family caregivers. They must engage in physical and psychological management, afford treatment costs and make lifestyle modifications (Khemthong & Saravitaya, 2010). According to Subgranon and Lund (2000), no special supportive programmes of the Public Health Ministry of Thailand exist to solve the burden and psychological problems for family caregivers. Furthermore, the decision of stroke carers to stop rehabilitative treatment stems from poor outcomes of interventions, financial problems, transport difficulties and lack of understanding of the patient needs (Kuptniratsaikul et al, 2008). In Thailand, where modern stroke rehabilitation does not help stroke patients return to functional performance and competence, stroke families were more likely to adopt alternative traditional medicine approaches such as Thai massage and pot herbal medicines (Subgranon & Lund, 2000).

In addition, social needs and support for stroke patients in the community are vital if they are to live fulfilling integrated lives. According to Holt-Lunstad et al (2008) social support can decrease emotional stress and initiate adults with impairment to engage in outdoor activities with physical and mental dimensions. Moreover, social participation and activity can enhance self-esteem. Involvement helps to generate new skills and the ability to solve problems (Greenglass et al, 2005). In Thailand, most stroke survivors stay with their families and are reluctant to let their relatives participate in their social care. Impairment and disability in public are considered deficits (Suttajit et al, 2010). Kuptniratsaikul et al (2008) state that public places can raise insecurity and uncertainty concerns. Government and private agencies can make a difference by providing supports such as ramps, handrails, elevators, wayside shelters, and appropriate public transportation.

The comprehensive understanding of the problems and needs of stroke survivors and their families can help occupational therapists discover the causes of dilemmas and find the appropriate way to solve problems through collaborative action which corresponds to culture and occupation. Hence, the Buddhist religion and Thai culture play major roles in the caregiving process for stroke patients. These roles reflect the traditional way of life in the sense of family responsibility under the law of Karma (action of merit and sin) when navigating their way along the treatment path. In harmony with occupational therapy for stroke rehabilitation, therapists must consider appropriate OT models, frames of reference, occupational performance concepts and international classification of functioning, disability and health (ICF) in order to respond to the needs of stroke clients within the context of socio-cultures, activities and lifestyles in Thailand. The next section presents a critical appraisal of these important elements.

3.3 Occupational therapy models and frames of reference

3.3.1 Occupational therapy definition and framework

Occupational Therapy (OT) is one of the Allied Health Professions (AHP) and plays a crucial role in multidisciplinary teams of rehabilitation in the stroke field. Reed and Sanderson (1999, pp.3) state *'Occupational Therapy is meant to convey that the practice involves treatment of disease or disorder by employing or engaging a*

person, the mind, and attention in occupation. Such occupation does by its nature take up, use up, or fills space and time'.

The definition of occupational therapy was developed and modified by the Representative Assembly of the American Occupational Therapy Association (AOTA) in 1994 for the Uniform Terminology, which is defined as follows: (AOTA 1994, pp.1051). "Occupational Therapy *is the use of purposeful activity (unique features) or interventions to promote health and achieve functional outcome (generic goals of most health care field).* Achieving functional outcome *means to develop, improve, or restore the highest possible level of independence (purpose/goal) of any individual who is limited by a physical injury or illness, a dysfunctional condition, a cognitive impairment, a psychosocial dysfunction, a mental illness, a developmental or learning disability, or adverse environmental conditions (population served).* Assessment means *the use of skills observation or evaluation by the administration and interpretation of standardised or non-standardised test and measurement to identify areas for occupational therapy service*s.

During the Second World War, OT was established through the ideas of rehabilitation to assist soldiers in recuperating and returning to military service (McDonald, 1964). From this beginning to present times, the OT profession has developed into various services such as hospitals, primary care centres, schools, factories, prisons, social care settings, charity organisations, and residential homes. Occupational therapists (OTs) are trained to provide rehabilitation services for people whose lives are disrupted by physical, psychological and social problems across genders and ages (COT, 1997).

The main purpose of OT is to serve clients in maintaining, restoring and creating the abilities for life-skills. The benefits to individuals relate to their functional performances in order to achieve goals, maintain productivity and increase satisfaction (Allen et al, 1992). OT is a partnership between the clients, family members and caregivers to deal with the problems derived from bio-psycho-social conditions leading to the cooperative work which designs and implements essential and purposeful activities (Hagedorn, 2000a). For example, if a client cannot make the decision to engage in activities, the occupational therapist will take action to collaborate with all stakeholders to address the appropriate activities.

The vital steps to success in occupational therapy, activity analysis and synthesis are integral strategies to select the occupations from an individual's daily life and initiate steps to regain and improve their life-skills (Allen et al, 1992). The OT process needs to be underpinned by considering the participation of client's relatives, society, culture and economic environments in order to provide the services of assessment, planning of both short and long term goals, intervention-prevention programmes and follow-up. Moreover, OTs have to offer health knowledge, advocacy, consultation and suggestion to clients and family members in the occupational performance of self-care, home modification and management, work, ADL, play and leisure (Reed & Sanderson, 1999).

In 2002, Creek explained a role model for OTs when taking responsibility and action. OTs have to gather information and data from clients and participants in order to carry out an initial assessment, then engage in problem-formation, goal setting, action planning, action, continuing assessment and intervention, evaluation, outcome measurement and discharge. This process is based on the participants' cooperation, personal beliefs, values, culture, language, skills, knowledge, tools, methods and experience for optimising occupational performance of the client. Importantly, OTs should not follow a stringent recipe of intervention or use an inflexible modality for a particular condition, but should pick up and draw from the nature and context of clients' lives by considering the existence of reality and circumstances before providing OT services.

Furthermore, the boundary of OT service has covered the analysis, design, creation, training and maintenance of orthotic/prosthetic devices, assistive and rehabilitation technology including the use of ergonomic and safety application (Reed & Sanderson, 1999). Consequently, OTs should provide proper therapeutic activities for each individual in order to restore the functional skills and occupational performance of clients.

Task-specific natural activities and skills have a relationship in a hierarchical scenario. The lower level begins with a skill and develops to become a task and leads to activities which serve as occupation for life. Hence, humans achieve skills and task completion before activity and occupation (Legg et al, 2007). For instance, for an achievement in cooking meals, people have to learn and develop the skills of hand

function, eye-hand coordination, and motor control in using kitchen equipment, they have to achieve the task of cutting and sorting ingredients, activities of driving to market, buying products and sequencing items, before they are able to cook a menu successfully.

The OT process needs to begin with an assessment of the present and expected occupations of the clients. A well-built management strategy which identifies functional limitation assists the therapist who is concerned with the skills, tasks, activities and occupation to reduce barriers and boost functional performance. The strategic partnership between services is organised through collaborating with clients in assessing functional competence, educating knowledge-skills, analysing activities, using therapeutic activities and tools, grading activities, solving problems, organising group work and adapting environments (Hagedorn, 2000a). During the period of OT service, the occupational therapist analyses the big picture of occupation/activities to arrive a smaller at image of skills synthesising from the skill level to the occupation scenario of a personal nature, context, culture and way of life.

In the last few decades, there have been many theories, models and conceptual frameworks for OT in different and diverse contexts. Although there are papers and publications in the OT field, there remains a lack of research to compare and evaluate the models. Misunderstanding and confusion have occurred over the terms used in models of practice, frames of reference and intervention approaches that derive from the viewpoint of authors (Kortman, 1995). Some models were created to navigate through the intervention process and reflect the sequential methods and therapeutic treatment linked to theories and frames of reference. Some models have covered all conditions broadly but cannot be used specifically to address the needs of some patients and are seldom compatible with some contexts and circumstances.

OTs must consider carefully various models and conceptual approaches when making decisions on service treatments. People living with stroke have limitations in physical and psychological functions as well as social participation. Thus, appropriate OT models and concepts were addressed to link between content-principle and core conditional problems for people in occupations. The application of selected models should rely on factors associated with the stroke patient and his/her

family in order to improve the compatibility and effectiveness of the rehabilitative intervention.

3.3.2 Conceptual models of occupational therapy

The reader is reminded that the model of human occupation (MOHO) and Canadian model of practice (CMOP) are presented in Chapter 1 (pp. 9). The following models offer more culturally empathetic components.

Kawa model (River flow)

The Kawa model was created by Lim and Iwama (2006) and reflects an Asian model of practice in the OT field based on the culture and way of life. The model emphasises the values of human beings by considering the Asian culture of collectivism, hierarchical society and interdependence. The model presents an understanding of human life as a river flow. The patient's life comprises of a flow (river) faced with many difficult situations on life's journey (rocks), adapting to the physical and environmental settings (banks and riverbed). Individual characteristicsare seen as driftwood and comprise self-values, personal skills, indebtedness and assets. Activities for life's journey are driven by the patient's energy (water) to streamline the flow past obstacles (Iwama, 2007).

OTs can apply this model where offering an intervention which deals with the problems of a situation for the patient. By not eradicating the obstruction, the patient's life energy continues to flow harmoniously to perform relevant tasks in a balanced range of activities. Ivey and Mew (2010, pp.26) state '*Appreciation of non-western perspectives enables therapists to be truly client-centred. This model emphasises the harmonious interaction of mind, body, soul, spirit and environment for health and well-being*.' Therefore, the use of the Kawa model in stroke rehabilitation may be appropriate with an Asian lifestyle to direct the inner patient's mind, values and resources. Streamlining the cultural and environmental settings and taking in social participation and beliefs (social inclusion) can enhance the potential of life's journey (Iwama, 2007).

In OT-MCS the framework of the indicative care package has some parallels to the Kawa model by making links to the stroke survivors' life (implied by the ***river***) and deals with various limitations of physical, emotional, behavioural, cognitive and

social participation (***rocks***). Following stroke the environment and facilities need to be modified in relation to way of life and cultural context (***banks and riverbed***). OTs work collaboratively with stroke clients and their families to increase self-esteem and confidence in order to facilitate functional ability and occupational performance (***driftwood***). Collaborative goal setting and planning in OT-MCS enables stroke clients to engage in culturally appropriate therapeutic activities and increase their capabilities and functional skills that are streamlined (***flowing water***) through occupation and participation to live life their way.

Occupational functioning model (OFM)

This model of practice is an approach to OT service which integrates medical, social, educational and vocational domains for training and serving the stroke survivors to optimise their highest level of function (Walker et al, 2000). It strongly emphasises the reinvigoration of sensory and motor functions. Therapists selected compensatory techniques as a rehabilitation strategy in a particular case of non-repairable neurological condition with impairment in the functional capacity of motor and sensation (Behraman et al, 2006). The approach is universally used engaging in the practice of activities to regain functional capability, gearing to compensate for residual deficits and continuing rehabilitation to maximise retained performance. Although this model of practice is still a popular approach in OT interventions in neuro-rehabilitation, there is some criticism of this model which provides therapeutic equipment before stroke survivors have obtained skills and therefore might hinder the individual's full recovery (Sackley & Lincoln, 1996). On this point, basic rehabilitation training and ADL to acquire skills and abilities are embedded in the use of OT-MCS in order to prepare body function before moving through practical activities.

3.3.3 Frames of reference

The practical use of selected models

There are appropriate frames of reference to modify the practical use and embed the OT-MCS approach. *Motor control and motor learning frames* originated basically from the sensorimotor approach (Rood's technique), proprioceptive neuromuscular facilitation (PNF), Brunnstrom's movement therapy, and neuro-developmental

therapy (NDT or Babath's technique) (Cole & Tufano, 2008). OT views all these techniques as a fundamental basis for human functions and movement mechanisms which support and strengthen the multilateral, occupational therapy, task-oriented frame and reference including intervention (Horak, 1991; Mathiowetz & Bass Haugen, 1994; Shumway-Cook &Woollacott, 2001). Applying OT-MCS approach, the motor control practice and motor re-learning process is used to integrate with the pre-functional rehabilitation and therapeutic activity intervention.

Cognitive frame was created by Creek (1990) and provides for rehabilitating mental disorders. Nevertheless, it was developed broadly to apply to stroke patients and those with traumatic brain injury who suffered from cognitive illness. The limitations after brain damage involve cognitive ability and functional performance. Furthermore, a cognitive frame can be used to initiate stroke survivors to recover emotional, behavioural and social participation by developing effectively their logical thinking to cope with anxiety and distress (Duncan, 2005). The cognitive theoretical perspective is related to the understanding of experience, memory, perception, and conceptualisation in the occupational performance of life's activities (Kielhofner, 2008), in particular individual stroke clients who must synchronise with their own environment and task performing. With this cognitive concept, the use of OT-MCS approach is designed to utilise cognitive function for stroke clients which reflects the meaning and value of activities which they need to perform and apply in their homes and community.

In applying behavioural frames, the use of OT-MCS creates behavioural goals in order to facilitate functional skill development by teaching and coaching processes for behavioural modification and adaptation (Christiansen & Matuska, 2004). *Adaptive skills frame* integrates the utilisation of the model in dealing with problems in psychosocial function. It enables stroke survivors to recognise maladaptive responses or lack of skills, gradually developing effective activity planning and generating performance through interactions and satisfaction when needs are met (Mosey, 1986). Moreover, a modern view of the *rehabilitative frame* is blended with the use of OT-MCS on the basis of how to make people engage in a role with their needs and opinions paramount, notwithstanding any residual impairment (Trombly, 2008). This rehabilitative process is arranged and supported by environmental adaptation and compensatory strategies in order to increase roles of

performance from basic skills to socio-cultural activities. Applying rehabilitative frame can maintain and improve functional skills via major domains of occupational performance: ADL, IADL, education, work, play, leisure, and social participation (American Occupational Therapy Association, 2002).

3.3.4 Occupational performance concept

Mary Law (2005, pp. 7), an expert occupational therapist said that '*Occupational performance is the doing of occupation in order to satisfy life needs*'. In Canadian Association of Occupational Therapists (1997, pp. 30), the OTs group stated that '*Occupational performance refers to the ability to choose, organize, and satisfactorily perform meaningful occupations that are culturally defined and age appropriate for looking after one's self, enjoying life, and contributing to the social and economic fabric of a community.*' These messages are fully integrated in the OT-MCS approach to steer stroke rehabilitation to reach collaborative goals. The use of OT-MCS considers the principle of occupational performance profile for OT practice framework (Law, 2005; AOTA, 2002). The focus on a macro picture through a micro scenario can be classified by presenting the occupational performance (e.g. feeding, dressing, meal preparation and shopping); role performance (e.g. leisure, play, education and volunteer work); environmental factors (e.g. architect, cultural norms, geographical areas, and resources); and performance components (e.g. sensorimotor integration, cognition, pain, strength, and fatigue).

In 2008, the AOTA launched the OT practice framework: domain and process, 2nd Edition (Framework-II). The main point of this new practical framework (2008, pp.625) is that *'the framework was developed to articulate occupational therapy's contribution to promoting the health and participation of people, organisations, and populations through engagement in occupation.'* Occupational therapy's domain contains activity demands, client factors, area of occupation, performance skills, performance patterns, context and environment. The domain is driven by occupational therapy's approach which includes occupational profiles and analysis of occupational performance; intervention plans, implementation, and review; and supporting health and participation in life through engagement in occupation. These OT processes take action through collaboration between practitioner and client via the stages of evaluation, intervention and outcomes.

The mechanism of the OT-MCS approach is steered by collaborative teamwork (stroke client, family/caregiver, and occupational therapist) where multilateral dimensions of understanding are created. This shared vision determines the collaborative goals and plans for navigating strategic direction and action. Hence, the use of OT-MCS corresponds to the principle of OT Framework-II, in which an OT-MCS approach provides opportunities for stroke clients to select their activities depending on their needs (activity demand), satisfaction, and meaning (client factors) in order to sustain and improve their occupational performance and functional skills (performance skills) based on roles and cultural lifestyle (performance patterns) for the application in the home environment and community within Thai socio-cultural contexts (context and environment).

3.3.5 International classification of functioning, disability and health (ICF)

The ICF comprises of two parts. Part 1: Functioning and disability include body functions and structure; and activity and participation. Part 2: Contextual factors compose of environmental and personal factors (see Chapter 1). However, the details of body functions and structures are involved physiological functions in relation to anatomical parts of the human body including psychological functions, whilst activity and participation embrace capacity and performance of a task or action by an individual to involve in a life situation. Environmental factors include facilitators/barriers of individual and societal surroundings, while personal factors involve a background of an individual's life (WHO, 2001). OT-MCS has adopted the principle of ICF providing therapeutic activities (activity) for stroke clients to engage in (participation) these activities related their needs (personal factors) based on local and cultural lifestyle (environmental factors). The therapeutic activity intervention helps stroke clients to maintain and improve the competence (body structures and capacity) and occupational performance skills (body functions and performance) by the means of simplification/modification (facilitators) and challenging (barriers) the activity programme based on cultural lifestyle (personal factors) during the rehabilitation.

3.3.6 Evaluation of models, frames and references

Within stroke rehabilitation evaluation, there are various techniques and approaches. Analysing the model of human occupation (MOHO), this conceptual model embraces human nature that involves volition, habituation, performance and

environment. This OT model concerns organisation and functions, conceptualised appearances and problems, and addresses the theoretical explanation of the OT operation (Kielhofner, 2002). Hence, this model views a person as an open system, interacting within the environmental settings and continually being affected by life situations. It focuses on the occupational areas of self-care, leisure and work for evaluation. According to Canadian model of occupational performance (CMOP), this OT model considers a person, occupation, and environment (CAOT, 1997). These two models are used in OT service throughout the world, but the broad concepts related to the individualistic view and the complex terminology reflects Western lifestyles. These models, without modification, are hard to apply to the Thai society.

Kawa model may be a better conceptual framework for OT within the culture of collectivism, rather than individualism, which promote the interdependence in Asian society rather than the independence dominant is the Western world. This model engenders participation, enables client and therapists to collaborate over the process of finding creative, culturally relevant ways of tackling life challenges in order to generate meaningful intervention (Christainsen, 2006). This model is designed on the basis of collectivist culture; however its application and modification for Thai stroke rehabilitation needs to be considered.

In 2000, Walker and colleagues investigated 61 senior occupational therapists. This study found that the Bobath and functional approaches were more used than other techniques. Although this research shows a choice of approach that was most commonly used, it does not reflect the view of a majority of the OTs in the stroke field. Moreover, this study recruited OTs who did not give their specialties or claim to be experts of stroke rehabilitation and were possibly representative of other health condition. Nonetheless, the importance of approach selection was related to the expertise and experience of the occupational therapists.

Furthermore, there have been some studies which compare stroke rehabilitation approaches but there little evidence to suggest which approach is better than another (Dickstein et al, 1986; Langhammer and Stanghelle, 2000). On the other hand, the Royal College of Physicians' National Clinical Guidelines for Stroke indicated that stroke rehabilitation will be successful when therapists take responsibility and use various approaches to fit with the stroke situation and provide the opportunity for

patients to learn specific activities in order to improve their functional skills and quality of life (Royal College of Physicians, 2002).

As a result, OTs are expected to understand the paradigms of stroke rehabilitation approaches and clarify appropriate techniques in specific pathological expressions of the stroke client in all areas of activities, participation, body function, and environmental factors (Duncan, 2006). Most therapists take the combination of approaches and models and assess the activity limitations and plan therapeutic intervention programmes based on the problems in the stroke contexts (Walker et al, 2000). This thesis concentrates on the OT approach in a Thai context which aims to address the different functional performances of stroke patients by using activities and engagements related to pre-functional rehabilitation, basic and instrumental activities of daily living (ADL & IADL), household activities, socio-cultural and educational activities as well as leisure activities. Therefore, before reporting the treatment effects of OT interventions in stroke rehabilitation, the development of Occupational Therapy – Mahidol Clinic System (OT-MCS) within Thai culture is described.

3.4 Occupational therapy in culturally different contexts

Culture is relevant to all life situations. Krefting (1991, pp. 2) stated *'Culture is a system of learned patterns of behavior… shared by members of group… providing the individual and the group with effective mechanisms for interacting both with others and with the surrounding environment'.* Consequently, those using OT interventions need to distinguish and value differences between the activities and cultures during the rehabilitation process (Fair & Barnitt, 1999). Hence, OTs should recognise cultural diversity and views of competent occupational performance in conjunction with activities of work, daily routine, and leisure.

According to Ranka and Chapparo (1997), the cultural environment is comprised of a system of customs, ideals, beliefs, and values that are continually developed, learned and implemented in a boundary of personal or group behaviours. The therapists need to discover cultural signs, experiences, customs, traditional patterns and lifestyles related to clients and help comprehensively increase the understanding of health and illness (Kroeker, 1997). Similarly, Hasselkus & Rosa (1997) report that

patterns of work, leisure and self-care activities linked to cultural identities and occupations should be explored as these patterns of cultural expression apply within OT intervention. Moreover, OTs should encourage the clients to engage in culturally meaningful and purposeful activities in order to create familiarity and satisfaction leading to the development of functional abilities (Wilcok, 1993).

Within the reality of cultural contexts, culture can change and is dynamic depending on the economic conditions and political situations that can create individual differences within a larger cultural group such as when there is a rise in the number of immigrants (McGruder, 1998). Significantly, OT in a multicultural context needs to consider the dynamics of occupation related to the behaviour, environment, and position of role where the OT intervention might not be harmonised and create tension between Eastern and Western values (Dawson, 2000). Watt & Carlson (2002) pointed out that the conventional Western rehabilitation approaches might not be the first priority for Aborigines in Australia. Fange & Iwarsson (2005) revealed that OT intervention should be modified and adapted for different groups of clients based on efficient resource utilisation in environmental areas and cultural communities.

In 2003, Iwama found that OT should investigate and amend the epistemological positions relevant to the non-Western cultural world before implementing service programmes. Bourke-Taylor & Hudson (2005) concluded that the hardship for occupational therapist was associated with the application of the Western model of practice in local areas. This led to conflict and negative impact because of the differences between values, beliefs and cultural customs of the therapists and clients. Furthermore, the main concepts of Western styles do not fit with a non-Western practice which does not grasp cultural barriers related to personal autonomy, performance and achievement in occupation, and goal-directed intervention (Awaad, 2003; Hasselkus, 2002; Kondo, 2004). Consequently, the solution needs to transcend cultural obstacles that are composed of:-

(Bourke-Taylor & Hudson, 2005)

- The development of epistemological condition must be suitable and relevant to non-Western cultural style.

- To create guidelines for the application and implementation of OT services which is underpinned by the client's need from the groundwork of participation in pertinent social environments and communities.
- The use of an OT programmes needs to investigate the service outcome and treatment effects from the therapists' and clients' new points in non-Western communities by researching the experience of the local people.
- Culturally based differences in beliefs and values interfere with the client-therapist relationship and there is a need to further develop understanding, respect, and recognition for collaborative practice in multicultural contexts.
- Human development and resources are improved by training to comprehend the importance and value of cultural competence between therapists and clients.

A cross-cultural analysis study in OT derived from therapists who come from Western cultural backgrounds explored their intervention with clients from non-Western cultures (Levine, 1984; Kinebania & Stomph, 1992). The benefit of cross-cultural studies is that they can draw on cultural competence, which includes cultural specific, intercultural, and general cultural competencies (Fitzgerald, 2000). *Culture specific competency* refers to the potential of an individual or group to engage in activities of everyday life. *Intercultural competency* is related to the participation across cultures in conjunction with the understanding of differences that influence the treatment effects. *Cultural general competency* is associated with the professionals who realise the respects and values of different cultures and the potential involvement of individual's sickness and experiences (Fizgerald, 2000). Importantly, cultural competency is steered by the occupational therapist who is responsive and respects the cultural differences by gaining more different perspectives and stepping stones to overcome the cultural barriers, and integrates cultural values, beliefs, and customs leading to an appropriate therapeutic approach for the individual's intervention (Bonder et al, 2004).

3.5 Thai cultural implications for occupational therapy

Cultural determinants impact upon through activities of daily life, customs and domestic skills of the Thai people. In particular stroke and disabled patients' manner and identity play a significant role when coping with illness and its pathological

consequences. Most Thai people appreciate therapeutic interventions which are related to their beliefs and lifestyle (Krefting & Krefting, 1991). OT is a part of rehabilitative modality to restore functional ability by the use of therapeutic activities, which are associated with the client's way of life, household activities in both indoor and outdoor settings enabling them to take responsibility to reach their optimal goal. Hence, cultural activities play a key role within OT intervention through selection and collaboration from stakeholders (Client, family and therapists), successful treatment outcomes are achieved (Levine, 1987).

When planning interventions OTs should contemplate the client's cultural background in order to analyse and synthesise those cultural activities and roles which correspond to their performance components and competencies. This collaborative planning helps the stroke patient, family and therapists to understand key activities, values and goal setting during the OT programme (Krefting and Krefting, 1991). This is at the heart of the occupation that assigns the clients to interventions which meet their desires and gives meaning to their activities of daily living, work, leisure and rest (Iwama, 2007). Additionally, the understanding of cultural factors can help a therapist assess their clients' balance between work and play, role and participation. Improved local knowledge and resources, attitudes and beliefs, a degree of autonomy/independence, self-control and esteem including problem solving with strategic means (Krefting & Krefting, 1991) all stem from greater cultural insights.

In 1997, Fitzgerald, Mullavey-O'Byne and Clemson studied the views and attitudes of 86 Australian OTs using interviews. They found 7 critical categories of cultural involvement in the practice of occupational therapy:-

1) Professional values
2) Client's roles and participation
3) Family roles and responsibilities
4) Clear communication
5) Social behaviours
6) Gender
7) Relevant therapeutic intervention or model for health and morbidity

These therapists' perspectives echo the importance of culture in health and illness belief systems and the client's role expression. Furthermore, the study of the experience of Australian OTs dealing with non-English speakers in cross-cultural care shows that there are different issues within OT intervention. The problems highlighted included communication barriers, lack of commitment to home and community based rehabilitation programmes, independent achievement, dissimilarity on the value of purposeful activities and assessment instruments, poor relationships leading to a difficulty in evaluating client living and domestic skills which resulted from the differences in culture and privacy concerns (Phipps, 1995).

Within the Thai context, a correlation also exists between OT therapeutic media and meaningful activities that vary between diverse cultures across regions of the country. Cultural influence reflects the existence of self-care, household and outdoor works, social and community recreation which should be recognised and applied in therapeutic activities (Subgranon & Lund, 2000; Oupra et al, 2010). According to Pongsaksri (2003), the occupation of self-care, productivity or work and leisure in Thailand is different from the Western lifestyle because of the Thai cultural influence which has framed the way of life and occupation from generation to generation. Therefore, the OT intervention should be provided by reflecting the meaningful and essential therapeutic activities for Thai individuals in a client-centred approach with family involvement in decision making of both short and long-term goals.

3.6 Constructing the Occupational Therapy-Mahidol Clinic System [OT-MCS]

3.6.1 Occupational therapy for stroke rehabilitation

OT is an integral part of rehabilitation for stroke people. Interventions facilitate patients to develop their functional abilities in order to perform activities of daily life (Stein &Hoffman, 2003; Doidge, 2007). Stroke survivors are encouraged to perform simple tasks such as taking a shower, transferring from bed and chair, dressing, grooming and managing personal hygiene or going back to work. OT must be a holistic approach to engage stroke patients who have not only suffered from physical impairments, but may also deteriorate cognitively and psychosocially (Mccormack, 2009).

There are many approaches and techniques for stroke rehabilitation such as the Rood's (1954) sensori-motor approach, Knott and Voss's (1968) proprioceptive neuromuscular facilitation (PNF), Bobath's (1990) neuro-developmental treatment (NDT), motor relearning programme, functional approach, cognitive approach, conductive education and occupation science. Walker et al. (2000) explored OTs using all the above OT techniques for stroke rehabilitation in the Trent Region of the United Kingdom. This study found that Bobath and functional approaches commonly used in treating stroke patients relied on the clinical circumstance for maintaining normal movement, age of stroke clients and progression rather than individual experience or educational training.

According to Richards et al (2005) and Latham et al (2006) OTs use predominantly techniques to improve skills in individual ADL (i.e. toileting, bathing, feeding, dressing, grooming), and IADL (i.e. housework, meal preparation, shopping, transportation). A systematic review showed that OT intervention results in significant outcomes to improve personal ADL and IADL when compared to usual care (Legg et al, 2006). Similarly, client-centred and self-care training programmes with stroke clients emphasising on personal activity of daily living (P-ADL) increased life satisfaction (Guidetti et al, 2010). Therefore, general OT interventions in the rehabilitating of ADL and IADL after stroke is based mainly on pathological conditions and various reasons relating to different factors such as individual nature, cultural location, equipment setting, desired activity, teaching of compensatory plan and environmental surroundings (Walker et al, 2000).

The heart of OT is to assist stroke survivors to deal with various meaningful activities (Occupation) for generating their functional performances, based on their capacities and ultimate goal settings (Conti, 2009; Mccormack, 2009). Successful outcomes have emerged from using task-specific training with familiar materials including environmental and natural contexts of stroke survivors (Trombly and Ma, 2002). Furthermore, the success of OT rehabilitation for stroke stems from activity engagement of both preparatory and occupation-based activities which propel the component performance to become an optimal participation of the life skills (Smallfield and Karges, 2009).

3.6.2 Occupational therapists' role in stroke rehabilitation

Occupational therapists play a crucial role to provide essentially therapeutic activities for post stroke rehabilitation. A key factor to success of this OT practice is the knowledge translation of OT to improve the optimal performance of functional tasks and diminish impairments following a stroke (Richards et al., 2005). According to Alsop (1997) and Gutman (2008) the efficacy in theoretical and clinical skills of the occupational therapist needs to be developed and learned continually in order to fit with cultural circumstances of the work and for future practitioners. In 2010, Du Toit and colleagues studied the role of research in OT clinical practice. The findings showed that OT students should obtain experience of a clinical approach for developing practice and skills, which encourage their realisation of the imperative of placements and the importance of fieldwork engagement.

Occupational therapist development is an integral part of professional practice especially in evidence-based practice (EBP). This is underpinned by knowledge and skills for increasing the competency, possibility and quality of OT intervention through the combination of research findings with strengthening the maintenance of occupational values in clinical reasoning, client-centred principles, and a holistic perspective (COTBC, 2003; Cusick & McCluskey, 2000; Egan et al., 1998). A lack of application of knowledge and skills to practice reflects a weakness on therapists' parts who cannot apply EBP appropriately within clinical rehabilitation in the real-life situations (Glegg & Holsti, 2010). Consistent with Bennett & Bennett (2000) clinical experience of OTs in EBP can be appraised by how well they identify and select effective approaches that match the circumstances of the patients' needs, such as appropriate meaningful activities, suitable resources, and environmental supports.

Interestingly, De Wit and colleagues (2006) studied the overlapping rehabilitation training between Physiotherapists (PTs) and OTs for stroke intervention. The findings reveal that both OTs and PTs are essential key practitioners to provide therapeutic modalities for restoring the ability of post-stroke patients, which comprise of both similar and different content from individual OT's and PT's scenarios of stroke rehabilitation. For example, training of ambulatory, standing, transfers, selective movement, mobilization are undertaken by PTs, however the programme of sitting, lying, ADL, leisure, domestic and sensory training are mostly

taken by OTs. OT's and PT's roles should be clarified for stroke clients in terms of different stroke lesions that demand different kinds of rehabilitation. Understanding different treatment performances through collaborative teamwork should underpin stroke services.

Knowledge translation comes from a significant paradigm for taking theoretical and research knowledge and applying it to the practice of stroke rehabilitation. OTs have a key role to engage with clients by using a wide range of knowledge, incorporating research-based practice, tacit knowledge, specialist views and clinical evidence-based interventions (Metzler & Metz, 2010). According to Lee & Miller (2003) the role of the occupational therapist needs to provide a variety of approaches for building blocks in a health setting and selecting appropriate interventions to interact with a specific client.

Another characteristic of the OT profession refers to the need for OTs to develop self-leadership and confidence (Clark, 2010). The successful occupational therapist, focuses on the ultimate goal of the clients and takes a leadership role in the healthcare service and disseminates OT knowledge in the education and research arena. These are only preliminary attributes of the OT profession; autonomous practitioners need to have creative ideas and self-esteem to shine on the stage of other health providers by envisaging the bigger picture of collaborative work (Zuber-Skerritt, 2007). Moreover, OTs should continue learning not only theoretical and practical skills but also technological implementation to expand individual competence and self-determination to become future leaders (Clark, 2010).

3.6.3 Therapeutic media and activity card sorts for rehabilitation

Activity engagement and participation are the crucial concepts in the OT field (Pierce, 2003). These meaningful words can be used by therapists to find out the appropriate means of approach for each individual client. According to the conceptual framework of the International Classification of Functioning Disability and Health (ICF) provided by the World Health Organisation (2001, pp.10), *"activity is the execution of a task or action by an individual"* and "*participation is the involvement in a life situation*". This is a powerful statement to influence the role of OTs and lead to the invention of an Activity Card Sort (ACS).

The ACS was first produced by Baum & Edwards in 2001 and presents a wide range of utilised pictorial items on participation and engagement in instrumental, social-cultural, and leisure activities (Katz et al, 2003).

In 2003, Sachs and Josman constructed the Activity Card Sort (Israel version) by developing it from the original (US) version. This study investigated both young and elderly Israeli people (n=184) evaluating the efficacy of the ACS on human occupations and the level of activity approach. The study revealed that ACS can help to facilitate activities and participation amongst various ages, reflecting occupational performance, personal interaction and environmental engagement.

Katz et al (2003) examined the reliability and validity of Activity Card Sort (Israel version). This investigation was designed to recruit 263 participants and divide them into 5 groups. These consisted of 56 individuals 1 year after stroke, 45 multiple sclerosis patients, 40 spouses/caregivers of people who lived with Alzheimer disease, 61 healthy adults and 61 healthy older adults. Eighty-eight pictorial activity items in 4 domains of the ACS were offered to different participants. The result showed the internal consistency of an alpha above 0.80 in the area of IADL and socio-cultural activities. As part of low and high physical leisure activities, the internal consistency was present at 0.66 and 0.61 (Cronbach alpha). As a result, the findings showed that this ACS is a culturally appropriate tool for Israelis to evaluate occupational performance and engage in activities for clinical rehabilitation.

In 2006, Berg and Lavesser created the Preschool Activity Card Sort. This research focused on children between 3 and 6 years of age to develop the ACS. The pilot study based on survey methods used questionnaires to collect data from kindergartens, day care centres, preschools and religious schools. Seventy survey documents were returned and 68 were suitable for deeper exploration. Prospective families were interviewed to elicit views on 73 pictorial activities. The outcomes showed validity and were sustained by 10 nationally recognised paediatric OTs and approved by the preschool ACS.

Chan et al (2006) continually modified the activity card sort (Hong Kong version) created by Wong and colleagues in 2001. The preliminary version of ACS (64 pictorial activities) was constructed to enhance the validity and reliability by engaging with Hong Kong Chinese people and was based on the cultural needs and

lifestyles. The research was to evaluate the level of activity approach in the context of occupational performance. This investigation measured the reliability, internal consistency, and construct validity of ACS Hong Kong version. An expert panel discussed culturally appropriate activity additions, leading to a new ACS (Hong Kong version) that was composed of 65 pictorial activities. This ACS was tested on 60 elderly stroke participants for selection and justification. The results found that ACS (Hong Kong version) was efficient to identify the clients in different levels of performance and showed high reliability (r=0.98) and also internal consistency (r=0. 89).

In recent years, Packer et al (2008) invented another activity card sort (Australia version). Their study took a secondary data analysis of activity diaries of elderly Australian people in Brisbane and Adelaide for activity production. The survey was completed by 57 elderly participants (Adelaide n=32; Brisbane n=25) who engaged with ACS and cluster analysis was used for selecting and determining domain areas for the ACS (Australia version). The result of ACS-Australia showed that there were 82 pictorial activities and arranged all images into three domains of household activities, social/educational activities and leisure activities.

3.6.4 The development of Thai activity catalogues for stroke rehabilitation

The Activity Catalogue (AC) developed from the conceptual idea of Activity Card Sort (ACS) (Baum & Edwards, 2001) and provides diverse therapeutic media in an occupational field by considering client participation, socio-cultural context and leisure activities depending on individual needs and recommendation (Katz et al, 2003). Furthermore, the ACS is a special tool to evaluate participation and involvement restriction through a variety of picture activities (Chan et al., 2006). Thailand has no concrete ACS; the concept of pictorial images of people doing activities has inspired OT staff at Mahidol University to develop an Activity Catalogue (AC) in terms of Thai context.

However, AC (Version 2008) was drawn from only one group of OTs who were unable to visualise the suggestions from the original questionnaire due to an absence of pictures (old version). The revised of AC also needs to generate Thai cultural skills and a ways of life in particular stroke patients' lives by dividing into 4 domain areas 1) Basic Rehabilitation Training and ADL; 2) Instrumental Activity of Daily

Living (IADL) and Household activities; 3) Socio-cultural/educational activities; 4) Leisure activities (adapted from Baum & Edwards, 2001; Katz et al, 2003; Packer et al, 2008). (See in Table1.1)

The revised approach requires the perspective of both OTs and stroke clients whose satisfaction and importance is reflected in the real life situations in each item of AC. Moreover, this research is a good opportunity to expand the therapeutic activity, which is derived from the therapist and stroke/family suggestions and recommendations in various local and regional areas of the country. Importantly, therefore, AC is only an element in OT-MCS approach, which the therapist can use to elicit stroke interest and cooperation in order to assist patients in sustaining and improving their occupational performance in their natural and cultural styles.

Table 1.1: Classification of activity catalogue for Thai stroke rehabilitation (see appendix F)

Classification of Activities Into 4 Areas (40 items)			
Basic rehabilitation skills and ADL (18 items)	IADL and Household activities (10 items)	Socio-cultural/ educational activities (6 items)	Leisure physical activities (6 items)
A1- Peg board A2- Incline board A3- Sliding board A4- Looping curve skill A5- Key grip skill (Turning) A6- Pinch Grip (Pinching) A7- Bimanual putting pin in a bead A8- Dressing with top (shirt/blouse and button/tie) A9- Putty activity A10- Stacking cones or rod A11- Constructing chain from plastic (small) link A12- Pick and place ball in small cone A13- Placing beads on pins A14- Pronation/supination task A15- Tennis ball pick and place A16- Bimanual holding of cone and place A17- Forceps pick and place with ping pong ball A18- Trunk control/bilateral arm movement	A19- Washing skill A20- Scrubbing and sweeping the house A21- Phoning skill A22- Scoop and pour liquid into bottle A23- Opening and closing door A24- Mouse skill A25- Pump action of lotion bottle A26- Calculation skill A27- Hammer/Axe skill (plastic) A28- Bolt-screwing (into board)	A29- Using chopstick A30- Use of spoon and fork (bimanual) to remove bead from putty A31- Writing skills A32- Sorting tidly winks with spoon A33- Picking and sorting small bead (like cleaning rice, bean) A34- Fruit pole	A35-Dart A36-Ball throwing at target with a bounce A37-Shape matching skills A38-Key board skills (computer or piano) A39- Throwing rings (quoits) at target A40- Picture mosaic skills

(Adapted from Baum & Edward, 2001; Katz et al, 2003; Packer et al, 2008 into Thai cultural context)

3.6.5 Indicative care package in occupational therapy rehabilitation for stroke clients

In Thailand, the modified OT models and theories in stroke rehabilitation must be established on the grounds of applicable and accessible ways for intervention. By embracing values and culturally specific issues in the unique Thai lifestyle, the Occupational Therapy-Mahidol Clinic System (OT-MCS) is an indicative care package or system framework to provide OT processes for stroke rehabilitation. Hence, the OT-MCS is clearly built on specific intervention techniques that are designed to embrace collaboration and individualised treatment planning that form part of the systems framework. Prior to the OT-MCS, theories and applications including know-how of OT were adopted from America, Europe and Australia. However, these models and theories could not be effectively employed to solve the problem in particular stroke rehabilitation in Thailand.

The OT-MCS has modified the complexity of theoretical knowledge to offer a simpler approach for Thai stroke patients. The combination includes the Thai way of life based on different regions, empirical knowledge from the Model of Human Occupation (MOHO) (Kielhofner, 1997), Kawa model (Iwama, 2006), Occupational Performance Profile (OPP) (AOTA, 2002), and International Classification of Functioning, Disability and Health (ICF) to address stroke rehabilitation in the Thai cultural environment (WHO, 2001). In 2007, the OT-MCS was used to navigate a direction of OT stroke services at Mahidol University clinic, Thailand. An indicative care package of OT-MCS places the stroke clients into 2 groups: 1) the slow stream rehabilitation group for whom the purpose is to identify and develop skills in existing activities of choice to facilitate and maintain their function; 2) the fast stream rehabilitation group where the aim of therapy is to develop the clients' performance toward increasing independence within the home and environment.

The OT-MCS can be used for mapping direction and helping to understand both occupational therapists' and stroke relatives' regarding stroke rehabilitation. However, previous research has some weaknesses. Firstly, it was on a small scale with only a few participants recruited in one clinic of Mahidol University. Secondly, the study was brief carried out over a month which is really too short a time for observation of rehabilitation outcome. Thirdly, the occupational therapist feedback was based on an activity catalogue checklist, which was limited to 40 items

described in words without pictures. This gave the OTs a limited view of the tool that has been improved with the addition of a photo album. Finally, the process of assessment was not performed by a 'blinded' assessor, which led to the limited nature of the research.

The research presented in this thesis addressed the weaknesses and provides evidence to evaluate the OT-MCS in the Thai context. Specifically, the mandatory OT stroke service should adapt and modify interventions to the specific cultural context and promote individual skills with occupational performance. For instance, if various OT service clinics install the OT-MCS direction for serving stroke clients, this may assist therapists to reduce the routine work and focus on the stroke performance by integrating physical, psychological, mental, family and social aspects to improve the quality of life (Anderson, 1992). Therefore, the indicative care package, OT-MCS becomes the OT framework for implementation and is directly applicable; having been tested in stroke outpatient OT clinics in Thailand.

3.7 Summary

This chapter has considered the Thai culture and Buddhism's belief in relation to stroke and rehabilitation. A law of Karma in the Buddha's teaching has influenced Buddhist Thai people to apply this concept in their way of life. This way of life and conviction propels Thai's society and affects the beliefs about illness, disabilities and stroke condition. Additionally, it illustrates the need to develop stroke rehabilitation home and community based services to tackle problems in long-term care. Moreover, OT models, frames and references provide the principles of practice for stroke rehabilitation. Together with the particular model of human occupation (MOHO), Canadian model of practice (CMOP), Kawa model and International classification of functioning, disability and health (ICF), the development of the OT-MCS indicative care package has been possible. Significant implications emerge for stroke rehabilitation in Thailand.

Chapter 4 presents the Methodological strategy of the study, in particular mixed methods framework, and research ethics

Chapter 4

METHODOLOGY AND METHODS

4.1 Introduction

In this methodology and methods chapter, the philosophical concepts are presented to illustrate the ontological perspective, epistemological position, and methodological strategy. This chapter describes the research philosophy that underpins the choice of a mixed methods design and discusses the rationale behind the project. This study integrates a combination of quantitative and qualitative approaches by using a framework of an integrated methodology (FraIM). Quantitative methods are used to explore and evaluate the attitude toward stroke participants engaging in the use of OT-MCS indicative care package. Qualitative methods investigate real life situations reflecting an efficiency of the OT-MCS for stroke rehabilitation. Justification for using survey and evaluation methods as well as in-depth interviews is provided. The processes of analysis used for the different data sets are explained. Lastly, the ethics of the project are considered. Various significant issues emerge regarding security and safety for all participants after launching the use of OT-MCS in six regional OT clinics in Thailand.

4.2 Philosophical concepts

There are three words which underpin philosophical concepts; *ontology* (What is reality?) refers to our assumptions about the nature of things, *epistemology* (How do you know something?) represent our belief about how one discovers knowledge related to the world, and *methodology* (How do go about finding out?) presents what we do with the instruments and techniques of research (Guba, 1990).

4.2.1 Ontological perspective

The ontological view is a nature of the reality related to subjective and multiple existences (Creswell, 2007; McNiff & Whitehead, 2006). This research project has adopted an approach with draws on the techniques of evaluating stroke participants who attend sessions using OT-MCS rehabilitation. The ontology can be reflected in the occurrence of participatory rehabilitation by stroke participants who provide evidence of outcomes. The existing value comes from the real context which impacts on the therapeutic activities, which are selected and engaged in by stroke participants

in order to sustain or improve their functional performance in activities in everyday life.

Consideration of the uniqueness which embraces individuals, societies, geographies and cultural lifestyles of stroke participants underpins the moral context. This approach had been evaluated in the efficacy of the OT-MCS management for stroke rehabilitation. The use of OT-MCS provides real activity engagement for stroke participants who can generate and implement by themselves further application within their homes, workplaces, and social environments. Importantly, this system framework empowers stroke participants who live and learn in different ways as well as cultures. They have their own values and can decide for themselves through the offering of various optional pathways in the rehabilitation programme to improve the quality of life.

4.2.2 Epistemological position

Epistemological position is a relationship between the researcher and those being researched which conveys how knowledge can be explained with reference to existing evidence in the specific context (Creswell, 2007; McNiff & Whitehead, 2006). The implications of the outcomes of intervention suggest the potential of OT-MCS for stroke rehabilitation. Moreover, the evaluation has been considered within the individual context of stroke participants in terms of their performance and value related to their functional ability involving relevant activity skills and functional requirements.

The approach is not only based upon theoretical knowledge, but also on the groundwork of collaboration with stroke clients, family members, and OTs. Knowledge translation emerges from the specific and individual contexts of stroke clients. Therefore, the participants, both stroke clients and OTs, work together in all stages of the rehabilitation process to investigate their appropriate individual practices. The knowledge from collaborative processes can be helpful in the adoption of a variety of therapeutic activities across various regions of Thailand.

4.2.3 Methodological strategy

Methodology is the process for discovering the answer to the research question, which is generated from the groundwork of research design and procedure to fit with the research context (Creswell, 2007; McNiff & Whitehead, 2006). The project

involves OT practitioners, stroke clients, family members, and stakeholders in participatory action in the use of OT-MCS. The development of therapeutic media was generated by OTs and stroke participants who participated and shared their experiences in diversifying activity items.

Communication and negotiation through collaborative team working and the sharing of information between stroke participants and OT providers produces the capacity to cope with difficult situations and identify an appropriate way to solve a problem. The understanding of nature, culture and way of life of stroke participants should be transformed suitably into the contextual framework of the rehabilitative programme. Maintaining patients' potential skills and improving their functional performance in daily life will lead to better practice in their home and social environment.

Single method (quantitative or qualitative) studies may not be enough to discover relevant information due to the limitation of a narrow research design which does not fit the nature and context of investigation. Consequently, a single method may not discover answers that are essential to increase knowledge and information (Meekun, 2008). Mixed methods research combines qualitative and quantitative approaches into the inquiry thus helping to answer the question which singular research methods cannot in one paradigm (Jones, 2004a; Johnson & Onwuegbuzie, 2004). In general terms, the combination of both qualitative and quantitative methods in a single or multi-phase research study is called a mixed methodology (Tashakkori & Teddlie, 1998). This mixed methods approach is employed to expand the understanding from one method to another in order to integrate and confirm the findings from different data sources. Hence, the rationale for integrating both quantitative and qualitative data in this study is captured as follow;

- To comprehend clearly the nature of research contexts and problems by blending both numerical data from quantitative methods and textual data of qualitative approach
- To explore participants' perspective and their engagement in the use of OT-MCS and carry out an evaluation leading to the development of effective therapeutic media and tools for rehabilitation
- To take data from mixed methods to convey the needs of stroke participants using OT-MCS and future development

Before designing the research, the philological assumptions need to be considered which provide a sound basis for the research including: the research philosophy; research strategy; research method (mixed methods design); sampling strategy and mapping of the complete research process.

4.3 Research philosophy

This research adopts a mixed methods approach drawing on a mixture of philosophical methods. The research lies within a pragmatist philosophy and epistemological framework which determine the characteristics of the design. In the pragmatic approach, knowledge from reality demonstrated by practical activities, is the foundation and leads to an understanding of consequences in action (Cornish & Gillespie, 2009). The pragmatist approach to the problem of knowledge has been to shift the question from asking 'Does this knowledge accurately reflect the underlying reality?' to 'Does this knowledge serve our purposes?' (Rorty, 1999). A mirror of nature or a representation of reality was rejected by pragmatists, but the knowledge mediates our connection to the physical, natural and social environments (Cornish & Gillespie, 2009).

Applying such pragmatist philosophy, leads to a focus on usefulness including interpretation and critique for utilization in which the knowledge should serve the practical aims and purposes in terms of function and application. Consistent with Forlizzi & Ford (2000) a model of user experience in interaction was explored to present the interplay between people and their environment. Their study showed that experience showed the relationship between state of cognition, sub-consciousness and explanation involving actions and participation in the world. The way of testing action and critical reasoning can clarify doubts because actions are evaluated in the light of practical consequences (Shields, 1998). Hence, the use of OT-MCS established on the basis of pragmatism, explored the meaning and lived experience after the treatment programme based on the practical consequences and perceptions of the stroke clients.

For this research, a mixed methods approach is useful in particular for OT intervention for stroke rehabilitation. Moreover, the use of the therapeutic intervention of OT-MCS involves the specific contexts in which a stroke client's life

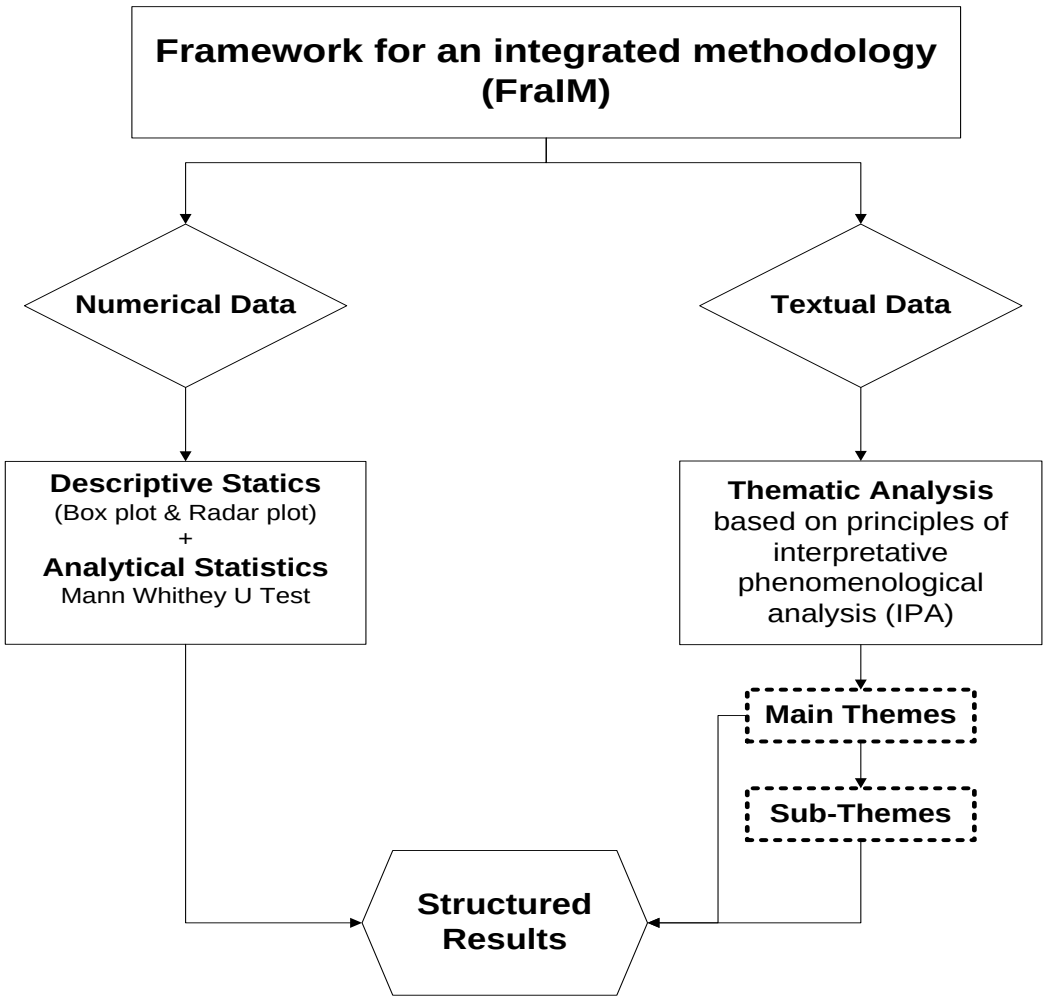
and activities relate to the traditional culture and lifestyle which suggests the use of a qualitative approach. Certainly, a mixed methods approach is used to supplement and clarify sceptical issues (Golafshani, 2003; Johnson et al, 2007) especially in the feelings and deeper perspectives of stroke participants in the rehabilitative programme. Therefore, mixed methods research fits with the viewpoint of participant's interpretation and numerical outcomes, which increase the potential of a pragmatic balance between different paradigms for answering the research questions (Hoshmand, 2003).

Importantly, the combination of both quantitative and qualitative research provides expanded understandings of the root causes of problems in both macro and micro views. This combined approach can be used to assess the treatment perceptions of an OT-MCS indicative care package for stroke rehabilitation that is applied in the care system of OT across 6 regional hospitals in Thailand.

4.4 Framework for an integrated methodology (FraIM)

The principle of a framework for an integrated methodology (FraIM) is to help to structure the integration of different approaches in each research process and findings. The FraIM provides the main idea to formulate the research questions taking in the context by blending numerical (quantitative) and textual (qualitative) data that present as a combination of information with relationship and coherence (Plowright, 2011). An overview of this research shows that numerical data were analysed by descriptive statistics (Box plot & Radar plot) and analytical statistics (Mann Whitney U Test), while textual data were analysed by thematic analysis to generate main themes and sub-themes. All numerical and textual outcomes lead to structured results (see Figure 4.1)

Figure 4.1: The research process showing a framework for an integrated methodology (FraIM)

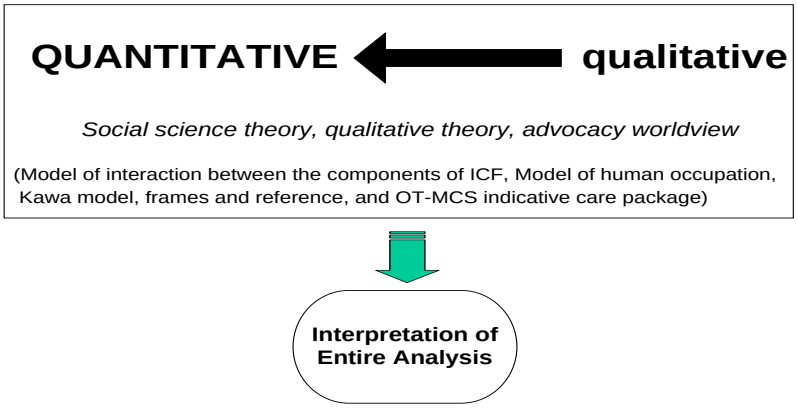


4.5 Research strategy

This study of stroke rehabilitation had been undertaken employing a combination of quantitative and qualitative methods. One procedure of the mixed methods research is the sequential transformative strategy. In sequential mixed method designs, Creswell (2009) emphasizes that a researcher needs to find out the elaboration on expanding the findings of one method with another. In order to answer the research questions and respond to the purposes, this strategic direction involves beginning with a quantitative method to present the numerical data of a large sample for the generalisation of findings and following up with a qualitative method for the exploratory research aims. The research design includes a qualitative phase and then a separate quantitative phase (Figure 4.2).

Sequential transformative strategy

Figure 4.2: Sequential transformative design (quantitative ← qualitative) adapted from Creswell (2009)



This sequential approach has an initial phase of quantitative method followed by a second phase of qualitative means, which develop from the quantitative phase. OT and the conceptual framework for engendering the OT-MCS indicative care package are established to lead the direction of research aims and questions in order to evaluate and develop the best way for OT stroke rehabilitation in Thailand. The form of OT approach is the theoretical lens to guide this study corresponding to the sequential transformative strategy of mixed methods.

The purpose of a sequential transformative design is to embed both the theoretical and conceptual frameworks of OT, which provide voice to multiple perspectives and advocate for stroke participants by understanding phenomena of therapeutic interventions and treatment outcomes. This sequential transformative approach of the mixed methods model shows both strengths and weaknesses. It assists the implementation, explanation and sharing of results. However, this sequential transformative strategy requires time to proceed to a final phase for data collection (Creswell, 2009). Hence, a sequential the transformative process is a methodological framework that is strongly relevant to the development and evaluation of the OT-MCS programme. The OT-MCS approach is a phenomenon in the intervention period during the lived experience of the stroke client as he/she undergoes a new form of OT service, which reflects his/her views. Hence, the purpose of these two phases; sequential transformative design of mixed methods is to draw upon

statistical, quantitative data from stroke participants and therapists, and then follow this up with individual stroke participants to probe in more depth using interviews.

4.6 Research methods

4.6.1 Survey

The main purpose of this research is to explore the evaluation and development of OT-MCS for post-stroke rehabilitation in Thailand. In general, the survey method is used to collect a large amount of data from a large population (Saunders, 2000). In this research, there are two things to explore during the survey. Firstly, a questionnaire survey method was conducted to explore the level of attitude of occupational therapists in terms of 'satisfaction' and 'importance' in 40 therapeutic activity items from the activity catalogue. Secondly, questionnaire is used to survey the classification of therapeutic media in the activity catalogue (AC) embracing new local and cultural activities in order to develop and create the activity card sort (ACS).

4.6.2 Comparative evaluation

For the comparative evaluation of this research, the method was designed to compare the salient variables. Comparison helps to gain insight into the effects of these variables in the research process (Catano & Stronge, 2006). Comparative methods can be defined in the social sciences as ways to analyse the similarities and dissimilarities in communities and human systems. Importantly, the principle of comparative evaluation processes comprises of a selection of the object for evaluation, the level of comparison, conceptual comprehension, and the analysis of the findings of an evaluation (Vartiainen, 2002).

In this study, there are three variables in the comparison activities. Firstly, comparative evaluation is used to compare the attitudes of stroke participants (slow stream rehabilitation) before and after the engagement in therapeutic activities for rehabilitation (see Appendix C). These participants were given initial and final evaluation forms after activity selection and participation in order to obtain the data of understanding from various therapeutic media of occupational therapy.

Secondly, a comparative study is used to measure the different views between OTs (see Appendix B) and stroke participants of therapeutic activities (see Appendix C).

Lastly, this method was undertaken to evaluate the level of activity engagement (see Appendix D) from stroke participants (fast stream rehabilitation) in relation to the effects of OT-MCS intervention.

4.6.3 In-depth interviews

The semi-structured, one-to-one interview for stroke participants is used to elicit a deep understanding of the therapy outcome from the OT-MCS indicative care package. This method yields rich data and provides extensive information to support the findings and also help participants clarify the issues that could not be answered in the surveys and comparative studies. In-depth interviews provide a good chance to search for, expand and verify descriptions of the rehabilitation under study and its contexts (Gubrium & Holstein, 2002). The aim of interviews for this study was to discover in depth the stroke participants' views and perceptions and to learn about the contexts of the stroke participants' lived experiences during the OT-MCS installation.

4.7 Sampling strategy and data collection

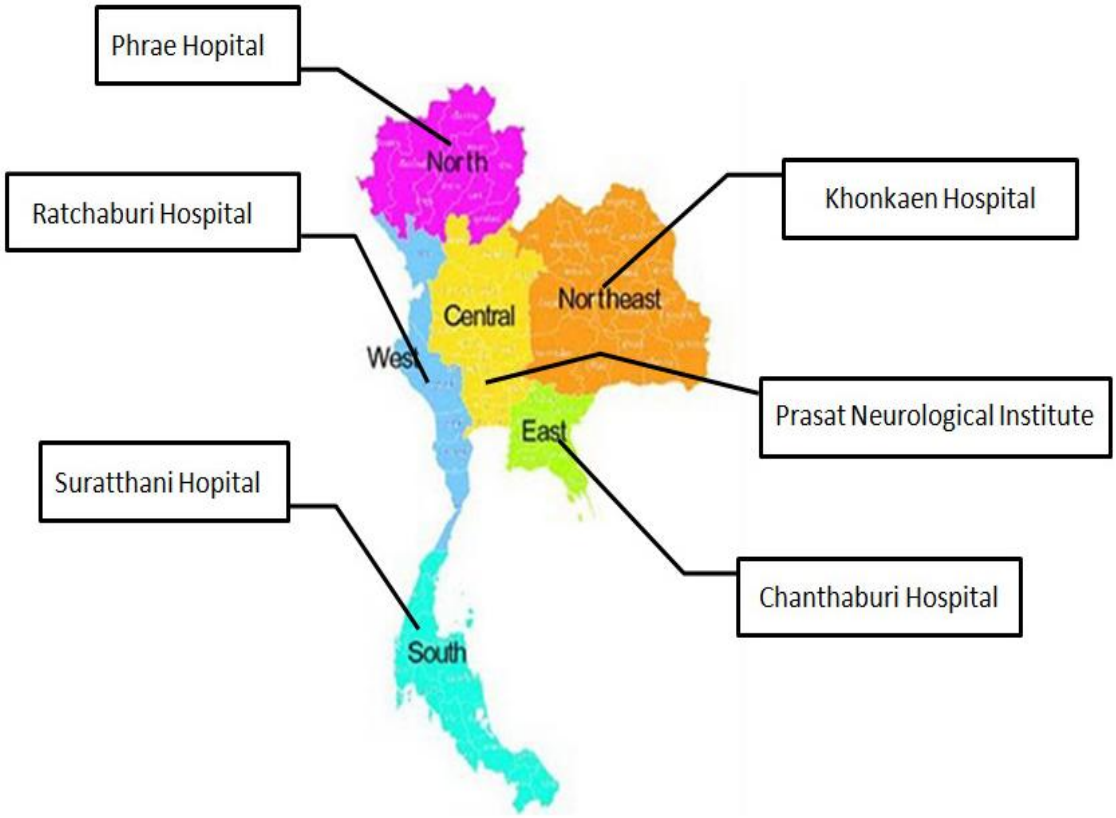
4.7.1 Settings

In the development of this research design, more than 18 OT centres throughout Thailand were identified and contacted informally. However, some of OT clinics were limited in terms of the numbers of stroke clients according to the criteria. Thailand is composed of six regions and each region has a regional hospital centre as a headquarters of public health. These regional hospitals are located in major cities and record the number of stroke patients including length of stay making them suitable for data collection. Therefore, six OT departments who fitted the criteria confirmed that they were willing to act as research sites. These were representative of each region of Thailand (See Figure 4.3). These six regional OT clinics confirmed their willingness to use OT-MCS in their OT stroke rehabilitation during the research period. On confirmation they received an allowance by the Thai government including budgetary support (£4000) following the official letters (see Appendix X) from Northumbria University to inform the Chief Executive Officer (CEO) of 6 regional research sites.

This research was conducted in 6 OT clinics located in the Phrae Hospital (*North region*), Khonkaen Hospital (*North-East region*), Prasat Neurological Institute

(*Central region*), Chanthaburi Hospital (*East region*), Ratchaburi Hospital (*West region*), and Suratthani Hospital (*South region*). This study could not define a control group of stroke participants because the traditional OT clinic systems are different in each hospital and vary with the system of operation. Moreover, the policies of each hospital were dissimilar and lead to different ways of administration of OT clinic settings for stroke rehabilitation. For this reason the study compares OT-MCS across the 6 different regional contexts rather than using a formal control group.

Figure 4.3: Thailand Map and six research sites



The beginning of OT-MCS in 6 regions of Thailand, 6 OT staff from each region were trained how to use the OT-MCS and therapeutic media for stroke rehabilitation. This conceptual framework system was installed at OT service centres and was explained by the means and necessary therapeutic instruments, which need to be used in the six target areas. Furthermore, six assessors were trained how to use the modified standardised tests for participant assessment during the period of the study. Certainly, the assessors were independent of this research in order to prevent bias.

All six OTs for the OT-MCS management and six assessors had measured the reliability of the assessment instrument before the establishment of the research. Stroke clients not included in the study were serviced by conventional OT intervention systems from each hospital.

4.7.2 The sample for survey study

Occupational therapist participants (n=60) are the sample for the proposed study and were gathered from a group of occupational therapists attending the OT of Thailand annual conference in 2010 (normal attendance 80 – 100).

4.7.3 Survey procedure

A quantitative method strategy was used to collect and analyse the information from both stroke participants and occupational therapists. This approach was facilitated using the Statistical Package for the Social Science SPSS (version 18) for Window (SPSS Inc., Chicago, IL., USA) on the computer software package operated under the Microsoft Window-Vista.

Section I: Exploration of the number of stroke cases and attendances before and after the use of OT-MCS

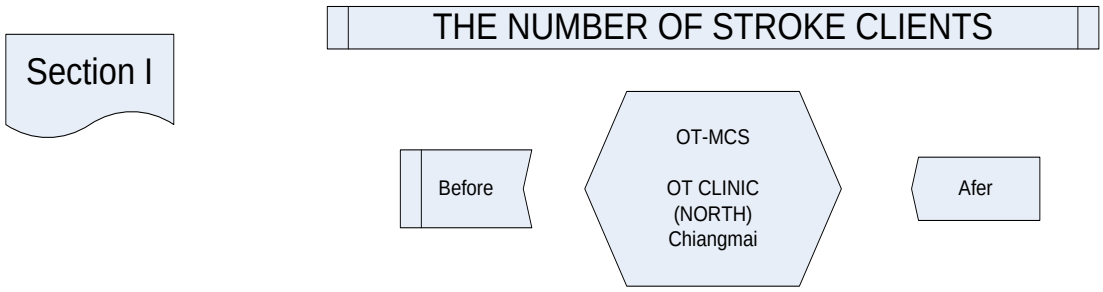


Figure 4.4: General information and number of stroke participants (

Data collection: the number of stroke clients who attend 6 OT clinics in 6 regional hospitals throughout Thailand in the 8week study sessions, before and during the OT-MCS installation.

Data analysis: the databases from six hospitals in each region provided the number of stroke patients who attended the OT clinic in the 8 week study period, before and during the OT-MCS operation. This study compared the number of stroke clients who walk into the OT Clinics during 8 weeks before and after the use of OT-MCS.

For example, stroke patients from the north were admitted to hospital 8 weeks before OT-MCS installation and 8 weeks during OT-MCS operation. The number of stroke patients admitted had been collected in the computer database of each hospital and could be used for a comparison of stroke clients in the OT service.

Assessment instrument: Stroke history profile and client database from each hospital in six regions of Thailand including the statistical information on admission and discharge in computer servers of each six hospitals. This information was analysed and the number of cases and attendances 8 weeks before and after the OT-MCS installation was calculated.

Section II: Exploration of the attitude of occupational therapists

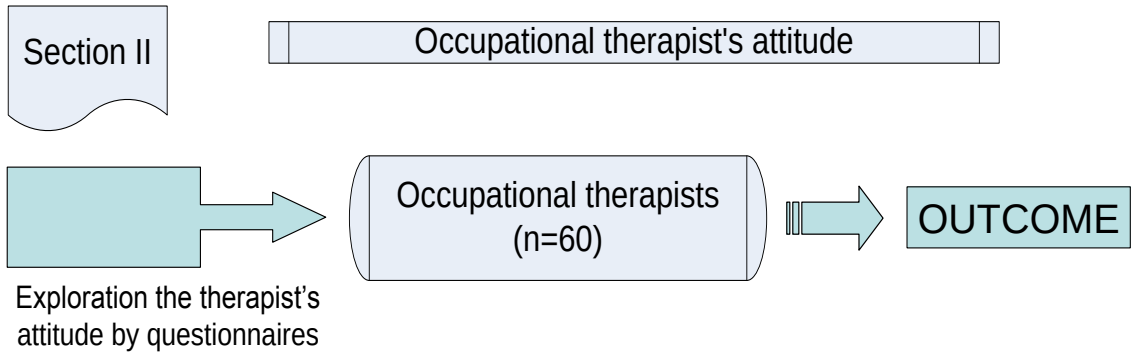


Figure 4.5: Attitudes of occupational therapists

Data collection: 60 OTs in the Annual Occupational Therapy Conference in Thailand were asked for their attitudes to the Activity Catalogue Checklist (ACS).

Data analysis: Occupational therapist participants' (n=60) attitudes (satisfaction and importance of activities) in 40 therapeutic activities were explored by questionnaires in order to display descriptive statistics and box plots of satisfaction and importance in 40 activity items.

Assessment instrument: Activity Catalogue Checklist (ACC) (see in appendix B) contains 40 activity items. This ACC was designed and modified from the activity card sort (Baum & Edwards, 2001; Katz et al, 2003; Packer et al, 2008). This questionnaire is used to ask OTs to rate 6 Likert scales in terms of satisfaction and importance (0=Not accepted, 1=Very low, 2=Low, 3=Moderate, 4=High, and 5=Very high).

ACC questionnaires asked OTs attending the National Occupational Therapy Conference for their attitude using 6 Likert scales of satisfaction and importance in 40 activity items.

Section III: Development of activity card sort (ACS)

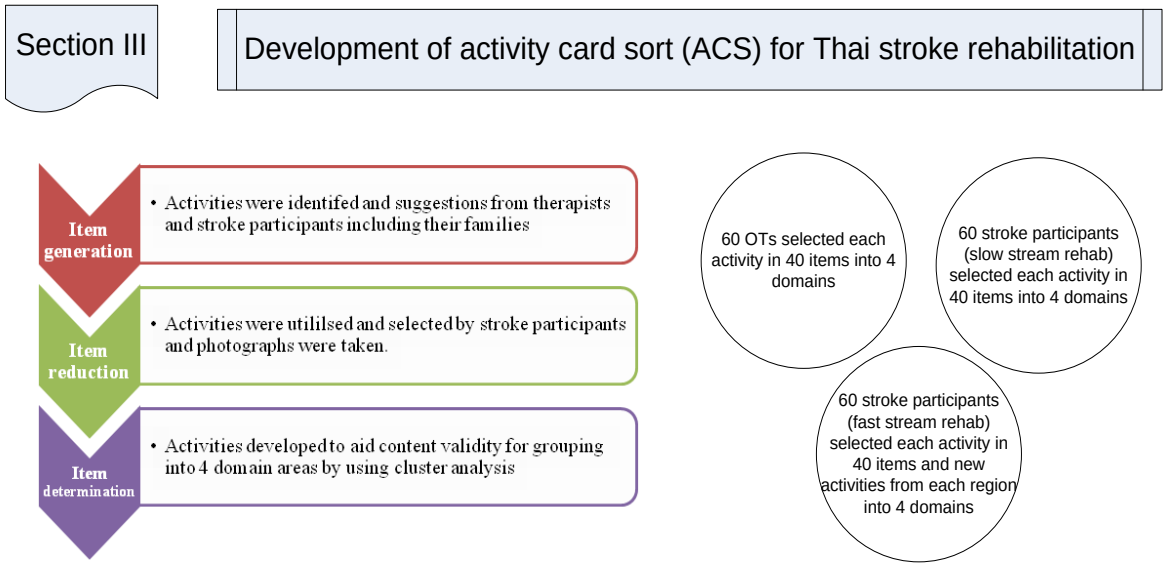


Figure 4.6: Development of activity card sort process

Data collection: 120 stroke participants (slow and fast stream rehabilitations) and 60 OTs who had attended the use of OT-MCS training.

Data analysis: Delphi method captures from face-to-face therapeutic intervention /interaction, questionnaire and interviews (Oppenheim, 1992; Sinead et al, 2011). This survey was designed to find out the potentials in relationships between functional performance and activity items including the consensus from participants in *item generation*, *item reduction* and *item determination*.

Stroke participants (n=120) who took part in the use of OT-MCS and OTs (n=60) were assigned to place activity items 4 domain areas (Basic rehabilitation skill and ADL, IADL and household activities, socio-cultural/educational activities, leisure activities) to create the activity card sort for Thai stroke rehabilitation which was analysed by hierarchical cluster analysis. (See detail in chapter 6).

Assessment instrument: Activity checklist for the ACS development offered to both OTs and stroke participants (see in appendix F and G) so that they can place a

voluntary activity into four domains (Basic rehabilitation skill and ADL, IADL and household activities, socio-cultural/educational activities, leisure activities).

4.7.4 Comparative sampling

Stroke participants (n=120) were recruited from 6 OT rehabilitation centres at hospitals in each region of Thailand. This process was carried out by the same research assistants (assessors) at each rehabilitation centre who had identified and divided appropriate participants into 2 groups (slow and stream rehabilitation). Each stroke group (n=60) had been recruited and selected from stroke patients' database by using the criteria of brain damage and time duration of stroke occurrence (see in Chapter 1).These participants were stroke clients (slow stream rehabilitation) from the North (n=10), Northeast (n=10), Central (n=10), East (n=10), West (n=10) and South region (n=10). Groups of stroke participants (fast stream rehabilitation) were selected from six regions respectively. These stroke participants had not been diagnosed with psychosis or depression and were able to communicate with people.

All stroke participants had been approached personally to seek participation and reported willingness to be recruited for research (see Appendix A). The entire research process had been explained in the native language (Thai) for the recruitment. This process had been undertaken by the same assessors at each rehabilitation centre who identified participants into 2 groups (slow and fast stream rehabilitations).

4.7.5. Comparative evaluation

Section IV: Attitude of stroke participants (Slow stream rehabilitation)

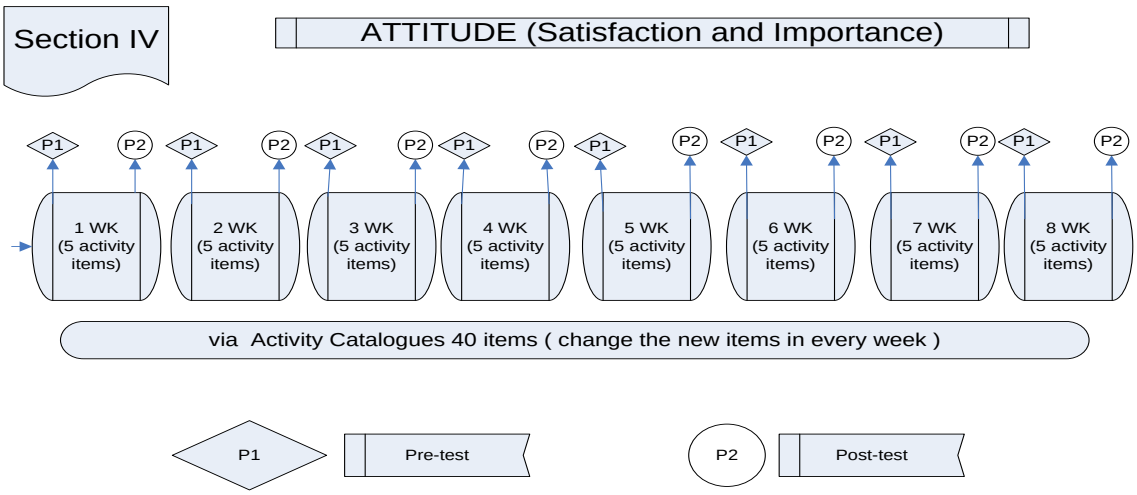


Figure 4.7: Attitudes of stroke participants (slow stream rehabilitation)

Data collection: stroke participants (slow stream rehabilitation) were recruited to participate in this research by modified ICF Framework Assessment test (see appendix A).

Data analysis: Stroke participants' data (slow stream rehabilitation) were analysed by a comparison of repeated therapeutic activities via descriptive statistics and Box plot analysis of satisfaction and importance in 40 activity items. The Mann Whitney U test applied to analyse satisfaction and importance in 40 activity items between stroke participants and therapists.

For example, AC is offered for stroke participants (slow stream rehabilitation) in the southern hospital who select 5 therapeutic activities for therapy which are changed every week for 5 new activity items in the intervention process until the completion of 40 activity items over 8 weeks.

Assessment instrument: Attitude of Stroke Assessment Test (see appendix C) used to evaluate the attitude of stroke participants (slow stream rehabilitation) in terms of satisfaction and importance of each activity programme (Kaunnil & Khemtong, 2008). The assessment scale comprises six Likert scales (0=Not accepted, 1=Very low, 2=Low, 3=Moderate, 4=High, and 5=Very high).

Section V: Level of activity engagement of stroke participants (Fast stream rehabilitation)

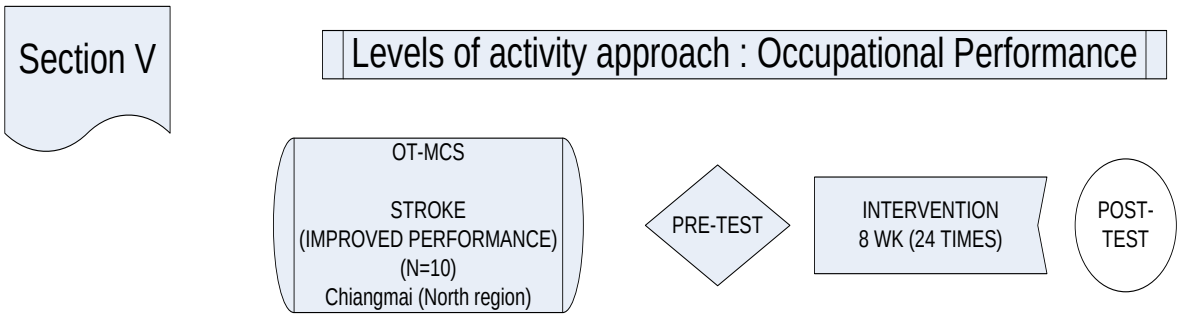


Figure 4.8: Levels of activity engagement of stroke participants (Fast stream rehabilitation)

Section V

Data collection: stroke participants (fast stream rehabilitation) were recruited to participate in this research by modified ICF Framework Assessment test (see in appendix A).

Data analysis: Since the use of OT-MCS, stroke participants' (fast stream rehabilitation) levels of activity engagement (approach) between initial and final assessments (pre-post tests) were analysed using descriptive statistics and Radar plot analysis.

For instance, this AC was also used to address stroke participants (fast stream rehabilitation) in the northeast regional hospital to select and guide them in various new activities based on their experiences and cultural lifestyle in local and regional areas.

Assessment instrument: Activity of Occupational Therapy Programme Recording Document (see in appendix D): This treatment guide consists of 4 stages of activity level (1=Therapist structured programme, 2=Therapist-client/family cooperated programme, 3=Client participation programme, and 4=Home programme). This test analysed the levels of activity engagement in functional ability of stroke participants (fast stream rehabilitation) before and after 8 weeks of OT-MCS operation (Kaunnil & Khemtong, 2008).

4.7.6 Qualitative investigation

This research gained plenty of quantitative information in terms of activity satisfaction and importance rates as well as the level of activity engagement from participants. However, the realities of emotion, behaviour, and lived experiences in the activity approaches during the use of OT-MCS need to be captured and interpreted. By bringing the dimensions of meaning and interpretation after OT-MCS intervention, this study therefore planned to capture the clients' reality of an indicative care package OT-MCS.

Significantly, this research uses a thematic analysis based on interpretative phenomenological analysis (see detail in 4.8.2). Data were collected by utilising the in-depth interviews (semi-structured) with 24 stroke participants who were selected from each region (6 regions of Thailand). Data were scrutinised for the interpretation

and expression of participants and the categories were arranged to generate the essential themes related to the research purposes. Indeed, qualitative data were portrayed in a system framework of content related to OT-MCS outcome.

In addition, the interpretation and description from in-depth interviews (semi-structure) could help OTs to understand comprehensively the outcomes after the use of OT-MCS. The evidence and reflections from stroke participants which keep the momentum going will help develop the understanding of how OT-MCS is experienced and given meaning by individuals. Importantly, qualitative analysis can also be used to form bridges in knowledge by collecting opinion pieces and detailed statements suggested by participants (Moore et al, 2006).

Hence, the methodology has been selected to fit with the research design and real context. A method is comprised of identifying a phenomenon to study, categorising one's experiences, gathering information from several individuals who participated in the use of OT-MCS that represents the phenomenon and then reducing the saturated data to the essential statements by quoting and combining the statements into themes. Finally, textual and structural descriptions were generated and combined to reflect the general essence of participants' experiences (Creswell, 2007). In this research, qualitative data needs to be collected from representatives of both kinds of stream rehabilitation in each of the regions.

4.7.7 Semi-structured interviews

The qualitative study uses a schedule for semi-structured interviews for stroke participants in slow and fast stream rehabilitations (see Appendix H and I). These were relevant to the research aims. Both semi-structured interviews were guided by interviews with Thai stroke survivors and underpinned by relevant literature and discussions with the research team. These schedules were used to explore the outcomes of an OT-MCS operation. They probed the real life situations and unanticipated outcomes for stroke patients in 6 regions throughout Thailand.

The researcher offered stroke participants and their families a choice of location for interview and time of appointment. This process helped construct a sincerity as well as convenience for interviewee (stroke participants) and interviewer (researcher) so that neither view dominated. The interview could take place either in the OT clinic room or their home or public area elsewhere. The interviews lasted between one to

one hour and a half, and were recorded by a Sony sound recorder and later transcribed verbatim by a researcher team member in order to limit error and control validity.

Section VI: Interview with stroke participants (Slow and fast stream rehabilitation)

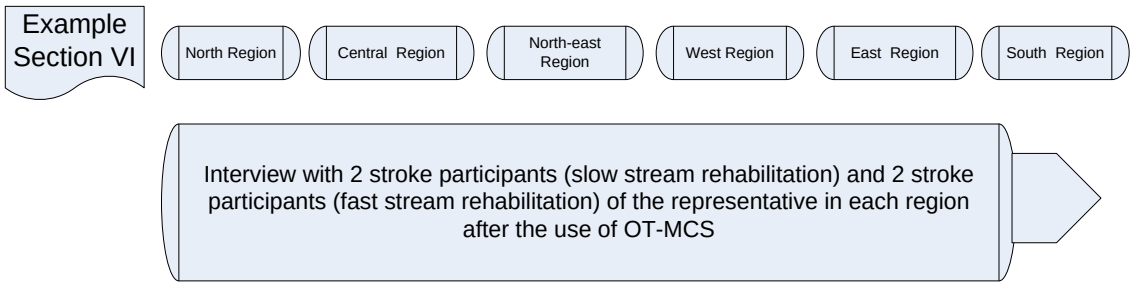


Figure 4.9: Interview with stroke participants

Data collection: semi-structured interviews with two stroke participants (slow stream rehabilitation) and two stroke participants (fast stream rehabilitation) in each regional rehabilitation centre (a maximum of 24 interviews). They were interviewed in-depth to explore experiences and outcomes after attending OT-MCS operation. Interviewed stroke participants for the qualitative stage were selected by purposive sampling based on their voluntary participation, convenient locations, gender, ages, rehabilitation programme and outcomes.

Data analysis: The experiences of 24 stroke participants were explored through in-depth interview and analysed by thematic analysis. This study has captured information not only on perspectives and attitudes of the lived experience's stroke clients, but also investigated functional performance when they engaged in the OT-MCS indicative care package.

Tools: Sound recorder and interview outline for stroke participants (slow and fast stream rehabilitations) (See appendix H and appendix I)

All stroke participants were approached personally by the researcher to seek participation and gave a detailed document in the Thai language which set out details of the prospective recruitment strategy (Appendix J and K). If the stroke patients did not want to participate, OTs treated them in a conventional rehabilitation

programme, which depended on the specific administrative system in each hospital. This process was undertaken by the same assessors at each rehabilitation centre who identified participants into the 2 groups (slow and fast stream rehabilitations). The criteria of inclusion and exclusion were based on the selection criteria. Mental illness meant exclusion in the case of stroke participants. This was confirmed by seeking a patient's history on the database or using DSM-IV examination in case of doubt.

4.8 Qualitative inquiry: Occupational therapy for stroke rehabilitation

Qualitative studies in OT can draw crucial perspectives on the participant's experience and illuminate the relationships between occupations and human endeavours that provides good guidance for decision-making in clinical applications and therapeutic practice (Mattingly & Fleming, 1994). Furthermore, qualitative approach can be used to gain valuable insight into the perspectives of stroke clients and create understanding between the professional and patient which enhances cooperation and the opportunity for collaborative planning for treatment (Thomas & Parry, 1996). Consequently, qualitative investigation into the use of therapeutic occupation is beneficial to the OT field by receiving patients' information of not only physical, but also mental, behavioural and socio-cultural dimensions.

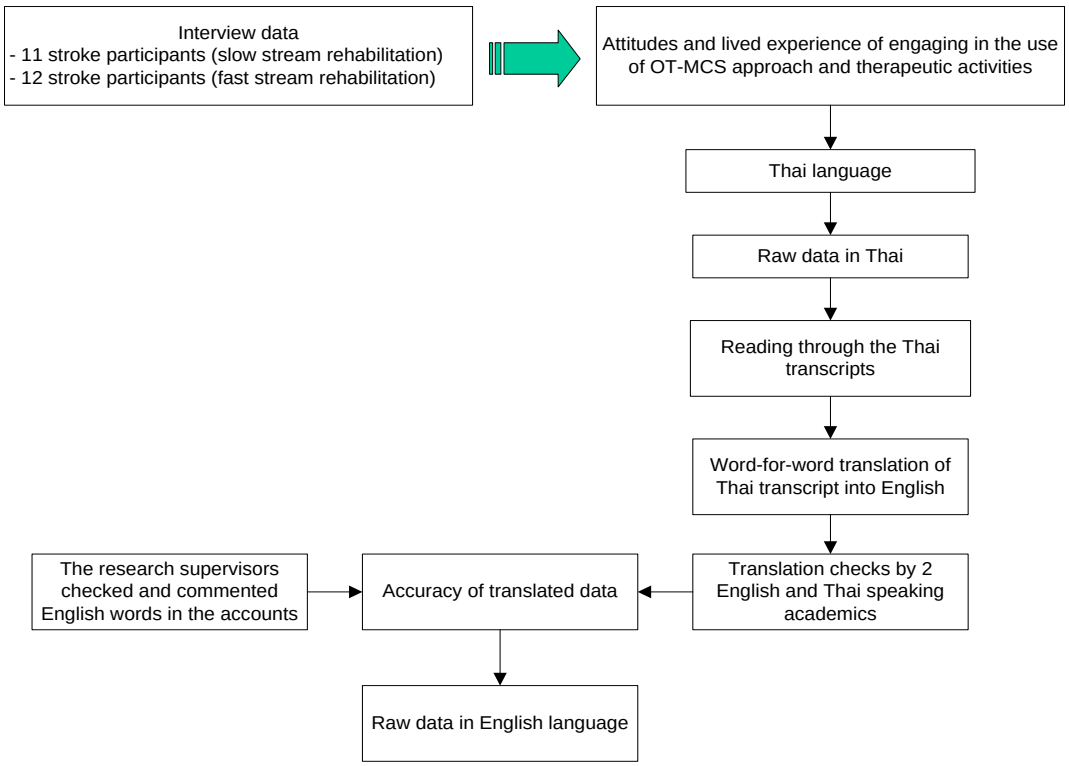
In this presentation of research as a human activity, the researcher's decisions focus on the existence of the different elements of epistemology, theory, methodology and methods. These central ingredients need strongly to be interrelated and inseparable to produce and present a coherent form which creates a methodological link to the epistemological and theoretical groundwork (Savoie-Zajc & Karsenti, 2000). Importantly, qualitative research will plug a gap in knowledge that quantitative methods cannot grasp. It will capture the interpretations and meanings of choosing and performing activities by stroke participants.

4.8.1 Translation and verifying translation

The difficulty of the qualitative approach with non-English speaking participants is recognised as all the interviews were conducted in the Thai language, nonetheless the report of this research needs to be written in English. According to Twinn (1997), who studied the influence of translation on the validity and reliability of qualitative data, no significant difference in the main categories and themes following careful translation were found (Chinese/English). The quality and integrity of translation

process play an important role in ensuring that the cross-cultural research findings are accurate and not weakened by errors in the translation (Maneesriwongkul & Dixon, 2004). This research therefore considered the potential translation-related problems, which might affect trustworthiness. Detailed transcripts should be analysed in the language of interview (Twinn, 1998). Hence in this study, coding and analysis from interviews in Thai speech were transcribed first and then carefully into the Thai language. Nevertheless, the limitation of this process is that research supervisors cannot follow the process because all transcriptions from semi-structured interviews were interpreted in Thai, afterward these documents were translated into English and the analysis process emerged in the English transcriptions. The translation process is presented in the following Figure 4.10.

Figure 4.10: Diagram of transcribing and translating data process of this research



Interview data from sound recording were transcribed into paper documents. The process of translation included the reading through Thai transcripts line-by-line, translating them word-for-word into English. In the process, it is possible to lose nuances of the data; however the essence of interpretation still preserves the completion of understanding. This stage of translation was checked by two English speaking Thai academic health professionals for correctness. One bilingual English-

Thai speaker reviewed and checked the correctness of all transcripts. Then they were sent to an English speaking Thai academic health professional who checked the transcripts to approve the appropriateness of the translation within the Thai contexts. Finally, these participants' accounts, after translating, have been checked by research supervisors.

4.8.2 Thematic analysis

Thematic analysis is a qualitative analytic method for identifying, analysing and reporting patterns of data (themes) involving the interpretation from multifaceted characteristics of the research topic. This process was conducted by following 6 phases of thematic analysis based on guidelines from Braun & Clarke (2006):-

1. Becoming familiar with the data

   The process begins with immersion in the data through listening to recordings, transcription, translation, reading and re-reading of the stroke participants' interviews. These generated initial analytic themes based on ideas and thoughts emerging from the data and involved searching for meanings, patterns and semantic themes by noting or marking ideas for coding relevant to the aims and purposes of the study (Edwards, 1993).

2. Generating initial codes and allocating data to codes

   The coding process continues from initial list of interesting ideas by generating initial codes which refer to features of the data and basic elements regarding the experiences of the stroke participants (Boyatzis, 1998). This process then involves organizing the data by allocating it to the codes. In this way meaningful groups of coded data are generated drawing together responses from different participants

3. Searching for themes

   Data from the initial codes were reviewed to identify themes across the data set by re-focusing the analysis at the broader level of themes rather than codes. Tables and mind-maps were used to visualize these themes based on the stroke participants' information. Hence the process by which initial codes go on to form the main overarching themes, and sub-themes was charted.

4. Reviewing themes

   Data within themes was then considered for internal homogeneity and external heterogeneity including coherence. Clear and identifiable distinctions between themes were recognized and themes were reorganized as necessary. These themes from stroke participants appeared to form a coherent pattern linking and serving the data extracts as accounts or storytelling represented by the thematic map.

5. Defining and naming themes

   Following a satisfactory thematic mapping of the data leading to the final refinement of the main themes; the new overarching main themes which were generated, reflected the sub-themes and provided a relevant and consistent account which answered the research questions.

6. Producing the report

   This final phase used the set of worked-out themes from the final analysis to succinctly report the outcomes of the interviews. Data extracts were used to illustrate a concise, coherent, logical account and analytic themes were interpreted to answer the research questions.

Hence, thematic analysis is used explore the themes, which emerge as crucial existence representing the description of phenomenon (Daly, Kellehear, & Gliksman, 1997; Boyatzis, 1998). The word form of data and themes leads to categories for the analysis. This technique complements the research questions by applying the concept of social phenomenology to the process of deductive thematic analysis, which brings about emergent themes direct from the data of inductive analysis (Fereday & Muir-Cochrane, 2006).

Moreover, interview data from stroke participants were subject to thematic analysis based on the principles of interpretative phenomenological analysis (IPA). Thematic analysis is used to structure themes that emerge from the concept of IPA. Interpretative phenomenological analysis (IPA) is a double hermeneutic approach based on psychological, interpretative and idiographic elements, which reveal descriptive, intimate, and interpretive accounts by understanding comprehensively

how a given individual, in a given context can make sense of a given phenomenon (Smith, Flower and Larkin, 2010). Normally these phenomena are associated with experiences of individuals – such as life activities in work and productivity, activities of daily living, social activities, and leisure. In seeking the existence, this research needs to investigate detailed perspectives and lived experiences of stroke participants after the use of OT-MCS. This idea is drawn from the data of stroke clients' viewpoint and therapists' interpretations which derive, in turn, from the researcher is position and beliefs as an occupational therapist.

A thematic analysis based on principles of IPA is established on epistemological and methodological foundations that reflect vital themes in describing and interpreting the nature of lived experience (van Manen, 1990; Guimond-Plourde, 2009). This approach is conducive to revealing the meaning of stroke participants' feelings, behaviours, explanations, and life-skills expression via performing purposeful and meaningful activities that emerge from participating in culturally relevant therapeutic media.

4.9 Data analysis (Thematic analysis based on the principles of IPA)

4.9.1 Individual case analysis

Interview transcripts must be analysed in-depth individually (Smith et al, 2009) and every recording frequently listened to. The transcript should be read numerous times. In keeping with the supportive sense, initial annotation was put in the margin alongside exploratory comments in order to illustrate the original thought, interrogative sentence and conceptual idea (Smith et al, 2009). Furthermore, each extracted transcript was re-read carefully to formulate a second margin that helped to generate themes that were elicited from the analysis of both initial thought and transcripts. Hence, each interview was captured in this way; interviews were analysed to this level.

4.9.2 Emergent themes

The emergent themes were produced from the essential issues from the interviews related to the research aims, so that the emergent themes were categorised chronologically leading to the formulation of clusters of related themes (Smith et al, 2009). The process of searching for connections across emergent themes is steered

by *abstraction, subsumption, polarization, contextualisation, numeration,* and *function* (Smith, Flowers & Larkin, 2010).

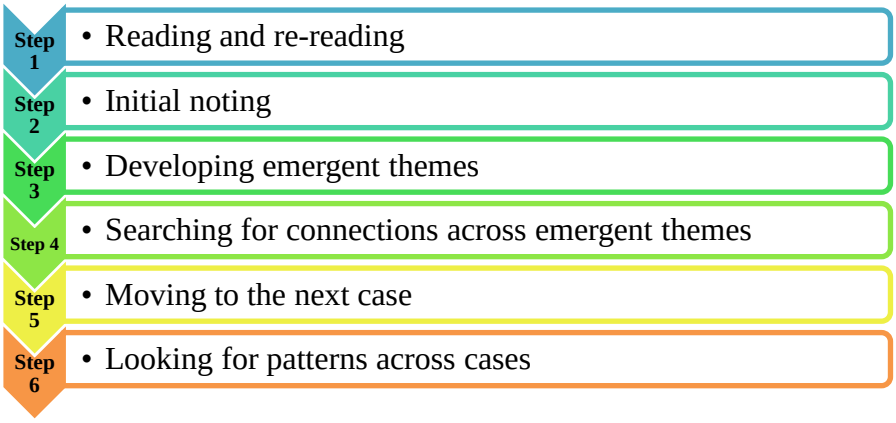
4.9.3 Cross case analysis

This process involves searching for patterns across cases. Success is achieved by creating a directory of themes for the group and clustering these into main themes. These main themes share higher-order qualities leading to the generation of the master table of themes for the group.

4.9.4 Conducting process analysis

After the semi-structured interviews using an interview schedule, the sound recordings are transcribed with thorough correctness to produce a transcript or verbatim record. All transcripts must be analysed corresponding to the original recordings. Interview themes from the transcripts are identified to relevantly connect or disconnect with the interview schedule (Smith, Flowers, & Larkin, 2010). In order to move the procedure forward successfully, a cyclical process for proceeding through iterative stages is involved and is steered by 6 steps (Figure 4.11).

Figure 4.11: Diagram of analysis process (Willig, 2001; Smith, Flowers, & Larkin, 2010).



Given this sequential process, notes are taken when reading all transcripts which draw out any ideas (**Reading and re-reading**). At this stage, the original script from stroke participants produces reflexive detail of the origin and nature which influences the interpretation. Observation and reflection help to formulise thoughts during the reading of the transcript or text. The original script of the stroke participant's interview needs to be assessed comprehensively within the language

used (**Initial noting**). These initial notes explain stroke participants' accounts and distinguish ambiguous or abstract concepts to make sense in situations of the lived experience of the OT-MCS approach. This exploratory comment displays the account of stroke-family-therapist's relationships, therapy processes and effects, places in each stroke client's location, events by engaging in OT-MCS, value of therapeutic activities and principles applied to various activities which fit with the real world at home and in the community.

This process captures the transcript and initial notes from stroke participant data to generate crucial issues (**Developing emergent themes**). Emergent themes help to reduce the volume and detail that directly illustrate important topics embracing transcript and exploratory comments. Importantly, emergent themes are produced from the essence of reading the original transcripts and initial notes based on the textual record of stroke participant's expressions and interpretation of the researcher. These emergent themes lead to the creation of an overall categorisation of the identified themes into clusters or concepts (**Searching for connections across emergent themes**). This process needs to find the linkage between a group of themes in order to generate *sub-themes*, reflecting a hierarchical connection of the categories.

Subsequently, the process is to write up a case report and move onto the next stroke participant's transcript (**Moving to the next case**) by using a repeat process based on individuality and lived experience of participants. Finally, the quest is to discover features across stroke participants' data (**Looking for patterns across cases**) by considering the connection, differences and potential, engendering the reconfiguration and re-labeling of themes. This analytical process across cases enables sub-themes of each stroke participant to be integrated and then generate *main themes*, which demonstrate the key elements and schematic patterns of the stroke participants' perspectives, feelings, and meanings of their lived experience after the use of OT-MCS.

4.10 Interview design

Qualitative research focuses on the expression and reflection after intervention. Semi-structured interviews were exercised with stroke participants from both

maintained and improved performance groups. The interview involves four stroke participants in each regional rehabilitation centre (a maximum of 24 interviews) each was interviewed in-depth to explore their views and outcomes after attending OT-MCS activities. Subjects for the qualitative stage were selected by purposive sampling based on location, convenience, gender, age, rehabilitation programme and outcome. The topic lists in the semi-structured interview were developed from the outcomes of section I – V (page 85-90) alongside ideas generated throughout the study. Two formats of the semi-structured interviews (slow and fast stream rehabilitations) were employed (see Appendix H and I), which were audio-recorded, transcribed verbatim, and subsequently analysed using a thematic analysis. Hence, the qualitative approach has been divided into 2 sections; section VI-A and VI-B.

4.11 Interviewed participants

4.11.1 Recruitment

Section VI-A, Slow stream rehabilitation group (N=12)

Two stroke participants were recruited from each of the six regions (N=12). The semi-structured interview was designed to explore the outcome for stroke participants. It also explored significant issues specific to each different region, and asked participants, their feelings and experiences related to the use of OT-MCS when selecting pictorial items or using the activity catalogue by themselves. Effectiveness and appropriateness of the therapeutic activities was also explored during interview.

Section VI-B, Fast stream rehabilitation group (N=12)

In this stream two participants were recruited from each region. However, the topic of the interviews was varied and relied on functional performance for this kind of stroke group. The session captured the issues of practical and purposeful abilities leading to the application of these life-skills into their home, workplace and social environments based on local, regional and cultural contexts.

Prior to the interview process, stroke participants who participated in the use of OT-MCS had personally been approached by the interviewers. The research process was explained in a native language (Thai) during recruitment. The participant information sheet (Appendix M) included researchers' contact details, and invited

the stroke participants and their families to contact the research team if they wanted to take part. On making contact, stroke participants were asked if they would like further information, or if they were not interested or happy to participate a meeting would be arranged to go through the consent form (Appendix N).

4.11.2 Inclusion and exclusion criteria

After the use of OT-MCS intervention, both stroke group participants (Slow and fast stream rehabilitations) were invited to join the interviews based on their willingness, the distance of their local residence, convenient transportation and time of appointment. All stroke participants took part in the interviews had to be able to communicate and have completed the programme over 8 weeks. Nevertheless, the exclusion criteria were designed to exclude stroke individuals if they were unable to give informed consent. Hence, ethical approval was sought before inviting stroke participants to take part in both OT-MCS intervention and interviews.

4.12 Integrated process for research questions

The means for investigating the development and evaluation the OT-MCS indicative care package used research questions as a compass to navigate the actual information, which was established on the research philosophy, research strategy, data collection, and data interpretation. Mapping the research process helps clarify the essence of the theoretical and practical framework by making links between quantitative (numerical data) and qualitative (textual data) methods (see Figure 4.12 – 4.16).

4.12.1 Mapping of the research process

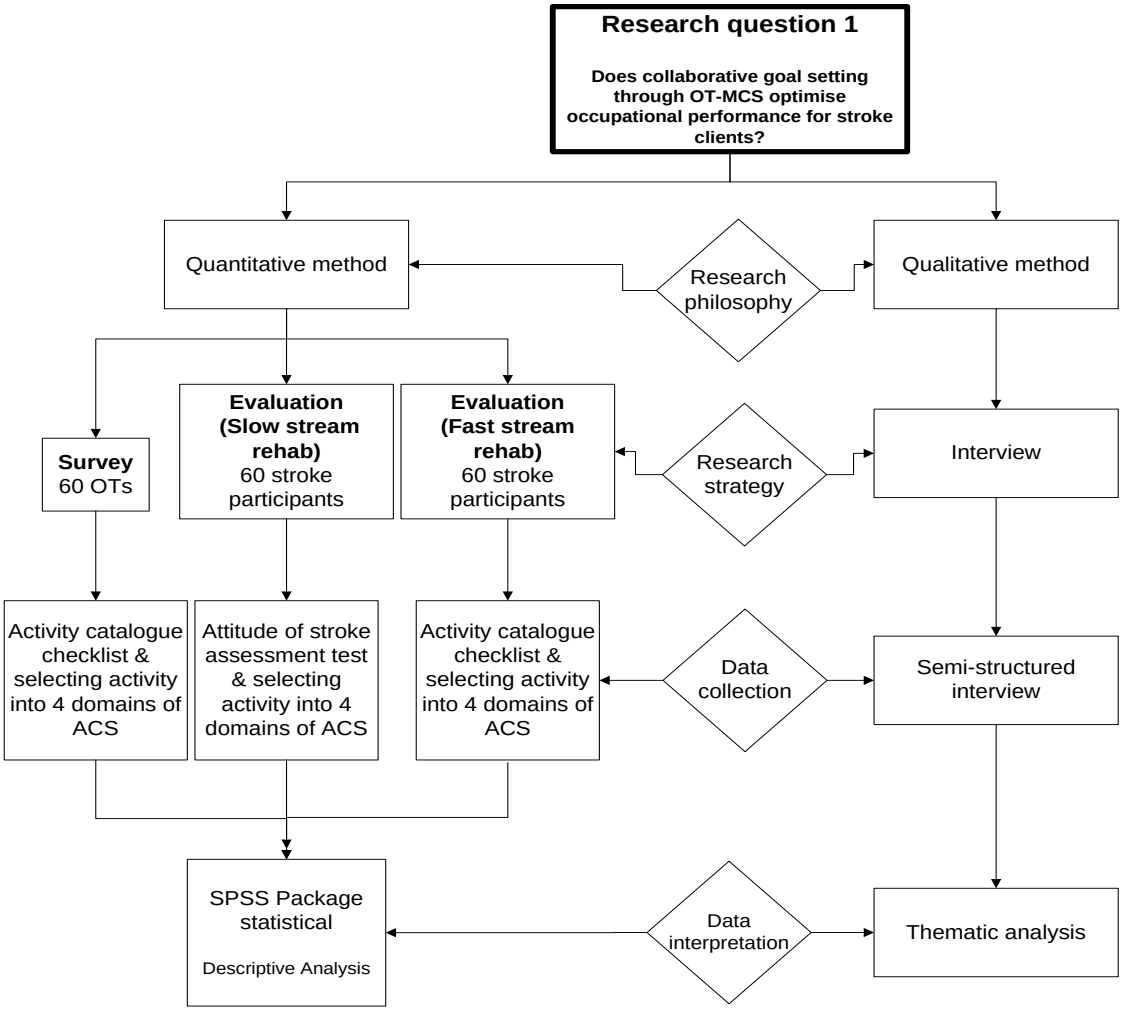


Figure 4.12: The research process of research question 1

Research question one represents the process of investigation the overall outcome of the OT-MCS approach. *Research philosophy* contains two parts (quantitative and qualitative methods). In *research strategies*, quantitative methods included the survey of 60 OTs and evaluated the attitude of stroke participants (slow stream rehabilitation) and the level of engagement of stroke participants (fast stream rehabilitation), whilst qualitative inquiry was utilised by the interview. In *data collection*, part of the quantitative approach comprised of the activity catalogue checklist and selection of activity into 4 domains, whereas a semi-structured interview was used as part of the qualitative means. *Data interpretation* involved SPSS (version 18) and descriptive analysis in the quantitative methods, while qualitative processes used thematic analysis.

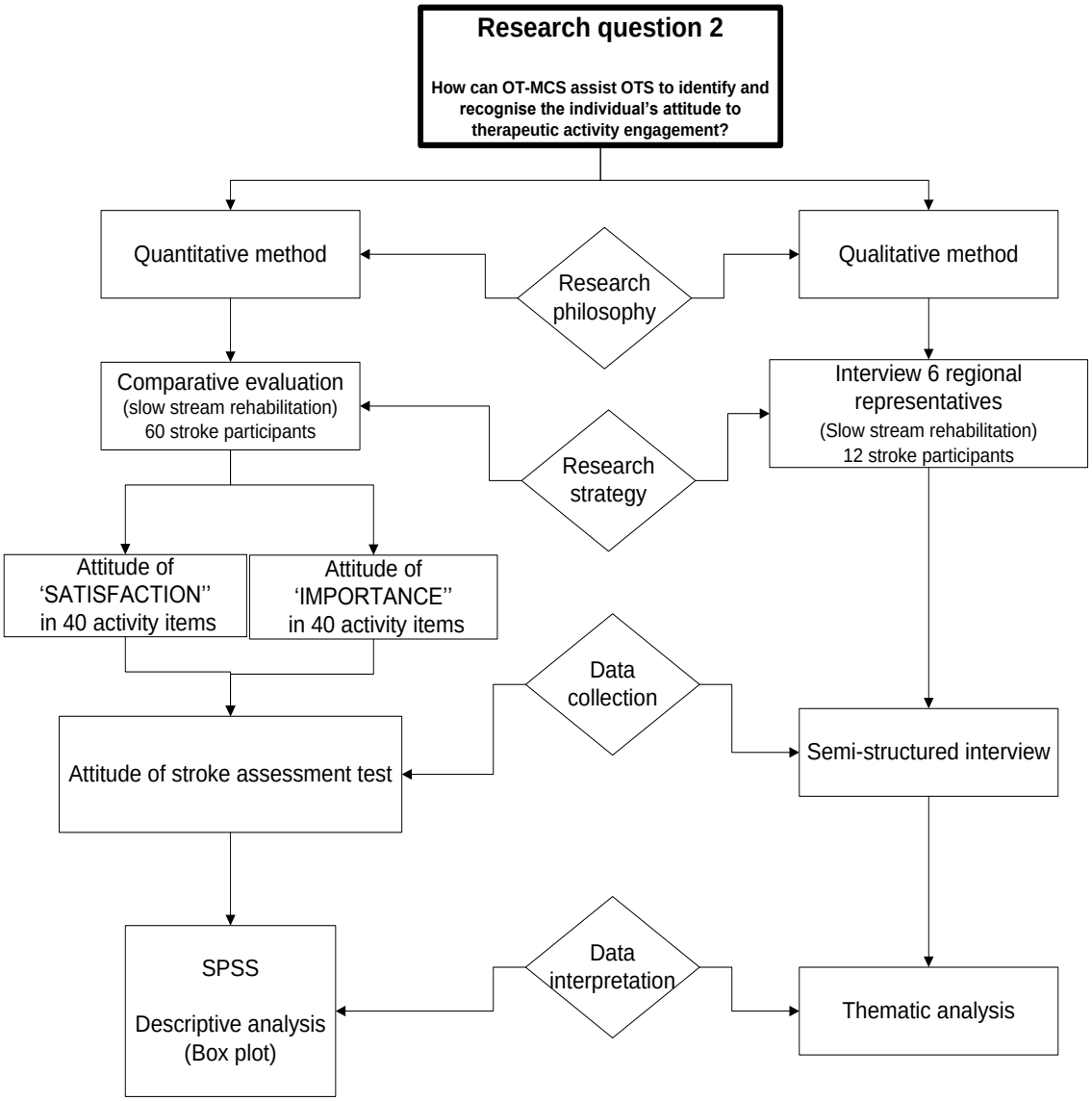


Figure 4.13: The research process of research question 2

In research question two, *research philosophy* consists of quantitative and qualitative methods. *Research strategies* reflect quantitative methods providing evaluation of the attitudes of satisfaction and importance in 40 activity items for 60 stroke participants (slow stream rehabilitation), while qualitative discovery comes from the interviews with 12 stroke participants from 6 regional hospitals who are in slow stream rehabilitation. *Data collection* involves a quantitative tool of an attitude of stroke assessment test; meanwhile the qualitative method uses semi-structured interview. The *data interpretation,* SPSS (version 18) and descriptive analysis (Box plot) are used to analyse the quantitative evaluation, whilst qualitative examination uses thematic analysis.

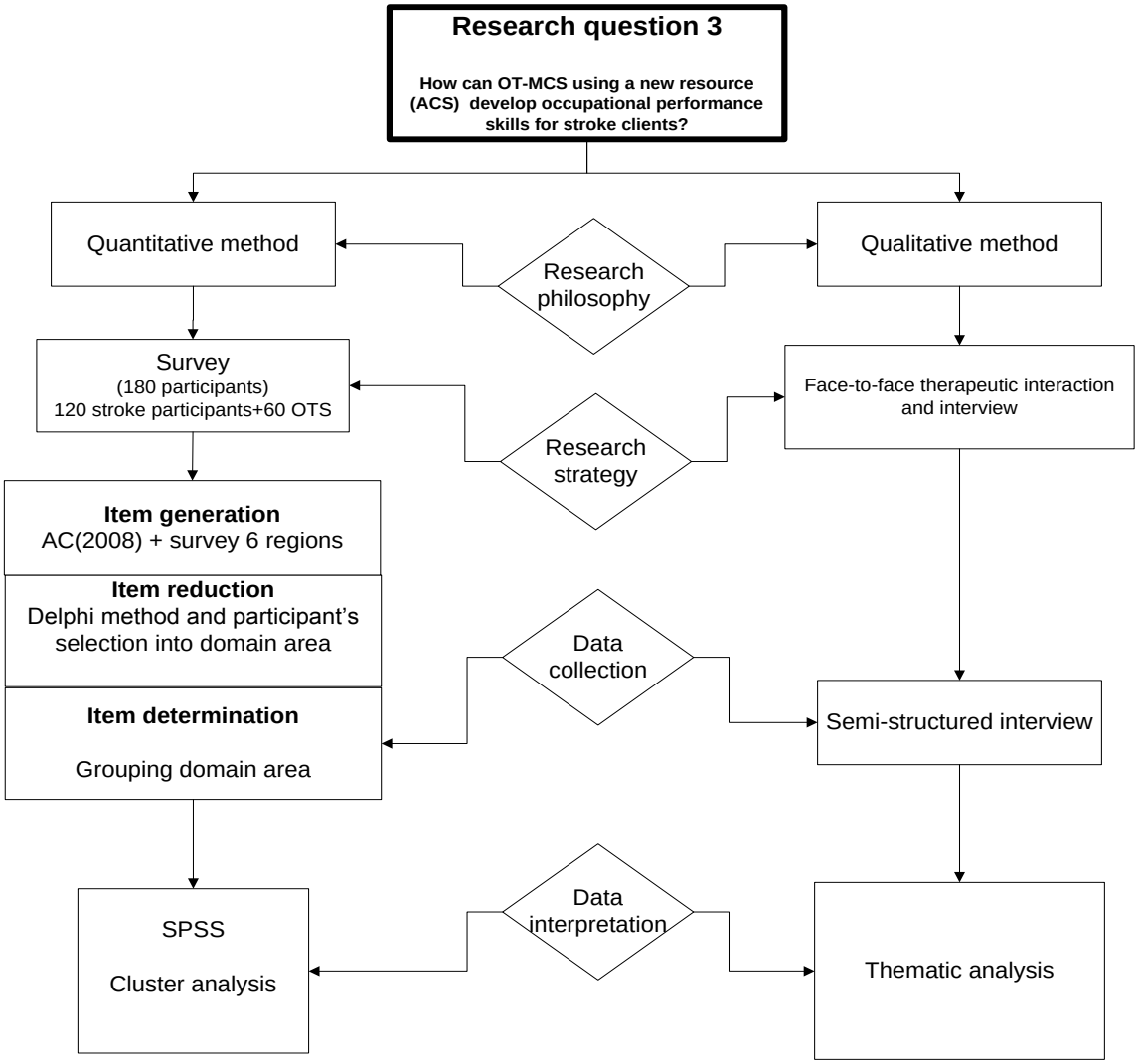


Figure 4.14: The research process of research question 3

In research question three, *research philosophy* includes both quantitative and qualitative methods. In *research strategies*, quantitative method involves a survey of 180 participants [stroke clients (n=120); and OTs (n=60)], whilst qualitative exploration involves face-to-face therapeutic interaction and interviews. *Data collection* involves quantitative methods which provide the mean of item generation (Activity catalogue) adding new therapeutic activities from 6 regions; item reduction is utilised by a Delphi method and participants' activity section into domain areas (see detail in Chapter 6); item determination is to group and blend domain areas. A part of qualitative inquiry uses semi-structured interviews. In *data interpretation*, SPSS (version 18) offers hierarchical cluster analysis of the data, meanwhile qualitative assessment is analysed using thematic analysis.

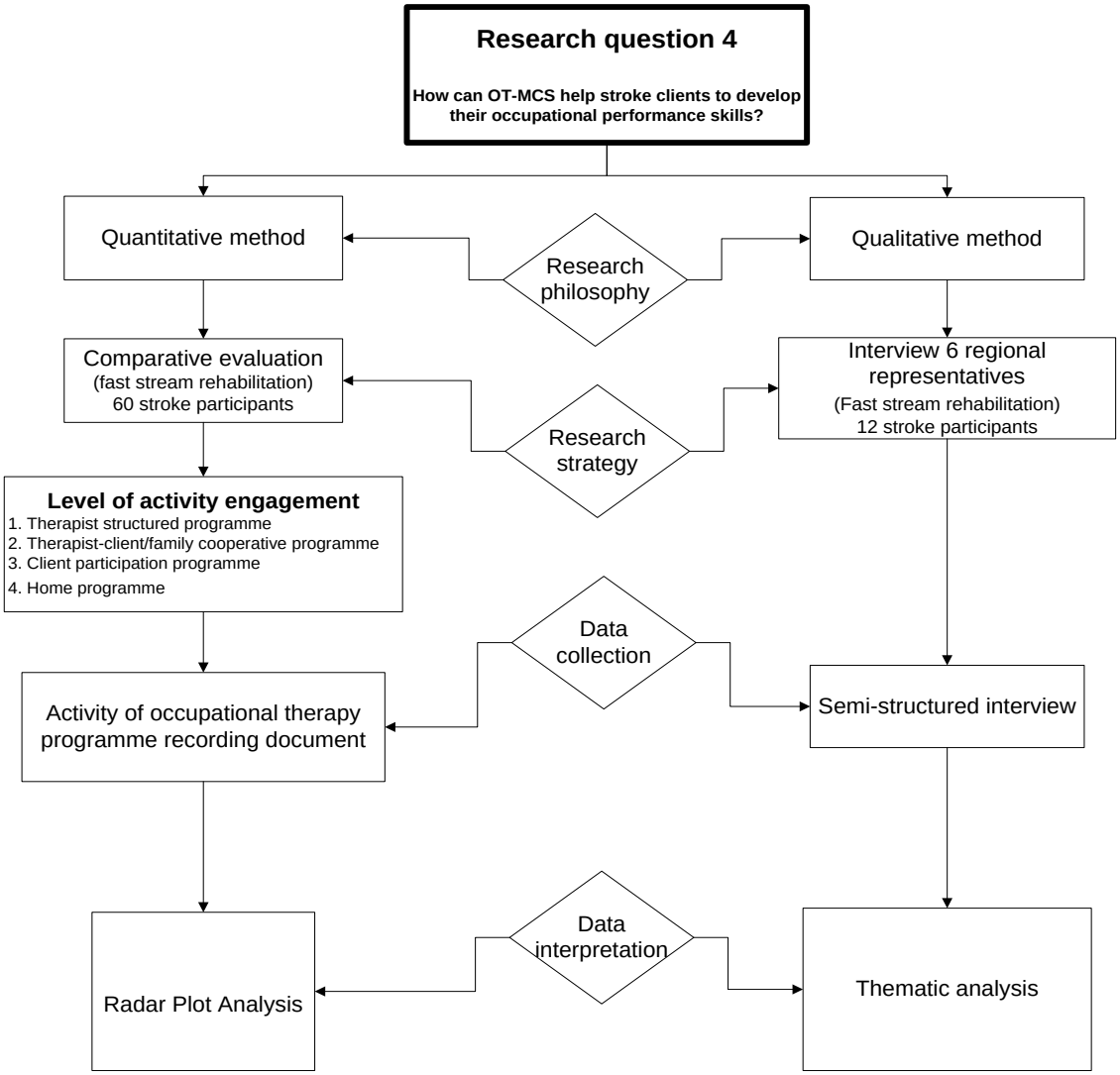


Figure 4.15: The research process of research question 4

In research question four, the *research philosophy* embraces quantitative and qualitative methods. In *research strategies* the quantitative approach uses a comparative evaluation for 60 stroke participants (fast stream rehabilitation) in the level of activity engagement, whilst qualitative discovery plans to interview 12 stroke participants from 6 regional hospitals who are in fast stream rehabilitation. *Data collection* quantitative instrument is an OT programme recording document; while the qualitative method uses semi-structured interviews. For *data interpretation*, radar plot analysis is used to analyse the evaluation, whereas a qualitative method uses thematic analysis.

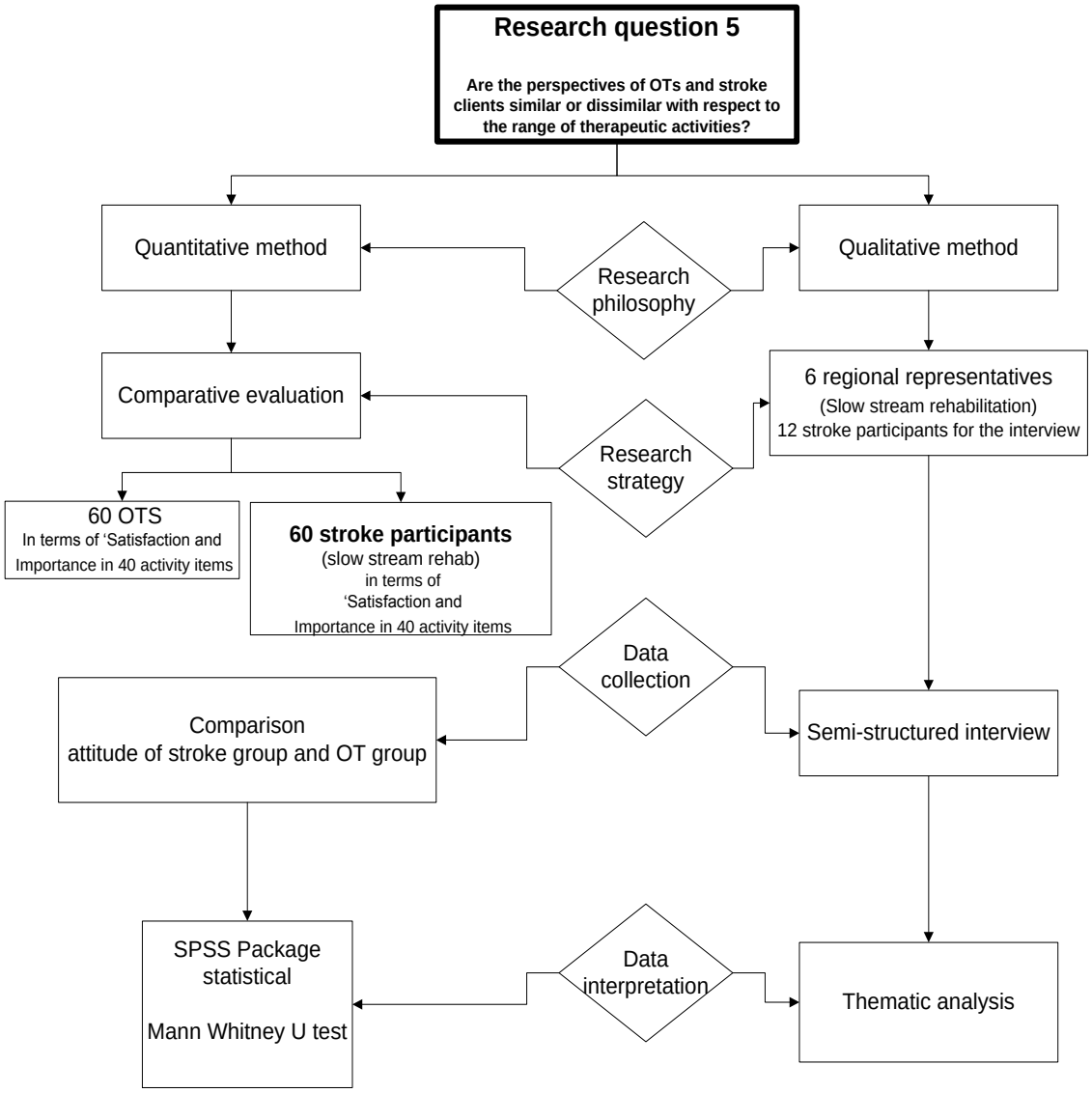


Figure 4.16: The research process of research question 5

In research question five, the *research philosophy* includes of quantitative and qualitative methods. In *research strategies*, quantitative methods provide tools to evaluate the attitude of satisfaction and importance via 40 therapeutic items between stroke participants (n=60) and OTs (n=60). In the qualitative investigation interviews are held with 6 regions (n=12) stroke participants in slow stream rehabilitation. *Data collection* involves a quantitative tool of the attitude of stroke assessment test for stroke participants and activity catalogue checklist for therapists. In *data interpretation*, Mann Whitney U test is used to analyse the data, meanwhile qualitative data is analysed by a thematic approach.

4.13 Overall combination of different methodology, methods and analytic approaches

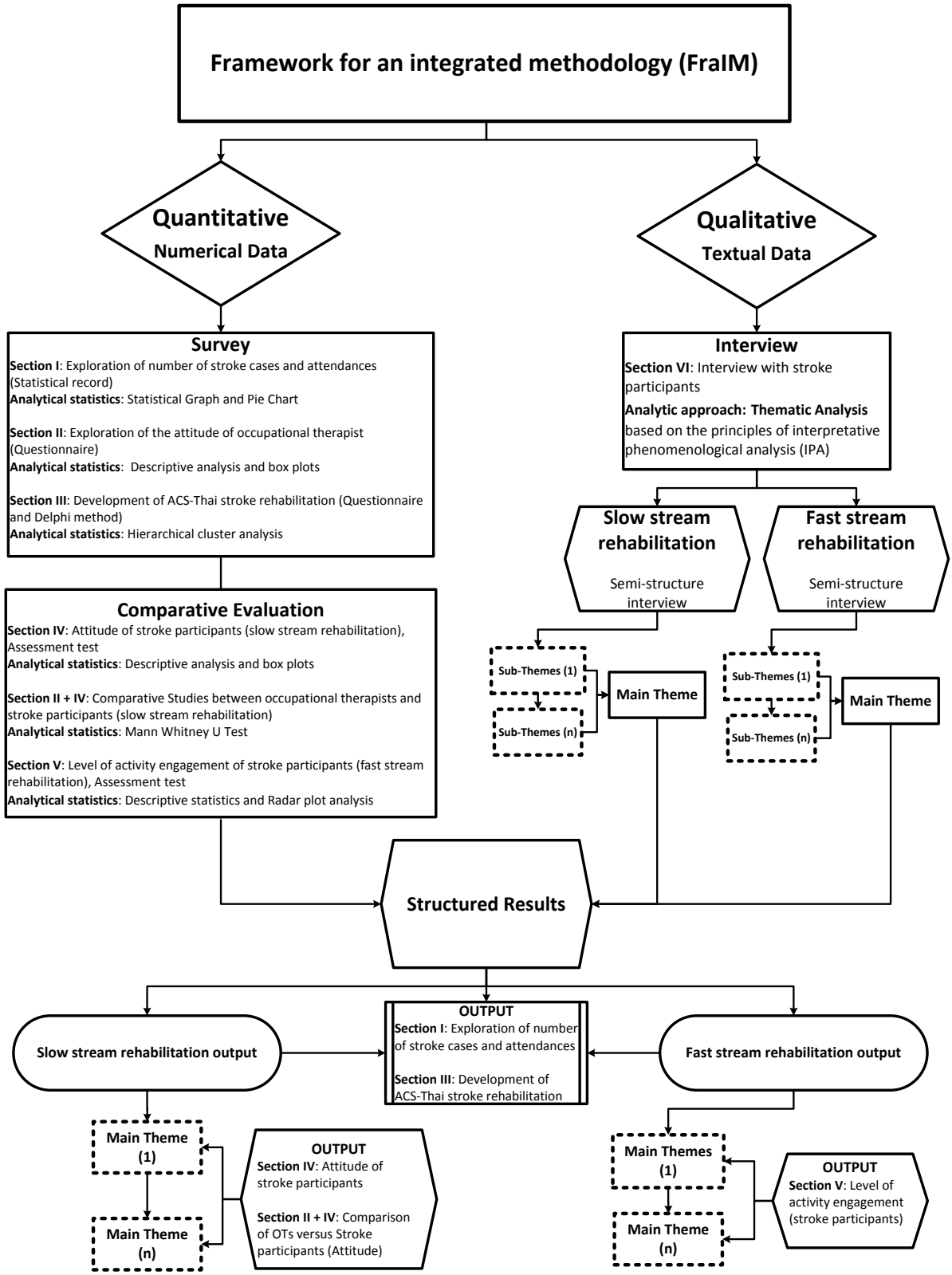


Figure 4.17: Combination of different methodology, methods and analytic approaches

Figure 4.17 shows the methodological framework and illustrates the overall combination of different methodology, methods and analytic approaches. This brings together numerical and textual data within the framework for an integrated methodology (FraIM) (Plowright, 2011). The numerical data is drawn from hospital records and questionnaires with the clients as well as a delphi approach with the therapists. The qualitative data allowed a greater exploration of client perceptions through interview with a limited sample of those involved.

Numerical data were the basis of the survey and comparative evaluation. Surveys can be used to collect information about the characteristics, actions, opinion of a population or evaluate demand, assess needs and measure impacts (Pinsonneault & Kraemer, 1993; Salant & Dillman, 1994). In this research survey media include the information from computer database before and after the use of OT-MCS and questionnaires. The surveys were collected and analysed in Section I, II and III. Section I explored the number of stroke cases and attendances which were analysed with statistics, graphs and pie charts. Section II surveyed the attitudes of occupational therapists using questionnaires and were analysed with descriptive statistics and box plots. Section III investigated stroke clients and occupational therapists views on the development of the ACS with questionnaires and the Delphi method analysed by hierarchical cluster analysis and dendogram. The surveys can show

The comparative evaluation is in Section IV, II+IV and V. In Section IV, the attitudes (satisfaction and importance in therapeutic activities) of stroke participants (slow stream rehabilitation) before and after intervention were explored by descriptive analysis and box plots. In Section II+IV, the attitudes of occupational therapists and stroke participants on the 40 activity items were analysed by Mann Whitney U Test. In Section V, stroke participants (fast stream rehabilitation) levels of activity engagement were evaluated using descriptive statistics and radar plot analysis.

The textual data, interviews, (Section VI) were used to explore the lived experience of stroke participants on the use of OT-MCS. Semi-structured interviews were conducted with a sample of the stroke participants (slow and fast stream

rehabilitation) and analysed by thematic analysis based on the principles of interpretative phenomenological analysis (IPA). IPA is based on the principle of patient-client relationship in association with the activity participation between clients and planning the treatment programme with the client's goals. The therapist makes decisions with the client based on the client's experience of their condition and disability (Gray, 1997). Furthermore, the IPA analytic approach provides a sound structure and procedure which enables the researcher to understand clearly the process of theme formation based on the lived experience and perspective of the stroke clients. This is generated from reading and re-reading, initial noting, developing emergent themes, searching for connections across themes, moving to the next case, and looking for patterns across cases (Smith, Flowers, & Larkin, 2010). This analytical process produced emergent themes leading to the creation of sub-themes and main themes. Numerical and textual data analyses were combined to form structured results (Chapter 5). The outputs of Sections IV and II+IV were integrated with the sub-themes and main themes of slow stream rehabilitation. In fast stream rehabilitation, sub-themes and main themes were combined in Section V. Section I provided general outputs of the number of stroke clients and attendances related to stroke conditions, genders, ages, professions, and educational levels. Lastly, Section III presented outcomes of the activity card sort for Thai-stroke rehabilitation (Chapter 6).

4.14 Validity and quality

Measuring the quality of qualitative studies follows different criteria than those used in quantitative research (Barker, Pistrang & Elliott, 2002). In order to apply interpretative phenomenological analysis (IPA), various guidelines are available (e.g. Yardley, 2000; Spencer et al, 2003; Smith, Flowers & Larkin, 2010). The qualitative section of this research used a thematic analysis based on the principle of IPA (Daly, Kellehear, & Gliksman, 1997; Boyatzis, 1998; Smith, Flower, Larkin, 2010). This provided a guideline for navigating through the essential sections that include method, data collection, analysis, and interpretation including various examples, especially in terms of health and illness. Furthermore, this research has adopted the principle of interview analysis from Yardley (2000) which reflects a sensitivity to context; transparency and coherence; and impact and importance.

4.14.1 Sensitivity to context

Sensitivity to the existing literature and theory based on the socio-cultural environment of the study (Yardley, 2000) includes the material captured from the participants (Smith et al, 2009). The characteristic features of the theoretical position are included in Chapter 4. Qualitative approaches determined the criteria of the sampling inclusion and exclusion criteria in section 4.11.1 and 4.11.2. In the process of data collection, researcher and research assistants worked with stroke participants during the process of the OT-MCS operation which created cooperation not only in the relationship between therapist and stroke participant, but with the stroke family as well. In addition, this was a starting point to formulate a collaborative framework for dealing with rehabilitation. Interviewing after the use of OT-MCS intervention 8 of weeks reflected the rich accounts from stroke participants by demonstrating the sensitivity of their feelings, perspectives and lived experiences through conducting and describing a critical analysis. Therefore, sensitivity to context in an analytical framework was strongly supported by the evidence of both verbatim extracts and research arguments which provide the reader the opportunity to check the interpretations from the participant's words (Smith et al, 2009).

4.14.2 Transparency and coherence

Transparency represents clearly the stages of the research process which are explained in the writing (Smith et al, 2009). Coherence between the research outcomes and theoretical lens and assumptions of the approach being can be seen and understood. In this research, researcher and his team enhanced the transparency of the analysis by using the same single blinded assessor in each region in order to increase the quality of results. An audit trail and translation check was also used. Moreover, the consideration of reflexivity within the principle of transparency in methodology and method, findings and discussion enhances coherence.

4.14.3 Impact and importance

This research supports the use of the OT-MCS approach as a modified indicative care package for stroke rehabilitation. The research is conducted in order to propel and change policy though the groundwork of the practitioners (Thai occupational therapists) in the stroke rehabilitation field. To this end, the deep essence and significance includes a consideration and critique of the clinical relevance of this study. These are debated in the Discussion and Conclusion chapters.

4.15 Ethics in Research

The purpose of the study is to build understanding between OTs and stroke clients in terms of activity and participation by implementing the OT-MCS approach which assists the maintenance and improves occupational performance of life-skills after stroke. This study has been designed for occupational therapists, stroke clients and family members/caregivers as partners in the use of OT-MCS. The OTs can use the options by a directional process of rehabilitation training from OT-MCS and search for participant needs who can express their concerns during the time of the information gathering process.

This project had been conducted outside the UK. The research ethics were approved by the School of HCES Research Ethics Subcommittee of Northumbria University, COA No. MU-IRB 2010/278.0710 Documentary Proof of Mahidol University Institutional Review Board, Thailand, and Document No. 53050 Institutional Review Board/ Independent Ethics Committee, Department of Medical Services, Ministry of Public Health, Thailand (see in appendix P, Q, R).

4.15.1 The ethical role of the occupational therapist

In order to safeguard the rights of participants and prevent possible harmful effects, the following guidelines apply:

1. OTs that join this project have OT license issued by the Occupational Therapy Board Committee, the Public Health Ministry of Thailand.
2. OTs provided therapeutic media that followed the OT-MCS flowchart and offered the right to select to stroke patients including giving an explanation and negotiating terms of balancing functional capacities and engaging in appropriate activities.
3. OTs evaluated some therapeutic activities in terms of harm and security that stroke participants may experience at home and in social environments used for rehabilitation training.
4. OTs preserved their ethical role and conformed to professional integrity in order to perform the best rehabilitation service for stroke clients.

4.15.2 Ethics in system framework and methods

The purpose and nature of the research is clearly stated in the information sheet (Appendix J, K, L and M). The benefits of the study are made clear to the individual stroke participant, through sustaining their activity participation and functional skills to improve their daily life and well-being. Moreover, this system framework can initiate Thai occupational therapists' thinking and helps to shape their ideological perspective for the most appropriate approach for suitable service for stroke rehabilitation. This research has been concerned these points:

(1) Identities of all participants have protected in this study.
(2) The objective/ researcher's interests and intentions of research are described for the participants and inform the consent for their permission during the use of OT-MCS operation (see in appendix J, K, and L).
(3) Ensuring publication that the information does not harm participants.
(4) All assessment tests, raw data and record manuscripts of this study are kept strictly confidential and preserved in a locked filing cabinet.

4.15.3 Ethics for maintaining confidentiality

Topics of confidentiality were detailed on the consent form. Data of all participants will not be disclosed neither will personal confidential issues unless participants are willing to express details for the benefit of health education. The researcher and the assistants are bound to maintain confidentiality and may face legal action in case of a breach of confidentiality. Anonymity of all participants has been preserved throughout the process. They were aware that although quotes would be used in the write-up for this research. All identifying information about names has been removed from the transcripts and alias names used to protect participant confidentiality. The data collected was presented at the community meetings and conferences without giving reference of the individual participants.

4.15.4 Ethics for intervention

The researcher, research team, and OT staff recognise the ethical way for intervening with both stroke groups (slow and fast stream rehabilitations). The research action concerns equal consideration for all stroke participants. Stroke patients who were excluded and their families, were assured that their care would not be affected. In this situation, the researcher and OT staff explained the limitations of the criterion for attending this rehabilitation programme.

In terms of rehabilitation approach, stroke participants had the right to choose their therapeutic activity items themselves but this process must take account of their bodies and functional abilities, including safety and security during the activity engagements. For instance, if a stroke participant selected some activity item, but in the real-life situation he/she cannot perform this activity, the occupational therapist needs to intervene. The insufficient functional abilities at that time should be developed through basic rehabilitation which gradually increases functional performance until a higher level skill of therapeutic activity items can be considered. Moreover, the medical equipment and vital sign instruments were available and accessible in each OT clinic for use in the case of emergency.

4.15.5 Ethical code for interviewing

Stroke participants were interviewed after the use of OT-MCS in each region. Interviews were arranged, based on the individual stroke patient's convenience and location setting. The interview topics were given to participants before the interview date. The interview was divided into two contexts. First, a context of stroke participants (slow stream rehabilitation) related to the Activity Catalogue that they had chosen and expressed why these activity items were valued in terms of "satisfaction" and "importance". Moreover, the topic included the whole system of OT-MCS and how it could be part of an effective and comprehensive rehabilitation service for stroke people (see in Appendix M and N).

Second, a contextual interview with stroke participants (fast stream rehabilitation) connected their life in their home and in environmental settings. Theses interviews explored the stroke clients' views in terms of future plans and work which linked how they apply their cultural and natural activities in the local area in everyday life. Furthermore, the topic issue asked about the strengths and weaknesses of the OT-MCS after the rehabilitation programme. Importantly, some sensitive issues have been avoided, in particular, the religious conflict in southern Thailand.

4.15.6 Ethics in dissemination

In this project words and language are used carefully and respectfully with all participants, in terms of gender, lifestyles, ethnicities, religious beliefs, and cultural activities. 'Culturally appropriate activity card sort for stroke rehabilitation in Thailand: A participatory approach with users and therapists' presented at the 5th Asia Pacific Occupational Therapy Congress (APOTC-2011), 19th – 24th November

2011 at the Empress Convention Centre, Chiang Mai, Thailand (see Appendix O). This conference was supported by the World Federation of Occupational Therapy (WFOT), which took a great opportunity to promote OT-MCS for stroke rehabilitation not only for Thai people but also for the global and international community (World Federation of Occupational Therapists, 2011).

4.14.7 Ethics for copyright and license

The system framework of OT-MCS has been secured by the Centre for Intellectual Property Management (CIPM) of Mahidol University, Thailand in the copyright No. 23806 and further protected by license No.254227 by the Department of Intellectual Property (DIP), Ministry of Commerce, Royal Thai Government (Appendix S). This indicative care package of practice has provided OT intervention for stroke rehabilitation in Thailand. Therefore, if other institutions need to adopt the use of OT-MCS in their OT clinics, the official process will involve informing CIPM and DIP for permission, including connecting with the researcher and team.

4.15.8 Ethics for conducting research in a multicultural environment (6 regions) throughout Thailand

This research took place in 6 regional OT centres in Thailand. The research focused on intervention not just using formal clinical approaches, but also captured and adopted various essential activities for stroke pathways in multicultural environments for rehabilitative intervention. In terms of cultural sensitivity, the researcher and team engaged stroke participants by using local language (Dialect) to build up familiarities and relationships. Issue related to religious conviction or politics were kept away from the conversations and communication during the OT-MCS programme intervention and interview processes.

4.16 Summary

This chapter illustrates philosophical concepts (ontology, epistemology) and methodology of the research and design. It shows the strengths and weaknesses of single quantitative or qualitative inquiries leading to the use of a mixed methods approach for investigating the use of the OT-MCS indicative care package. According to combined use and the nature of research, the framework of an integrated methodology (FraIM) is used to probe the answers to the questions. Quantitative inquiry is used to evaluate the numerical data of participants' attitudes in therapeutic media and level of activity engagement. After the OT-MCS intervention, qualitative interviews were used to investigate the textual data of the lived experience of stroke participants. Thematic analysis based on IPA is used to discover the viewpoints of stroke participants and the interpretation of researcher as an occupational therapist leading to the generation of sub-themes and main themes. The textual and numerical data were combined to determine structured results presented in the Chapter 5. Moreover, this chapter presents sampling, research sites, intervention instruments, data collection with assessment tools. Lastly, this chapter discusses the ethics of and for conducting the research.

Chapter 5 presents the combination of textual and numerical data by the principle of FraIM evaluating the OT-MCS indicative care package for stroke rehabilitation in Thailand.

Chapter 5

FINDINGS: AN INTEGRATED OUTCOME OF THE OT-MCS

5.1 Introduction

This findings chapter provides the results from data collection in the 6 research sites. The findings of integrated textual and numerical data are presented. Thematic analysis and quantitative inquiry were blended in the framework of mixed methods. The research findings were investigated by using the research questions which gave direction.

5.2 General performance in 6 occupational therapy clinics

The databases from 6 regional hospitals show both the number of stroke patients and the number of attendees who walked into 6 OT clinics in the 8 week study period, before and during the OT-MCS data collection.

Table 5.1: The numbers of stroke clients attending 6 regional OT clinic centres in Thailand before and after the use of OT-MCS installation.

Regional Hospitals	**8 weeks before OT-MCS installation**			**8 weeks during OT-MCS installation**		
	Month	**Number of Cases**	**Number of attendances**	**Month**	**Number of Cases**	**Number of attendees**
Central region	July (2010)	63	322	September (2010)	67	348
	August (2010)	61	302	October (2010)	71	366
Northern region	August (2010)	51	275	October (2010)	54	292
	September (2010)	53	284	November (2010)	59	304
North-East region	September (2010)	21	168	November (2010)	22	184
	October (2010)	26	158	December (2010)	23	146
Western region	October (2010)	31	195	December (2010)	38	283
	November (2010)	34	237	January (2011)	35	275
Eastern region	November (2010)	22	109	January (2011)	43	214
	December (2010)	26	143	February (2011)	37	162
Southern region	December (2010)	50	347	February (2011)	60	482
	January (2011)	41	283	March (2011)	52	375
Total	Before OT-MCS	479	2,823	During OT-MCS	561	3,431

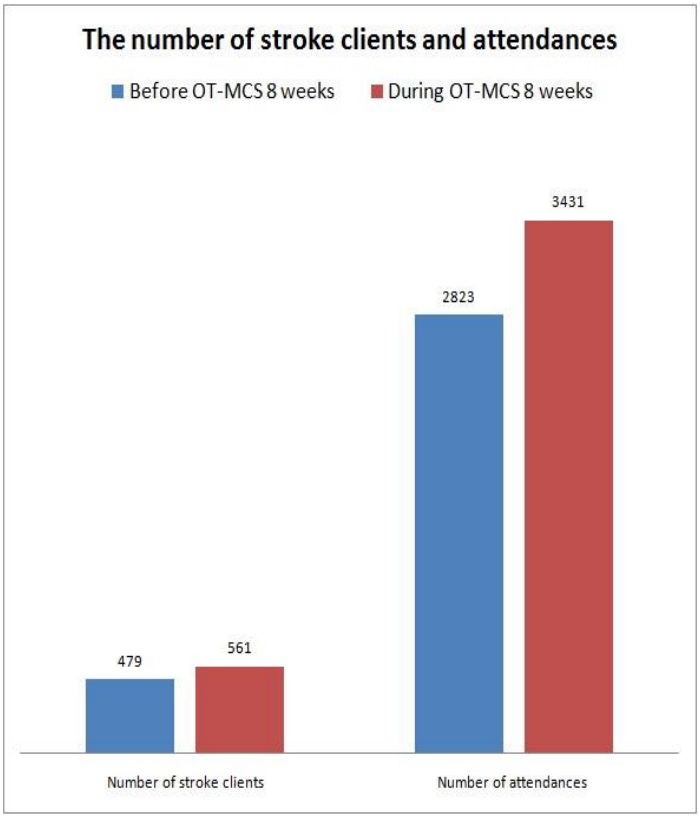


Figure 5.1: A comparison of the number of stroke patients and number of attendances before and after OT-MCS installation at 6 regional hospitals in Thailand

Table 5.1 shows the use of OT-MCS in Thailand during 6 months (September 2010 – March 2012) which started in the central region and ended in the southern region. The volume of OT service is presented together with the number of stroke clients and attendances that were served by 6 regional OT clinics before and after the use of OT-MCS 8 weeks.

The number of stroke cases and the number of attendances have both increased overall by 17% and 22% respectively (see in figure 5.1). Hence, the outcome of percentage increase implied the efficient performance of the stroke rehabilitation service system, despite the same number of supervised occupational therapists. The rationale for rehabilitative service increase during the use of OT-MCS is given in the Chapter 7. Discussion (7.5 Collaboration).

5.3 Experimental performance of stroke participants in 6 OT clinics

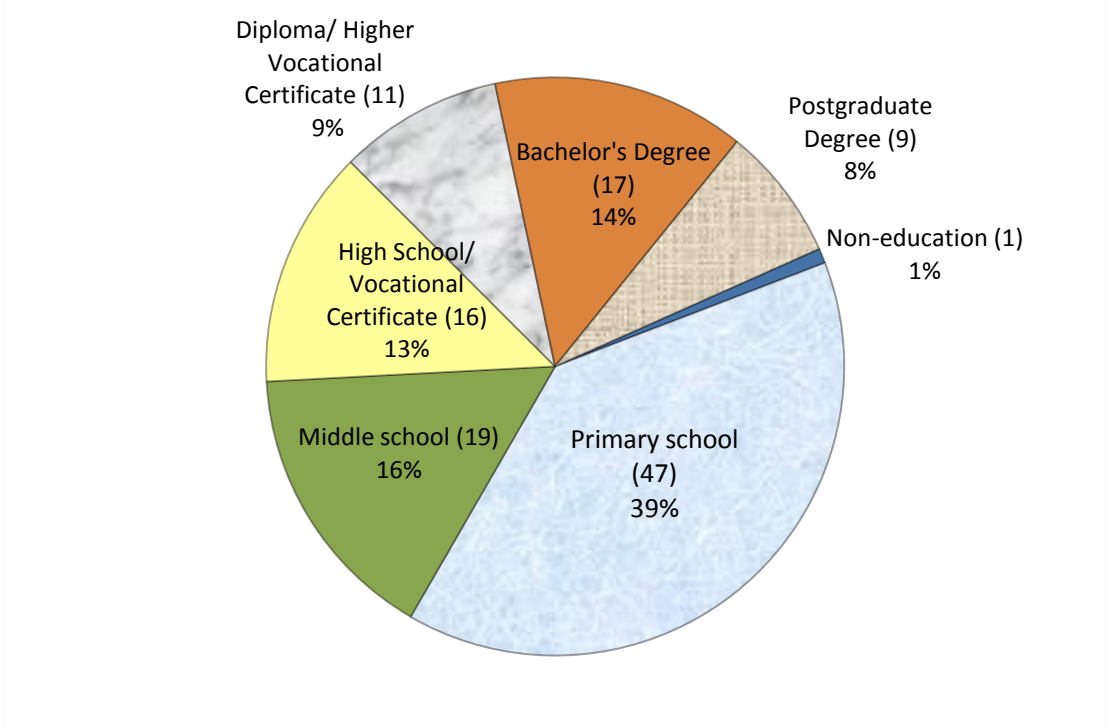
Table 5.2: The general characteristics of stroke participants in the experimental part

Regions/ Characteristics	Central Region	Northern Region	North-East Region	Western Region	Eastern Region	Southern Region	**TOTAL**
Male	15	13	10	14	15	15	**82**
Female	5	7	10	6	5	5	**38**
Age (Mean)	59.55	59.15	55.95	57.45	52.05	60.60	**57.45**
SD	13.504	15.325	15.938	14.608	15.618	13.648	**14.742**
Right side of body affected	4	7	6	6	6	5	**34**
Left side of body affected	15	13	13	14	14	15	**84**
Neither/Bilateral	1		1				**2**

A total of 120 stroke participants were originally recruited based on inclusion and exclusion criteria. Stroke patients' ages ranged from 13 to 82 years with a mean of 57.45 ± 14.74 years and were 68% of male, and 32% of female. The results of pathological expression in the side of body affected showed that 28 % of stroke participants had an affected right side (Left brain lesion) and 70 % of stroke participants showed a left side affected (Right brain lesion), moreover roughly 2% of stroke participants showed both sides of brain lesions.

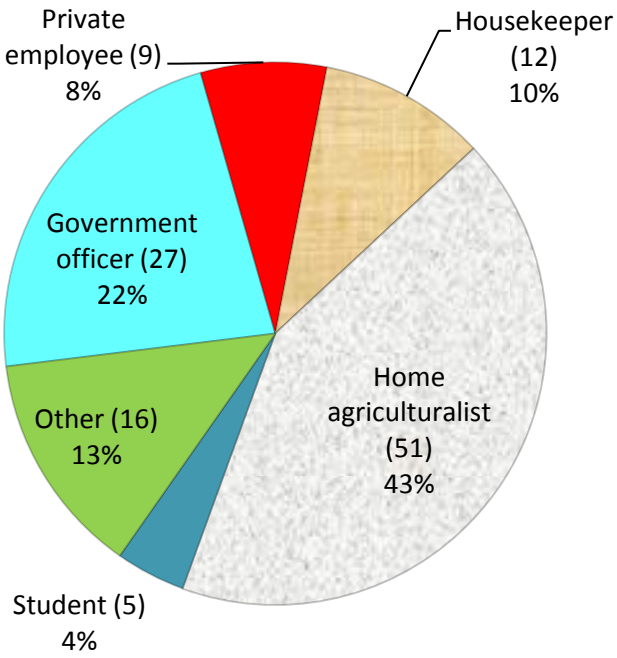
In the educational attainment, stroke participants varied as shown in the pie chart below. Figure 5.2 draws attention to the main issue. Firstly, 40% of the group either has at most primary school education, and only 22% to the group has graduated from university or equivalent education. This is typical of the Thai population, and in particular this group's generation. Hence, the final educational level is the implication for the ability of the group to understand the instruction or to pick up on the idea of stroke healthcare and rehabilitation. A large proportion with low education achievement and a small proportion of stroke participants who had been to university could have difficulties understanding the OT-MCS activities. The implication of the activity catalogue (AC) with which these population had to engage is that some of them with higher educational backgrounds would be more familiar and able to participate in some therapeutic activity items.

Figure 5.2: The percentage of final educational levels of stroke participants



On the issue of profession, stroke participants were classified in 5 main groups of career which is presented in a pie chart below. The distinguished proportion of data showed that 43% of the stroke population are home agriculturists, which is generally a profession of Thai population in relation to the level of education as well. Meanwhile, stroke participants who work for the government present at 22% which possibly reflects the health policy of offering a free healthcare service for all governmental officials in public hospitals throughout the country. Four per cent of stroke participants are students and one still studies in secondary school. Implications for the activity selection where new therapeutic media linking to professional lives such as agricultural activities (fruit pole, cleaning rice or bean, basketry, gardening, watering plant and etc.) and office activities (mouse and key board skills, using scissors, stapler skills and etc.) are many. Further implications and issues of involvement are addressed in the Discussion chapter.

Figure 5.3: The percentages of various professions of stroke participants



5.4 Findings of integrated textual and numerical data

The details of stroke participants' characteristics and demographics for interviews were valid at the time of data collection (see Appendix V). Most stroke participants interviewed were male and were diagnosed with ischemic stroke, with a range of ages and stroke duration. There were 24 stroke participants, but due to sound

recorder error during one interview unfortunately the participant did not have time to be interviewed a second time. As a result, the interviews of 23 stroke participants were transcribed. The transcriptions were divided into two groups based on functional performance (slow and fast stream rehabilitation). The slow stream rehabilitation group comprised of 9 males and 2 females whilst, the fast stream rehabilitation group consisted of 8 males and 4 females, whose ages ranged between 13 and 73 years. In the case of the 13 years old, this study sought the permission of both father and mother (information sheet and consent form) as well as ethical approval.

In the following results, a large number of themes produced during the process of data analysis relate to the lived experience of individual stroke participants in dealing with the rehabilitation process within the OT-MCS approach. In order to protect confidentiality and aid-reading, generic Thai substitute names were used rather than the real name of stroke participants.

The findings of mixed methods are addressed in this chapter and involve textual and numerical amalgamation. The main themes include several sub-themes, some of which were blended and supported by the statistical results. These integrated textual and numerical data provide the relevant outcome linking the research aims and questions.

Hence, the findings from an OT-MCS approach are divided into two pathways in stroke rehabilitation that comprise of slow and fast stream rehabilitation.

5.5 Slow stream rehabilitation

The use of thematic analysis based on principles of IPA showed six main themes. These were as follows:

- Engagement with OT-MCS
- Use of the activity catalogue (AC)
- Collaboration
- Salience
- Self-management
- Looking to the future

Investigation of these main themes and their constituent sub-themes (see Table 5.3) formulate the basis of slow stream rehabilitation using an OT-MCS approach, with each theme demonstrated by verbatim extracts from the interviews. This finding recognises that these themes are one possible account of the lived experiences after the use of OT-MCS. In fact, these themes do not cover all aspects of stroke participants' experiences, and feelings of interpretation, which have been selected due to their relevance to the research aims and questions. It should be acknowledged that these themes are a subjective interpretation and that other researchers may focus on different aspects of the accounts.

In stroke participants (slow stream rehabilitation) some themes related to family relationships and risk taking at home or in public areas were raised in the interviews; but these were not explored in the analysis as they were specific to single individuals and not supported by other interviews. In the process of searching for connections across emergent themes and defining and naming themes, some points unique to one stroke participant were omitted as they were peripheral to the research question. This search for overarching main themes meant that some of the emergent themes (sub-themes or initial themes) were not represented in this process of merging themes and excluded from table 5.3.

Moreover, the findings have been merged with the numerical data from the quantitative approach into the relevant themes. The interviews were transcribed and translated from the Thai language to English. In presenting the verbatim extracts some minor changes have been made to improve readability, but the same in the Thai contexts has been preserved. Missing material is presented by dotted lines with brackets (…), and dotted lines at the beginning or end of an account extract point out that the stroke participant was talking prior to or after the extract. All identifying information has been deleted or changed, and the alias names have been used to protect the anonymity of stroke participants.

Table 5.3: Main themes and related sub-themes of slow stream rehabilitation

Main themes	**Sub-themes**
Engagement with OT-MCS	Characteristics of OT-MCS approach
	Comparison of OT-MCS and general Thai OT approach for stroke rehabilitation
	Effective means in applying OT-MCS for sustaining and developing life-skills
Use of the activity catalogue (Technique) + Attitude of stroke participants (satisfaction and importance) (SPSS: Box plot analysis)	Experiencing therapeutic activities and transition in functioning at home and environment
	The needs (satisfaction and importance) and potential development
	Inspiration and challenges when dealing with various therapeutic activities
Collaboration + Comparison of attitude of OTs and stroke participants (SPSS: Mann Whitney U Test)	Building team relationships and understanding needs
	Autonomy within the partnership for activity selection and goal setting
	Awareness of clear communication and explanation during activity engagement
Salience	Using meaningful and purposeful activities relevant to different cultures and everyday life
	Shared experiences and problems when performing activities
	Modification and transition of home and cultural activities
Self-management	Fatigue
	Time management
Looking to the future	Future hope in health expectation
	Self-development and encouragement

5.6 Engagement with OT-MCS (Slow stream rehabilitation)

This main theme captures three sorts of engagement with OT-MCS that occur in stroke participants. The findings present significant effects upon how stroke participants feel during the experience of the OT-MCS. Most used to receive traditional OT approaches and were able to compare these with the use of the OT-MCS. The research team did not intend to discredit the previous OT system in 6 regional hospitals, but findings drawn from the views of stroke participants reflected their better experience of the treatment outcome. In Thailand, no research or literature reviews were found in the field of OT which interviewed stroke clients about therapeutic effects of interventions. This study is likely to produce the first evidence which interprets the voices of stroke clients after an OT intervention. Hence, this main theme provides three sub-themes: *characteristics of OT-MCS approach*; *comparison of OT-MCS and general Thai OT approach for stroke rehabilitation*, and *effective means of applying OT-MCS for sustaining and developing life-skills*.

5.6.1 Characteristics of OT-MCS approach

This sub-theme addresses stroke participants' accounts of experiencing engagement with OT-MCS. The theme presents the perspectives and feelings of stroke participants towards OT-MCS, which in turn will influence the therapy outcome. In Kanchana's account, she reflected on the effectiveness of an OT-MCS intervention to facilitate her affected upper limb recovery in the movement process. She described having the feeling '*I feel good*' after engaging in OT-MCS which made the difference of developing skills and abilities. The use of the OT-MCS related to her lifestyle and everyday living so that she could apply activities at home and in the community and gradually develop her hand function and movement, as in her answer below:

> *'I feel good all activities initiate me every day in practice. So if I didn't join a new approach, I cannot move my hand and still depend on my husband to do anything in my life. This approach inspired me to draw out my ability again and lead me to succeed in activity.' (Kanchana)*

Similarly, in Chalermpong's perspective, '*a proper activity treatment*' is a key in OT-MCS providing classification and choices to develop occupational performance. His speech reflects the understanding of therapeutic media in the use of the OT-MCS approach as tools to help him draw competence and functional skills to fit with his needs. It mirrors the effectiveness of using the OT-MCS approach which facilitates the practice with therapeutic media from basic rehabilitation to advanced activities.

> *'A new approach is a proper activity treatment and can make sense to me. Doing various activities help me gain a lot of abilities and feel doing the real things even some complicated activity. I begin with basic activities and gradually developed to difficult things.' (Chalermpong)*

Within Benchaporn's account believing in the use of OT-MCS to increase functional capacity resonated. She clearly appreciated the therapeutic activities from the use of OT-MCS, which help develop her skills and abilities to understand the direction of her goals. Therapeutic media multiform and patterns of activities inspired her to learn gradually, restoring her skills and functional performance. She described the feeling like '*that makes me gain ability and skill*', and acknowledged her thoughts understanding the strategic direction.

> *'I think that a lot of activities in new approach help me get better because every activity is linked together that makes me gain abilities and skill. I can learn and got inspiration to do activities because I know what I'm aiming for'. (Benchaporn)*

5.6.2 Comparison of OT-MCS and general Thai OT approach for stroke rehabilitation

All stroke participants both commented upon receiving the OT-MCS approach and reflected on their lived experiences in the intervention. Stroke participants were asked to the question, '*What do you think about the new approach compared to what you were receiving before*?' Hence, this sub-theme presents an interpretation of stroke participants' views which include negative experiences and influences that participants described others having.

Several stroke participants, who had experienced the use of OT-MCS, gave an account that conveyed a sense of the means and outcome. They held a positive view about the use of OT-MCS and highlighted differences between the traditional OT approaches and the new OT-MCS. OT-MCS could respond effectively to stroke patient's needs by providing culturally relevant therapeutic activities for rehabilitation. The expressions of stroke participants suggested that the old programme of occupational therapy did not offer the creativity and clear direction for application, as highlighted in the following interview extracts:

> *'It's very much different, because in the previous time I did only 4-5 activities, incline board, cycling exercise, skateboard, and cone into pillar activity. But new treatment, it changes due therapist bringing various activities such ball therapy, washing cloth and new pattern of cone activity in moving both arms left and right ways.' (Suchart)*

> *'I feel like this new approach provides a lot of activities to practise that help me to gain skills and abilities when compared to the old treatment. Last system was done in the same way with limited activities and they were hard to apply in my daily life and home.' (Chalermpong)*

> *'I think that a new approach is more effective than the old system. For example, I spent more than 3 years practising with the old one, it gradually develops a little. But a new approach came to our hospital; it changes because I feel quickly the recovery with my movement when I do an activity.' (Chutchai)*

As illustrated in the above speeches, these stroke participants' accounts were more similar in the sense of the different engagement between two kinds of OT approaches. These speeches indicate that they had experienced OT practice in different hospitals. It implies that the use of OT-MCS provides distinctive therapeutic media different from general occupational therapy. These therapeutic activities are adopted from the activities of daily living, way of life, local materials and cultural lifestyle of individual stroke clients by arranging from basic rehabilitation to advance activities of leisure and socio-cultural practices.

Meanwhile Natchaya and Chutchai who suffered from muscular spasticity for a long time, could not apply their affected upper limbs to interact with activities. They gave a great deal of descriptive information about themselves with the use of the OT-MCS

approach in reducing their limited body function and increasing skills and occupational performance. In addition, there was a sense of giving credit to the use of OT-MCS which reflected deep feelings from the inability to use the affected arm and hand. The impact of stroke is severe and progress is slow. When OT-MCS is installed at the hospital, it helped them move their arm to perform activities and they expressed happiness and faith in the use of a new system, as highlighted in the following quotes:

> *'Over 4 years I cannot move my arm, but a new approach helps me to a little movement. It is amazing even though I cannot move full range of my arm but now I can control some part of the hand already and so very happy. I got hope and this new approach gives various activities inside which encourage me to practice with the programme every day.' (Natchaya)*

> *'A new system is a key! I can move my hand, because a new approach gave effective activities which I can choose and these media rouse me in progress. Definitely, I feel less stiff on my arm and shoulder. In the previous time OTs never asked me what I want to do, they assign to do this and that activity. When a new approach came to my hospital, I believed that this activity intervention and means can help me reach my goal, because I can talk and choose by myself.' (Chutchai)*

Stroke participants' quotes reflected the negative experience with previous OT processes in the limitation of activities to serve them, whilst the use of OT-MCS provides various therapeutic media that help them develop optimal abilities and skills. They might help to reduce spasticity and increase a range of motion of joints, in particular upper limbs. Obviously, some stroke participants felt pain reduction due to the process of movement with activities. Hence, an OT-MCS is created to promote hand function and movement that provide a range of therapeutic activities corresponding to the stroke clients' skills and functions.

5.6.3 Effective means in applying OT-MCS for sustaining and developing life-skills

This sub-theme presents the effectiveness of the OT-MCS approach from stroke participants' accounts. The theme comes from six stroke participants who reported distinctive therapy effects compared to others.

Within Kanchana's account, she thought that the use of OT-MCS can stimulate brain function to deal with real activities leading to the increase in skills of arm and hand movements. This demonstrates that a stroke participant can respond effectively in terms of application, implementation at home, and other environments. She knew which activities are valued and meaningful in her life, when she learned and practised these activities, her aspiration accelerated and her skills and abilities during activity engagement increased.

> *'A new approach stirs up my brain to work out with real activities. I think that a new approach can help me to practise and learn how control my arm and hand to do an activity that is valued and meaningful for my life.' (Kanchana)*

Consistent with Jirasak's view, he described that, *'it motivates me to maintain good skills and draw gradually my ability.'* His message shows that the use of OT-MCS can lead him along the correct road of upper limb rehabilitation training that he can select an activity and develop his own capacity and functional skills. The use of OT-MCS has maintained and improved performances of stroke clients who depend on individual experiences in relation to therapeutic media which helps them to sustain or enhance functional ability.

> *Well, a new approach can help me to get better, because this system has guided me to practise by opening a chance to share experiences. Various activities stimulate my arm and hand to move again. I tried to use both hands first with basic activities such as holding cone and a plastic bottle.' (Jirasak)*

> *'After that I feel lightly in my affected arm and easy to tackle with those activities again. I know that those activities help me to maintain skills and draw gradually my ability when I do these activities.' (Jirasak)*

Benchaporn's account was similar to Jirasak's in the sense that she drew on the capacity and skills of arm and hand movements. Also she emphasised that '*I feel my skill recovery*'. Her feeling indicates the brain activity that generates her capacity to move arm and hand for performing an activity, and also can reduce muscle spasticity

that is effective in restoring skill and dexterity, as highlighted in the following interview extract:

> *'I feel my skill recovery and development gradually, my brain is alert to move my arm and hand including a feeling of stiffness has been reduced much more that I feel it. I could increase my ability when dealing with activities. After that I came back to do again, it feels easy more than the past. This is why new approach gives means and a variety of activities for the practice' (Benchaporn)*

As revealed in the above quote, the sequential and relevant activities in the use of OT-MCS can help stroke clients to boost skills and functional abilities based on the means and activity that stroke participants selected, including counselling by OTs in order to sustain and develop individual life-skills.

5.7 Use of the activity catalogue (Technique): Slow stream rehabilitation

This main theme aims to capture the essential influences and factors of stroke participants in dealing with the activity catalogue (AC). This includes various experiences from stroke participants' accounts, which support this culturally relevant therapeutic tool. Moreover, the tool appeared to have had significant effects upon how stroke participants selected therapeutic activities leading to the reflection, feelings, and the interpretation of their lived experiences. There are several accounts in which stroke participants (slow stream rehabilitation) gave a perspective and idea for the use of the activity catalogue (AC). Most stroke participants highlighted the benefits of their gained experience and functioning, selecting favourite activity items leading to set goals as therapeutic media in restoring functional ability and skill performance. These were *experiencing therapeutic activities and transition in functioning at home and environment*; *the needs (satisfaction and importance) and potential development*; and *inspiration and challenge to deal with various therapeutic activities*.

5.7.1 Experiencing therapeutic activities and transition in functioning at home and environment

This sub-theme was supported with numerical data from the evaluation of the activity catalogue (AC) with stroke participant users. In order to illuminate the use of AC, quantitative data have been presented earlier and followed by textual accounts from stroke participants' expressions relevant to this topic. The findings began with the stroke participants' attitudes via therapeutic activities or activity catalogue.

The information from 60 stroke participants on the attitude of the stroke assessment test was analysed in terms of "satisfaction" and "importance" in 40 therapeutic activity items. The activity catalogue (Figure 5.4) is a tool or therapeutic media that OTs used to initiate stroke participants to perform their activities by themselves. It comprises of 4 domain areas (basic rehabilitation skills and activities of daily living (ADL), instrumental activities of daily living (IADL) and household activities, Socio-cultural/educational activities, and leisure activities) of 40 pictorial items.

Table 5.4: Activity catalogue (AC)

Classification of Activities Into 4 Areas (40 items)			
Basic rehabilitation skills and ADL (18 items)	IADL and Household activities (10 items)	Socio-cultural/ educational activities (6 items)	Leisure physical activities (6 items)
A1- Peg board A2- Incline board A3- Sliding board A4- Looping curve skill A5- Key grip skill (Turning) A6- Pinch Grip (Pinching) A7- Bimanual putting pin in a bead A8- Dressing with top (shirt/blouse) A9- Putty activity A10- Stacking cones or rod A11- Constructing chain from plastic (small) link A12- Pick and place ball in small cone A13- Placing beads on pins A14- Pronation/supination task A15- Tennis ball pick and place A16- Bimanual holding of cone and place A17- Forceps pick and place with ping pong ball A18- Trunk control/bilateral arm movement	A19- Washing skill A20- Scrubbing and sweeping the house A21- Phoning skill A22- Scoop and pour liquid into the bottle A23- Opening and closing door A24- Mouse skill A25- Pump action of a lotion bottle A26- Calculation skill A27- Hammer/Axe skill (plastic) A28- Bolt-screwing (into the board)	A29- Using chopstick A30- Use of spoon and fork (bimanual) to remove bead from putty A31- Writing skills A32- Sorting tidly winks with spoon A33- Picking and sorting small bead (like cleaning rice, bean) A34- Fruit pole	A35-Dart A36-Ball throwing at target with a bounce A37-Shape matching skills A38-Key board skills (computer or piano) A39- Throwing rings (quoits) at target A40- Picture mosaic skills

(Adapted from Baum & Edward, 2001; Katz et al, 2003; Packer et al, 2008 into Thai cultural context)

The study surveyed the attitudes of stroke participants in engaging 40 therapeutic activities from the activity catalogue (AC). The data were drawn on a median score of 60 stroke participants and presented the majority population view of both "Satisfaction" and "Importance" in 40 activity items on 6 levels of rating scales (0=Not accepted, 1=Very low, 2=Low, 3=Moderate, 4=High, and 5=Very high) by using box plots.

5.7.1.1 Satisfaction in activity catalogue of stroke participants

In all box plots, satisfaction showed box and whisker charts. Each activity (A1-A40) was visualised with a box plot (see Appendix T). The vertical scales are related to the stroke participants' rates in level of satisfaction. In these box plots, the median is shown in a thick line and the box represents the middle 50 % or the interquartile range (IQR) responses and the whiskers are the full ranges excluding extreme outlier value (An example shows in Figure 5.4 and Appendix T).

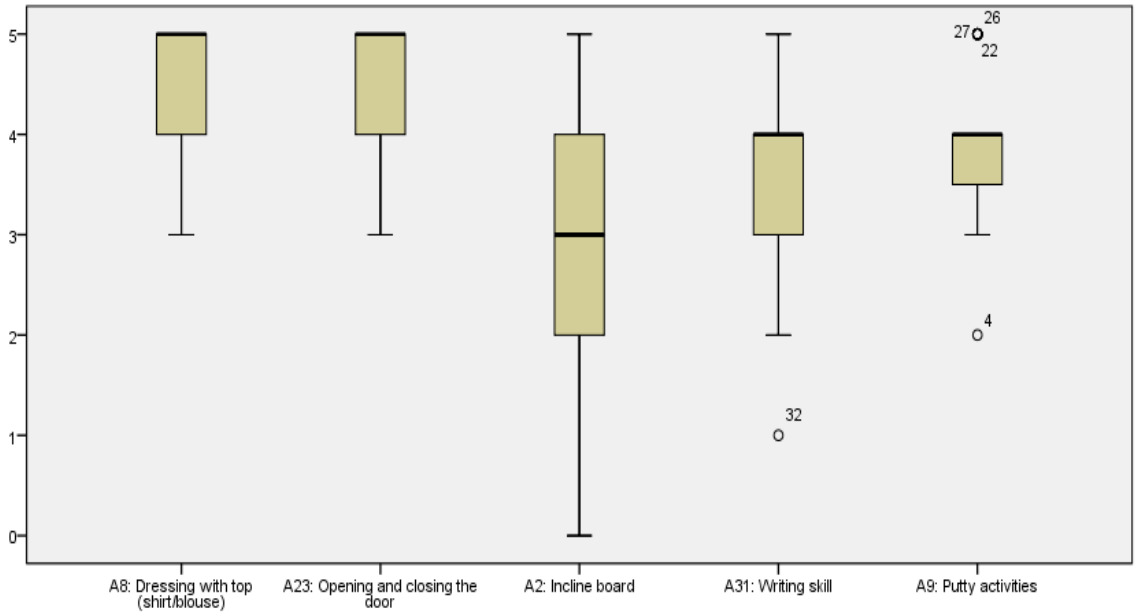
Majority of the medians were at the value of 3 and 4. There were no values for no satisfaction' (0) or very low satisfaction' (1). The findings show that the mainstream of stroke participants were satisfied with 26 activity items (65%) in the activity catalogue (AC) at high level (4) and 10 activity items (25%) at a moderate level (3). A very high median level (5) was found in 2 activity items (5 %), whilst there also were 2 activities (5%) at a low median level (2) of satisfaction (see Table 5.5).

Table 5.5: the relationships between activity items and level of satisfaction (median value)

Very high satisfaction Median value (5)	High satisfaction Median value (4)	Moderate satisfaction Median value (3)	Lowe satisfaction Median value (2)
A8- Dressing with top (shirt/blouse)	A1- Peg board	A2- Incline board	A7- Bimanual putting pin in a bead
A23- Opening and closing door	A3- Sliding board	A4- Looping curve skill	A11- Constructing chain from plastic (small) link
	A5- Key grip skill (Turning)	A13- Placing beads on pins	
	A6- Pinch Grip (Pinching)	A17- Forceps pick and place with ping pong ball	
	A9- Putty activity	A24- Mouse skill	
	A10- Stacking cones or rod	A27- Hammer/Axe skill (plastic)	
	A12- Pick and place ball in small cone	A28- Bolt-screwing (into the board)	
	A14- Pronation/ supination task	A29- Using chopstick	
	A15- Tennis ball pick and place	A38-Key board skills (computer or piano)	
	A16- Bimanual holding of cone and place	A39- Throwing rings (quoits) at target	
	A18- Trunk control/bilateral arm movement		
	A19- Washing skill		
	A20- Scrubbing and sweeping the house		
	A21- Phoning skill		
	A22- Scoop and pour liquid into the bottle		
	A25- Pump action of a lotion bottle		
	A26- Calculation skill		
	A30- Use of spoon and fork (bimanual) to remove bead from putty		
	A31- Writing skills		
	A32- Sorting tidly winks with spoon		
	A33- Picking and sorting small bead (like cleaning rice, bean)		
	A34- Fruit pole		
	A35-Dart		
	A36-Ball throwing at target with a bounce		
	A37-Shape matching skills		
	A40-Picture mosaic skills		
2 activity items	**26 activity items**	**10 activity items**	**2 activity items**

In order to clarify in detail the pattern of distribution, the example box plots illustrated the spread of satisfied answers. The satisfaction of 5 distinguished activity items exemplified box plots which comprise of A8 (Dressing with top shirt/blouse), A23 (Opening and closing the door, A2 (Incline board), A31 (Writing skill), and A9 (Putty activity), as depicted in the following figure 5.4.

Figure 5.4: Example box plot distribution of satisfaction in 5 activity items of stroke participants



To demonstrate the distribution of satisfaction box plots and whiskers, each activity had a box that was coded as A8, A23, A2, A31, and A9. All the medians of satisfaction lay at value 3, 4, and 5 showing that none of the items were rated no satisfaction (0), very low satisfaction (1), or low satisfaction (2) of the median value. In A8 (*Dressing with top shirt/blouse*) and A23 (*Opening and closing the door*); there is a similar spread of the box and whisker (distances between adjacent values) which are not symmetrical. The patterns of their skewness are not straightforward. The line marking the median is towards the upper part of the box presenting a very high median value (5) that refers to 30 stroke participants who showed attitudes at a very high satisfaction of these activity items used in the rehabilitation programme. The longer whiskers in the lower part of the box represent the lower extreme at moderate satisfaction (3) to the 25^{th} percentile. In addition, the section of the box from the 25^{th} percentile to the median represents stroke participants who showed a high level of satisfaction (4) to a very high level in both activities.

In A2 (*Incline board*), the minimum value for this activity is no satisfaction (0), and the maximum is very high satisfaction (5) which is represented by the top and lower "whiskers". The top 50% of the stroke participants (30 participants) who presented moderate satisfaction (3) to very high satisfaction (5); are represented by above the median (the thick line). Those in the top 25% of activity satisfaction (15 participants) are shown by the top whiskers.

In A31 *(Writing skill),* a box-and- whisker plot graphically shows the distribution from the lower whisker at lower extreme of low activity satisfaction (2) to the top whisker at a very high level of satisfaction (5) of activity. The median value presents a high satisfaction (4); it refers to 30 participants who revealed higher satisfaction via this activity. Moreover, one dot represents a stroke participant who showed the attitude (outlier) of very low satisfaction (1) of activity.

In A9 *(Putty activity),* a box-and-whisker plot illustrates the dispersion from the lower whiskers at a moderate satisfaction (3) to the median value on top of the box at a high satisfaction (4). At the line marking the median to the top, 50% of stroke participants presented high levels of satisfaction (4) excluding three stroke participants who presented attitudes (outliers) at very high satisfaction levels (5). Furthermore, one stroke participant showed the attitude (outlier) at low satisfaction (2) of activity.

5.7.1.2 The relationship with interview data

A8: Dressing with top shirt/blouse

Stroke participants found that engaging with the activity of 'dressing with a top shirt / blouse' was very satisfying. This activity was frequently selected. However, some stroke participants within this particular study gave personal accounts of these therapeutic media in multiple ways. Apia's and Witun's accounts, for example, describe themselves as using self-help when dressing with top shirt/blouse as a part of daily life.

> *'I found many activities help me to develop the ability. I learn dressing with the top shirt which helps me to use every day compared to previous time I could not do it.' (Apai)*

'I did it. I brought my shirt from home to practise in OT room and consult therapist how to do this activity because the cloth in hospital didn't fit with me. I explained why I prefer my shirt more and is meaningful for me. Yes, occupational therapist has modified dressing activity to be a simple means of changing the button size that I can do it.' (Witun)

As illustrated in the above interview extracts, self-help and development of functional skills by engaging in dressing activities provide a linkage between the hospital and application in a real world. The shared experiences and problems after activity selection are analysed by the occupational therapist, who is central to convey the changes of simplifying graded activity into simple tasks and finally to synthesise the activity of therapeutic media in relation to the application and implementation to fit with stroke client's needs.

A23 Opening and closing door

Opening and closing the door may influence activity of daily living of stroke participants to transfer the body from one area to another area in order to perform essential activities. This activity is important as it takes stroke survivors to target area related to the particular environmental settings and takes account of the structure of home architecture which leads to more satisfaction of activity selection.

In Kanchana's and Jirasak's accounts show the satisfaction in selecting opening and closing the door for linking the application to implementation at home and in the environment.

'Occupational therapists explained about the benefit of an activity and could take to adapt with another activity at home such as tennis ball pick and place, and opening and closing the door. These activities, I can modify to use in my home.' (Kanchana)

'Absolutely, I try to practise a pronation /supination device and link to apply with opening and closing door that is a particular benefit to me to use at home.' (Jirasak)

Both accounts reflect that they understood the linkage of activities by practising the basic rehabilitation tools connecting to opening and closing the door activity. The connection and transition of skill functioning in activities of therapeutic media create

more satisfaction and sustain functional abilities in particular domestic activities such as opening and closing the door.

A2 Incline board

The incline board in basic rehabilitation skills and activities of daily living (ADL) in the activity catalogue influences pre-functional rehabilitation by increasing strength and range of motion in the arms and shoulders in particular stroke clients (Huang et al, 2010). This therapeutic media initiates stroke clients to hold the handles and slide these up and down on the track on a board to which weight can be added to increase resistance and adjust the different degrees of extension. Use of the incline board was explored in Taiwan and showed that it is one of the most frequently used upper extremity rehabilitation devices (UERD) in OT (Huang et al, 2010). This therapeutic item can commonly be found in all 6 regional hospitals in Thailand; however most of the stroke clients expressed various viewpoints from no satisfaction and satisfaction. For Thitipan, the incline board is a one activity that he had to do every day in the OT clinic.

> *'I think that incline board is very easy and fun.'(Thitipan)*

This therapeutic activity is likely to be easy because the natural use of this activity involves both upper limbs. An incline board can be seen in general occupational therapy, so that the activity catalogue of OT-MCS arranged it in a basic rehabilitation activities domain.

However, there is a negative view of this therapeutic item. Suchart views the incline board as a boring activity but the negotiation and suggestion by OTs enabled him to understand the interconnectivity between satisfied activity and basic activity to reach the goal, as highlighted in the following interview extract:

> *'Sometimes, it satisfies with activity. Sometimes I don't like some activity. However, if I didn't do basic activity, the therapist will give me information as to the value of this activity that can lead me to the next activity that I prefer. For instance, I think that the incline board is not beneficial for me and I don't like it. OTs explained that it can help my arm stretched out involving muscle tone, so that I accepted to do it.' (Suchart)*

'From that practice, I can do better with my favourite activity as grasping a tennis ball into the basket. I know how to learn some activity paving through another activity even though I don't like it but it can help in the next step that I realise its value.' (Suchart)

On the issue of satisfaction in the activity, Suchart reflected the conflict in some activity. The activity catalogue opens up various optional activities based on the stroke participant in the selection. It is possible for different views to appear within a team even though priority is given to the stroke participant. Between OTs and stroke client explanation and negotiation are essential when decisions are made regarding optimal activities for stroke rehabilitation. Increasing the awareness of communication between stroke participant and occupational therapist can create understanding and acceptance in selecting therapeutic media to attain the collaborative goal.

A31 Writing skill

Handwriting is a skill of individuals to communicate something by using language related to culture and civilization (Plamondon, et al, 2000). In stroke rehabilitation, writing skill is a multiple-component task that shows the integration of functional elements of physical, cognitive, and psychomotor processes (Van-Galen, 1991). This research embraced writing skill in the activity catalogue and took the opportunity for stroke participants to select and practise with both hands and with only on. The purpose of a writing skill is to practise upper limb movement and to develop control in stroke clients. The writing does not need be elegant (see Appendix E, pp.327-328). Findings reveals that stroke participants (slow stream rehabilitation) gave several satisfaction levels, however the interview data shows detailed stories in particular activity selections from the use of AC.

Chalermpong, for example, explained handwriting as a complicated activity which he faced and practised to develop body function and skills.

'I think that writing skills are difficult and this activity programme encourages me to use eye-hand coordination to control my pencil during writing. My brain is stimulated when I read and write the message.' (Chalermpong)

A sense of a difficulty is revealed as he describes his ability and perspective to deal with an advanced or complex activity. This activity needs more than one function in the programme, not only skill in physical movement, but also the connection of cognitive performance.

However, Sombat's perspective, using scissors and writing skill activity selection from the activity catalogue (AC) promote the connection and steps of the practice's journey.

> *'Activity catalogue helps me to see a variety of activities, so that I use it to navigate in many activities such as using scissors and writing skill help me to develop hand function.'*
> *(Sombat)*

> *'Moreover, I like reading and writing because I used to be an English teacher. Activity catalogue helps me to think about writing that a picture shows both hands to control the writing. It inspired me to reflect on my previous career linking to the thought. I can do it even if it will take a long time, because this is my life and I have to choose my life by myself'.*
> *(Sombat)*

It reveals that he took examples from the AC in relation to his experience and favourite activities. His satisfaction in selecting activities is linked to his professional experience that he could apply all this activity from the AC to do at home for self-development. This activity is in the educational activities of the AC, which can pave the way for stroke clients to consider their needs and abilities in selecting and performing activities connected to their experience and way of life.

A9 Putty activity

Putty is a substance that is made from silicone or non-hardening silicone and provides various benefits for therapy in particular stroke clients (Chu et al, 2004). Most OTs use this putty activity in exercising the intrinsic muscle in the hand. Putty is more resistant to being squeezed and can be moulded in various forms and shape. Moreover, it helps to practise a sense of touch and strength in the hand and fingers (Kowalczewski et al, 2007). Putty activity is a one of the therapeutic media in the activity catalogue that most stroke participants selected to practise hand-fingers

exercises and adaptation for stretching their intrinsic hand muscles. For Suchart, putty activity is used to control his hand and finger movement.

> *'It is a picture catalogue you (therapist) brought it to the hospital. I can choose it what I want to do. For example, I normally never practised with putty but catalogue help me. I combined my hand and use my finger to press putty move it. It's worked! I can control my finger to move and go with putty. I never believed it before.' (Suchart)*

AC is a key challenge and opens opportunities for stroke participants to pursue their needs. The stroke participant picks up the AC which provides the rehabilitation exercise and which helps him/her successfully perform an activity corresponding to the picture. Success of finger movement emerged through the putty activity and practical processes involved. Satisfaction and inspiration through the use of the AC for meeting needs and self-development is demonstrated.

In Chalermpong's account, the putty activity was modified. The substance was changed to dough powder (Play dough) while the functional pattern of activity is similar to the skill performed in putty activity.

> *'Several activities in my home are different from the hospital. In hospital, there are many tools to exercise first before activity practice. But, some activity I can apply to use at home such as putty, I can use dough powder that is available in the market. I use for this activity to boost my hand strength.' (Chalermpong)*

The picture of his story displays the different and similar therapeutic media in the practice between the hospital and his home life. It reflects that he is satisfied with the facilities at home for practising functional skills and occupational performance based on local materials. Thus, it reflects the thought patterns of the stroke client when finding a similar activity to the basic rehabilitation tool at the hospital. Such accounts demonstrate his attention and enthusiasm for the practice.

5.7.1.3 Importance in activity catalogue of stroke participants

Analysis explored the distribution of importance in box plots. All box plots of importance present box and whisker charts. Each activity has a box plot which were coded as A1 to A40. The vertical scales are related to the stroke participants' rate in the level of importance. Each importance in activity (A1- A40) was visualised with a box plot (An example shows in Figure 5.5 and Appendix U).

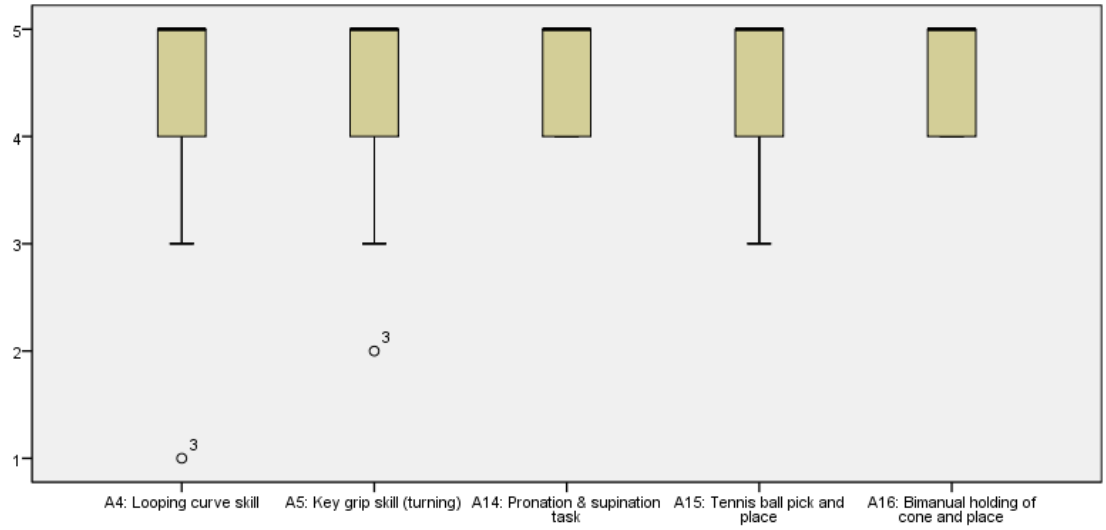
Most medians were laid at the value 3 and 4. There were no values for no importance' (0), very low importance' (1) and low importance (2). The findings reveal that the stroke participants were important with 11 activity items (27.5%) in the AC at very high level (5) and 20 activity items (50%) at a high level (4), whilst there were 9 activity items (22.5%) at a moderate median level (3) of importance (see Table 5.6).

Table 5.6: the relationships between activity items and level of importance (median value)

Very high importance Median value (5)	**High importance Median value (4)**	**Moderate importance Median value (3)**
A4- Looping curve skill	A1- Peg board	A7- Bimanual putting pin in a bead
A5- Key grip skill (Turning)	A2- Incline board	A11- Constructing chain from plastic (small) link
A8- Dressing with top (shirt/blouse)	A3- Sliding board	A24- Mouse skill
A14- Pronation/ supination task	A6- Pinch Grip (Pinching)	A27- Hammer/Axe skill (plastic)
A15- Tennis ball pick and place	A9- Putty activity	A35-Dart
A16- Bimanual holding of cone and place	A10- Stacking cones or rod	A36-Ball throwing at target with a bounce
A18- Trunk control/bilateral arm movement	A12- Pick and place ball in small cone	A37-Shape matching skills
A22- Scoop and pour liquid into the bottle	A13- Placing beads on pins	A38-Key board skills (computer or piano)
A23- Opening and closing door	A17- Forceps pick and place with ping pong ball	A39- Throwing rings (quoits) at target
A25- Pump action of a lotion bottle	A19- Washing skill	
A32- Sorting tidly winks with spoon	A20- Scrubbing and sweeping the house	
	A21- Phoning skill	
	A26- Calculation skill	
	A28- Bolt-screwing (into the board)	
	A29- Using chopstick	
	A30- Use of spoon and fork (bimanual) to remove bead from putty	
	A31- Writing skills	
	A33- Picking and sorting small bead (like clean+ing rice, bean)	
	A34- Fruit pole	
	A40-Picture mosaic skills	
11 activity items	**20 activity items**	**9 activity items**

In terms of the importance dimension, box plots examples were used to clarify stroke participants understanding (slow stream rehabilitation) of the distribution patterns. There were 5 interested activities of box plots that composed of A4 (Looping curve skill), A5 (Key grip skill), A14 (Pronation & supination task), A15 (Tennis ball pick and place), and A16 (Bimanual holding of cone and place), as highlighted in the following figure 5.5.

Figure 5.5: Example box plot distribution of importance in 5 activity items of stroke participants



To clarify the spread of importance of box plots and whiskers, each activity item was coded as A4, A5, A14, A15, and A16. All the medians of importance show the values that reflect a very high importance in each activity. In A4 (Looping curve skill), A5 (Key grip skill), and A15 (Tennis ball pick and place), there are the spread of the boxes and whiskers. The whisker at lower part of the box presents a lower extreme at moderate importance (3) to a very high importance (5), unless one dot of outlier of A4 and A5 present the attitude of a stroke participant at very low importance (1), and low importance respectively in each activity. The line marking the median is towards the top of the box presenting a very high median value (5) that referred to 30 stroke participants who showed attitudes of very high importance of the activity items for use in therapeutic media for rehabilitation.

In A14 (Pronation & supination task), and A16 (Bimanual holding of cone and place), these activities showed similar distribution which present merely the boxes. Both A14 and A16 show a downward skew from the median value. The section of

the boxes has spread from the 25th percentile to the median which represents stroke participants who showed a high importance (4) to a very high importance in both activities. In the median on top of the box are the 50 % of stroke participants (30 participants) who provided the attitude in terms of importance at a very high level (5) of both activity items.

5.7.1.4 The relationship with interview data

This story displays the perspective of stroke participants towards the activity selection in terms of the importance in their daily life. The given importance of activity and engagement involve various logical reasoning processes based on individual and lived experiences in which OTs need to consider the issues of importance that may be part of a stroke client's profession, culture, and personal values. Hence, stroke participants commented upon dealing with the activity catalogue and that therapeutic activities were important to them as they reflected the meanings of lived experience in each activity item.

A4 Looping curve skill (single shoulder curve training)

Looping curve skill is a therapeutic medium in the activity catalogue that promotes stroke clients' control of wrist movement for the pronation and supination patterns of hands. Benchaporn's account mainly provides a need to sustain and develop her sense of hand-control functions through having a successful goal. She realised that this activity is important for hand movements in future activities.

> *'I found it such as looping curve skill and pronation/supination wheel. These activities I deal with are challenging to apply with key pinch and grasping objects. I feel that these activities approaches are likely to use systematic steps, which is different from the last treatment. Additionally, therapists give the explanation before doing the activity. What is the goal of each activity and its value to me to use in my life?' (Benchaporn)*

Her account shows that she can understand her needs. The use of the activity catalogue can provide support and her activity selection can help create value and application in the connectivity of activities. This is a challenge that she had not met before. Matching her needs and preferences, is embedded in the concerned approach of the therapist who pays attention to describe step by step along the route of activity practice.

A5 Key grip skill

Key grip skill is important in the activity catalogue because this practice promotes thumb and finger in opposition in order to pinch and pick up some small object. For example, Chutchai perceived the value and importance of this activity practice. It was interpreted that this activity helped him to realise the connection through other therapeutic activities, as illustrated in the following interview extract:

> *'I think that… pinch grip are very hard for me due to the fact that I cannot isolate fingers, especially key grip skill and must use the force between thumb and index for holding and turning the key. I want to practise this because it will help me to open the door in the future.' (Chutchai)*

His speech refers to his understanding of his functional inability. He can measure the level of his body function needed to interact with complex activities of application and implementation. This analysis points out the connectivity of his intelligence and self-development of understanding in the engagement of other forms of therapeutic media.

A14 Pronation/supination task

This activity is a basic rehabilitation skill practice and is significant to some stroke clients who do not have a rotated wrist joint. Using a pronation and supination wheel can stimulate hand and arm muscles covering the wrist joint by stretching and contracting the neutral hand and arm movements (Baudendistel et al, 1996). This practice helps stroke clients to link to other activities such as opening and closing door or even controlling the steering wheel of a car. Natchaya, who has restricted wrist movement in the hand function, gave an account of a pronation/supination task as therapeutic intervention that enabled her to pursue her dream, which is car driving.

> *'I'm happy to set up my goal with the team, and everyone considers the value of activity, in particular pronation/supination task that it looks like how to control the steering wheel of a car. Because of this, I need to practise much more. I want to drive my car again.' (Natchaya)*

An activity catalogue (AC) provides authority for a stroke client to select activities, sharing ideas and explanations in participating with therapeutic media. As a partner in decision making when selecting every therapeutic activity she becomes the owner of the therapy programme and is responsible for its practice. Such interdependence places her on a more secure and sustainable rehabilitation trajectory.

A15 Tennis ball pick and place

Tennis ball pick and place is an activity in the basic rehabilitation skills activity catalogue. This activity helps stroke clients to practise grasping, taking and releasing objects of upper limb function. Natchaya viewed the benefits of practising tennis ball pick and place; it has perceived important utilisation as it involves integrated upper limb and hand functioning. This activity is hard to carry out, but it is possible when determination to achieve her goal is evident.

> *'Tennis ball pick and place activity is so difficult because I'm now to stretch my arm but it is hard to bend my elbow. But I like it so much! I think that I can control my arm because of this activity, I feel like my brain send signals through all my right arm and hand.' (Natchaya)*

Her speech mirrors the understanding of rehabilitation process. This activity is challenging but effective. Grasping the tennis ball by picking it up and placing it from one area to the target place uses a whole upper limb to engage in the process. The purpose of this activity is to stimulate brain function to generate the motor control and sensory function in dealing with object. This activity is both important and difficult.

However, Apai had a different point of view, he selected the activity of grasping the tennis ball. Pick and place is a purposeful activity that has important effects upon both functional skill movement and utilisation to pick up all objects.

> *'I think that the activity of grasping tennis ball pick and place is easy to produce the benefits for me in particular hand and arm movements.' (Apai)*

This activity is as a basic rehabilitation strategy that provides the basis of hand function with proper facilities and provision that leads stroke clients to be able to apply similar movements when at home and in other environmental settings.

A16 Bimanual holding cone and place

Bimanual holding cone and place is in the basic rehabilitation and ADL section of the activity catalogue and is an available rehabilitation device in occupational therapy. This therapeutic activity is important for stroke client treatment and restoration of the upper limbs related to motor skills and movement abilities (Huang et al, 2000). For example, in Thitipan's and Natchaya's point of view of the activity of bimanual holding cone and place, is demonstrated below;

> *'I practised bimanual holding of cone and place and subsequently do grasping tennis ball pick and place by my left hand side. I think that the bimanual movement helps me with the strength and motion. Even though it's very difficult to grasp these objects at first, but now I can do it a little bit.' (Thitipan)*

> *'It helped me to draw my ability unless some activity which needs more skills of finger movement for example placing beads on pins. Some activity I can use both hands to do it first such as stacking cone or rod and try to change applying with my weak hand which can move a little bit. It's great! (Natchaya)*

Their words showed that this activity could help them to understand the principle of therapeutic media connectivity, where functional skills and abilities from basic activities are gained and can be applied to new activities. In Thitipan's speech, this activity proves to be a difficult practice, but it was useful to enhance the capacity of functional abilities which is interpreted as pride of achievement.

5.7.2 The needs (satisfaction and importance) and potential development

This sub-theme aims to present the needs in terms of satisfaction and importance including the potential of self-development of stroke participants. It reflects the emotions and feelings of stroke participants who deal with the activity catalogue. For

Jirasak, who had experience related to the use of activity catalogue when he first engaged in this culturally relevant tool for OT rehabilitation, as portrayed in the following quote:

> *'It's very challenging. When I saw the catalogue pictures, I feel that I can do it. Some activity needs therapists to suggest and give a step to practise. I like it so much and feel that I have a lot of choices much more to practise. I choose what I want to do and consult with therapists.' (Jirasak)*

Emotion and satisfaction are seen in terms of a rehabilitative system that provides opportunities to clients for selecting interesting activities without enforcement. OT-MCS approach could be challenged because of the AC and the mechanism for therapy based on client-centeredness. The methods of the rehabilitative process together with the pleasure of the support from therapist are better understood by the client. Self-development and attention to life-skill practices dominate in the relationship.

Within Chuchai's account, he expressed lived experience about the use of the activity catalogue in developing his competency. His testimony showed that he does not want to be a burden to his wife. In previous times, he did not use self-help much when facing difficult things in his daily life and was assisted and looked after by his wife. His desire is to perform essential activities (ADL) himself to reduce his wife's burden, as depicted in the following interview extract:

> *'I'm able to do it by choosing an activity from the activity catalogue. In previous time, my wife and family helps me in taking care during activities of daily living, but now I can do it in some activity. I don't want to be a burden to my family. This is why I need to practise and draw my ability out in order to help myself and needs.' (Chutchai)*

As demonstrated in the above quote, the benefit of the activity catalogue is emphasised. He was inspired by it and was able to respond effectively to his needs. Suggestions and support from the team are evident.

5.7.3 Inspiration and challenges when dealing with various therapeutic activities

Several stroke participants described their feelings after the use of the activity catalogue. The theme resonated with how stroke participants were inspired by the activity catalogue. Emotional impressions and challenges towards plenty of therapeutic media were apparent as they engaged in activities during the 8 weeks. Despite its capacity to challenge, in Witun's view, this pictorial instrument helps him to create the motivation and effort for rehabilitative engagement.

> *'A new approach makes me challenge, activities performing are not easy or difficult to do but I have to attempt to cross these barriers. Activity catalogue inspires me to strive for selection and curiosity to do activities to increase skill and ability.' (Witun)*

His insight mirrors inspiration from the activity catalogue (AC) that motivates him to be curious to interact with a range of activities. The AC of OT-MCS system framework provides therapeutic activities which present a challenge that enables stroke clients to develop their skills and occupational performance.

From of Benchaporn's account, it is clear that she comprehensively understood the instrument which helped her pursue the goal from the activity selection. Her actions reflect her perspective which views AC of OT-MCS as a tool to meet the needs related to her potential and skill-development including the importance of each activity in her day to day life.

> *'I think that catalogue activity is powerful to make me understand what I want to do. It shows many options when I want to choose and I do it. I see my ability change because some activity is my daily life activity, so that it is useful to develop my skill.' (Benchaporn)*

Chalermpong's account is similar to Benchaporn. The sense of inspiration and right to choose AC for energetic action and self-development are apparent. The understanding of AC for stroke participants is as a tool to inspire their thought processes. He has a variety of choices to make which lead to satisfied and energetic action when performing activities.

'Activity catalogue is one thing that helps me searching for my activities such as scissor using skill, picking and sorting small beads and chopstick using. I'm really satisfied and saw a lot of pictures when I did those activities.' (Chalermpong)

Chutchai's account shows that relevant therapeutic activities encourage restoration of body function and skill movement. These actions helped him to go to the next step of trying to search for other appropriate activities which enable him to be successful, following a step by step approach as illustrated in the following quote:

'My left hand side is weak but therapy with tennis ball picking and placing an activity helps me to improve my hand ability. It is a good thing with catalogue activity that leads me to know what I want to do. And some activity in the options, I never tried it after I had a stroke. When I do it step by step, I can do it now!' (Chutchai)

The inspiration and challenge of the AC provide culturally relevant therapeutic activities for stroke rehabilitation. Clients used the catalogue as a means of managing the self and meeting their needs related to maintaining the functional skills of daily life.

5.8 Collaboration

After a stroke, OTs should help stroke clients regain functional abilities, learn new skills and cope with rehabilitation. From the numerical data, most OTs and stroke participants responded with different views in terms of '*satisfaction*' and '*importance*' of using therapeutic media in rehabilitative intervention. These results affect the process of restoring life-skills and occupational performance in activity engagement. Stroke participants are emotionally and motivationally engaged with each therapeutic activity. Individual stroke participants should be seen as worthy contributors who recognise feelings of satisfaction and importance and are able to participate in collaborative planning. According to Jewell (1994) the patient's right to make decisions and share experience in the intervention planning is significant in patient participation. The collaborative framework includes both the formal structures and intimate health provider-patient relationship where sharing and exchanging information and negotiation take place.

This main theme of *collaboration* draws upon the general ways in which stroke participants were engaging in the use of OT-MCS indicative care package. The theme includes the relationship between the understandings of collaborative teamwork, sharing experiences and problems, the stroke client's autonomy, planning and setting, clear communication and monitoring activities to sustain and develop functional abilities and life-skills. Moreover, the detailed story of interview extracts reflects OT intervention before and after the use of OT-MCS. Interpretations of stroke participants' experiences in the phenomenon of participation and interaction are divided into three topics; *building team relationships and understanding needs*, *autonomy within the partnership for activity selection and goal setting*; and *awareness of clear communication and explanation during activity engagement*.

5.8.1 Building team relationships and understanding needs

To clarify the use of OT-MCS in building team relationships and understanding the needs of stroke participants, the (numerical data) results are presented before the textual data. This research presents a comprehensive way of capturing the different perspectives between stroke clients and occupational therapists.

Table 5.7: the attitude of "SATISFACTION" in 40 activity items (A1 – A40) between stroke participants (n=60) and OTs (n=60)

Stroke participants showed significantly more satisfaction than OTs	**Similar agreement of satisfaction between stroke participants and OTs**	**OTs showed significantly more satisfaction than stroke participants**
A4 Looping curve skill	A5 Key grip skill (Turning)	A1 Peg board
A14 Pronation/supination task	A8 Dressing with top (shirt/blouse and button/tie)	A2 Incline board
A15 Tennis ball pick and place	A10 Stacking cones or rod	A3 Sliding board
A16 Bimanual holding of cone and place	A12 Pick and place ball in small cone	A6 Pinch Grip (Pinching)
A18 Trunk control/bilateral arm movement	A19 Washing skill	A7 Bimanual putting pin in a bead
A22 Scoop and pour liquid into bottle	A20 Scrubbing and sweeping the house	A9 Putty activity
A23 Opening and closing door	A21 Phoning skill	A11 Constructing chain from plastic (small) link
A25 Pump action of lotion bottle	A30 Use of spoon and fork (bimanual) to remove bead from putty	A13 Placing beads on pins
A26 Calculation skill	A31 Writing skills	A17 Forceps pick and place with ping pong ball
	A32 Sorting tidly winks with spoon	A24 Mouse skill
	A33 Picking and sorting small bead (like cleaning rice, bean)	A27 Hammer/Axe skill (plastic)
	A34 Fruit pole	A28 Bolt-screwing (into board)
	A35 Dart	A29 Using chopstick
	A36 Ball throwing at target with a bounce	A38 Key board skills (computer or piano)
	A37 Shape matching skills	A39 Throwing rings (quoits) at target
		A40 Picture mosaic skills
9 activity items	**15 activity items**	**16 activity items**

Grouping variable: Mann-Whitney test ($p < 0.05$), significant differences: stroke participants and OTs

In the detail of table 5.7, there are three columns showing the attitude of stroke participants (n=60) and OTs (n=60) in terms of satisfaction via 40 activity items (A1-A40). The Mann Whitney U test ($p<0.05$) was used to analyse the different attitudes of both groups. The left hand side column reveals that stroke participants

showed significantly more satisfaction in 9 activity items (22.5%) than occupational therapists, whilst the right hand side column shows that OTs showed significantly more satisfaction in 16 activities (40%) than stroke participants. The findings mean that there were different levels of satisfaction in 25 therapeutic activities (62.5%) in the 40 activity items. There were merely 15 therapeutic activities (37.5%) in the middle column which show agreement of satisfaction between stroke participants and occupational therapists.

As illustrated in the above quantitative data, the results display different satisfaction levels between OTs and stroke participants. Consistent with Kaunnil and Khemtong's findings (2008), the research reveals the domination of occupational therapists' decision making when providing therapeutic activities without cooperation and communication in Thailand. In order to convey the development of an effective service system, the OT-MCS emphasises the building up of team relations to create understanding and collaboration. All stroke participants commented on team relationships and the understanding of their needs. This sub-theme reflects clients' lived experiences and feelings in the use of OT-MCS over the 8 week period which enabled teamwork for stroke rehabilitation to become established.

Chalermpong's, and Apai's accounts reflected similar views in the sense of friendships and family cooperative working to make a decision. These accounts illustrated collaborative team working on setting up plans and goals for activity engagement. A team relationship builds a good atmosphere of participation and adaptation to solve complex problems when confronting therapeutic activities. The participants also described their feelings in positive ways when considering team relationships. Collaborative working when performing activities helps clients to reach a goal, as highlighted in the following interview extracts:

> *'I really believe that teamwork is influential and lead me to be successful in each activity. OTs, my wife and I, we cooperated to make a decision in searching relevant activity. Selected activities are beneficial for me to serve my life now and future. They are friendly and understand my needs. OTs helped me to adapt some activity that I cannot do first time. After they separate activity to be a step by step, I can do it. Moreover, when I see my skill better, I need to call for my friend who had a stroke to practise like this.' (Chalermpong)*

'Teamwork is important. A new approach provides an opportunity for me to share ideas and choose the activity by myself including therapists who are responsible for consulting and explaining something if I'm doubtful. Occupational therapists are very friendly to work with. They pay attention, listen and clearly explain what I need. Moreover, it's special to bring my wife to join and give suggestions related to my experiences and activities at home or my office.' (Apai)

As illustrated in the above quotes, the messages reveal a positive atmosphere where stroke participants, family members and occupational therapist interact as a team in the rehabilitation process. These comments infer that collaboration is a key part of OT-MCS which is founded on a client-centred approach which focuses on the possibility and benefit for the stroke participant and his/her family. All accounts strongly specified collaborative teamwork as key to success in activity performance.

Sombat's and Witun's accounts, all support the fact that ideas, experience and activity selection are crucial to the building blocks of the connection between OT practice and application to real life situations. The data show the responsibility OTs have when initiating stroke participants in developing their potential and skills. The creation of understanding by sharing ideas and needs when matching individual abilities and functions, is portrayed in the following quotes:

'We have to agree together, if we didn't agree in some activity, we have to raise the reason. OTs explained why I have to practise this first. Can I skip to another or not? We try to do if it works, we've gone through complicated activities more than once.' (Sombat)

'Cooperation between therapist, my family, and myself helped me to get better. This is collaborative teamwork that a new approach can bring to share ideas and experiences about activities of daily living. I feel warm when we met together and discuss about the connection activity from the hospital in my real world.' (Witun)

As presented in the above quotes, the creation of a team relationship was perceived as being more crucial to steer the rehabilitation process towards the ultimate goal of stroke participants. In addition, agreement and disagreement was raised which then opened opportunities to explore satisfaction and the need to match stroke participants' competencies. Consequently, collaborative teamwork is a key to

success. Several accounts from stroke participants highlighted the importance of building understanding with OTs through teamwork and sharing responsibility.

Finally, Thitipan indicated that building team relationships, with faithful commitment and planning agreement, could promote the successful implementation of managing tasks and activity programmes. His selected activity was difficult and complicated to perform, so OTs used activity analysis, modification, adaptation and synthesis to help him. Activity was simplified into tasks which are then combined, as illustrated in the following interview extract:

'It's easy to cooperate with the therapist. We make the agreement and commitment between me as a patient, therapists, and my family, so that collaboration is a key for the success. My family and I, we search for my interest activities in the catalogue. Therapist played a key role to measure my body function in relation to my satisfying activities. If they don't work, the therapist will simplify complicated activity into simple tasks that I can do. We cooperate and share ideas of activity for therapy because we need sufficient activity which is not too difficult or too easy, but is challenging during the practice.'(Thitipan)

The collaborative teamwork helped him to plan the strategic direction of his rehabilitation in particular activity selection and implication. The occupational therapist has a key role to play as a facilitator and evaluator. The assessment should include body function, activities, participation, and environmental factors. The collaboration between team members enables the sharing of ideas and helps to find solutions to tackle activity barriers. Thus, the faithful commitment and planning agreements among the team are important to direct the process of stroke rehabilitation.

5.8.2 Autonomy within the partnership for activity selection and goal setting

To make clear the sense of autonomy in the partnership for activity selection and participation, the quantitative data are presented before the detailed qualitative data. Different views in terms of importance in activity selection between stroke participants and occupational therapists are presented.

Table 5.8: the attitude of "IMPORTANCE" in 40 activity items (A1 – A40) between stroke participants (n=60) and OTs (n=60)

Stroke participants showed significantly more importance than OTs	**Similar agreement of importance between stroke participants and OTs**	**OTs showed significantly more importance than stroke participants**
A4 Looping curve skill	A6 Pinch Grip (Pinching)	A1 Peg board
A5 Key grip skill (Turning)	A10 Stacking cones or rod	A2 Incline board
A8 Dressing with top (shirt/blouse and button/tie)	A13 Placing beads on pins	A3 Sliding board
A12 Pick and place ball in small cone	A17 Forceps pick and place with ping pong ball	A7 Bimanual putting pin in a bead
A14 Pronation/supination task	A19 Washing skill	A9 Putty activity
A15 Tennis ball pick and place	A20 Scrubbing and sweeping the house	A11 Constructing chain from plastic (small) link
A16 Bimanual holding of cone and place	A21 Phoning skill	A24 Mouse skill
A18 Trunk control/bilateral arm movement	A28 Bolt-screwing (into board)	A27 Hammer/Axe skill (plastic)
A22 Scoop and pour liquid into bottle	A29 Using chopstick	A35 Dart
A23 Opening and closing door	A30 Use of spoon and fork (bimanual) to remove bead from putty	A37 Shape matching skills
A25 Pump action of lotion bottle	A31 Writing skills	A38 Key board skills (computer or piano)
A26 Calculation skill	A34 Fruit pole	A39 Throwing rings (quoits) at target
A32 Sorting tidly winks with spoon	A36 Ball throwing at target with a bounce	A40 Picture mosaic skills
A33 Picking and sorting small bead (like cleaning rice, bean)		
14 activity items	**13 activity items**	**13 activity items**

Grouping variable: Mann-Whitney test ($p < 0.05$), significant differences: stroke participants and occupational therapists

As demonstrated in Table 5.8, there are three columns depicting the attitude of stroke participants (n=60) and OTs (n=60) in terms of importance through 40 activity items (A1-A40). The different attitudes from the data of both groups were analysed by the Mann Whitney U test ($p<0.05$). The left hand side column reveals that stroke participants attributed significantly more importance in 14 activity items (35%) than occupational therapists, whereas the right hand side column OTs presented significantly more importance in 13 activities (32.5%) than stroke participants. The results show that there were different levels of importance in 27 therapeutic activities (67.5%) from the AC between stroke participants and OTs. Thirteen therapeutic activities (32.5%) in the middle column show similar levels of importance between stroke participants and occupational therapists.

The numerical data show different expressions of the importance of activities between stroke participants and OTs reflecting a disparity of opinion. This phenomenon affected the therapy outcome and impact for stroke clients during recovery and rehabilitation. In order to address the disparity, this sub-theme (Autonomy within the partnership for activity selection and goal setting) aims to address the extent to which stroke participants' sense of autonomy within the partnership was affected. Stroke participants talked about their rights to select appropriate and meaningful therapeutic activities and to develop strategic goals within a team.

These rights were most pronounced in Chutchai's and Sombat's accounts, which express a sense of autonomy and therapy involvement. They engaged in a cooperative system and needed to take part in the planning and selection of the therapeutic media. Such collaboration can encourage stroke clients to explore their needs and tackle everyday situations. The autonomy within the partnership enabled them to make a decision on selected therapeutic media, as the following interview extracts portray:

> *'When the new approach was to set up in my hospital, the occupational therapist said we have to cooperate together. I feel happy because occupational therapists, family, and patient must plan the treatment together following the guideline. Moreover, it is a good sign that the new approach leads me to find out what is my activity need that I want to do and be valued in my life'.' (Chutchai)*

> *'I feel like a key person and our team, including my wife, share ideas and determine what the sequence of activity is to deal with during rehabilitation. We plan every week should be not the same activity because we need to see the change. Overall activities are fun and inspired me. Don't make it boring! I get better because of the collaboration. We set up the goal together, both short and long term goals including help together to find appropriate activities for the practice.'(Sombat)*

As demonstrated in the above quotes, these accounts show that stroke participants learned and practised using OT-MCS and gained knowledge from OTs' teaching. The collaborative team planned the strategic direction which was to take them towards their goal. In the process, stroke participants worked with the team to select

relevant activities based on their lifestyles and performance. Hence, a key property of the OT-MCS approach is to invite the stakeholders to generate an optimal way of activity practice for the stroke participant. Many ideas are not only derived from occupational therapists, but emerge from stroke clients and family members as well. A tangible plan for performing activities was shaped and fitted with emergent abilities and skills every week. The outcome of this strategy means that stroke participants can enjoy and be comfortable with working in a team and put additional effort into activity participation.

From Thitipan's account, it appears that he seemed aware of autonomy when selecting valued activities related to his needs and their culturally relevant application. He described, 'a right to choose', and he compared this to a previous OT programme and gave a credit to the use of OT-MCS with therapists' support as having helped him feel positive about collaborative goal setting.

> *'It's great that I have a right to choose what I need to do, and the value of activity I could apply. At the previous time, therapist offered activities for me that were boring because some activity I don't like to practise and that is not my daily life and I feel reluctant.' (Thitipan)*

> *'A new approach allows me to select and get involved in activities because these are important for me; the occupational therapists know my interest and give support and facilities. This practice leads me to plan with a team and set up my both short and long term goals in the rehabilitation.' (Thitipan)*

His message refers to the significance of activity selection by himself in OT-MCS compared to previous interventions where he could not take independent action. In the past, the OT system might not be relevant to stroke clients, leading them to become disinterested and reluctant to perform an activity. OT-MCS rests on collaborative teamwork to facilitate client-centred and culturally relevant therapeutic activities.

5.8.3 Awareness of clear communication and explanation during activity engagement

The quantitative inquiry (Tables 5.7 and 5.8) illustrated significant differences between the attitudes of OTs (n=60) and stroke participants (n=60), with differences of satisfaction in 25 activity items (62.5%) and importance in 27 activities (67.5%)

from 40 items in the AC. Significant differences of opinions (> 60%) must be addressed if a collaborative partnership between therapists and clients is to be achieved. Goal setting and shared ideals must be mutually understood for rehabilitation to be positive and appropriate.

Communication in stroke rehabilitation is a key ingredient. Health professionals must understand stroke clients' needs in order to enhance patient satisfaction. Good communication helps reduce levels of anxiety and risks, increase confidence and development, improve understanding of benefits and decision making about the treatment programme. It contributes to the stroke client's sense of autonomy and control which leads to increased participation and strengthens the commitment to goal attainment in stroke rehabilitation (Anderson & Marlett, 2004).

Occupational therapists who work with stroke clients and their families or relatives aspire to achieve the best possible recovery. Clear communication and explanation of goal setting and planning need to be addressed in a partnership of purpose. This sub-theme presents stroke participants' accounts in the use of OT-MCS. The theme is reflected in the six stroke participants' (slow stream rehabilitation) accounts who commented on the OTs' communication to direct the therapeutic activities and practice. Chalermpong's account of activity selection draws attention to clear communication.

> *'It's so good; I planned my goal and activity to practise with the team. Importantly, I talked about my needs to everyone. What my favourite activities are. My background is a barber, so that I want to go back to being a barber. OTs helped me to practise the scissor from practising dexterity of hand by using putty, picking and sorting small bead with scissors using the skill. Occupational therapist had deeply explained first why we had to deal with these activities beforehand. And I accepted because it works.' (Chalermpong)*

His emotion and behaviour showed the happiness he felt in the participating team. Together they helped to designate his needs, goals and therapeutic activities. He then selected various activities supported by OTs. The actions mirrored his employment and therefore increased his motivation to return to his beloved profession. The combination of attention and effective communication by OTs helped this stroke client to reach his goal.

Within Chutchai's and Sombat's accounts, insight into their lived experiences of the teaching and learning processes is gleaned. They talk of selecting and performing connections, a consequence of which means that they can apply the activities at home and in other social environments. Examples of effective communication and teaching explanation are illustrated in the extracts below:

> *'Now it's easy and therapist open opportunity to ask and spend more time to explain the issue when I'm doubtful. They taught me how to use the activity catalogue that I can see many pictures linking together. Because of the collaboration and communication, I know that basic activities can support complex activities in the future; I can apply these activities both at home and community which I've never known before.' (Chutchai)*

> *'Everyone supports and encourages me to practise the skill from various activities. Occupational therapists described the benefits of therapeutic media before using activity tools. If I don't understand how to deal with activity, they will give the answer. Furthermore, they explained how basic activity to advanced activity helps to reach my goal.' (Sombat)*

As demonstrated in the above quotes, good communication and attention to stroke clients' needs produces understanding in the collaborative team. Learning and doing throughout the practices of basic rehabilitation to the more complex activities are enhanced. Also, working together helped OTs communicate more clearly with the stroke client and family. They were able to give useful details of the beneficial therapeutic activities of intervention which increased the understanding of both short and long term goals for the client.

In a final case, Benchaporn pointed out the importance of clear communication towards the strategic direction of activity participation. This was vibrant in Benchaporn's account, which shows her positive emotions when dealing with OTs and the means of resolving the problem that she faced with the OT-MCS rehabilitation programme:

> *'I feel happy and comfortable to work with therapists; they are friendly to communicate and teach me when I confront difficult situations in engaging activities, so that they help me a lot. If they don't have time to join, they send an assistant therapist to serve and listen to my difficulty when I try to carry out my goal.' (Benchaporn)*

The quote portrays concern and responsibility of OTs as they work with stroke participants. Clear communication when engaging in activities creates understanding and boosts self-confidence. Benchaporn's account implies that she was motivated to participate which enhances understanding and good relationships, which in turn, help her to tackle obstacles during the rehabilitation period.

5.9 Salience

This main theme draws upon the way in which stroke participants give meaning to their engagement in therapeutic activities; that activity and participation in OT play vital roles to shape occupational performance and outcome. Therapeutic media or a collection of activities are used which comprise of a range of activities of daily living, productive activities and work, recreation or leisure, and rest, for survival and for individual meaning (Hinojosa & Kramer, 1997). The use of therapeutic activity intervention uniquely provides stroke survivors with purposeful activities which are goal directed, major tools to develop functional skills and facilitate occupational performance during rehabilitation.

From the textual data, three sub-themes of the lived experiences of stroke participants emerged: *using meaningful and purposeful activities relevant to different cultures and everyday life; shared experiences and problems when performing activities*, and *modification and transition of home and cultural activities.* Salience comes from the interpretation of stroke participants' accounts and a range of their experiences with OT-MCS and therapeutic activities including feelings, identity, and meaning-making.

5.9.1 Using meaningful and purposeful activities relevant to different cultures and everyday life

The occupational therapist views that occupation is an important source of life's meaning and purpose including choice and control (CAOT, 2002) and needs to explore this occupation from the clients' experience and expression of meaning in their lives. The ultimate contributions and benefits of therapeutic activities are to discover meaning through occupational engagement with clients. A key aim is to deliver purposeful activities which meet individuals' intrinsic needs for stimulating and re-evaluating life values and priorities (Hammell, 2004). To undertake occupational therapy successfully, the meaning and context of the stroke patient's

life needs to be investigated. The social, cultural, physical, and environmental establishments must be explored to comprehensively understand occupational engagement, lived experience and the expression of meaning in daily life.

This sub-theme reveals stroke participants' accounts of experiencing the use of OT-MCS approach. The theme comes from six stroke participants' (slow stream rehabilitation) who commented on the meaning and value of activity selection and engagement. Suchart and Kanchana were stroke participants whose accounts show relevant links between useful activity and participation.

> *'I think that some activity may be appropriate with some people, but to me that grasping tennis ball, pump action of shampoo bottle and washing skill are useful as I picked up them to apply with my daily life at home.' (Suchart)*

> *'After the use of the new approach, everyone on the team has to be united to support me. I contribute to choose my activities that are important to my life and consult with the team to make decisions what I can do or not. I raise the reason why I choose it, not only for my satisfaction but also it has a meaning and importance in my life. Moreover, my husband supports me to prepare instruments for the practice and takes part in some activity.' (Kanchana)*

As illustrated in the above interview extracts, the value of activity relevant to lifestyle. The quotes imply that the use of OT-MCS is likely to shape stroke clients' ideology and perspectives on the understanding of collaborative team working when planning and creating goals. Through the application and implementation, they gain experience from the OT-MCS practice related to their lifestyle at home and environmental settings. Therefore, the choices of therapeutic media and occupational engagement become applied meaningful and purposeful activity to maintain and develop skills related to everyday life.

The important focus on a culturally relevant activity such as 'a fruit pole' stems from the fact that Thailand is located in Southeast Asia, a tropical zone where various fruits are grown throughout the year. Most Thai households are in rural areas, where much fruit is grown. Thai people use a tool to pick fruit in the trees such as mangoes,

papaya, longan, jack fruit, rambutan, rose apple and durian. Apai's account provides evidence of a purposeful activity which helped him in his own garden.

> *'These activities are useful for my life and some modified to grasp easily such as handle of fruit pole. I like to use it when I and my wife go to our garden to get papaya' (Apai)*

Interestingly Bencharporn's and Thitipan's accounts were similar in the sense of meaningful and purposeful therapeutic activities that had been utilised to fit with their cultural worlds. They also describe how engagement actively helps them manage a sense of meaning and value in their lives with family. Meaningful activities give a feeling of self-accomplishment and improve self-worth. Useful activity participation sustains and develops functional ability and occupational performance in daily life. The accounts reveal positive effects upon their thinking, as demonstrated in the quotes below:

> *'I apply some activity that is watering plants and help my husband in washing the car, which is amazing and very fun. I try to use both hands to carry water pipe with him.' (Benchaporn)*

> *'I applied to grasp a plastic bottle for pouring water. This activity could apply to other activities as watering flowers and plants that make me feel better about the value, because I have an orchard and farm.' (Thitipan)*

As elicited in the above quotes, stroke clients showed that they fully engaged in the therapeutic media of OT-MCS and practice. Selecting relevant activities to practice is important to extend the application and implementation in the real world. Various therapeutic media provide multiform activities to encourage stroke clients to find their own way in life's journey. Moreover, they know how to apply these activities which help them reflect on the meaning and value of life with family.

5.9.2 Shared experiences and problems when performing activities

This sub-theme reflects the thinking related to the experience and problems during OT intervention. The stroke participants' stories emerge as integral parts of the development and adjustment evident throughout the treatment programmes. Reflexivity enables the exploration of the client's account of a therapeutic

experience as critical occurrences (Fitzgerald, 2000) in which the occupational therapist understands the outcome and effects of intervention. In stroke rehabilitation, OT practice activity and participation needs to provide culturally meaningful therapeutic media in accordance with the stroke clients' experiences and culture in order to improve their competence within meaningful occupation. Interpretation of the therapeutic situation during the use of OT-MCS drew upon the lived experience of stroke participants who had engaged in various therapeutic media activities.

Suchart, who at the time of the interview had experienced satisfaction from his selected activities but faced obstacles during participation. His story refers to issues of autonomy and decision making in selection and how he was supported and encouraged by his family and occupational therapist, as illustrated in the quote below:

> *'I choose activities related to my experience that I prefer to engage in and apply to my everyday life. For example, grasping an object is important in life but I cannot grasp it. If I try to practice gradually step by step, I see possibility with my ability. If I can move from first step to the second step, I got encouragement from my family and therapist that help me to move forward.' (Suchart)*

As presented in the above quote, his expression reflects the shared experience of problem solving when performing activities. Therefore, the process of learning comes from doing which enables gradual development of skills and functional abilities.

Jirasak's account demonstrates that he had engaged the sharing of domestic activities and explained the relevance of this at his home. He stated that '*I'm able to share my daily activities that I like to do*'. Some activities were very focused and practised in both home and OT room in order to monitor and evaluate the problems encountered, as illustrated in the following interview extract:

> *'I'm able to share my daily activities that I like to do at home and explain what activities I can do or cannot do. Some activity is the same with catalogue but I cannot do at home, I took it to OT room, and now understand why I cannot do it, because it's heavy weight more a small handle. Subsequently OTs will modify and adapt that activity, so it works.' (Jirasak)*

His explanation displays how of sharing real life experiences and problems of hospital-home based practice contributes positively to the client's progress. OTs can brainstorm with the client to find a solution. Communication and negotiation in the use of OT-MCS produces good relationships and increases the understanding of real situations for stroke clients. Modification and adaptation of therapeutic activities are constant requirements.

Similarly, in Natchaya's story where she shares her satisfying activity conveys how positive effects for both herself and OTs come through occupational engagement.

> *'I'm able to share my satisfaction with activities such as writing and painting. These are blended in several activities of the catalogue and I can join to improve to my skills leading to more activities that I want to do. These may contribute to the team and set up activity options for me.' (Natchaya)*

She shared experiences and was satisfied with her activities which were essential in goal setting. Her activities were selected from the AC and these reflected her interest which helped in the planning of both her short and long term development programme. Favourite activities play a key part in helping to reach goals as satisfaction and inspiration are great motivators.

Benchaporn's account was similar to Natchaya's in the sense that she selected several satisfying activities and shared the experience with OTs. She said '*I choose my activities that I love first and then consult with therapists'* and she credited OTs and their support as she performed the activity and dealt with any problems.

> *'I choose my activities that I love first and consult with therapists. I think that if the first activity failed, I feel sad and discouraged to move to another activity. So if the first activity is successful, I'm happy and encouraged to do the next practice. This process has been supported and analysed by the therapist and team.' (Benchaporn)*

Her account explains the importance of self-contribution. The satisfaction of an activity plays a key role which impacts on the success of creativity. On the other

hand however, the failed activity affected her emotions leading to a lack of self-confidence and motivation to interact with another activity. This is a critical point that OTs need to be aware of. They must pay attention to preferences in activity selection and go along with possibility and challenge. That is to a meaningful and purposeful activity.

5.9.3 Modification and transition of home and cultural activities

There are difficulties in the transfer of learning from hospital to home and environmental settings of clients (Gaber, 2000). OTs need to guide their stroke clients to ensure that the appropriate skills and applicability fit with essential activities and cultural tasks in their surroundings at home. Homework in a collaborative client-therapist relationship can provide a beneficial and effective therapeutic direction to the transfer of learning within the stroke client's context. Thus, the main focus of intervention with stroke clients is to sustain applicable competency and improve occupational performance making new skill functions through the process of activity engagement in occupation. The creation of new occupational performance skills which can transfer to everyday living, should embrace domestic and community activities.

Suchart's and Natchaya's accounts describe how they bridged the gap of dissimilar activities between hospital and home by modification and adaptation. However, their understandings are likely to offer positive ways to transfer the concept of OT-MCS and adapt activities to their lifestyles at home. Therefore, they explained the detail of the modification and adaptation in their activities of daily living at home by applying these to the real world. The connection between the therapeutic media of the OT clinic and home or environmental settings is highlighted in the following interview extracts:

> *'To be honest, my home got only cycling exercise. I try to practise just a few things. For example, in the kitchen my wife wants me to practise hand function by grasping lime into the pot when she is cooking. But my house lacks tools to support. Some activities in hospital for applying at home are pump action of shampoo, it is used in my real world when I take a bath and clean my hair. Washing clothes that I said already I helped my wife to wring out wet clothes even though they are still wet a little when compared to previous time.' (Suchart)*

'Activity of holding the bottle of water, this one I use with plastic bottle every day because my home is grocery store. Another one is a pump action of shampoo and soap; I apply activity practice from hospital to use in my daily life. And, watering plants and flowers, I apply with both hands to rotate my wrist when dealing with this activity at home.'(Natchaya)

Kanchana's explains that *'It's great'* and *'it's not boring'*, describing how she sorted out the activity programme to fit with her culture which helped create social integration amongst stroke clients, as demonstrated in the following extract:

'It's great because I have a right and authority that I didn't have before. I'm able to choose exactly what activity I want to do and consult with the team. If some activity I cannot do now, we find another one to do and come back to do this activity again when I gain more skills.' (Kanchana)

'All of the activities that I did received much encouragement from other stroke patients and their families. Because, some activity we practise and learn together as a social group related to our culture not only to do activity as one person, but a group of stroke patients join together that is more enjoyable and gives me pleasure. So it's not boring.' (Kanchana)

Her account reveals that in the past she was unable to select the activities of her needs. An OT-MCS provides a chance to select appropriate activities including the facilities and provision supported by OTs. An engagement in one activity is a basis for other activities. She can extend the simple skills to more advanced skills. An activity that she could not perform in the first period can be returned to later after simplification and the acquisition of more experience. In addition, social activity increases social participation and integration with community activities. These activities provide a sense of sharing and cooperation which bring about pleasure, friendship and encouragement.

As illustrated in the above quotes, both similar and dissimilar therapeutic activities assist the connection between application and utilisation at home and in the real world. General OT in Thailand shows that most exercise tools in hospitals are not found at home. Most pre-functional instruments at level 1 demonstrate the characteristics of basic rehabilitation skills and in practice are only seen in OT

clinics where the sizes of rehabilitation tools are larger than household utensils or cultural instruments. Hence these basic rehabilitation characteristics of activities may not transfer directly into the home environment of stroke clients, but form the foundation of progression to more intricate tasks that map into the home environment. However, the use of OT-MCS helps stroke participants generate their own ideas within the concept of OT practice which connects with their home and environmental setting. The modification has shaped the therapeutic media of hospital linking the activities and aiding the transition with value added to home and community environments. OTs can educate stroke clients and their families to develop the knowledge and skills from one rehabilitative task to other more culturally relevant activities.

5.10 Self-management (Slow stream rehabilitation)

This main theme captures the perspective of stroke participants of self-management when using OT-MCS for stroke rehabilitation. Self-management is a fundamental process in the control of self-directed action that applies to stroke clients. OT-MCS has adopted a concept of self-management which blends with the rehabilitation process by encouraging stroke clients to select goals within a partnership, to collect information, to make decisions, to take action and explore self-reaction (Creer & Holroyd, 1997). Hence, the use of OT-MCS provides culturally relevant therapeutic activities for the development of problem-solving skills, decision-making on the basis of knowledge and information, proper supportive resources matching functional abilities and occupational performance, choices of treatment direction with partnerships, and action to change behaviour for creating new skills (Kendall et al, 2007). This main theme elicited stroke participants' feelings and needs in self-management after using OT-MCS and includes *time for occupational therapy and needs*; and *fatigue management*.

5.10.1 Time for occupational therapy and needs

Stroke participants expressed the need to have the time to continually practise OT-MCS. Stroke participants' accounts reflect the significant effect that time, or the lack of it, had upon their progress.

Within Chalermpong's and Thitipan's accounts the need to practice frequently added to their worries about their skills which could deteriorate if they did not participate

continually in the OT-MCS programme. The knowledge and ideas derived from the use of OT-MCS evolve to be applied at home, in the workplace or community, as demonstrated in the following interview extracts:

> *'I need more time to practise more because I want to prevent hand weakness and up my skill. I think that I gain huge profit when I was trained in OT clinic and take it to use in my home and career as well.' (Chalermpong)*

> *'I think that it is not enough for me, I need to practise more and more in order to help my life in my home and village. I don't want to be weak man' (Thitipan)*

A part of Apai's and Jirasak's accounts were similar in the sense of progressing from the bottom line of basic skill activities to advanced therapeutic media. They seemed impressed with the use of OT-MCS. Their stories reflect their need to practise continuously in order to increase skills and occupational performance. Hence, eight weeks of OT-MCS operation is still not enough for stroke clients who are required to practise continually in conjunction with the support and facilitation from occupational therapists, as demonstrated in the following extract:

> *'I need more time to practise with basic activity to advance therapy in a new approach every day. So I feel energetic more than staying at home.' (Apai)*

> *'I need time to practise more and more. I want to practise from basic to advance activities with support.' (Jirasak)*

In Suchart's and Natchaya's accounts, the demand of continued practice in the use of OT-MCS is echoed. The expressions indicate that even if the hospital turns to use the old system of rehabilitation, they will need to continually practise and follow the modality of OT-MCS approach. Commitment to and faith in the use of OT-MCS for stroke rehabilitation is highlighted in the following interview extracts:

> *'Although the new approach with research is planned to be here only two months, but I will continually practise this approach by using picture catalogue and hopefully OTs will follow with this programme.' (Suchart)*

'I need time to continually practise; if the OT clinic still uses this programme. If they use the same as the last time, I'm hopeless. I used to think about cutting off my arm but when I met a new approach and practice, it's like my hope and see the value of training in this programme.' (Natchaya)

Several accounts reveal that the use of OT-MCS at the hospital is necessary for stroke participants who then need to continue practising this approach. They expressed regret if hospital service changes to use the old system. In particular, the deep emotion expressed by Natchaya, who thought about cutting off her weak arm, but an OT-MCS intervention inspired her to change her thoughts and practise her body functions again.

5.10.2 Fatigue management

This sub-theme reflects stroke participants' accounts of the lived experience of fatigue during the use of OT-MCS intervention. The theme includes the emotional expressions of stroke participants related to self-awareness, pain, life's energy, and how to minimise these troubles in everyday living. These might be negative experiences and bad feelings, however all stroke survivors have a chance to confront their weaknesses from various factors during stroke rehabilitation.

Chutchai, who is a Thai officer, reports that he still works with his department and the duty has affected his mind and body energy in terms of fatigue. He knew about relaxation and did not want to take his work issues when involved in the OT practice. However, it is hard to control some issues which relate to the situation of each problem. It is likely to be a normal matter for human beings who cannot relieve all stress from both work and personal life, as highlighted in the following interview extract:

'Sometime I'm tired, it depends on the situation. My job is about organisation if that day was busy. I come to OT for practice leading me to tire even though I practised with easy activity. So, I know I must be relaxed! Don't bring my work to join OT rehabilitation.' (Chutchai)

Apai's and Thitipan's accounts offered slightly similar textual expressions in the sense of fatigue from the imbalance of life's energy. They were fatigued due to lack of sleep. Their stories mirror the imbalance of sleep which has a negative impact on

competence and activity practice in occupational therapy. Hence, sleeping is essential to energy and when patients are sleep deprived patterns of mental and physical fatigues are evident as show in the following extracts:

> *'Sometimes, if I didn't get enough sleep in the night time, I feel tired and this affected me in the day time including OT practice.' (Apai)*

> *'Sometimes I'm tired if I had a sleepless night or could not sleep enough. I feel tired all day.' (Thitipan)*

On the contrary, Kanchana and Sombat had different views in terms of fatigue during the use of OT-MCS intervention. Their accounts reflect the need and effort to continually practise with an OT-MCS. The lived experience of stroke participants in OT-MCS can refer to their confidence in rehabilitation supported by OTs and the team. Friendship and happiness with and between stroke clients comes from social activity participation.

> *'No, I'm not tired. I need to practise every day because if I only stay at home, it's so boring. When I go to the hospital, I meet therapists and I feel confident that it's a right track to go including I feel happy when joining with stroke friends.' (Kanchana)*

> *'No, I've never tired and never give up! I have a lot of friends here. We want to be better' (Sombat)*

Meanwhile, Jirasak and Natchaya view themselves in the reality of their words and understand the fatigue condition. Their stories show how the real world of OT practice presents positive approaches to problem solving. Their comments reflect their notion of encouraging themselves that helps to reduce fatigue during activity practice, as illustrated in the below quotes:

> *'Sometimes, when I'm tired, I take a break for rest and relaxation until I get power, after that I come back to engage in activity practice again.' (Jirasak)*

'Sometimes, I'm tired but when looking for a future, it's better than in the past, I feel happy and encourage myself to move forward.' (Natchaya)

In a different way, Witun who suffered from muscle pains and weakness gave his accounts of tackling this problematic condition. He recalls a pain in the beginning of the period but improved strength and a decline of the weakness later. Activity engagement from the activity catalogue helps stroke clients to learn about fatigue and helps them generate the capacity to deal with obstacles over time which leads to increased endurance and dexterity after gaining functional skills:

'I feel pain sometime especially in the first week to practise with a new approach, but now I feel comfortable. On the issue of fatigue, I got that at the beginning of practice. Now I feel that my muscle is strong and I can control my arm and hand even if it is not smooth, but I can do anything that I want to do. Previously, I could not do or raise my hand.' (Witun)

5.11 Looking to the future

This main theme draws upon the reactions of stroke participants who anticipated their future directions when preparing to cope with a health condition and the therapy processes. Importantly, OTs should seek to understand stroke survivors' and family members' health expectations and needs when planning for the future. The theme comprises of the relationship between the clients' sense of development competencies of body function and skill abilities. These are: *future hope in health expectation*, and *self-development and encouragement*.

5.11.1 Future hope in health expectation

Stroke participants described their health in the future and their long term OT both in hospital and as home-based practice. Individual stroke participants expressed their feelings and the difficult things that they will confront in the future including limitations and predications after replying to the question, '*How are you going to sustain your health in the future?*'

Kanchana and Thitipan talked about their affected upper limbs and hand functions and their desire for recovery leading to better performance of favourite activities.

These accounts reveal the positive thinking and hope stroke participants have for their future health, as interpreted in the following interview extracts:

> *'I hope to see my hand to be skilful and recover more than this; I want to return to cook food, so that I must be tolerant and continually practise both hospital and home area.' (Kanchana)*
> *'I hope to move my hand more than this. I need to draw my ability and care my health, now I quit my drink already.' (Thitipan)*

As demonstrated in the above quotes, there is a powerful sense of hope and expectation in stroke participants. They need to practise hand functions to perform various activities in order to live satisfying and productive lives. Thitipan's account shows that his consideration of the future included quitting drinking alcohol and turning attention to stroke healthcare. Interestingly one negative health event can lead to positive well-being changes.

Suchart's was optimistic for the future in logical way. His account reveals a willingness to accept his stroke condition and he estimated that his future health hinged upon what he did today in OT practice. The reasonable ideological thinking of this stroke participant can be seen in his estimate of the skills and limitations of his body function which will respond to long periods of practice, as highlighted in the following interview extract:

> *'I think that if I look after my health I can be like this! Presumably, I got energy now around 60%; I must keep this level. But if I boost up to 70%, I profit. I view that my ability can be developed skill even though it is not reaching 100%, but can be possibly up to 10 – 20 % from 60% which will take time.' (Suchart)*

Meanwhile Jirasak's account expresses the need for an OT-MCS approach to be continually operated in his regional hospital. He thought that OT-MCS is essential to practise and ensure good health. He describes a powerful inspiration from his religious faith reflecting his goal in life. OT-MCS helped him to navigate and

address his needs and cultural practice for the future, as highlighted in the extract below:

> *'I hope to see this new approach in our hospital not only in this period, but I need to practise this approach continually. I want to see my health get better and can go to the temple to make merit and pay homage to the Buddha image.' (Jirasak)*

5.11.2 Self-development and encouragement

This sub-theme presents the positive influence that stroke participants expressed in the sense of self-development and the encouragement of themselves and family members. It shows the emotion of the self-driving force of stroke participants, in relation to their self-development.

Suchart's account mainly presents a need to develop himself by motivations from OTs and his family. He acknowledged the occupational therapist working to initiate him in the benefits of the OT-MCS approach. His wife is part of the OT-MCS approach and encourages and supports him to practise OT:

> *'I think that occupational therapist motivate me to build the understanding and cooperation to participate a new approach including the support from my wife, which leads me to encourage my self-development for the future.' (Suchart)*

Sombat's account was slightly similar to Suchart's in the sense that he seemed to appreciate OTs in the use of OT-MCS as they inspired him to think about self-development. He felt warm and confident with their support and the connection of between OT-MCS from hospital to home and environmental settings, as shown in the following section:

> *'I think that the new approach is supported by the understanding from therapists to initiate me to practise continually both hospital and home. To be honest, I'm passionate to practise when this programme has been set up at the hospital. I believe that it isn't only me who enjoys this recovery programme, but also many stroke patients here.' (Sombat)*

As demonstrated in the above quote, Sombat was conscious of there being a positive side to knowing that his friends, living with stroke, were also benefitting from the

OT-MCS that he had received. Installing OT-MCS influences stroke patients who can then learn and practise with real objects supported by the collaborative team.

However, Apai's account reflected a slightly different view on an unpredictable future. He said that '*I'm not sure how far I am going to reach it*'. He worries about his recovery and changeable development, which reflects his vision based on his real world, which has changed. He is still however encouraged to develop himself through OT practice for a better health and life. Positive thinking and self-effort everyday and in the long term period are crucial for the development.

> *'I encourage myself every day to practise OT and hope to see my ability to recover much more. But I'm not sure how far I am going to reach it. It might take a long time, I will be tolerant because I want to be healthy that's why I come to practise OT every day and learn new things in my life.' (Apai)*

5.12 Fast stream rehabilitation

The use of thematic analysis showed six main themes. These were as follows:

- Engagement with OT-MCS
- Collaboration
- Family
- Transferability
- Outdoor/community

Exploration of these main themes and their constituent sub-themes (see Table 5.9) formulate the basis of fast stream rehabilitation of an OT-MCS approach, with each theme presented by verbatim extracts from the interviews.

Table 5.9: Main themes and related sub-themes of slow stream rehabilitation

Main themes	**Sub-themes**
Engagement with OT-MCS	The need for OT-MCS within general Thai occupational therapy for stroke rehabilitation
	The improvement of life-skill functioning and occupational performance
	Therapeutic activities' value and the challenge in socio-cultural application
Collaboration	Autonomy in activity selection and monitoring problems with consultation
	A sense of partnership to share ideas and experiences when goal and plan setting
	Creating understanding amongst the collaborative team
	Clear communication and explanation in the means of therapy process and effects
Family	Family relationship and support
	Participation and cultural influence
Transferability + Level of activity engagement of stroke participants (initial and final assessment) : radar plot analysis	Using meaningful and purposeful activities in developing skills and abilities relevant to daily life
	Skill transferability and connectivity of activity practice in functioning at home and in the environment
	Widening horizons-embracing culturally relevant activities for the practice at home and community
Outdoor/community	Social interaction in public areas
	Risk taking within outdoor activities

5.13 Engagement with OT-MCS (Fast stream rehabilitation)

This main theme comes from the experiences and interpretation of stroke participants whilst engaging in OT-MCS during an eight week period. The study needs to capture relevant issues related to the lived experiences, feelings and perspectives of stroke participants during the OT-MCS operation in each regional hospital. In the interviews, the interviewer asked stroke participants about the comparison of between previous OT for stroke rehabilitation and the use of OT-MCS in each hospital. The research team wanted explores stroke participants' feelings and interpretation of the new approach. They did not, in any way, wish to discredit the OT system of their hospital. The actual findings bring information and response from all stroke participants in order to develop a view of OT for stroke rehabilitation in Thailand. This study was undertaken within the ethical frameworks of research in both the UK and Thailand. This main theme provides three sub-themes that comprise of *the need for OT-MCS within general Thai occupational therapy for stroke rehabilitation*; the *improvement of life-skill functioning and occupational performance*; and *therapeutic activities' value and the challenge in socio-cultural application.*

5.13.1 The need for OT-MCS within general Thai occupational therapy for stroke rehabilitation

Stroke participants (fast stream rehabilitation) reflected on their engagement in therapeutic media and whether it matched their needs. The theme comes from the stroke participants' responses to the question that *'What do you think about the new approach compared to what you were receiving before?'* The answers provide a comparison of both OT approaches with which they had interacted during rehabilitation.

Sagaun's and Somwad's accounts show that they were more impressed with the use of OT-MCS than with traditional OT in their hospitals. The previous OT system offered a few therapeutic media, but these were not particularly irrelevant to their preference and needs. Meanwhile, the use of OT-MCS offers a distinctive pattern of modality, which provides a range of therapeutic activities which fit with the stroke clients' needs and lifestyles, as highlighted in the following interview extracts:

It's so good! Everything in a new approach made me surprised and impressed that I've never seen before. It's a major difference compared to the last system that only did massage and activity of drawing the sling, but the new approach offered a lot of activities and make me interested to do what I need.' (Sagaun)

'It's great! I've never seen this new approach before. I think that it's different to the old one. The previous OT system gave the same activities and has no level of activity practice. But a new approach offers a lot of activities and is well arranged. I feel amazed when dealing with activity, because I can gain more experience in the OT room and from my real world.' (Somwad)

As demonstrated in the above quotes, the use of OT-MCS is created from a special blend of collaboration between a team (stroke client, family, and OTs) to find the culturally relevant activities which relate to local and environmental situations. Therefore, this approach provides opportunities for stroke clients to select and perform activities themselves which correspond to the stroke client's lifestyle and needs.

Meanwhile Suwanna's and Supap's accounts reveal similar views of their previous OT system which they saw as an exercise therapy approach related to the limitation of therapeutic media and management. Their accounts reflect a good outcome and improved functional performance and life-skills that they can take from hospital to apply at home and in environmental settings, as portrayed in the extract below:

'A new approach helps me to reduce muscle tightness. So I like to practise these activities every day. In my previous OT treatment, nobody taught me and I did just a little bit. Most activities were exercises with tools like practice in the gym, but a new system focuses on my daily life with my home as activity. The knowledge can be applied in activities of daily living in the home and village. It's great.' (Suwanna)

'I'm surprised that it was adopted from activities of daily life, that is different from last therapy, which provided big exercise devices and helped me to increase strength and stretch muscle, no skill practise in there, I cannot imagine how to apply with real activity.' (Supap)

As illustrated in the above extracts general OT in Thailand provides basic rehabilitation tools, like exercise devices for therapy, which are hard to apply at

home. Traditional OT system is limited due to the lack of connection and application between activity practice in hospital and lifestyle patterns of stroke client's home and community lives. Hence, OT-MCS is constructed on the basis of the stroke client's performance, collaborative teamwork and culturally relevant tools (therapeutic media based on local and regional lifestyle) that respond dynamically to practise in OT clinic and at home and in the social environment.

Within Tong's and Monthawat's accounts, there were similar expressions of negative feelings for their previous therapies and patterns of therapy management. In contrast, they preferred the OT-MCS approach, which provides systematically therapeutic media for selection based on teamwork to support their needs. OT-MCS inspires them to put effort into performing activities which generates functional ability and applicable skills, as shown in the following:

> *'I feel that a new approach is likely to be different from the old one; the old system was boring doing the same activity every day. But, a new approach gives a variety of activities for selection. I appreciate doing activities because they are useful and inspire me to increase capacity and skills.' (Tong)*

> *'After I got stroke 3 months ago, when referring to OT room, OTs offered a few tools such as cycling exercise, climbing board and sliding board. I was bored doing these activities every day, always the same. But when a new approach was installed here, I registered first to join this programme and engage in a variety of activities. I see my progress day by day. I don't know whether the old system helped me much more or not, but I know since I started to participate in a new approach, I can move my arm and hand. I feel great at the response rate of recovery.' (Monthawat)*

As illustrated in the above extracts, the conventional OT system provides limited options of therapeutic media and irrelevant activities for stroke clients which leads to lack of enthusiasm. The OT-MCS approach changed their attitudes and views partly due to its client-centredness and autonomy in selection. Stroke participants faced with diversified activities assessed their own progress in everyday practice. OT-MCS offers the opportunity for the arrangement of therapeutic media to restore body function, skills and occupational performance.

5.13.2 The improvement of life-skill functioning and occupational performance

This sub-theme illustrates stroke participants' improvement of functional skills and occupational performance, which they develop through OT-MCS and was shown in the outcomes. Somprasong expressed how he was able to draw out his competence and ability. His words refer to the characteristic of the OT-MCS and activity AC that provide various optional activities corresponding to his needs, satisfaction, culture and suitable functional ability which can be applied in his real world. All particular activities he selected provided inspiration and familiarity which shaped his life-skills and further developed his occupational performance via activity engagement, as highlighted in the following interview extract:

> *'I found that it is not only the catalogue which motivates me, but in the programme we shared ideas together to help me as well. So, I'm familiar with my activity in my life and can easily draw my skill recovery.' (Somprasong)*

> *'For instance, I could not do grasping, holding and releasing with my right arm before new approach came. I'm now able with this hand to carry stuff and home utensils. Because of this approach, home activities are in the catalogue, which is customised to my house. It inspired me to do the real thing.' (Somprasong)*

Sagaun's and Prasit's views mirror those of Somprasong. They were inspired to deal with the OT-MCS and activity catalogue to support self-help and opportunities to select needed activities. The use of OT-MCS could help stroke clients develop skills and abilities leading to an increase in competence to perform daily life activities, as demonstrated in the following quote:

> *'I've done and practised a lot of things from a catalogue that is useful to me. I can draw my potential and am more skilful when compared to previous time, when I could not do like this and depended on my daughter to do everything. Now I can do a lot.' (Sagaun)*

> *'After practice with a new approach, I choose from the catalogue and can turn on-off the key, open and close the door, use chopsticks, grasp small and big objects as well as do phoning activity. These help me to improve my life's activities and my health as well.' (Prasit)*

Meanwhile Theerapat's and Sakorn's accounts offer similar positive feedback for the affected arm and hand movements and functional skills. OT-MCS helped them to move an affected upper limb to perform some essential activities at home. In the past, they reported that they could not move the affected arm and hand to perform any activity. The OT-MCS approach is one factor together with attention to practice which contributes to improved outcomes. Competence and functional abilities are improved due to the optimal volume of the practice, including relevant therapeutic activities, which helps to generate physical function and skills, as illustrated below:

> *'Previously, I cannot move my right arm and hand, after dealing with the new approach now I can control my hand movement to use a spoon to scoop objects and carry them into the container. I can grasp a glass of water to drink, but it moves slowly.' (Theerapat)*

> *'It helps me to move my arm and hand again after 4 months in stroke. It's a big recovery. My ability has gradually recovered because of the arrangement of activities in this new programme.' (Sakorn)*

According to Somwad's account, she presented improvement in her life-skills and ability in performing activities of her everyday life. She also reflected the lived experience in an emotional moment to her mother when she said that '*she was aging already I should look after her but she does everything for me'* (crying). Talking about her mother was very sensitive for her at the beginning of rehabilitation she could not do any activity, even a simple activity such as dressing and grooming, so that her mother looked after her at all times. OT-MCS helps develops a positive self-image, adds value and self-confidence which in turn enhance skills and ability. The following extract illustrates these developments:

> *'Previously, my mom helped me to do everything such as dressing, grooming and scrubbing the house. Now I can do these activities by myself and don't depend on my mom. I feel sad when compared to the past about my mom who had to do these things for me. She was aging already. I should look after her but she does everything for me.' (Somwad)*

She felt a deep sense of emotion and the need to practise herself in order to repay her mother. OT-MCS has been a part of her hope and has enabled her to navigate life's

direction to develop skills and abilities in order to tackle everyday activities. She can now perform dressing, grooming and house cleaning without help.

5.13.3 Therapeutic activities' value and the challenge of socio-cultural application

This sub-theme came from stroke participants' accounts as they reflected their lived experiences. Stroke participants expressed feelings of value in relation to their culture and community. In Supachai's account enjoyment resonated together with humour and positive emotion which helped to build up new social relationships. OT-MCS helped him to get involved in activity programmes and participate with other stroke people to form social relationships, as described below:

> *'I feel it is fun during therapy and choosing from catalogue, so it is not serious as I have a lot of friends in OT clinic. The important thing in the new one compared to previous system is that I can pick up all activities to use in my daily life.' (Supachai)*

Tong explained in his account, his feelings during engagement in the AC and the OT-MCS which inspired him towards self-development. He emphasises the meaning of the activity *'Yes, it is challenging, but neither an easy nor a difficult activity to do.'* This challenge refers to the AC characteristics which offer appropriate categories and various forms of activities for selection and application in practice. The interactions with pictures from the AC help steer him to understand the process of human development by simulated activity which reflects real activity for life.

> *'It is challenging, but neither an easy nor a difficult activity to do. When I look at activity picture in the catalogue, I feel challenged and know the value of these pictures. So I need to practise more and more to use in my life.' (Tong)*

Supap stated '*I feel challenged in dealing with the catalogue*'. He felt that the AC could motivate and challenge him as this culturally relevant tool corresponds with his needs for the selection and application which increases his life-skills and abilities. The AC is designed to match the needs of stroke clients. It is generated from a classification of activity patterns based on local, cultural, and regional

activities in Thailand. This tool provides a range of activities for stroke rehabilitation, as presented in the following extract:

> *'I feel challenged in dealing with catalogue which opens my eyes and I think about the connection and application. It's great to do a lot of activity related to my profession and individual life, which has drawn out my ability and skills during the practice.' (Supap)*

Prayong's account is similar to Supap's story. The challenge and impression of the AC which uses pre-functional rehabilitation practices to advanced activities to develop competence and functional skills is emphasised in his sense of '*Yes, a new one is so challenging*'. AC delivers a range of therapeutic media as illustrated in the quote below:

> *'Yes, a new one is so challenging that catalogue shows various kinds of therapy from basic rehab activities to advanced activities. It's amazing that I can start to practise weight bearing as muscle tone adaptation first, before facing a variety of activities. This approach is likely to explain what is useful to me after using this activity. Compared to the old one where occupational therapists didn't teach anything, they just gave activities and I had to follow them to practise.' (Prayong)*

The above quote credits the use of OT-MCS. It enables stroke clients to search for their needs and make multiple choices. They navigate through the task and think about their experiences after selecting interesting activities or taking activities from home to hospital. AC is both challenging and motivating for stroke clients. It offers individualised opportunities for stroke clients compared to the traditional generic OT approaches.

5.14 Collaboration (fast stream rehabilitation)

The successful therapy process of OT-MCS requires collaborative teamwork during the interventions with stroke clients. Development and improvement of occupational performance through occupational engagement is enhanced. The collaborative client-therapist relationship promotes the application of functional skills, which are taught and practised so that successful, sustainable integration occurs for stroke clients at home and in the community (Luboshitzky, 2000). The use of OT-MCS provides key

ingredients regarding increasing autonomy in the stroke participants' natural environment through selecting therapeutic activities in relation to their local and cultural lifestyles. The shared experiences, ideas, negotiation, compromise, and consensus regarding intervention plans and priorities is an established crucial learning opportunity for the working team. The advantage of using collaborative teamwork in OT-MCS is to create the understanding among stakeholders that stroke clients, family members, and OTs in the therapy process can together maximise the progress of treatment. This teamwork enables stroke clients to learn through their own experiences that they have the strength to engage in self-awareness, self-control and active problem-solving.

This main theme captures four elements of underpinning collaborative working on the use of OT-MCS indicative care package. The findings reveal fundamental accounts in which stroke participants interpreted their feelings and lived experiences during the OT-MCS approach on the topic of collaborative teamwork. Also, the detailed interview accounts mirrored what happened positively and identified the collaborative working amongst the stakeholders of stroke participants, family members and occupational therapists. These interpretations of collaboration emphasise *autonomy in activity selection and monitoring problems with consultation*; *a sense of partnership to share ideas and experiences in goal and plan setting*; *creating understanding amongst the collaborative team*; and *clear communication and explanation in the means of the therapy process and effects.*

5.14.1 Autonomy in activity selection and monitoring problems with consultation

This sub-theme emerges from the autonomy of stroke participants in activity selection and the monitoring system of OTs in the use of OT-MCS. Stroke participants' feelings and experiences of their rights to select and perform therapeutic media show relevant local and cultural activities during the eight weeks of OT-MCS installation.

Somprasong's and Somwad's accounts, reflect a sense of autonomy in activity selection and the means of solving the problem within a collaborative team to create shared goals and plans related to body function and possible activities. A plan for the week was imposed. In the beginning, if the activity selected did not match the stroke participants' physical competence, this activity could be postponed and replaced by

the next relevant activity. The client will come back to engage in that activity again in the future. The importance of compromise and possibility in therapeutic media direction is key to understanding activity engagement. Moreover, background experiences and future work options can be considered to create appropriate goals and plans which match the real world of the stroke participants, as highlighted in the following:

> *'When I propose my needs of activity, occupational therapists will analyse, comparing to my physical ability. Additionally, I set a real plan to do every week and change if some activity I cannot pass. We skip to a new activity and come back when I have skilful potential. I want to return to work as a storekeeper to sell many things in my shop. This is why I have to practise hand function and brain by using a calculator and picking and sorting small beads. In the future, I want to drive a truck for picking up many products from the market.' (Somprasong)*

> *'Occupational therapists allow me to choose activities in the catalogue and give to them for analysis. Moreover, they open opportunities to bring an activity from home and my village that makes me happy because I love to do these activities. After that my team set up a plan and analyse my activities with my body function to see which can fit together or not. Sometimes they let me try to do first. I can choose activities that I preferred. We set up the plan and goal to do those activities which will be changed to the next activities every week.' (Somwad)*

As illustrated in the above quotes autonomy in activity selection imposes the strategic direction for occupational therapy. The critical means of activity analysis and synthesis were used to simplify and adapt activities to fit with body function and competence of each stroke participant. Collaborative team helped the stroke participant and family to set up a goal and plan for therapeutic media related to their local and cultural environments. The plan included support and provision for activity engagement. The plan will be changed based on skill level, competency, and progression.

Meanwhile Supachai's and Monthawat's expressed similar feelings with regard to family planning and participating in collaborative teamwork. A plan for selecting activities indicated teamwork and common agreement amongst a team. It reflected

the sincerity of a broad-minded team including the commitment to take a plan of action in a real life situation when performing activity, as presented in the following:

> *'I and my wife, we help together and consult with occupational therapists. We talked with each other to set up the plan and the goal of each activity into every week. And I feel happy to join with the team.' (Suchart)*

> *'We plan together to set up an activity every week and set goals as well. I brought my son to participate with the plan setting. We choose activities together and talk about the importance and meaning related to my life.' (Monthawat)*

As revealed in the above quotes, OT-MCS provides the opportunity for stroke clients and family members to select meaningful and purposeful therapeutic activities based on their lives. Autonomy of activity selection based on stroke client's needs and lifestyle is an integral part of the team who work to generate goals and plans as a map for guiding direction in stroke rehabilitation.

5.14.2 A sense of partnership to share ideas and experiences when goal and plan settings

This sub-theme captures the experiences and feelings of stroke participants of partnerships and shared ideas to set up collaborative goals and planning. The theme reflects stroke participants' needs and the means of therapy which are collaboratively discussed. Various accounts reveal the use of OT-MCS where stroke participants are invited to be partners in their own therapeutic activity intervention and to assume the responsibility for their own treatment. A client-centred approach enables OTs to gain insight into the lived experiences of stroke clients. This leads to a more comprehensive understanding and better evaluation of intervention outcomes in terms of local and cultural contexts.

Suwanna's and Supap's, accounts reflect the positive sense of partnership in therapy and the opportunity of shared ideas and experiences. These showed a warm picture of cooperation amongst the team that worked with together and integrated information to modify activity in the case of problematic performing, as showed in the quotes below:

'I find working with occupational therapists, by sharing my activity experiences, before I had a stroke and tell them what I want to do now. Frequently, I open the catalogue to take the activities that I need to do and consult with occupational therapists.' (Suwanna)

'To be honest, it is very nice to work with therapists; my wife and I are like a team to share ideas and experiences. So I spoke frankly and politely to communicate with them. We respect each other and focus on the goal which makes me happy to join with them.' (Supap)

As demonstrated in the above extracts, working with OTs went smoothly after the OT-MCS installation. Stroke participants had participated in a team as a partnership to create goals and plans including some activities from their real worlds. The opportunity to share experiences and activity selection helps stroke participants and occupational therapists to take direction of the rehabilitation programme. Hence, collaborative teamwork within OT-MCS is a central element in the rehabilitation process.

In Somprasong's and Prayong's accounts, showed the sense of accomplishment when working with the team in a client-centred way is apparent. Partnership working can seek out better ways to solve problems such as complicated activities and local activities, as demonstrated in the following interview extracts:

'I just tell them what I want to do and explain my lifestyle at home and in the workplace in conjunction with showing the activities that I do. Therapists respond to ask me to bring some activity from home to OT room. I accepted and we tried to reduce the complexity of activity doing it step by step. It's great. I can do it.' (Somprasong)

'After I choose activities that I want to do, we planned together the form of activity matching it with my skill and capacity. Occupational therapists measured my body function and performance. If I cannot do this activity, they will reduce the complicated process. I think that we cooperate to build the plan together and discuss together which the old system didn't have.' (Prayong)

As presented in the above extracts the process of shared ideas and experience can help OTs better understand the real-life situations for stroke participants. Such sharing leads to effective activity analysis and synthesis to re-shape and simplify the pattern and form of activity for the stroke client. This mechanism for resolution in

the OT-MCS was not often found in the more traditional practices of OT in Thailand.

5.14.3 Creating understanding amongst the collaborative team

This sub-theme addresses the stroke participants' lived experiences and interpretations of how they produce comprehensive understanding of each other. The theme is reflected in many stroke participants' voices.

Suwanna's and Theerapat's all expressed the same negative experiences of traditional occupational therapy. This practice may have led to inappropriate approaches to individual stroke patients, as the application in the real world at home and community was mostly ignored. OT-MCS has been designed on client-centred model where individual, local and regional lifestyles are reflected in the use of therapeutic media. This approach requires collaborative teamwork to tackle the obstacles in the period of rehabilitation. This process creates an understanding between the team members and focuses on the ultimate goal of the stroke client, as highlighted in the following interview quotes:

> *'I think that in previous times therapists didn't understand me; they only taught an overview and forced me to do things. I cannot imagine and take in the detail. They didn't ask what I can do or not, even though they never ask the result. But now, they understand me a lot, because this new approach has made them change. This approach enables therapists, family and patients to join together, listen together and work shoulder to shoulder. It is clear how to move forward, because it's my life.' (Suwanna)*

> *'Previously, therapist offered a few activities which were repeated again and again that was boring, I don't like it but kept doing until the end. Now, therapists understand me what I want to do and choose interesting activities. They open opportunities for me and my family to share ideas and present our heritage and cultural activities such using chopsticks, folding coconut leaves to carry food and reading Koran.'(Theerapat)*

As portrayed in the above interview extracts, stroke participants performed activities in the past with unclear direction. Activity selection was dominated by the OTs often leading to a poor outcome of treatment. Adopting the OT-MCS approach has changed the pattern of OT system which is now more relevant and more

collaborative. The change may trigger OTs to understand the needs of stroke clients forming partnerships, which are more likely to achieve the shared goals.

Supachai's and Prasit's accounts were similar in their understanding of therapeutic media selection and the support by occupational therapists. Selected therapeutic media were raised with differing opinions amongst the team. The disagreements are resolved by the use of meaningful and purposeful activity in relation to the stroke participant's life. Some activities were difficult and irrelevant to physical function and abilities. In such cases the occupational therapist would simplify the activity into small tasks for practising skills and performance. Subsequently small tasks are integrated into practice or re-visited again when the stroke participants are able to engage in the activity, as elicited in the following extracts:

> *'I've never thought that therapists force me or choose activity rather than me. If we didn't agree in some activity; we have to give a reason. And the suggestion is reasonably related to the goal. I accepted and practise with happiness. Because, I know the therapists need me to get better, they had to consider much more in terms of my potential to go alongside a performing activity. If it does not work, we skip it and will come back to do again in the future.' (Supachai)*

> *'Most occupational therapists pay attention and listen and use psychological ways to motivate when I deal with an activity. They know what I need to aim for. They modified some activity to be easy first and let me take step by step and bring together. It's fantastic! After I can do it, I wonder why I didn't do it like this first. I ask him why you know how to simplify activity, the therapist gives answer me that this is OT to adapt activities to fit with human life based on individual lifestyle.' (Prasit)*

As illustrated in the above passages, the use of OT-MCS guides the occupational therapist to understand the needs of stroke participants by using an activity catalogue option. The occupational therapist plays a role in the partnership to measure body functions and skill performance and to provide support and encouragement. Thus, OTs come to comprehensively understand the needs of stroke clients when they pay attention and embrace the issues of their needs within a team working approach.

5.14.4 Clear communication and explanation in the means of therapy process and effects

This sub-theme addresses stroke participants' accounts of the communication relationships between OTs and stroke participants during an OT-MCS approach. Clear communication was found to be influential and important in the creation of appropriate relationships between all stakeholders. There were subject to negotiation and agreement, leading to congruence in stroke participants and their families' expectations (O'Neill et al, 1997).

Suwanna's and Theerapat's accounts all mentioned clear communication. The accounts focus on how the team must understand stroke participants' needs. Communication and explanation are crucial when clarifying issues where cultural activities were not understood by therapists, as presented in the following interview extracts:

> *'I had explained and communicated a lot of issues related to myself, especially activities of local handcraft that I do at home and village. Some activity, occupational therapists didn't know, so my husband had to bring from our village. After that they understand how to use it and know the value of activities that I need.' (Suwanna)*

> *'I spent a short time to explain my needs. I like to talk with others not only meeting for setting activity planning, but we exchanged ideas and perspectives in the period of practice as well. I'm a southern person and OTs recognised our cultural activities and identities, that makes me feel good when coming to practise OT.' (Theerapat)*

As revealed in the above quotes, the key role of communication amongst the team is encouraged opportunity for stroke clients and their families to discuss activities that are valued in their everyday lives. Cultural activities can be taken from home to practice in the hospital to increase understanding of the nature and culture of the stroke client's life. Hence, clear communication when embracing new activities is essential to the OT process. Shared experiences, based on the benefit and application of tasks from the real world of the stroke client form the basis of good therapeutic partnerships.

In Sagaun's and Prasit's accounts, a strong sense that OTs had listened to them is conveyed. They talked about their daily valued activities, needs and experiences

improved understanding and familiarity amongst the team, as illustrated in the following quotes:

> *'I find a means of working with the occupational therapists by sincerely talking with them and share my lived experience of what I want to do because it has meaning for me. After that we are familiar and open minded when I face the problem.'(Sagaun)*

> *'I had communicated closely and invited my wife to join, which makes me satisfied and happy. Because we are open minded and listen to what needs to be done in this period and the next time. The key to success is that occupational therapists listened to me explain what I want and need to do; they don't really know everything about my life. So I had to talk and show favourite activities' (Prasit)*

As presented in the above interview extracts, clear communication is important to enhance understanding between OTs and stroke clients when engaging in therapeutic media. The process of building blocks in the stroke client and family relationship is part of the mechanism that OT-MCS adopts and applies. Communication and explanation bring about familiarity and sincerity in the working teams.

Meanwhile Monthawat's account reflects a collaborative teamwork which is fully integrated when searching for the right activities from the activity catalogue. Good communication unlocks barriers using open and honest language related to the experience, career, home and workplace of the client. Building collaborative teamwork and relationships requires respectful communication, as depicted in the following extracts:

> *'First of all, we communicate together in terms of my activity that I have to do at home and extending to my career respectively. I spoke of my needs and activities that I have to do when I go back home and in the office. We try to draw pattern of each activity that I do regularly each day to match with catalogue activity and sometimes bring from my home as well.'(Monthawat)*

> *'We spent around 5-10 minute for a meeting on Monday morning before practice. And during practice if I face with difficult things I can consult them again.'(Monthawat)*

The quote reinforces the imbalance of honest dialogue and flexible communication channels. Consultation, when things are difficult, can lead to brainstorming in the team to solve problems for the stroke participant.

5.15 Family

This main theme draws upon the lived experiences of stroke participants in everyday life who engage with their families after adopting the OT-MCS. The trajectory of OT-MCS approach is to offer opportunity for the stroke family caregivers to participate in the strategic planning and goal setting, including the activity engagement at home and in the community. In keeping with collaboration, the use of OT-MCS focuses on stroke participants and family members' needs by addressing the education and support requirements which will enhance the effects of OT not only in hospital, but also in practice in their own homes. To achieve better outcomes from stroke rehabilitation intervention, family members should also provide support and experience the changes in the rehabilitative participation (Cameron & Gignac, 2007).

The study captures relevant issues in family relationships around support, cooperation and collaboration during the use of OT-MCS. In the interviews, the interviewer asked stroke participants about family support and input after using OT-MCS. The findings highlight the role of family care from the perspective of stroke participants who felt that their family members had a crucial role in rehabilitation and in the collaborative teamwork. This main theme is further divided into two sub-themes that comprise of *family relationship and support*; and *participation and cultural influence*.

5.15.1 Family relationship and support

Increasing awareness of family relationship and support can be found in the participants' accounts of their involvement with their caregivers. Their comments affirm the importance of information, activity preparation at home, and emotional support during the use of OT-MCS. The theme reflects the different inputs of family members, wife, husband, sons or daughters, which depended upon their status and relation to the stroke client.

A wife has a special role to play in the team by sharing ideas and giving information about the particular stroke participants' experience at home and in the community. The stroke clients' wife plays a key role in looking after husbands, reflecting true love, sharing ideas for discussion and being interested in all therapeutic activities during rehabilitation. These encouragements from the stroke participants' wives in the use of OT-MCS can help increase understanding of the life-skills and the role of health development that the more traditional approach could not be achieve.

> *'My wife complained to me before that I'm likely to be lazy because the previous time it doesn't work. And now she encourages me again to practise with a new approach every day and she gives me her attention. So, I am passionate.' (Somprasong)*

> *'My wife talked about something that I forgot to raise and brought some activity from village to show therapist, which made them excited and they never knew or never thought about these activities which are my heritage activities such as bamboo basketry and using an abacus.' (Tong)*

As illustrated above, the male stroke participant's wife plays an important part in providing support to her husband for developing his functional skills in activity engagement and implementing the same skills in his environment. The wife pays attention to the stroke rehabilitation process and in particular to therapeutic activities which are meaningful. This provides a sense of the strong relationship between this couple which focuses on practice and encouragement.

Within Suwanna's account, she says that her relationship with her husband plays an important part and the therapy reflects social realities in their lives. The materials and local activities are part of the success in the use of OT-MCS. These represent the culture, heritage and ways of life of stroke clients. Furthermore, the use of adding local heritage activities can inspire many stroke clients to practise and apply their skills in local environment. Such practice can generate collectively additional therapeutic media in the activity catalogue, as demonstrated in the following extract:

> *'My husband hopes to see me to get better; he told occupational therapist about some useful activity that is not in OT clinic. Sure, he brought law material, and device, from our home*

and village to use in OT clinic. Some stroke's relatives see the value of this thing and help us to join and bring various activities from their village.' (Suwanna)

Monthawat and Supachai viewed their relationship with their sons as good as they were concerned about their stroke condition. The sons had joined in the activities. Both stroke participants demonstrated the understanding of their sons as they participated in the activities. The warm relationships and the encouragement from their sons are evident in the following passages:

'I' m so happy more and more due to my son. He really likes to join in activities with me especially games or sport activities. We like to do activities together in particular during holidays. He encourages and supports me to improve hand skills when we play a Thai chess game' (Supachai)

'My son came in the occupational therapy room to work with me and take note of essential things to practice at home from occupational therapists. My son needs to see me healthier and support everything, so I have to practise much more at home.' (Monthawat)

Sagaun however had daughters to help and support her in the process of stroke rehabilitation. Her story reflects the commitment her daughter showed when using the OT-MCS approach. The strong relationship between them can be seen. She is a nurse and will know how to take care of patients but this is her mother which will bring additional emotional stresses. The daughter concentrated on the rehabilitation, consulted and participated in the activity programme willingly, as shown in the quote below:

'My daughter, she is a nurse at this hospital as well. She liked to take part in the occupational therapy programme. She often takes notes and consults with occupational therapist more than me. I know that she needs to see me get better and healthy.' (Sagaun)

In Theerapat's account, the committed attention of his father is apparent. He looked after him by motivating and encouraging him to practise OT. Such care reflects the great responsibility of a father for his son who faces an uncertain future, in particular on his educational journey. His words capture a deep sense of repayment to his

father. Theerapat put great effort into practice in order to increase his potential and competence to generate functional skills for various activities in his life.

> *'My dad gets involved in many activities; he is passionate to motivate me every day. I know what he wants about me; he needs to see me return to study with full function again. He doesn't want to see me face difficult things when I study at school. I promised him already, I will try and do my best thing to draw out my ability and skills.' (Theerapat)*

Somwad's account reflects a real love between mother and daughter as her mother attended the activity programme, gave information and shared ideas for her rehabilitation. The quote carries a sense of the strong relationship between mother and daughter:

> *'My mom came to take part in the activity programme both in the occupational therapy room and at home. She often told my story to occupational therapists that I forgot some issues. She is a part of our team and I feel confident when my mom is standing next to me.' (Somwad)*

Stroke participants' accounts reveal that family has an important role to play and need to participate in the OT-MCS programme. Strong encouragement to promote practice in the occupational therapy is evident. Hence, family involvement is essential as clients navigate through their OT, creating the plans as a collaborative team to achieve the shared goals.

5.15.2 Participation and cultural influence

This sub-theme focuses on stroke participants' lived experiences and viewpoints, in particular drawing on the influence of culture towards activity and participation. Across the different regions, there are multiple heritages and cultures which stroke participants and their families embrace when carrying out various activities of the OT rehabilitation programmes.

Prasit's and Somwad's accounts reflect the warm relationship with their families during part of the rehabilitation period. They could understand the concept of OT-MCS from therapist-structure towards activity application in their real world at home and in the community. This therapy process assists family members to consider the pathological condition and participate in the OT activities in order to motivate the

stroke clients. Creating a warm atmosphere and improving capabilities and functional skills related to cultural activities is revealed in the following interview quotes:

> *'My wife shares the experience when we're meeting with occupational therapists. She knows my needs and lets me do things because we are a team in the process of rehabilitation. My son invented some tool from lumber for assisting my hand function like a fruit pole in catalogue activity; I try it to get mango from the tree.' (Prasit)*

> *'At my home, my family is likely to join in activities such as meal preparation, golf skills, Thai chess game, and gardening. When we take part in family activities, we are happy and it increases my encouragement to move forward.' (Somwad)*

As highlighted in the above extracts, the use of OT-MCS can help stroke participants and their families to comprehend the purposeful direction of rehabilitation to reach their needs. Stroke participants' families engagement leads to improve socio-cultural participation. The colourful and cheerful moments can be seen when families consolidate to participate in meaningful activities which bring about better encouragement for stroke clients.

Meanwhile, Tong's and Monthawat's accounts offer similar evidence of the positive impact of practising cultural and religious activities. They reflect stroke participants' and their families' views which value activity participation which leads to the development not only of body function and skill performance, but also to the increase of good feelings and emotions. The religious and cultural activities were likely to engage all family members which produced happiness, as demonstrated in the following passages:

> *'Our family is willing to join with a new programme and need me to continually practise every day. Some home activity we take part in together such as praying with Tripitaka or go to the temple for making merit with family. So, we are Buddhists and need to rigorously practise our culture being aware of former generations.' (Tong)*

> *'In our village, there are a lot of bamboo and wood products, which we like to use in our lives whether it is the container for meal preparation or tool for calculating. My son gave*

many ideas and brought some local activities such as basketry, abacus for hand training.' (Monthawat)

As portrayed in the above accounts, family responses when embracing new activities help to create the familiar atmosphere necessary to understand the different ways of life. Family is a part of the responsible network during rehabilitation where meaningful activities can be applied.

5.16 Skill transferability (fast stream rehabilitation)

This main theme aims to capture the lived experiences and perspectives of stroke participants and how these effect transferability as they engage in various culturally relevant therapeutic media and apply these using local resources. In this section, the research findings come from a special blend of rich textual and numerical data. The numerical approach was designed to evaluate the level of activity engagement of stroke participants (n=60) when dealing with the therapeutic media (page no.201-207) and how cultural activities from local and regional areas were embraced by the team. Importantly, the creative therapeutic media started from the central region and increased gradually with storage and collection as a specific activity item became an example to another region. Incredibly, some stroke participants adopted activities from another region and modified them based on their own raw materials and resources. For instance, folding banana leaf to carry food is performed in the northern region where is a plentiful supply of banana trees located on the hill and mountain landscapes; whereas stroke clients in the southern region used coconut leaves instead to carry food as coconut trees near the beach areas are readily available.

A new activity catalogue (AC) was created through groundwork from region to region and culminating in the southern region a total of 100 activity items. This new culturally relevant tool became an activity card sort (ACS) for Thai stroke rehabilitation similar to the universal approach within the realm of OT (See details in the Chapter 6). There were 125 activity items (Activity catalogue plus collaborative suggestion and collection), but individual stroke participants could not perform all activities, they could only perform their selection during 8 weeks. Each activity item

is useable by the stroke population who can select and perform each one where appropriate. Adding and selecting more activity items is based on the contexts of the stroke participants and their family members in relation to their professions, experiences, lifestyles, cultures, regional resources and local traditional practices in each region. Moreover, regional OTs have long experiences of dealing with local stroke clients; now they can share therapeutic media from this research and engage with stroke participants in different ways.

In the consideration of skill transferability of acquisition and performance, interaction with the individual stroke client is essential. In particular his or her reflections after engaging in activities need to be captured. The OT process should be located on occupational performances which can be applied and implemented (Whiteford & Wright-St Clair, 2005) and are based on the local and regional lifestyle of clients. Hence, a qualitative approach using interviews was used to explore the skill transferability issues associated with therapeutic activities and participation in occupational therapy. Therapeutic media and activities act as tools, to guide stroke survivors and their families when searching for relevant and effective activities to perform in their everyday lives. Transferability involves *meaningful and purposeful activities in developing skills and abilities relevant to daily life*; *transferable skills and connectivity of activity practice in functioning at home and in the environment*; and *widening horizons-embracing culturally relevant activities for the practice at home and community*.

5.16.1 Using meaningful and purposeful activities in developing skills and abilities relevant to daily life

This sub-theme aims to captures the stroke participants' lived experiences when using meaningful and purposeful activities to increase their occupational performance and improve functional skills and abilities. The theme includes increased value in activity engagement and the effects of transferring skills to home and community endeavours.

Sakorn's and Prayong's accounts present the specific effects of activity practice which improve their functional skills in affected hand movement. Grasping a tennis ball to pick and place helps them to draw out their potential and restores sensory-motor functions. The use of OT-MCS and AC encourages skill-links between pre-functional activities to advanced activities. Action at relevant times during the

recovery process involving appropriate therapeutic activities leads to speedier progress, as shown in the following extracts:

> *'I can use my hand to grasp the ball, my finger now can move even though it is hard to isolate, but it works. In previous times, I didn't have power to control my finger and hand, but now I can do it from basic rehabilitation to gradually advance practice. It is a real happening!' (Sakorn)*

> *'I can draw out my ability and skills from various activities. It is likely to be a step by step approach from the basic skills to advanced skills. I practised grasping tennis ball to pick and place that helps me continually to connect the sorting stone and crystal marble, which is like my former profession as a lapidary.' (Tong)*

As revealed in the above quotes, it is clear that many steps of activity practice can motivate stroke participants to draw out functional skills and competencies which connect and create a stairway to other activities, leading to their goals. This meaningful and purposeful application is a special pattern underpinned by the needs of stroke clients and relevant therapeutic activities and participation.

Prayong's, and Supap's accounts also reflect the power using meaningful and purposeful activities for developing skills relevant to daily life. OT-MCS enables them to select their culturally relevant therapeutic media from the AC. These selected activities are meaningful but challenging for stroke participants, as highlighted in the following interview extract:

> *'I found various activities that help me to draw out my ability and skills. For example, when practice with pronation and supination wheel finished, I turn to apply to opening-closing door or book and can see the benefit about the connection of activities.' (Prayong)*

> *'I applied my ability that I gained from the OT room to do at home. For example, I draw out skill from putty activity and pump action of a lotion bottle to apply for using liquid soap and shampoo for taking bath. I can restore my hand skill in everyday life; this is a real life situation.' (Supap)*

As evident in the stroke participants' stories, activity engagement in the OT room can be utilised at home and in their real worlds. They could learn to perform a simulated activity to generate skills and apply these activities in their daily lives.

5.16.2 Transferable skills and connectivity of activity practice in functioning at home and in the environment

This sub-theme embraces stroke participants' accounts of experiencing skill transfer and transition of activity participation and functioning. The theme reveals the views and emotions of stroke participants who tried to transfer their skills and functional abilities to activities in their real worlds at home and in other social environments. Prasit's and Monthawat's accounts provide insight into the transferability of activities from clinic to home. Their stories reinforce need for stroke participants to gain independence, to survive and engage in self-care and household activities. Transferable skills from therapy practice to the real world rests on the ability to see the connections and try them in simple tasks at first, as presented in the following:

> *'I took a lot of activities to use at my home. For example, I use a bucket and bowl in the toilet, and sometimes change the spray nozzle for butt wiping. I don't want to forget and need to keep my skill. Furthermore, I can use a toothbrush and toothpaste to brush teeth by myself, taking shower, meal preparation, and watering plants.' (Prasit)*

> *'I transfer a lot of things to do continually at my home such as pouring the water, holding and drinking water, pump action of shampoo on my hair and cleaning, doing computer, open the song with compact disc.' (Monthawat)*

As illustrated in the above interview extracts, the transferable skills from activity engagement can be seen as a comprehensive understanding of transferable therapeutic media to the real world. Many therapeutic media are derived from real human activities such as work/studies, ADL, leisure/play, and rest activities. These activities show diversified forms and sizes based on local, cultural, and regional patterns.

Tong's and Supachai's accounts reveal that they learned various activities from the hospital and could transfer these not only for individual practice, but also in interpersonal and social activities in the real world. These accounts reflect that the

activity connection and transferability are important in occupational therapy. Modification and application of activities for the workplace, society, and community will follow as demonstrated in the following interview extracts:

> *'I think that a new approach and catalogue motivates my transferable skills from one activity to other activities leading to activities of daily living and my way of life. Now I can drink water with an affected hand side, organising medicine, sorting precious stones and jewellery with friends, even cooking a meal with my wife.' (Tong)*

> *'I do it, for example, ball throwing at target. It looks like basketball that I will do to control both my hands when driving motorbike. I think that every activity can connect to another and has the same basis from which I can build and develop continuously to fit with my daily life. A lot of activities help me in my workplace, I'm an officer of State Railway of Thailand, and have to distribute train spare parts, so that I can take this experience to carry small parts and boxes.' (Supachai)*

As exemplified in the above quotes, stroke participants can apply multiple activities using transferable skills from therapeutic media to their real worlds. Their reflections indicate the value of therapeutic activities when the skills of engagement are transferable.

The numerical data from 60 stroke participants (fast stream rehabilitation) were analysed to give a comparison between the levels of activity engagement reflecting the development and improvement over the period of 8 weeks before and after the use of OT-MCS. These data were taken from the activity catalogue (last version) 40 items and expanded towards 100 therapeutic activity items (see Table 5.10) by stroke participants, family members and from regional OTs' cooperative input which fall under four domain areas: basic rehabilitation skill and ADL, IADL and household activities, socio-cultural/educational activities, and leisure physical activities.

Table 5.10: Classification of activity items (Added by stroke participants, family members and occupational therapists in Thailand)

Classification of Activities Into 4 Areas (100 items)			
Basic rehabilitation skills and ADL (39 items)	IADL and Household activities (26 items)	Social cultural/educational activities (18 items)	Leisure physical activities (17 items)
A1- Peg board A2- Incline board A3- Sliding board A4- Looping curve skill A5- Key grip skill (Turning) A6- Pinch Grip (Pinching) A7- Bimanual putting pin in a bead A8- Dressing with top (shirt/blouse and button/tie) A9- Putty activity A10- Stacking cones or rod A11- Constructing chain from plastic (small) link A12- Pick and place ball in small cone A13- Placing beads on pins A14- Pronation/supination task A15- Tennis ball pick and place A16- Bimanual holding of cone and place A17- Forceps pick and place with ping pong ball A18- Trunk control/bilateral arm movement ---------- A41- Hand cycling exercise	A19- Washing cloth skill A20- Scrubbing and sweeping the house A21- Phoning skill A22- Scoop and pour liquid into bottle A23- Opening and closing door A24- Mouse skill A25- Pump action of lotion bottle A26- Calculation skill A27- Hammer/Axe skill (plastic) A28- Bolt-screwing (into board) ---------- A42- Wiping the table A44 -Holding and drinking water from bottle or cup A50- Using cash machine A51- Using remote control A57- Using a soup ladle A62- Grooming A67- Using scissors A68- Coins dropping into piggy bank A73- Cooking meal A75- Knife Skills A76- Pinch off veggie	A29- Using chopstick A30- Use of spoon and fork (bimanual) to remove bead from putty A31- Writing skills A32- Sorting tidly winks with spoon A33- Picking and sorting small bead (like cleaning rice, bean) A34- Fruit pole ---------- A48- Going to temple A53- Organising medicine A59- Lettering and enveloping skills A64- Opening/closing a book A72- Stapler skills A74- Folding banana or coconut leaves to carry food A78- Sorting stone and crystal marbles A90- Using pencil sharpener A 95- Abacus skills A96- Basketry A97- Reading the Tripitaka/Bible/ Koran A99- Flower arranging	A35-Dart A36-Ball throwing at target with a bounce A37-Shape matching skills A38-Key board skills (computer or piano) A39- Throwing rings (quoits) at target A40- Picture mosaic skills ---------- A45- Gardening/growing plants A54- Playing jigsaw puzzles A56- Playing card A70- Folding paper boats A71- Drawing Skills A83- Playing table tennis A84- Golf Skills A86- Thai chess game A88- Throwing and receiving ball A89- Kick Ball A93- Bowling skills

Continue to the next page

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Classification of Activities Into 4 Areas (100 items)			
Basic rehabilitation skills and ADL (39 items)	IADL and Household activities (26 items)	Social cultural/educational activities (18 items)	Leisure physical activities (17 items)
A43- Tearing paper A46- Zipper A47- Wearing trousers A49- Spray nozzle for butt wiping A52- Bathing with bucket and bowl A55- Pinching peas A58- Flipping coin/ card A60- Taking shower A61- Wearing a belt A63- weight bearing A65- Key skills A66- Big Peg Board A69- Washing hand A77- Pliers Skills A79- Climbing Board A82- Holding and rotating the bottle A91- Pressing toothpaste A 94- Handle a ball for wrist exercise A98- Button Skills A100- Stereognosis skills	A80- Driving Car A81- Drying clothes with clothesline/clothes rack A85- Lashing rope A87- Folding fabric A92- Watering plants		

The study surveyed and measured the levels of activity engagement (using the Activity of Occupational Therapy Programme Recording Document) of 60 stroke participants (fast stream rehabilitation) who attended 6 regional OT clinics in Thailand. The data were elicited from the median value of 60 participants who had engaged in activity referring to their "*level of activity engagement*" in 100 activity items on 4 levels. The transferable skills started from the therapist structured programme (Level 1); therapist-client/family cooperated programme (Level 2); client participation programme (Level 3); and home programmes (Level 4). These levels of activity engagement were underpinned by the collaboration of developmental practice programmes leading to the application at home and community. The initial

and final assessments were used to evaluate the functional performance of individual stroke participants related to the level of activity engagement (level 1 – 4). In the following figure 5.6, results show two individual stroke participants' engagement in various therapeutic activities by presenting the initial and final assessments during 8 weeks, as shown in the following.

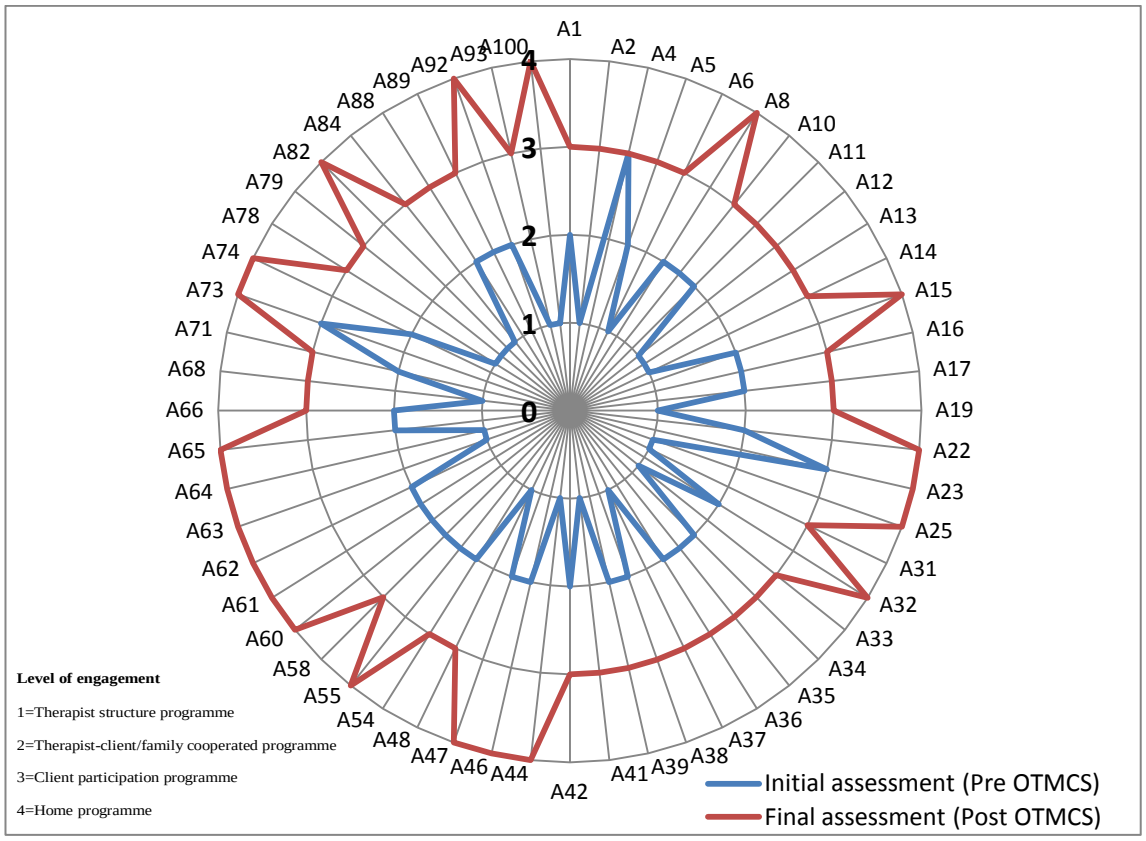

Figure 5.6: Radar plot showed individual stroke participant's activity engagement via 57 activity items during 8 weeks (OTMPE01)

The findings (Figure 5.6) reveal that a man living with stroke from the eastern region had engaged in 57 activities. All activities show the blue line in radar plot presenting initial assessment (Pre OT-MCS) at the low level of activity engagement (1 or 2) in almost all therapeutic items, compared to the red line illustrating final assessment (Post OT-MCS) at the high level of activity engagement (3-4). All activities represent the improvement of functional performance from the occupational therapist-structured programme developing to home programme of application. However, only A4 (Looping curve skill) showed the level 3 – 3 of activity engagement which demonstrates no progression in this therapeutic media. Nevertheless, this issue is analysed in the Discussion Chapter (see page. 236-237) in

terms of form and pattern of activities for application at home and community. Another stroke participant's pattern is presented below.

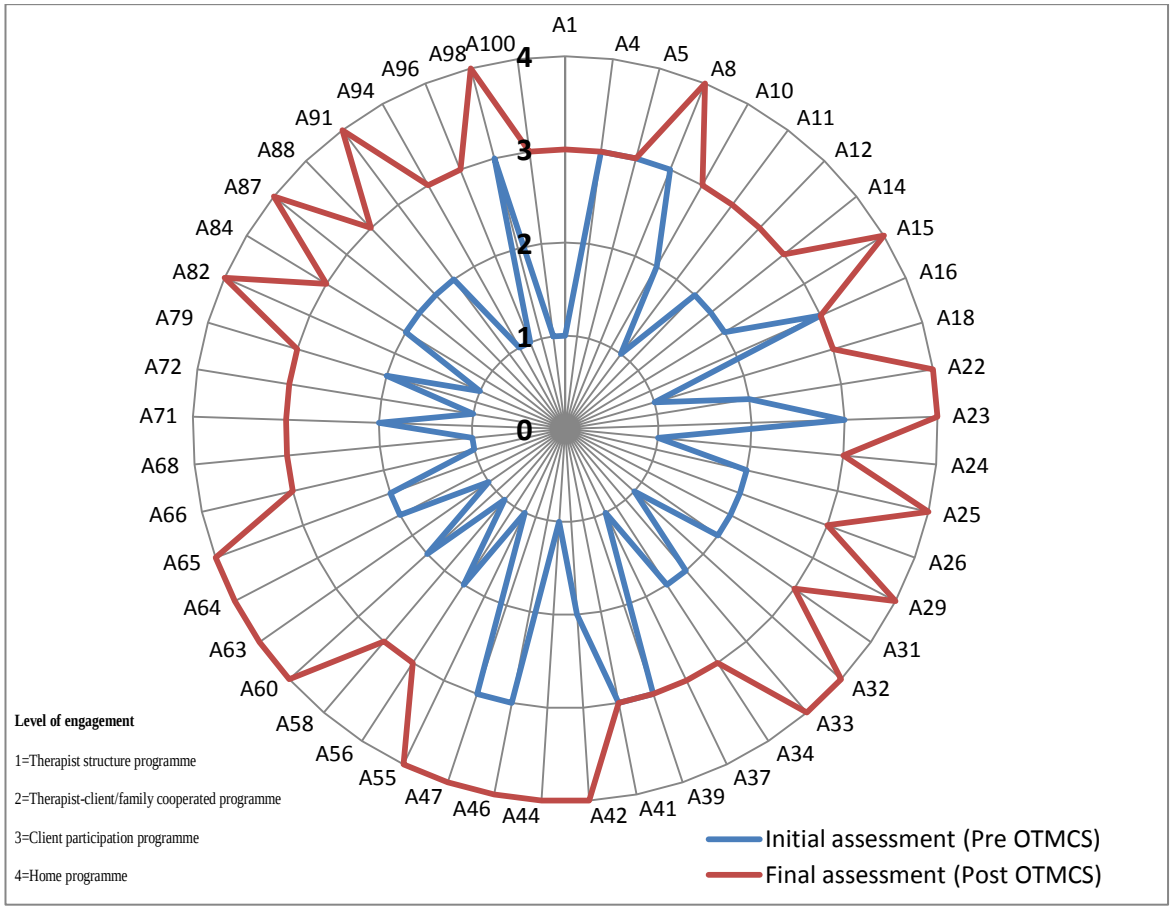

Figure 5.7: Radar plot showed individual stroke participant's activity engagement via 50 activity items during 8 weeks (OTFPS06)

The result (Figure 5.7) shows a stroke woman, from southern region, engaged in 50 activity items during 8 weeks. All activities of the initial assessment (Pre OT-MCS) are presented by the blue line in the radar plot at levels 1 - 3 of activity engagement. Meanwhile, the red line demonstrates the final assessment (Post OT-MCS) at levels 3 – 4 of activity engagement that shows improvement in the functional performance at home and environment. Nonetheless, for this stroke participant, several activities could not be developed to the high level of activity engagement within A4 (Looping curve skill), A5 (Key grip skill), A16 (Bimanual holding of cone and place), A39 (Throwing rings (quoits) at target), and, A41 (Hand cycling exercise). These therapeutic activities showed levels 3 – 3 of activity engagement presenting no improvement. However, these therapeutic media are analysed in Chapter 7 related to the form and classification of activities for stroke rehabilitation.

In the following radar plot, the initial-final assessments of 60 stroke participants (fast stream rehabilitation) via 100 therapeutic activities are shown.

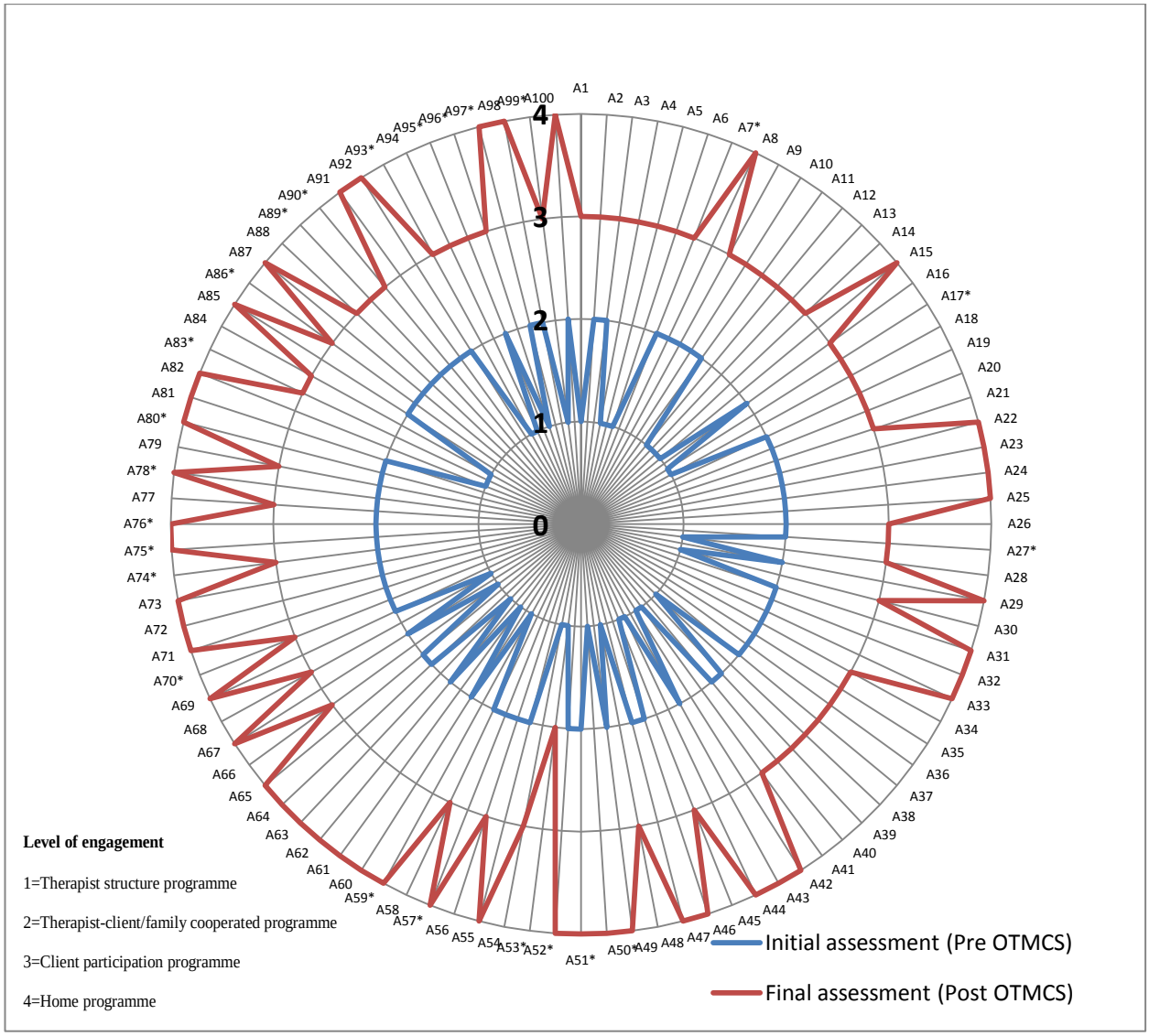

Figure 5.8: Radar plot presenting the level of activity engagement in 100 therapeutic activities of 60 stroke participants (fast stream rehabilitation); Values for each item are medians.

In the radar plot (Figure 5.8), the numbers using each activity catalogue item ranged from 4 to 59; those items with less than 10 are identified by *. The findings showed that stroke participants improved in 8 therapeutic activities (8%) from level 1 - 4 (Therapists structured programme → Home programme) that included A15 (Tennis ball pick and place), A42 (Wiping the table), A44 (Holding and drinking water from a bottle or cup), A50 (Using cash machine), A59 (Writing letters and enveloping

skills), A61 (Wearing a belt), A63 (Weight bearing), and A82 (Holding and rotating the bottle).

In levels 2 - 4 (Therapeutic-clients/family co-operated programme → Home programme), there were 37 activities (37%) in which most stroke participants developed competence and functional abilities to apply their home environments.

Furthermore, stroke participants improved their functional skills from level 1 – 3 (Therapists structure programme → Client participation programme) in 24 activity items (24%), and built up their skill performance from level 2 – 3 (Therapeutic-clients/family cooperated programme → Client participation programme in 31 therapeutic activities (31%).

5.16.3 Widening horizons-embracing culturally relevant activities for the practice at home and community

This sub-theme addresses the local and cultural activities that stroke participants and their family members took into practical works to create productivities for rehabilitation. The theme embraces culturally relevant activities in relation to occupation, meal preparation, handcrafted items, and agricultural activities. Stroke participants, who lived in various different regions, reflected the respective influences of their way of life via therapeutic activities that were taken from villages and communities.

Suwanna's account shows that she appreciated the value added to her life and family. She thought about her experiences and duty as a housewife when she practised folding a banana leaf to carry food in the OT room. This activity was transferred from hospital to meal preparation at home, as highlighted in the following interview extract:

> *'There are a lot of activities that I can pick up to apply in my routine life. I am a housewife and like to cook food. A new approach helps me to develop and practise my skill in wrapping and packaging banana leaves to carry food. Now I can do it to help my daughter to prepare meals for cooking.' (Suwanna)*

Theerapat reflected that there were a wide range of activities that he could perform successfully in the OT room that were transferable to do at home and in his academic

studies at school in the future. Activity transfer and connection influence stroke clients as they practise functional skills in the OT room which they can then use in the real world. The following case is a young teenager who shows good progress after the use of OT-MCS which encourages him to practise continually for his future life, as illustrated in the following interview quote:

> *'I like to take interesting activities to do at home, such as sorting tidly winks with a spoon leading to grilling fish, cleaning beans, fruit pole with durian and mangosteen, kick ball with friends, using spoon and fork when having food, and constructing chain from plastic link that helps me with the skill of writing. I know that I'm still young and need to practise activities for future studies.' (Theerapat)*

Similarly, Monthawat performed activities at home by increasing the linkage of activities fitting with her professional life. Her account shows that the activity catalogue is a culturally relevant tool that helps her navigate her functional skills using real objects of practice. The linkage of pre-functional rehabilitation instruments and real activities fitting in with lifestyles has shaped the stroke client's perspective.

> *'It's a real thing like my daily life. I practised how to grasp tennis balls and the cone. Finally I have to face the real plastic glasses. Yes, it works. I get it and modify to use with fish sauce bottle to control the balance between water inside the bottle and pour it into the bowl. It's amazing, I feel like interacting with a real activity.' (Monthawat)*

> *'Because of this, I feel recovery quickly. Some activity with a calculator, in my career work, I have to calculate because I am working in financial services and production company. A basis of calculation helps my brain to work. I'm alert and feel the process of thinking with numbers as in my profession.' (Monthawat)*

As demonstrated in the above extract, some activity is familiar and related well to her work. She is able to draw on her experience which leads to a more rapid recovery. The activities, in a supportive atmosphere stimulated sensory-motor functions and engaged her in developing optimal skills in occupational performance.

5.17 Outdoor/community

This main theme aims to capture the outdoor/community impacts after stroke participants have engaged in the use of OT-MCS. A subjective concept of community reintegration post stroke needs to be considered. The stroke participants' recovery potential is dependent on his or her in individual circumstances. Accordingly, lifestyle choices play a significant role in determining the health and quality of rehabilitation in elderly people (Rowe & Kahn, 1997). OTs working with elderly people in the community should consider and monitor factors related to local and cultural lifestyles in order to reduce the risks from disabling conditions associated with stroke (Peralta- Captipon & Hwang, 2011). The findings reveal crucial effects upon how stroke participants feel as they interact with outdoor activity in their communities. In addition, this study offers a range of social public places where stroke participants engaged in these activities. Sophisticated relationships between individuals and their lifestyles during outdoor activities are revealed. This main theme is further divided into two sub-themes comprising of *social interaction in public areas*; and *risk taking within outdoor activities*.

5.17.1 Social interaction in public areas

This sub-theme captures the experiences of stroke participants whilst engaging in social public areas after the use of OT-MCS. The theme reflects various locations where participants participated in different activities. These included rural communities, urban areas, city centres, and religious places. Stroke participants liked to go to shopping malls or markets and monasteries. Two stroke participants' accounts introduce the theme. They went to town to carry out outdoor activities with their families at the market and in religious areas. The following interview extracts highlight some of the issues:

> *'My family we went to the city to buy a lot of stuff and visit our relative. After that we went to join the Buddhist's festival to make merit. That is why I went to downtown.' (Prayong)*

> *'I went shopping with my family last week, and went to the mosque in the city centre to pray for Allah's kindness.' (Theerapat)*

As demonstrated in the above quotes, outdoor activities are essential and meaningful if stroke clients are to take a full part in life. Also, faith is an integral part of human life, and stroke participants also need to participate in religious activity which helps create a balance in life and preserve their cultural identity.

Both Supap and Supachai report that they lived in town and could travel many places with their families. They were becoming more independent and were improving their functional abilities which enabled them to carry out various activities outside the home. Applying OT-MCS helps clients and families cope with problems through learning by doing and transferring skills to the real world, as revealed in the following:

> *'My home is located in the town. Every weekend, my family has outdoor activities such as shopping, watching films at cinema, travelling to the beach, making merit at the temple. All these activities we love to do in holiday event.' (Supap)*

> *'I lived in Bangkok. Last a couple of days, I went shopping and watched a movie at shopping centre with my wife and felt very excited. Because I like to go shopping to look around and it makes me feel good' (Supachai)*

Tong's family performs occupations similar to most people in his region. He works as a lapidary or gemstone seller, and he likes to go to the gem markets. His background motivates him to go to these places which are a familiar part of his professional life. The social interaction he encounters is very important to his recovery.

> *'Last week, I and my family, we went to a big jewellery market in town that made me very happy because this is my beloved profession. I use to be a jeweller and feel very happy when I look at many gemstones and spend a long time to look around.' (Tong)*

Public areas and outdoor places are important to stroke survivors as these are where social interaction takes place. When performing outdoor activities, stroke participants understand the meaning of participation in social integration, which

reinforces fully positive emotions. These are a far cry from the negative feelings of social separation and loneliness.

5.17.2 Risk taking within outdoor activities

This sub-theme captures the lived experiences and feelings of stroke participants when dealing with the risks of barriers to outdoor environments. Diverse obstacles in public areas increase risks, as the imbalance of body functions and activity limitations and general coping skills make participation problematic. Hence, the impact of risk taking should be considered when clients perform activities outside the home.

Somprasong and Sagaun express their strong concern in relation to the potential harm, risk of accidents and dangerous areas. They were faced with an obstacle when opening and closing a big door. The rough sloping or slippery area presented a very difficult environment to that in the practice. The below accounts illustrate these important points:

> *'My wife and I, we went to a big market in the town to buy products and vegetables. She didn't allow me to walk alongside with her in the city centre, because there are a lot of people and slippery area which is easy to fall. She was scared and considered my safety. So I was in a truck and waiting.' (Somprasong)*

> *'Another thing, I think that my shop got a big door and made from metal. It is heavy to open-close by myself. And some areas surrounding my house are rough with slopes; I have to be careful if the rain falls.' (Somprasong)*

> *'On the issue of hindrance, now I cannot close and open the house gate because it's very heavy and needs a lot of power. When I arrived home, I called for my daughter to open-close a house gate.' (Sagaun)*

As illustrated in the above extracts, some activities require strength and power. OTs need to consider essential issues in relation to outdoor tasks, especially with older stroke patients.

Meanwhile Supachai's and Sakorn's accounts reflect that they did not have problems at home, but various rough landscapes in the environment outside the home are hard for them to control. Public areas are beyond their individual authority. Therefore,

they need to practise in real life situations under supervision and support from their families or OTs in order to minimise risks and maintain security, as demonstrated in the following:

> *'I think so my house and environment is secure and I can manage all facilities when convenient, but I'm still careful to avoid the risk area outside my home such as bus station, rough road, and market.' (Tong)*

> *'My village has a terrible road which concerns me and my wife, she does not want me to practise driving motorbike in the beginning, because it's dangerous and there are a lot of trucks and transport now.' (Sakorn)*

Monthawat's account shows that she still encounters various obstacles in her life as she cannot yet walk and is still engaged in the walking programme. An upper limb of affected side appears to recover quicker than a lower limb. Hence, she still worries when carrying out perform indoor and outdoor activities which involve standing and walking, as highlighted in the following passage:

> *'I think that there are lot things I cannot do with several activities, because there are many hindrances for me. I'm on the process of walk training, but my affected arm and hand is quickly progressing. It's unbelievable. I want to go to market for shopping, washing clothes much more, and can stand in front to demonstrate the products of the business.' (Monthawat)*

As revealed in the above quote, body function is key to engagement in activities. Monthawat projects her need and desire to be standing and walking again on to the various activities she chooses.

5.18 Summary

This chapter has presented findings from the mixed data sources of frameworks for an integrated methodology (FraIM). The combination of textual and numerical data has produced main themes and sub-themes to tell the story of the lived experiences of stroke participants. In slow stream rehabilitation, sequential main themes flow from the *engagement with OT-MCS*; *use of the activity catalogue* and are supported by attitudes of stroke participants (satisfaction and importance) using descriptive analysis; the *collaboration* theme is strengthened by a comparison of attitudes of OTs and stroke participants using the Mann Whitney U Test; *Salience*; *Self-management*; and *looking to the future*. As part of fast stream rehabilitation, chronological main themes are arranged from the *engagement with OT-MCS*; *collaboration*; *family*; *transferability* and are sustained by the level of activity engagement of stroke participants (initial and final assessments) using the radar plot analysis; and *experiences of outdoor/community engagements*.

Chapter 6 presents the development and validation of the activity card sort (ACS) in Thai stroke rehabilitation interventions.

Chapter 6

DEVELOPMENT AND VALIDATION OF ACTIVITY CARD SORT FOR THAI STROKE REHABILIATION

6.1 Introduction

Research into the relationship between activities and health has displayed that meaningful and purposeful activities have a positive effect on stroke health and quality of life. There are many different kinds of activities, such as engaging in pre-functional rehabilitation (or basic rehabilitation skills) and activities of daily living (ADL), instrumental activities of daily living (IADL) and household activities, socio-cultural/educational activities and leisure activities (adapted from Baum & Edwards, 2001; Katz et al, 2003; Packer et al, 2008). These domains have been adopted to provide different therapeutic media for stroke rehabilitation intervention and have been addressed in OT clinics. They have been collected from the traditional Thai cultural lifestyles of specific stroke people when performing activities across 6 regions. However, there is little research which has focused on the contribution of culturally therapeutic activities to rehabilitate stroke survivors. In particular in Thailand, the use of local therapeutic media in terms of application and implementation in a client's home and community has not been studied.

The purpose of these adopted and collected therapeutic activities is to examine two kinds of stroke participants who can select and manage activities by themselves, both maintaining their competence and improving their functional abilities from the OT clinic to their environmental settings. Nevertheless, the evaluation and development methods of therapeutic media in OT for stroke rehabilitation need to be reliable and valid. This chapter presents the development of the preliminary classification activity participation that is derived from the Activity Catalogue (version 2008). Various therapeutic activities were collected and examined in terms of validity by both Thai OTs and stroke survivors throughout the country during this research.

Specifically, the goals of this component of the study were to:

1. Establish the most common therapeutic activities in OT for Thai stroke rehabilitation (*item generation*);
2. Collect various items and select the most representative items to form the Activity Catalogue (AC) for Thai stroke rehabilitation (*item reduction*); and
3. Assign items to domains within the classification of basic rehabilitation and activities of daily living (ADL), instrumental activities of daily living (IADL) and household activities, socio-cultural/educational activities, and leisure activities (*item determination of domain*).

6.2 Measurement of activities and participation using activity card sort evidence

Within the Activity Card Sort (ACS) context, the potential of the findings is sustained by determining the activity domains as a key principle to generate an area of performing activities and using frequency of participation to calculate the scale. Several ACS were developed by the use of questionnaires or primary sources and subsequently collected from target participants based on the national culture of everyday activities (Sachs & Josman, 2003; Katz et al, 2003; Berg & LaVesser, 2006; Chan et al, 2006; Packer et al, 2008). Examples of activity card sort (ACS) from several nations were created to provide various pictorial activities for initiating patients to recognise the value of activity participation and self-development and are summarised in Table 6.1.

Table 6.1: A Collective summary of activity card sort (ACS)

Study: authors, date	Aims	Designs and Methods	Sample	Activity Domain	Analysis	Findings
Sachs &Josman (2003) (Israel)	To examined the utility of the Activity Card Sort (ACS) for measuring adult human occupation and level of activity including determine the picture items	A Structured questionnaire with Activity Card Sort (88 pictorial activity items) Recruited sample by invitation Scoring had been calculated on a 3-point scale; 1=do less than in the past 2=do the same 3 =do more than in the past	184 participants (131 elderly and 53 students)	1. Instrumental activities (IADL) 2. Low-demand leisure activities 3. High-demand leisure activities 4. Social activities	Factor analysis was used to established construct validity Pearson's correlation was examined the correlation between demographic variables and the mean scores of 4 group.	A group of students were mostly involved in low-demand leisure activities and IADL, whilst elderly people preferred to engage in IADL.
Katz et a. (2003) (Israel)	To determine the validity and reliability of the Activity Card Sort (ACS-Israel) within different adults and older adults	Phase 1: Adopted US-ACS was modified by Israelis by using questionnaire and ACS assessment (Cultural Adaptation of the ACS to Israel) Phase 2: Final Israeli-adapted ACS version comprises of 88 activity items Recruited sample by invitation	263 participants - 61 healthy adults -61 healthy older adults -40 spouse or caregivers of people with Alzheimer -45 multiple sclerosis people -56 stroke survivors	1. Instrumental Activity of Daily Living (IADL) (21 pictures) 2. Low-physical leisure activities (27 pictures) 3. High-physical leisure activities (19 pictures) 4. Social-cultural activities (21 pictures)	Descriptive statistics, means and standard deviation Cronbach's alpha was examined internal consistency within each area T-test analysis was used to compare the activity levels of men and women One way ANOVA was used to examine the activity levels of among the groups	Activity Card Sort-Israel is validity and reliability and can be applied to elicit interest and participation based on Israeli occupation and culture
Berg &LaVesser (2006) (USA)	To develop the Preschool Activity Card Sort	Survey questionnaire and Q-sort methodology	Preschool children 3 – 6 years of age	1. Sleep 2. Chores 3. Self-care	3 Phases -Identify typical preschooler activities	Preschool Activity Card Sort based on the child's environmental context and appropriate community-based intervention

		Recruited sample by invitation	68 participants (32 boys and 36 girls)	4. Leisure 5. Education 6. Social 7. Community mobility	-Gathering photographs -Developing content validity with OTs and parents	
Chan et al (2006) (Hong Kong)	To create culturally a new Hong Kong version of the Activity Card Sort (ACS)	Phase 1: a new ACS-HK was adapted from the preliminary version of the ACS-HK (Wong, Wong & Ma, 2001). Phase 2: Final ACS-HK had been further generated by 15 community-dwelling older adults and discussed on the panel with 5 healthcare experts in geriatrics. (65 items) Phase 3: Final ACS-HK was provided to examined with 60 elderly stroke survivors for constructing validity and reliability Invitation samples	80 Participants 15 community-dwelling older adults 5 healthcare professional in geriatrics 60 elderly stroke survivors -30 participants (Less active group) -30 participants (More active group)	- Did not show	one-way analysis of variance random model of the intra-class correlation test Percentages of the retained level of activity participation Cronbach's alpha was used to examine the internal consistency T-test was compare 2 group Pearson's correlation test was examined validity	A new ACS-HK is a reliable and valid instrument to use with the Hong Kong Chinese elderly population
Tanya et al. (2008) (Australia)	To develop of the Activity Card Sort - Australia	Secondary data analysis of activity diaries of older Australians were utilized for item generation. Survey of elderly people and cluster analysis was used for item selection and determination of domain Recruited sample by invitation	57 participants (≥ 65 years of age) -Adelaide *n*= 32 -Brisbane *n*= 25	1. Social activities 2. Leisure 3.Work 4.Household activities	Hierarchical cluster analysis	Cluster analysis was utilized to calculate form participants and revealed only three domain 12 items (Household activities) 24 items (social/educational activities) 46 items (Leisure activities)

6.3 Research design for the development of activity card sort – Thailand

6.3.1 Activity catalogue (version 2008) and modification

This research design determined the most common activities of the Thai stroke people in 6 regions through suggestions from many OTs and stroke survivors as well as their families. The study planned to collect various kinds of activities in 6 research sites. These were validated by stroke participants' selections of the most activity items which formed the representative Classification of Activity Participation (CAP). This CAP has been divided into 4 domain areas comprising of 1) basic rehabilitation skills and ADL; 2) Instrumental activities of daily living (IADL) and household activities; 3) socio-cultural/educational activities; 4) leisure activities (adapted from Baum & Edwards, 2001; Katz et al, 2003; Packer et al, 2008).

In 2008, the first Activity Catalogue (AC) for stroke rehabilitation in Thailand was created by OT staff of Mahidol University. This AC had been collected from the experiences over 10 years of 7 OT staff when providing therapeutic media for stroke clients. Prior to establishing these in clinical practice, 67 activity items had been validated by the discussion and debate panels of occupational therapy experts. Appropriate activity items based on facilities, resources and budget from the university were selected. The final outcome adopted only 40 activity items for the research.

In the study, 40 therapeutic activities were launched at Mahidol rehabilitation clinic. These could be provided alongside a whole system of OT service for stroke rehabilitation. After the use of the OT-MCS care pathway, the number of patients increased despite the same number of supervised OTs. Although this research was carried out in the Mahidol OT clinic, the intervention could not be applied and implemented with stroke clients in various provincial and regional areas due to the lack of culturally appropriate therapeutic media. AC (version 2008) is a preliminary therapeutic media guideline, which was used as an initial step before collecting data from across 6 regions of Thailand.

Given the challenge, stroke participants who lived in diverse environmental settings and had different cultural backgrounds including a wide range of experiences participated. Development and evaluation has to be addressed and shaped by users in

order to validity of findings. A gap of understanding in the value of various activities selected by stroke survivors, links to a key principle of activity and participation (WHO, 2001).

6.3.2 Development of the activity card sort for Thai stroke rehabilitation

The development of ACS had been modified from the last version (2008) and changed via the process of selection involving stakeholder collaboration. The procedure comprised of three phases:

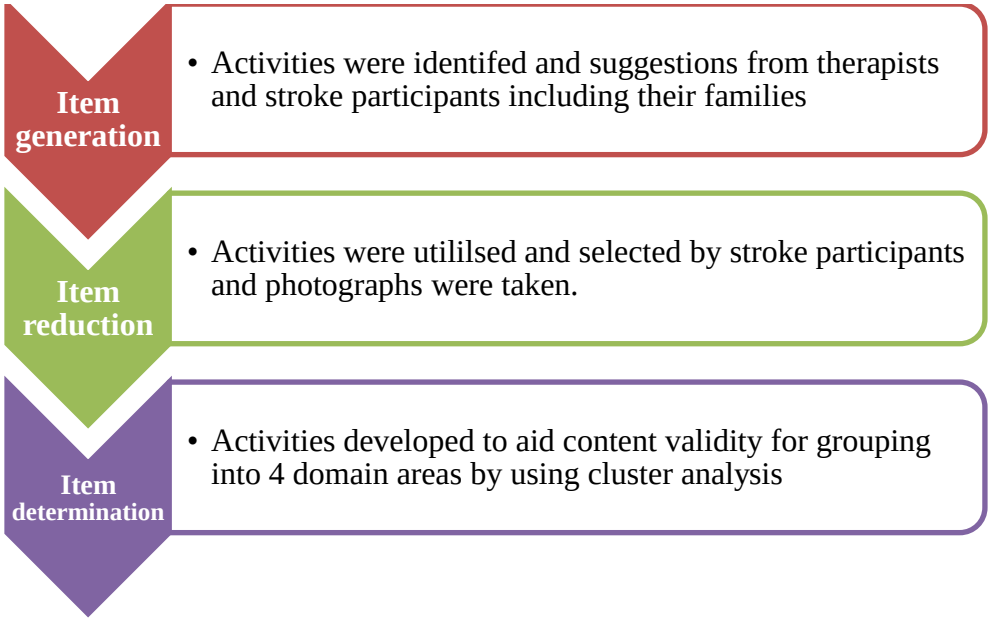

Figure 6.1: The developmental process of activity card sort (ACS)

6.3.2.1 Item generation

This process included two sources of data to generate potential activity items for the measurement of activity participation. The first source was drawn from the Activity Catalogue for Mahidol Stroke rehabilitation (Kaunnil & Khemthong, 2008). The second source was taken from the suggestions of numerous OTs, both, in research, hospital areas and 60 OTs at the annual occupational therapy conference (2010) who have experience in stroke rehabilitation including stroke clients and their families. Questionnaires were written by OTs in the Activity Catalogue Checklist (ACC) as part of regional therapeutic activities suggestions. The recommendations from stroke survivors and their families were recorded in the Activity of Occupational Therapy Programme Recording Document. All in all, 125 activity items were advised and identified by particular stakeholders (see Table 6.2). Therefore, this phase collected

multiple activity items based on experience, culture, lifestyle and local materials and resources across 6 different regions throughout Thailand.

Table 6.2: Activity item generation (* represents item excluded from final selection)

Initial activity items in the preliminary process of ACS development	
1. Small peg board	2. Sorting tidly winks with spoon
3. Incline board	4. Placing beads on pins
5.Sliding board	6. Fruit pole
7. Looping curve skill	8. Dart
9. Key grip skill (turning)	10. Ball throwing at target with a bounce
11. Pinch grip (pinching clothespin)	12. Shape matching skill
13. Bimanual putting pin in a bead	14. Piano and key board (musical instrument)
15. Dressing with top (shirt/blouse)	16. Throwing rings (quoits) at target
17. Putty activities	18. Picture mosaic skill
19. Stacking cones or rod	20. Hand cycling exercise
21. Constructing chain from plastic link	22. Wiping the table
23. Pick and place ball in small cone	24. Tearing paper
25. Picking and sorting small bead (cleaning rice, bean)	26. Holding and drinking water from cup, glass or bottle
27. Pronation & supination task	28. Gardening & growing plants
29. Tennis ball pick and place	30. Zipper
31. Bimanual holding of cone and place	32. Wearing trousers
33. Forceps pick and place with ping pong ball	34. Going to temple/ church/ mosque
35. Trunk control/bilateral arm movement	36. Spray nozzle for butt wiping
37. Washing cloth skill	38. Using cash machine
39. Using spoon and fork (bimanual) to remove bead from putty	40. Using remote control (TV or electronic appliances)
41. Phoning skill	42. Bathing with bucket and bowl
43. Scoop and pour liquid into bottle	43. Organising medicine
44. Opening and closing the door	45. Playing jigsaw puzzles
46. Mouse and key board skills	47. Pinching peas (grain, seed)
48. Pump action of lotion bottle (shampoo)	49. Playing card
50. Calculation skill	51. Using a soup ladle
52. Hammer/Axe skill (plastic)	53. Flipping coins/ cards
54. Bolt-screwing (into board)	55. Lettering and enveloping skills
56. Using chopstick	57. Taking shower
58. Scrubbing and sweeping the house	59. Wearing a belt
60. Writing skill	61. Grooming
62. Weight bearing	63. Stapler skill

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Initial activity items in the preliminary process of ACS development	
64. Opening/ closing a book	65. Meal preparation and cooking meal
66. Key skill (lock-unlock)	67. Folding banana/coconut leaves to carry food
68. Big peg board	69. Knife skill (under supervision)
70. Using scissors	71. Pinch off veggie
72. Coins dropping into piggy bank	73. Plier skill
74. Washing hands	75. Sorting stones and crystal marbles
76. Folding paper boat or sarus crane bird	77. Climbing board
78. Drawing skill	79. Driving car or driving simulation
80.Thai dance*	81. Drying clothes by clothes rack/ clothesline
82. Thai weaving cloth*	83. Holding and rotating bottle (control object)
84. Fruit & vegetable carving*	85. Playing table tennis
86. Jasmine Garland making*	87. Golf skills
88. Chaiya Thai boxing activity*	89. Lashing rope
90. Going to the post office*	91. Thai Chess game
92. Watching film at cinema*	93. Folding fabric
94. Thai wood craft*	95. Throwing and receiving ball
96. Songkran water activity*	97. Kick ball
98. Thai style musical ensemble*	99. Using pencil sharpener (device)
100. Going to fresh market and street restaurant*	101. Pressing toothpaste
102. Kite making*	103. Watering plants
104. Banking*	105. Bowling skill
106. Coconut distilling by Thai equipment*	107. Handle a ball for wrist exercise
108. Taking care a pet*	109. Abacus skill
110. Shopping in a department store*	111. Basketry
112. Takro playing activity*	113. Reading the Tripitaka/ Koran/ Bible
114. Thai meditation activity (positioning)*	115. Button skill
116. Carrying sand to temple*	117. Flowering arranging
118. Making money tree for donation*	119. Stereognosis skill
120. Kitting/ Crocheting*	121. Fishing*
122. Using public transport (Bus and Train)*	123. Making Krathong floating *
124. Prostrating oneself to worship Buddha*	125. Buddhist meditation*

6.3.2.2 Item reduction

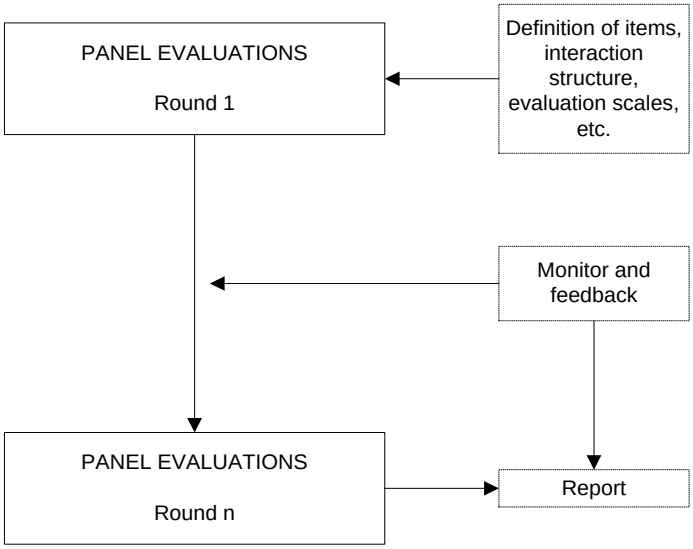
Purposes of this step

This process reduced the number of initial items generated by addressing activity items for stroke participants' selection into four domain areas (*basic rehabilitation and ADL*; *IADL and household activities*; *socio-cultural/educational activities* and *leisure physical activities*).

Design

To increase generalisation, the Delphi method was used with face-to-face therapeutic intervention /interaction, questionnaire and interviews (Oppenheim, 1992; Sinead et al, 2011). The survey was designed not only to gain perspective of therapists and stroke participants, but also to draw potentials from the relationships between functional performance and activity items.

Figure 6.2 Pattern of Delphi methods (Oppenheim, 1992; Sinead et al, 2011)



Procedure

There were 2 phases of item reduction undertaken by the use of the activity catalogue and various new activity items from 6 regions. The first provided 40 activity items [activity catalogue (AC version 2008)] as a therapeutic media for 60 stroke participants (slow stream rehabilitation) and 60 OTs in order to consider and select each activity item from 40 activities into 4 domain areas *1) Basic rehabilitation and ADL*; *2) IADL and Household activities*; *3) Socio-*

cultural/educational activities and *4) Leisure physical activities*) and putting into the activity checklist for the ACS development (see in appendix F) alongside the preferences of 'satisfaction' and 'importance' in 40 activity items.

In the second phase, 2 rounds addressed the AC (version 2008) which included new different activity items embracing local and regional areas and suggestions. A variety of activity items were chosen and used by 60 stroke participants (fast stream rehabilitation) in their rehabilitation programme. In Round 1, stroke participants were offered several pictorial cards (AC version 2008) and embraced the new activity items from the collaborative suggestions. There were in total 125 activities that provided therapeutic media choice for stroke participants. However, 100 activity items were selected by stroke participants. Stroke participants had firstly rated each activity using a four-point ordinal scale based on the level of approach **(**1=*Therapist structure programme*, 2=*Therapist-client/family cooperated programme*, 3=*Client participation programme*, and 4=*Home programme*)**.** In the initial period of performing all activities, mean scores of the pre-period practical prototype were stored for comparison after 8 weeks of the rehabilitation process.

In Round 2, the performing activities selected were re-assessed after during 8 weeks and a mean score of 2.00 was set up as the cut-off point for inclusion in the final Activity Card Sort (ACS) for Thai stroke rehabilitation. The mean score, standard deviation (SD) and relative ranking of 100 activity items are displayed in Table 6.3. Based on the activity selected these were calculated and activities ranked from most to least common. Using a mean score of < 2.0 eliminated some leaving 100 out of the 125 therapeutic items. These items were chosen for potential inclusion in an ACS for Thai stroke rehabilitation. Importantly, this process also provided a questionnaire for participants to explore their views when selecting each activity voluntarily.

Table 6.3: *Ranking, mean score and standard deviation in the level of activity approach for 100 of 125 activities, from most utilization to least utilization*

Activates by ranking numbers	Mean(SD)	Activates by ranking numbers	Mean(SD)	Activates by ranking numbers	Mean(SD)
1. Button skill	4.00±.00	35. Mouse and key board skills	3.63±.49	69. Hand cycling exercise	3.10±.30
2. Pressing toothpaste	4.00±.00	36. Stapler skill	3.58±.51	70. Flipping coins/ cards	3.09±.29
3. Driving car or motor bike	4.00±.00	37. Using scissors	3.58±.57	71. Ball throwing at target with a bounce	3.07±.26
4. Washing hands	4.00±.00	38. Tearing paper	3.57±.50	72. Golf skills	3.07±.26
5. Weight bearing	4.00±.00	39. Drawing skill	3.56±.51	73. Incline board	3.06±.42
6. Bathing with bucket and bowl	4.00±.00	40. Drying clothes by clothes rack/ clothesline	3.55±.52	74. Using spoon/fork to remove bead	3.04±.58
7. Using remote control (TV)	4.00±.00	41. Tennis ball pick and place	3.54±.53	75. Trunk control/bilateral arm movement	3.03±.16
8. Opening and closing the door	3.98±.13	42. Folding fabric	3.54±.51	76. Climbing board	3.02±.14
9. Grooming	3.96±.18	43. Lashing rope	3.52±.51	77. Looping curve skill	3.02±.22
10. Taking shower	3.96±.20	44.Writing skill	3.52±.54	78. Abacus skill	3.00±.00
11. Dressing with top (shirt/blouse)	3.94±.23	45. Basketry	3.50±.57	79. Handle a ball for wrist exercise	3.00±.00
12. Wearing a belt	3.93±.25	46. Folding banana leaves to carry food	3.50±.57	80. Bowling skill	3.00±.00
13. Watering plants	3.93±.26	47. Using a soup ladle	3.50±.57	81. Kick ball	3.00±.00
14. Wearing trousers	3.93±.26	48. Washing cloth skill	3.50±.51	82. Playing table tennis	3.00±.00
15. Holding and drinking water from bottle	3.92±.27	49. Pinching peas (grain, seed)	3.50±.51	83. Dart	3.00±.00
16. Zipper	3.92±.28	50. Scrubbing and sweeping the house	3.43±.50	84. Forceps pick and place with ping pong	3.00±.00
17. Spray nozzle for butt wiping	3.91±.30	51. Using pencil sharpener (device)	3.40±.54	85. Bimanual putting pin in a bead	3.00±.00
18. Pump action of lotion bottle (shampoo)	3.90±.30	52. Going to temple/ church/ mosque	3.40±.49	86. Key grip skill (turning)	3.00±.00
19. Key skill (lock-unlock)	3.83±.37	53. Phoning skill	3.39±.49	87. Big peg board	3.00±.21

20. Holding and rotating bottle (control object)	3.83±.38	54. Thai Chess game	3.22±.44	88. Bimanual holding of cone and place	2.98±.13
21. Meal preparation and cooking meal	3.80±.42	55. Calculation skill	3.22±.41	89. Stacking cones or rod	2.98±.14
22. Sorting stones and crystal marbles	3.75±.46	56. Piano and key board (musical instrument)	3.20±.63	90. Putty activities	2.98±.27
23. Knife skill (under closely supervision)	3.75±.50	57. Hammer/Axe skill (plastic)	3.20±.44	91. Shape matching skill	2.98±.15
24. Using cash machine	3.75±.50	58. Gardening & growing plants	3.18±.40	92. Pinch grip (pinching clothespin)	2.97±.17
25. Opening/ closing a book	3.75±.57	59. Pick and place ball in small cone	3.17±.38	93. Throwing rings (quoits) at target	2.94±.24
26. Stereognosis skill	3.73±.46	60. Flowering arranging	3.17±.40	94. Playing jigsaw puzzles	2.94±.57
27. Reading the Tripitaka/ Koran/ Bible	3.71±.48	61. Playing card	3.16±.37	95. Picture mosaic skill	2.93±.26
28. Scoop and pour liquid into bottle	3.71±.45	62. Folding paper boat or sarus crane bird	3.14±.37	96. Small peg board	2.92±.33
29. Wiping the table	3.71±.52	63. Pronation & supination task	3.14±.35	97. Constructing chain from plastic link	2.88±.33
30. Sorting tidly winks with spoon	3.69±.46	64. Plier skill	3.13±.34	98. Placing beads on pins	2.86±.35
31. Pinch off veggie	3.67±.51	65. Bolt-screwing (into board)	3.12±.41	99. Coins dropping into piggy bank	2.86±.53
32. Picking and sorting small bead (rice, bean)	3.67±.47	66. Fruit pole	3.11±.32	100. Organising medicine	2.25±.50
33. Lettering and enveloping skills	3.67±.57	67. Sliding board	3.11±.47		
34. Using chopstick	3.65±.48	68. Throwing and receiving ball	3.11±.31		

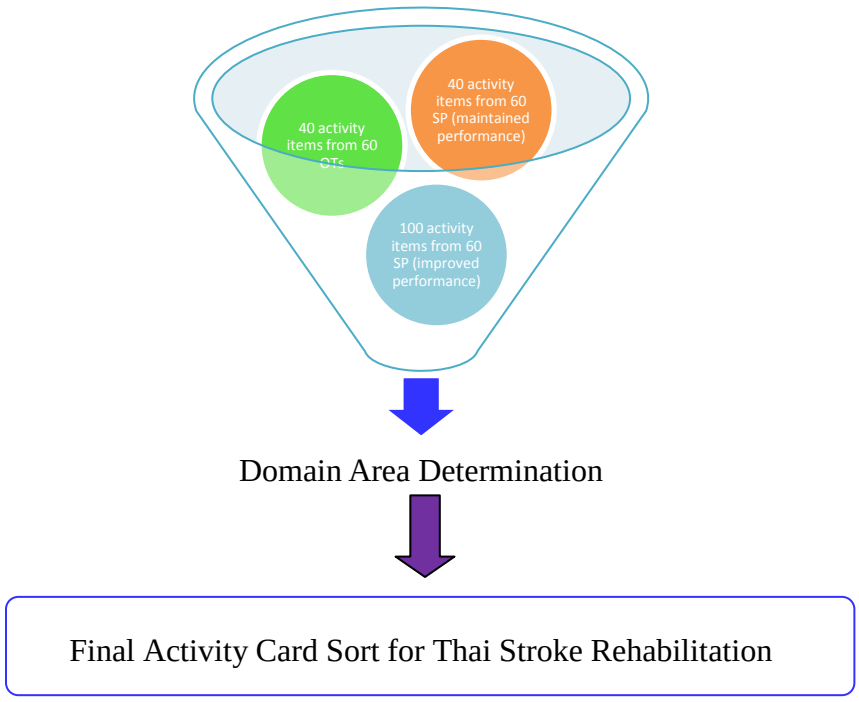
SD: Standard Deviation

Recognising that differences arise in the social/cultural activities and leisure items relies on local and regional identities of stroke participants. Several activities addressed by OTs were not included as stroke participants did not choose to perform those activities. Although 25 activity items were not utilised by stroke participants, all these therapeutic media have been kept in the data bank as a resource for the future. The twenty-five activity items omitted were raised and recommended by OTs and some family members. These items had not been selected by the stroke participants for practice or application. They were often specific to a few participants only, were generally complex and involved skilful and dexterous body movements or function for example: Jasmine garland making, Chaiya Thai boxing, coconut distilling by Thai equipment etc. (see Table 6.2 to identify excluded items).

In the process of ACS redevelopment, photographs were taken of stroke participants interacting in 100 therapeutic activities. Criteria for the photographs of stroke participants including their families were agreed. A consent form was provided for stroke participants and their family members to allow the taking of photographs. The pictorial items captured only a frame of the activity and did not display faces or give the identity of participants.

6.3.2.3 Item determination

Figure 6.3: The process of activity item determination



To establish content validity of a new Activity Card Sort (ACS) for Thai stroke rehabilitation, the protocol defined the activity items and put into 4 domains by modifying the ACS studies (Baum & Edward, 2001; Katz et al, 2003; Packer et al, 2008). The ACS for Thai Stroke Rehabilitation consists of; 1) Basic rehabilitation and ADL; 2) IADL and Household activities; 3) Socio-cultural/educational activities and 4) Leisure physical activities. The classification was identified as the fundamental basis for examining the domain area in Thai stroke rehabilitation. Various attitude answers in 40 activity items in 4 domains were determined from 60 stroke participants (slow stream rehabilitation) and 60 OTs including the addition of the new 60 activity items (totally 100 activities) from 60 stroke participants (fast stream rehabilitation) were all blended together for the process of grouping domain determination (see Figure 6.4). All data were entered into and managed via the Statistical Package for the Social Sciences, PASW software for Window version 18 (SPSS Inc., Chicago, IL., USA) One-step was used to select items for performing activities and one-step was used to assign stroke participants putting these into domain areas. The final process was analysed using a hierarchical cluster analysis (Coakes & Seed, 2005: Dawson & Trapp, 2001: Gan et al, 2007), which grouped different activities into 4 domains (Determination of Domains) representing the classification of activity and participation (CAP) from both therapists and users.

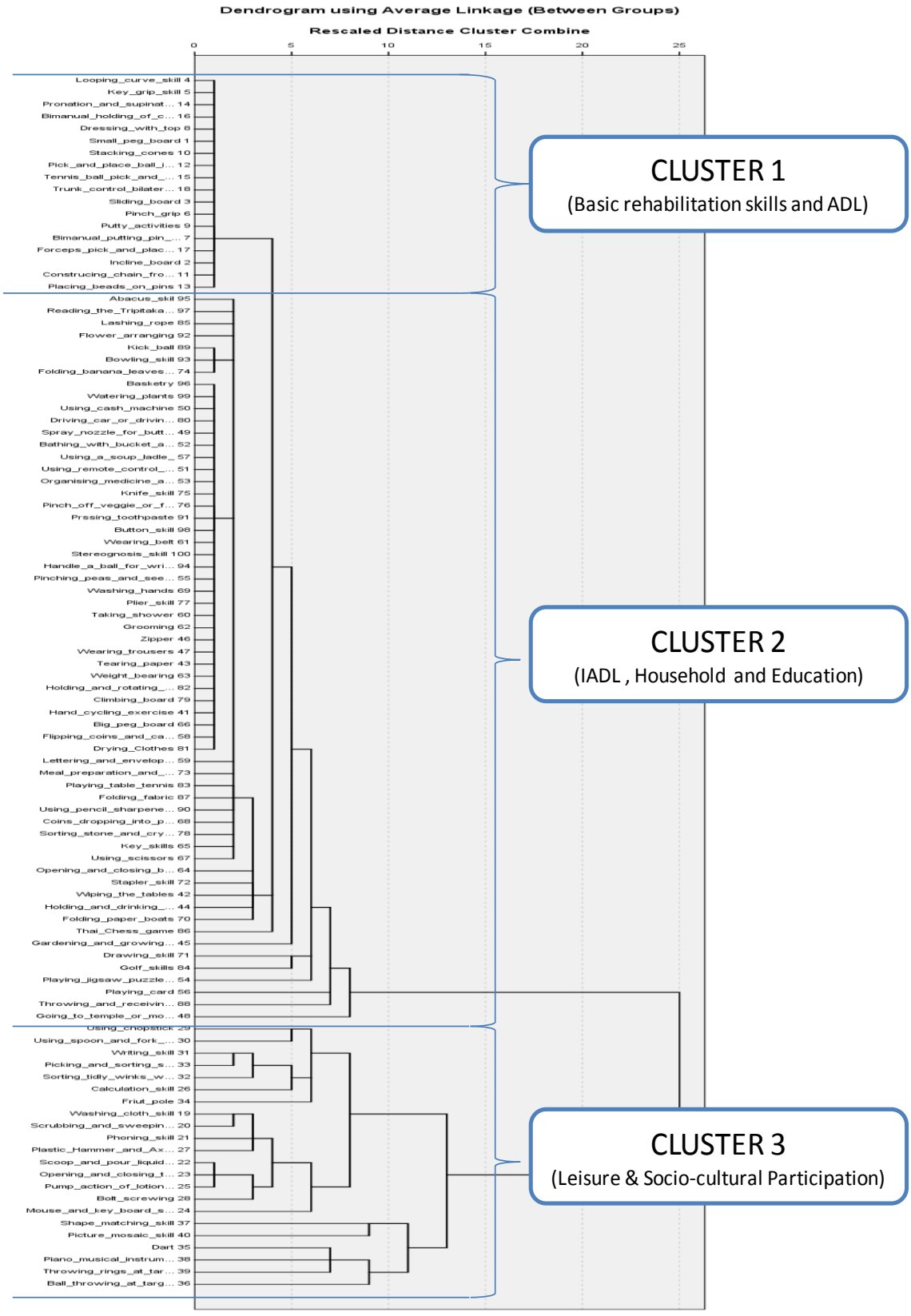
Cluster analysis is a popular technique to identify cases or items for group arrangement (cluster) or classification by using the principle of similarities. This approach composes of 2 techniques (Hierarchical and K-Mean cluster analyses). This research used Hierarchical cluster analysis because of the condition of the sample size below 200 cases (K-Mean cluster analysis > 200 cases). Moreover, in this technique is not necessary to know the variable or case located in the group beforehand. As a classification method, hierarchical-clustering algorithms uses average linkage between groups represented by the average (mean) of minimum and maximum distance (Gan et al, 2007),

The outcome of classification boosts homogeneous domain areas among various activity items (Dawson & Trapp, 2001). As this research aim was to capture natural lifestyles and cultural activities of stroke people across 6 regions throughout Thailand, all stroke participants could not select all 100 activities based on individual, local and regional selection. Based on the rationale of diverse activity

selection, activity items which were not chosen and allocated a value of zero (0 = did not select) into the PASW data view in order to systemically group a pattern in the dendogram (Khemthong, 2006).

The hierarchical cluster analysis programme can be used to analyse the similarity of several viewpoints from all participants to be arranged in the relevant domain (see in Figure. 6.4).

Figure 6.4: Hierarchical Cluster Analysis in 100 activities into 3 new domain areas (180 participants)



6.4 Classification of new ACS for Thai stroke rehabilitation

Table 6.4: Final Activity Card Sort for Thai Stroke Rehabilitation after item determination

Classification of Activities Into 3 Domain Areas (100 items)		
CLUSTER 1 Basic rehabilitation skills and ADL (18 items)	CLUSTER 2 IADL, household and education (60 items)	CLUSTER 3 Leisure& socio-cultural participation (22 items)
- Looping curve skill - Key grip skill - Pronation and supination task - Bimanual holding of cone and place - Dressing with top (shirt/blouse) - Peg board - Stacking cones or rod - Pick and place ball in small cone - Tennis ball pick and place - Trunk control/bilateral arm movement - Sliding board - Pinch Grip (Pinching) - Putty activity - Bimanual putting pin in a bead - Forceps pick and place with ping pong ball - Incline board - Constructing chain from plastic (small) link - Placing beads on pins	- Abacus skills - Reading the Tripitaka/Bible/ Koran - Lashing rope - Flower arranging - Kick Ball - Bowling skills - Folding banana or coconut leaves to carry food - Basketry - Watering plants - Using cash machine - Driving Car or driving simulation - Spray nozzle for butt wiping - Bathing with bucket and bowl - Using a soup ladle - Using remote control - Organising medicine - Knife Skills - Pinch off veggie - Pressing toothpaste - Button Skills - Wearing a belt - Stereognosis skills - Handle a ball for wrist exercise - Pinching peas - Washing hand - Pliers Skills - Taking shower	- Using chopstick - Use of spoon and fork (bimanual) to remove bead from putty - Writing skills - Picking and sorting small bead (like cleaning rice, bean) - Sorting tidly winks with spoon - Calculation skill - Fruit pole - Washing cloth skill - Scrubbing and sweeping the house - Phoning skill - Hammer/Axe skill (plastic) - Scoop and pour liquid into bottle - Opening and closing door - Pump action of lotion bottle - Bolt-screwing (into board) - Mouse and key board skill -Shape matching skills - Picture mosaic skills -Dart -piano and musical instrument - Throwing rings (quoits) at target -Ball throwing at target with a bounce

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Basic rehabilitation skills and ADL (18 items)	IADL, household and education (60 items)	Leisure& socio-cultural participation (22 items)
	- Grooming - Zipper - Wearing trousers - Tearing paper - weight bearing - Holding and rotating the bottle - Climbing Board - Hand Cycling Exercise - Big Peg Board - Flipping coin/ card - Drying clothes with clothesline - Lettering and enveloping skills - Meal preparation and cooking - Playing table tennis - Folding fabric - Using pencil sharpener - Coins dropping into piggy bank - Sorting stone and crystal marbles - Key skills - Using scissors - Opening/closing a book - Stapler skills - Wiping the table -Holding and drinking water from bottle or cup - Folding paper boats - Thai Chess game - Gardening and growing plants - Drawing Skills - Golf Skills - Playing jigsaw puzzles - Playing card - Throwing and receiving ball - Going to temple	

The final activity card sort (ACS) for Thai stroke rehabilitation after domain area determination using hierarchical cluster analysis can be seen in Table 6.4. Clustering algorithms can be calculated by connecting items to form clusters based on their distance and similarity, which is presented using a dendrogram to explain where the items can be blended or merged together in the Y-axis, whilst some items placed along the X-axis representing the clusters are not mixed. When clustering therapeutic activities, cluster analysis categorises 100 activity items into 3 groups (clusters) by placing the same items in the same cluster. The previous 4 domain areas need to be changed and integrated into 3 clusters of item determination. Three domain areas of final ACS comprise of *basic rehabilitation skills and ADL* (18 items); *IADL, household and education* (60 items); *leisure and socio-cultural participation* (22 items).

For reliability, Cronbach's alpha was used to analyse internal consistency (SPSS Inc., 2009) within each domain area. Internal consistency statistics were alpha 0.866 for basic rehabilitation skills and ADL; alpha 0.948 for IADL, household and education; and alpha 0.934 for leisure and socio-cultural participation. When all activities for three domain areas were integrated together as an ACS, the alpha is shown in Table 6.5.

Table 6.5: The reliability of Activity Card Sort for Thai Stroke Rehabilitation

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.832	.870	100

Moreover, this final activity card sort was scrutinised by using Cronbach's Alpha for a coefficient of reliability after questioning a psychometric test score with participants. This final ACS shows a Cronbach alpha of 0.832, which indicates 83% reliability in practice, or a good level of internal consistency by reflecting higher reliability and inter-correlations among test activity items.

6.5 Summary

In this chapter, the set of therapeutic media or activity card sort (ACS) is introduced. The history and evidence related to the importance of activity and participation in various health conditions has been considered. The characteristic of ACS is linked to the centrality of the ICF model as 'activities' in which the use of OT-MCS profoundly emphasises the development of relevant patterns of intervention for stroke rehabilitation. The development of culturally appropriate activity card sort for stroke rehabilitation in Thailand began with item generation; item reduction; and the item determination. The new activity card sort for stroke rehabilitation (ACS-Thailand) contains 3 domain areas; basic rehabilitation skills and ADL; IADL, household activities and education; and leisure and socio-cultural participation. Hence, ACS is a comprehensive instrument to engage collaboratively with stroke clients and their families when performing activities and facilitate the rehabilitation effectively which is based on their local, regional and cultural lifestyles.

The Discussion Chapter which follows considers the findings in relation to the wider literature and the conceptual basis of the thesis.

Chapter 7

DISCUSSION

7.1 Introduction

The findings illuminate various aspects of stroke participants' lived experiences in response to the use of the OT-MCS indicative care package during 8 weeks of intervention. This study sought to gain a more comprehensive understanding of Thai OT and includes both quantitative results and qualitative interpretation of the attitudes and perspectives of stroke clients. In managing the findings, the main themes and sub-themes supporting the quantitative results are presented sequentially with the stories recounted by the stroke participants (in both slow and fast stream rehabilitation). Importantly, this chapter discusses the findings in relation to the research questions, aims and objectives. The research purpose and objectives include the creation of an activity card sort (ACS), reflecting the attitudes of stroke clients (slow stream rehabilitation) on their functional performances, and the evaluation of the activity engagement of stroke clients (fast stream rehabilitation) as they improve functional skills and abilities. There were 5 research questions;

- *Does collaborative goal setting through OT-MCS improve stroke client's perceptions of benefit?* (RQ1)
- *How can OT-MCS assist OTs to identify and recognise the individuals' attitudes to therapeutic activity engagement*? (RQ2)
- *How can OT-MCS using a new resource (ACS) develop occupational performance skills for stroke clients?* (RQ3)
- *How can OT-MCS help stroke clients to develop their occupational performance skills?* (RQ4)
- *Are the perspectives of OTs and stroke clients congruent with respect to the range of therapeutic activities?* (RQ5)

In this discussion section, findings from the survey, comparative evaluation, and the interviews are merged where they complement relevant themes. These outputs could serve as a theoretical lens for stroke rehabilitation training. Merging the numerical and textual data allows a complete picture from all elements of the study to emerge. The two datasets of slow and fast stream

rehabilitation enable important findings to be considered and discussions drawn. The special blend of quantitative and qualitative data used to structure this chapter is presented as follows:

- Activity catalogue technique (Activity card sort)
- Salience and meaningful activities
- Managing expectations of stroke clients' needs
- Collaboration (partnership)
- Transferable skills
- Future application at home and in the community

7.2 Activity catalogue technique (Activity card sort)

The findings from the survey, comparative study, and interview data present a rich picture of Thai cultural lifestyle based on individual, local and regional components including rural villages and urban areas, which influence the therapeutic media used in the OT-MCS stroke rehabilitation. The survey and development of the activity card sort (ACS) for Thai stroke clients demonstrated that there were 100 activity items from which stroke participants selected activities to perform. Moreover, the classification of activities was changed and modified by the cluster analysis from four to three domain areas (*basic rehabilitation and ADL*; *I-ADL, household and education*; and *leisure and socio-cultural participation*). According to Katz et al (2003) there were 88 activity items in 4 domain areas (*IADL*; *low-physical leisure activities*; *high-physical leisure activities*, and *social-cultural activities*) of ACS for adult Israeli people. Packer et al (2008) surveyed elderly Australia people in Brisbane and Adelaide cities when creating the activity card sort (Australia version). They also determined 4 domains (*social*, *leisure*, *work*, and *household activities*) before the data collection. During the data collection, there were more than one hundred activities in the phase of item generation, and then the final outcome of ACS showed 82 pictorial activities which were arranged into 3 domains of *household activities*; *social/educational activities*; and *leisure activities*.

In order to be consistent with universal terms and standards, the activities of daily living (ADL) are normally divided into two positions: personal ADL (P-ADL), and instrumental ADL (I-ADL) (Fisher, 1997). However, another term generally used is

self-care which represents the basic activities for caring for oneself in daily life (Christiansen & Ottenbacher, 1998). This study used ADL and I-ADL in the domains in order to clarify the characteristic and form of activities accommodated by OTs and stroke participants in their selection and performance. As revealed in the findings, the use of OT-MCS provided the opportunity for stroke participants and family members to select meaningful and purposeful therapeutic activities based on their own needs and lifestyles. Moreover, the development of the activity card sort (ACS) opened a new arena in which to embrace novel relevant activities for stakeholders to practise in rehabilitation sessions and apply them elsewhere. These findings respond to RQ3 which asks about the use of ACS by stroke participants.

Consistent with Wottrich and colleagues (2007) the rehabilitation team found that the key activities were unique to each client, such as shopping in a favourite deli store or convenient mall. These opportunities increased the wide range of activities meeting the patients' creativity and needs linking to trends in the societal environment. New dimensions to tackle new problems were created which bridged gaps between the desired and achievable goals of individual patients. In keeping with textual enquiry, the OT-MCS findings help elicit reasons why stroke participants were not satisfied with activities which OTs valued in the numerical data. Additionally, the textual findings reflect the psychological expressions of stroke participants taking part in various activities. These emotions are linked to physical functions, the nature of individuals, cultural lifestyles (including religion), habits, and experiences. Research question 5, which asks about occupational therapists and stroke clients views in response to therapeutic media, is addressed by these findings.

In the findings, A4 (Looping curve skill), A5 (Key grip skill), A16 (Bimanual holding of cone and place), A39 (Throwing rings (quoits) at target), and, A41 (Hand cycling exercise) showed no progression for the level of engagement. Most activities are in the domain of basis rehabilitation skills and ADL which are tools in OT clinics. The OT-MCS provides these activities for stroke clients as a basis of pre-functional practice which is not available at home and in the community. This is why these therapeutic activities showed no improvement (levels 3 – 3) as they did not perform these activities at home. These findings are accordance in with Button (2003) who reports that actual OT practice in outpatient rehabilitation for stroke clients must be established on translation of learning from the rehabilitation settings

to the home and socio-cultural contexts. In 2006, Latham and colleagues studied OT activities and intervention techniques for stroke clients in six inpatient rehabilitation wards. Most OT provided treatment approaches focusing on increasing upper-limbs control and develops performance of basic activities of daily living. They suggested that OT intervention should increase a proportion of leisure and community activities which are needed by OT services after discharges.

In accordance with Drummond et al (2005) a randomised controlled trial of leisure in post-stroke rehabilitation found that the total leisure scores and total leisure activity scores were both significantly different between a leisure rehabilitation group, a conventional OT group and control group at three and six months (Kruskal-Wallis test, $p<0.01$). Moreover, the use of group leisure rehabilitation programme showed significantly higher differences in leisure score than the other groups (Mann-Whitney U-test, $p<0.01$). This study suggested that leisure intervention is a useful way to sustain and enhance leisure participation after stroke. In compliance with OT-MCS, this approach helps stroke patients to create a link between streams of outpatient rehabilitation and leisure activities at home and in the community.

Becker (1993) also found in her qualitative investigation that a stroke participant who needed to play golf, but body function meant that he was unable to use the golf equipment. The stroke participant activity was adapted into a golf game on television which enabled him to sustain salient aspects of identity and desire. The OT-MCS, slow stream rehabilitation (numerical data) demonstrated that therapeutic activities (e.g. A7-Bimanual putting pin in a bead and A11-Constructing chain from plastic small links) were complicated and showed low satisfaction and moderate importance of activity selection and participation. This is in harmony with Edwards (2006) who studied the impact of stroke on life satisfaction and meaningful activity. Edwards revealed that although stroke patients could develop occupational performance and proceed to a full recovery, they still underwent persistent dysfunction and difficulty with complex activities. Stroke survivors showed full independence in basic activities of daily living, but 87% presented with residual stroke-related changes and had difficulty in dealing with complicated activities.

7.3 Salience and meaningful activities

In this research, the activity card sort (ACS) provides various therapeutic media, where activities are classified into domains corresponding to functional performance and the needs of stroke client users. According to Guidetti & Tham (2002) if the aim of therapeutic intervention is unclearly managed by the occupational therapists, stroke clients find it hard to understand the goal directions of treatment. In the same way, Kielhofner (2002) argues that the therapeutic strategy must be associated with a client's doing, feeling, perspective and thoughts which will influence the attainment of the desired goals. According to a systematic review of randomised trials, stroke survivors who received occupational therapy intervention focusing on the improvement of personal activities of daily living can progress skill performance and minimise the risk of deterioration in functional abilities than those who received usual care (Legg et al, 2007).

Nevertheless, the activity card sort was not on specific techniques, but on modalities used in specific situations for individual's needs. The occupational therapist placed him/herself as a supporter or facilitator. The therapists' teaching should not place on specific intervention techniques without therapeutic activities. A key element in the OT-MCS approach is the initiation of, and support to stroke clients who must find their own way of performing activities. They will draw on their own previous experiences in similar situations. Consistent with Salter et al's (2004) work, the therapists should be aware and recognised what techniques individual clients experience as most useful and powerful. They can then encourage the clients to perform that technique and use it in both specific and diverse situations.

OT-MCS provides opportunities and autonomy for stroke clients to select activities and participate initially by themselves. Thereafter, if they cannot do an activity due to poor body function, OTs will simplify and modify the activity so that the stroke client can develop the necessary capacity and skills to reach the goal. In this research, Natchaya's account of the bimanual holding of cone and place activity helped her to practise motor skills in her affected upper limb and hand. She was able to move both slowly and over a short distance. Rehabilitation is effective when she selects appropriate activities to practise in her own way. By increasing capacity slowly and gaining ability in activity function, she can transfer her skills. According

to Guidettin and Tham (2002) OT process for self-care allows stroke clients to participate in self-care tasks by themselves at first in order to create a sense of autonomy and independence. These findings addressed RQ3, which asks about the use of the ACS to develop occupational performance skills.

A study by Cunningham and colleagues (2012) recommended that regardless of complex Neurodisability by focusing on careful analysis of skills and creative adaptation within the occupation with modification of environmental settings, amount of movement leading individuals to perform a physical activity can be achieved. Similarly, the report from WHO (2011) presented case studies where challenge from and engagement in physical activities may have shown only the smallest of movements, but benefits to physical strength and energy were also created together with valued social integration and strengthening of identity and an increase in relaxation.

The findings of this research show that many stroke participants were facilitated by support and care as they embraced local activities from their homes and villages. Therapeutic media offers opportunity for critical reflexivity of the values and meanings within socio-cultural contexts of stroke participants. Achievement in adopting and performing those activities is achieved. This responds to RQ2 in recognising the individuals' attitudes to therapeutic activity engagement, and RQ3 in using the ACS to improve the functional performance of stroke participants. According to Iwama (2007) culture can be shared cross cultural dimensions of meaning and experiences. These influence power relations inherent in knowledge, values, beliefs and ways of life. As Munoz (2007) claims cultural influences on activity selection and choices affect the rehabilitation outcome in relation to health and illness. Thus, embracing local and cultural activities in the use of OT-MCS affects not only stroke participants, but also brings shared values and meaning to the OTs who better understand their client's frameworks of indigenous practice.

The meanings and value of the therapeutic media that stroke participants chose and performed corresponded to their everyday lives. Consistent with the AOTA (2008) a key aim of OT is engagement in meaningful occupations. OT needs to recognise the importance of occupations by adopting basic human needs accomplishment via activity selection and choice which relate to control and belonging (Hammell, 2004).

Similarly, Bendz (2000) reports that stroke patients are concerned about returning to life activities, which were valued and important to them. Hence, the theme of *using meaningful and purposeful activities relevant to different cultures and everyday life* is fully supported by the findings in this study and the wider body of literature.

7.4 Managing the expectations of stroke client's needs

In the interviews, stroke participants saw the rehabilitative strategy as a way of assisting them to find continuity in their daily lives. The management of their therapy and the support from OTs were described as teamwork (stroke participant, family members, and occupational therapists). The partnership facilitated stroke participants in their search for relevant activities where they could recognise themselves in self-perceived former roles, and embrace being a part of therapeutic media and goal setting. Team members enabled stroke participants to reestablish their previous activities through the activity catalogue or to find substitutions in meaningful alternatives. They could perform these and regain their functional skills and abilities relevant to their lifestyles. These findings answer RQ1 which explored collaborative goal setting and how it optimises occupational performance.

The OT-MCS approach has been designed for stroke participants to seek out key activities by themselves with supported provision and raw materials from the team members. Activity selection by individual stroke participants opens new gaps between desired and attainable goals. These challenges have to be negotiated for the benefit of stroke participants and related to relevant practice in their homes and community. As illustrated in the findings chapter, stroke participants want to perform activities which give them satisfaction. The management of stroke clients' expectations in OT-MCS allows them to do tasks by themselves, if they are able to perform the activity. The activity is continued until success is achieved.

On the contrary, if that activity is not successful due to limitations of body function and performance, two ways to solve the problem are suggested. These are the modification of the task or the selection of alternative activities. The occupational therapist will negotiate the modification of the activity into several simplified tasks relevant to the client's functional skills. Or, the occupational therapist suggests new activities from which the client is encouraged to select something interesting. OTs

have to continually monitor and measure the capacity and functional performance of stroke participants. When stroke participants gain competence and the physical function equivalent to the selected activity, they should revisit their activity programme. This finding addresses RQ4 which asks whether OT-MCS helps stroke clients to develop their functional performance skills.

Wottrich and colleagues (2007) studied the perspectives of a multi-professional team based in the home environment after stroke. They found the existence of gaps between needs and the successful therapy for stroke participants. These need to be considered by the team including the stroke patient especially when rehabilitation is home based. However, in the findings of this research, some stroke participants performed an activity but were not successful. The consequences affected the stroke participant in terms of self-confidence and emotional position which hindered improvements in their functional performance.

The sub-theme of managing expectations related to occupational performance is also in accordance with the linkage between the "actual body" and the "habit body" as stated by Merleau-Ponty (2002). He describes how the "habit body" gains experience from engagement in the environment. A habit can be formed without preparation and attention because of its familiarity. The "actual body" refers to the here and now where people have to make a decision based on the present circumstance. The "habit body" is the body before the stroke, and the "actual body" is the body after the stroke. Hence, the use of OT-MCS in stroke rehabilitation can be the means of promoting and facilitating the "actual body" links to the "habit body" with respect to experienced and familiar activities.

In the use of therapeutic media and strategic management, OT planning considers meaningful and purposeful activities for stroke participants which are based on relevant cultural lifestyles at home and in the community. Consistent with COT (2007) appreciating the value of activities and the need for individuals to be included, regardless of the level of impairment, is imperative when promoting activity engagement. Where individuals feel they are in control, their self-esteem is enhanced. They can participate in satisfying and important activities which will lead to an increase in occupational performance.

The findings illustrate the impact of stroke participants' needs in self-management and health expectations. OT-MCS promotes stroke participants to use self-therapy and learn about the process of releasing fatigue and pain during and after rehabilitation. Moreover, stroke participants talked about their future health and expectations and the possibility of living life their way. Thus stakeholders in OT intervention should consider self-management and pattern of health support in long-term care. In consonance with Drummond (2010, pp. 298) '*Much more work needs to be done into investigating long-term gains for early rehabilitation and even into providing late rehabilitation for those with chronic conditions*'.

Close (1999), does not deny the implications for continuity and management in stroke care where stroke patients and caregivers are encouraged to use self-help to realise their uncertain future. The expectations may be uncertain depending on the individual's competence and recovery. Meanwhile Bower and colleagues' study (2012) of self-management in upper limb recovery after stroke reveal that stroke clients and caregivers have different views on expectations of self-therapy to OTs and physiotherapists. Therefore, stroke clients' needs and expectations should be supported by the collaborative team to create self-management skills. Therapy must fit with the individual's activities of daily living and include self-measurement for further development. This discussion addresses RQ1, RQ4 and RQ5.

7.5 Collaboration (Partnership)

Stroke rehabilitation is a complex process involving collaborative teamwork. In the OT field, client-centeredness is essential to plan and set goals, for both short and long-terms interventions. Strategic manoeuvres, planned collaboratively lead to an effective intervention approach. The findings showed an increase of 17% of stroke cases, and an increase of 22% in the number of attendances (see Figure 5.1). A system framework is more efficient, and the stoke clients and family caregivers are more motivated to practise programmes with collaboration. According to Murray (1998) success in a self-care training programme came from the interaction and collaboration between the client and therapists. Autonomy of partners in a collaborative team in rehabilitation enables stroke clients to make choices based on their needs. The findings from this study show that stroke participants could select activities and take part in strategic planning and goal settings. Similarly, earlier

research studies show that good outcomes from rehabilitation emerge where patients' previous habits and roles, environmental support and occupational performance are all taken into account (Kielhofner, 1995; Tham et a., 2000).

Autonomy is the opportunity to influence and make decisions related to the individual's concern, even if the individual's need for support and assistance varies in making these choices (Moulton, 1997). This is consistent with Guidetti & Tham (2002) study in self-care activities where the individual's opportunity to select and make decisions relevant to their individual lifestyles enhanced autonomy. Similarly, in Gray's view (1998), autonomy should be congruent with OT principles for rehabilitation.

In the findings, the benefits of collaborative teamwork are confirmed and strengthened by the stroke participants' feelings of pleasure from cooperative assistance. This process helped them understand how to develop body function and functional performance connecting meaningful and purposeful therapeutic media. Similarly Wottrich and colleagues (2007), report that collaboration encourages stroke participants to appreciate themselves and the team as they work to agree planning and goal setting which includes former family and social roles in the real world. Collaboration encourages understanding of a stroke client's personality and helps to formulate real expectations and goal directions that are used to optimise client-therapist cooperation in therapeutic activities. OTs play a crucial role in the analysis of the stroke client's competencies within the resources and limitations of task engagement. These respond to RQ1 which queries collaborative goal setting through OT-MCS and its optimisation of occupational performance.

In this study, opinions between stroke participants and OTs differed in over 50% of the questions related to the satisfaction and importance of activity selection. This outcome reveals a disparity in the rating and selection of therapeutic media for rehabilitation. Similarly Chiou & Burnett (1985) found that 26 stroke clients and their therapists did not agree on the value of activities of daily living, presenting only one pair of similar views. Moreover, several research studies recommend that most patients in rehabilitation place a high value on the client-therapist relationship and are disappointed with therapists who do not understand their needs at an individual level (McKinnon, 2000; Darragh et al, 2001; Peloquin, 2003). On the other hand, if

therapists do not consider the importance of patients' views of relationships as meaningful interventions may lead to poorer outcomes (Rosa & Hasselkus, 1996). RQ5 is addressed by these findings.

A prerequisite for building up team relationships and understanding needs is the collaboration between OTs and stroke clients, which is based on mutual trust and respect as in use of OT-MCS. According to Gahnstrom-Strandqvist et al (2000) the trust of the client and improved outcomes of interventions are established by recapturing and understanding comprehensively the client's role and lived experience in the past and present. This presents a precondition for preparing a strategic direction for stroke rehabilitation in the future. These findings also reveal that the use of the OT-MCS approach provides opportunity for stroke participants to become partners in a team. Collaborative planning and goal settings leads to improved understanding of an individual's unique circumstances which evolves gradually to the success of the rehabilitation intervention.

In the findings, collaboration succeeds in creating understanding of partnerships and clear communication in the therapy process amongst the team members. In conformity with Jones and colleagues' work (1997) good relations require good communication and the buildup of relationships between health providers and stroke clients. Cooperative working within a rehabilitation team needs to include the stroke client's needs, role, team members' recognition and a hierarchical reduction of organisational context. As reported by Drummond and Packer (2000) multicentre rehabilitation needs to engage in good organisation, two-way process of communication, high degree of commitment and co-operation. Hence, the key ingredient to bringing and creating a team relationship is clear communication and negotiation; even where there are similar or different views and expectations of the process is established for the benefit of the stroke patient and his/her needs or goals.

According to Strasser & Falconer (1997) an effective rehabilitation team builds on a concept of the latent structure (relations) and visible functions (action) of team members. This model delivers two main elements of interaction for the rehabilitation team generating a proper blend of these influences for the desirable client outcome. The use of OT-MCS is founded on the bedrock of a collaborative framework where team relations are open to opportunities for OTs and stroke clients including families

to learn characteristics and experiences (past, present and future) to create familiarity, trust and confidence. Team action is impelled by collaborative goals and plans in which the team does its work and directs orientations for engaging in the therapeutic activities of rehabilitation. Hence, the collaborative teamwork and challenging work facing rehabilitation is to understand and propel the process, which is enhanced by effective communication. This discussion responds to RQ1 which explores collaborative team and goal direction, and RQ2 where individual recognition related to activity experiences is questioned.

7.6 Transferable skills

Throughout the study of OT-MCS for stroke rehabilitation, participants (slow and fast stream rehabilitation) were able to transfer their skills from one activity to another. For instance, stroke participants made the transfer from the pronation and supination wheel activity in basic rehabilitation to the opening and closing of doors or even driving a car. Moreover, many stroke cases in the fast stream rehabilitation were able to perform a transitional skill from the therapist-structure programme (Level 1) to a home programme (Level 4) as presented in the findings chapter. Hersch and colleagues (2012) studied the effects of an occupation-based cultural heritage intervention with elderly people in long term care using experimental and control groups. The findings showed that the intervention group displayed higher scores than the control group in quality of life; health and function; family and social participation; and activity engagement measures. Participants (intervention group) in this study developed from basic activity patterns adapting to cultural heritage activities which increased their social relationships and their understanding of life in long-term care. RQ4 which explores the OT-MCS approach to develop functional skills has been answered.

However, Ellis-Hill and Horn (1999) found that stroke survivors presented a negative sense of self with psychological consequences when they applied inpatient activities in outpatient rehabilitation. They lacked the necessary transferable skills and social support for the successful application in keeping with their expectations. The OT-MCS approach places the focus on transferring functional skills at home first and then gradually extends these to village life as cultural and traditional activities. The successful transferability of performing activities in social and public

areas depends upon the full integration into social networks involving village leaders, health volunteers, social workers and governmental officials. This collaboration can determine a framework for social support and improved public facilities.

The findings illustrate that some stroke participants could learn activities from other regions and modify these to fit with local materials and resources. For example, stroke participants from the southern region were folding coconut leaves to carry food, a key manual dexterity activity. In the east, sorting stone and crystal marbles was appropriate as most people had experience of stonecutting or jewellery; these activities reflect transferability of natural resources, cultures and professions which lie at the root of regional lifestyles. In accordance with Baranowski et al (2002) and Kok et al (2004) transferring skill-building activities can increase an individual's knowledge and skills of behavioural capacity which strengthens self-confidence in relation to instruction, modelling, environment, practice and role play. This answers RQ2 which addressed respect of individuals' attitudes and experiences of therapeutic activities.

During the initial period of OT-MCS intervention, most stroke participants received therapeutic media as a stairway which gradually led to skill transition and development through engaging in activities. Thus, skill transferability through OT-MCS enabled stroke clients to carry out problem-solving strategies and find effective ways of achieving their individually chosen functional goals. These findings are consistent with Mehan et al's (2008) study of skill transfer training in stroke rehabilitation which revealed that competency-based skill transfer provides opportunities for stroke survivors to actively engage in transition tasks with minimal risk. Recovery is enhanced with the application and implementation of skills in the home and environmental settings.

In the findings, the stairways in changing from pre-functional rehabilitation practice to socio-cultural activities training enables stroke participants (fast stream rehabilitation) to move from basic activities. They gradually increase their skills, performance and abilities during engagement in more complex activities. Also, OTs and family members must motivate and ensure that stroke participants feel competent, confident and safe when dealing with target activities. According to the

Australian Stroke Coalition (2008) a stroke specific education framework enhances the stroke-skilled development workforce. Individual stroke clients received work-based learning, stroke-specific knowledge and skills, and generic competencies for continuing professional development. This study emphasises the cycle of contact, treatment and rehabilitation with long-term support, review and prevention.

Accomplishment of fast stream transferable rehabilitation skills means that an individual stroke participant embraces activities at home and in the local community as therapeutic tools. The findings reveal that most activity items enhanced the level of engagement by individual stroke participants. Huang and Lee (2010) also report improved performance from stroke patients who emerge from effective rehabilitation training with a combination of appropriate knowledge, understanding, skills and abilities. Similarly, in the OT-MCS for fast stream rehabilitation, stroke participants were familiar with the cultural activities of their environment, which facilitated the more to higher level of appropriate experiences. RQ2 and RQ4 which explore the recognition of individuals' experience in local therapeutic activity approach to develop functional skills have been addressed.

To reinforce skill transferability and learning, OTs need to understand how self-management by individual stroke clients contributes to physical performance and occupational functioning. In addition, the research findings show that stroke participants require time for OT practice and need to manage their fatigue and pain with regular and effective sleep and relaxation. Self-management can help stroke participants to relieve stress and minimise weakness, which in turn increase their capacity for problem solving. In 2011, Jones and Riazi carried out a systematic review of self-management interventions based on self-efficacy for stroke patients. Their study found that the quality of life after stroke depended on self-management skills to tackle the negative impacts from both physical and psychosocial conditions. These skills also help create social integration.

Transferable skills and self-management play a crucial role in rehabilitation. The collaborative team should concentrate on how the stroke client's experiences reflect their factual skills and knowledge in activity selection. Stroke clients should also be able to ask for advice from the collaborative team who are aware of the learning outcomes of the rehabilitation training (Australian Stroke Coalition, 2008).

Hence, OT-MCS maintains and improves occupational performance, boosts the development of skill transfer, embeds new knowledge and promotes self-management.

7.7 Future applications at home and in the community

Stroke rehabilitation in Thailand has acquired an increased amount of interest from both government policy makers and service providers within health and social arenas particularly for home and community-based programme. These findings convey ideas for the future of slow stream rehabilitation and outdoor/community developments for fast stream rehabilitation. The results of the slow stream rehabilitation aspects reveal that stroke participants require the means to practise transition and application from hospital to their home environments. Meanwhile stroke participants (fast stream rehabilitation) gain functional abilities and transfer their skills into the home and outdoor society. The use of meaningful and purposeful activities that most stroke clients embraced in their local communities; enabled them to practise 10 activity items from the activity catalogue (40 items) or 25 %. However, stroke participants could develop skills 32 activities (53.3%) from 60 activity items which they brought from their home and local community. This addresses RQ2 and RQ3 which explores recognition of individuals' experiences with new resources from local environments to develop their occupational performance skills.

The findings point out that cultural heritage activity based on daily living, lifestyle and environmental settings are appropriate and effective for the restoration of their functional performance which can be applied at home and in the community. According to Edwards and colleagues (2004) a home therapy-based rehabilitation service for stroke clients improved functional outcomes in activities of everyday life and reduced risk taking in their performance. The findings are also consistent with Wottrich et al (2007) who used a qualitative approach and recommended that all therapists greatly consider the environmental and personal contexts of stroke clients. They found that the home environment provided valuable information to therapists. Strategic direction is determined by exploring continuity in stroke clients' lives and connecting previous experiences to present situations matching body function and skill performance.

The Thai stroke participants reveal that their religious faith is fundamental to their recovery. They value health but they still practise as Buddhists participating in religious ceremonies in the temple, praying to the Lord of Buddha. Some people in the southern region who practise Islam expressed the importance of outdoor activity at the mosque. These activities relate to health and sickness and are influenced by the psychological support and socio-cultural norms of the Thai people. According to Ohnuki-Tierney (2005, pp. 105) A view on the sickness in Japanese, '*Health-sickness balance or relativity is a mirror of how we are facing life difficulties by regarding life events not as out of human control but the dimensions of destiny*'. Therefore, the use of OT-MCS provides therapeutic items associated with religious activities, which reflect the balance of life's activities grounded in the reality of being human. The findings show that these activities inspired stroke participants to select and perform tasks such as reading the Tripitaka or Koran, and going to the temple or mosque. This answers RQ2 in identifying and recognising the individuals' attitudes to activity and practice.

In step with cultural beliefs and social activities, the interview findings show that elderly stroke participants tended to go to the temple to engage in ritual activity and make merit as a Buddhist. This point relates to a law of Karma that reflects the Thainess and strong belief in destiny involving the way of life. Stroke participants suffer ill health but need to embrace a spiritual refuge. They need to go to pay homage to the Lord of Buddha image. These findings are consistent with Lui (1999) who found that the spiritual needs of Chinese stroke survivors were essential in the recovery period and helped them physically and mentally providing psychological support during the crisis. Similarly, Chow & Nelson-Beckerb (2010) studied spiritual transformation in stroke patients (Hong Kong). They found that stroke participants embraced social/environmental heritage and personal spiritual resources linked to spiritually-rich faith and practice. These supports and resources helped transform the loss from illness to the creation of a resilient post-stroke life.

Most stroke participants felt safe in familiar surroundings when applying functional skills from rehabilitation practice in activities at home and other environments. However, some stroke participants were worried about life's activities at home and outdoor performance because of barriers and landscape conditions, in particular in public areas. Similarly, Takahashi et al (2005) report on reducing feelings of anxiety

and insecurity at home by training stroke patients to ensure their safety, to avoid falls when performing activities and to return to optimal effectiveness in daily living.

Family and social support are central to the attainment of collaborative goals. The qualitative findings emphasise the importance of family relationships and support in rehabilitation programmes for stroke clients. Strong partnerships improve positive outcomes of the long-term processes. All themes from the textual data highlight how family members play crucial roles in the sharing of ideas and experiences as well as in monitoring problems when performing activities at home, particularly when they are culturally relevant. These findings are in accordance with Clarke (2003) who states that family and social supports act as buffers by limiting the negative impacts of dysfunction on well-being. The mechanism of negative social supports is described in his qualitative findings. He found that a female stroke client needed to improve her cognitive abilities by developing a sense of autonomy and management. This process however had been hindered by her husband's negative views on removing adaptive devices which led to poorer outcomes during her rehabilitation. Thus, family support for application at home and in the community becomes a key indicator in the success of stroke rehabilitation.

It was clear from the data that each stroke participant (fast stream rehabilitation) had engaged in relevant activities in relation to their experience and lifestyle and applied these in their everyday lives. However, some studies showed that stroke survivors struggled with problems in their social worlds due to the ramifications from the enforcement of giving up part-time employment. An imbalance between family and social circumstance develops when society views stroke as making people disable (Burthon, 2000). In line with this research, Thailand also views social areas as unsuitable places for, not only stroke survivors, but also disabled people in general who have no employment (Naemiratch & Manderson, 2000). Congruent with Murray's (1998) research, Thai disabled people are excluded from opportunities to participate in the political, economic, public and cultural life of society due to limitations of physical access, lack of skills, health conditions and employment prospects.

In 2009, Bualar and Morshed-Ahmad studied community-based rehabilitation (CBR) in northern Thailand. They found that, under the Ministry of Public Health, the

project was not successful, in particular for disabled women. The findings showed that CBR alone could not change the views of the community towards disabled people. The project was unable to convince society that integration of policies from all stakeholders to tackle the long-term problems of gender deprivation, education, employment, healthcare, transportation and access was the way forward. In compliance with the use of OT-MCS, this study emerged from some specific problems described in Chapter One. This approach attempts to solve problems by focusing initially on personal activities and engagement of pre-functional rehabilitation and gradually extending these to be applied at home and in the community. The progress is based on stroke participants' performances, cultural lifestyles, and supportive provision from their families and villages. Hence, OT-MCS is merely one vehicle for healthcare rehabilitation and education which can propel stroke survivors in society towards their goals using the means of OT intervention.

7.8 The strengths of this study

The main strength of the research is that the research idea came from the framework for an integrated methodology (FraIM). The strength of pragmatism is a link between paradigms which allows diverse methods available to researchers to generate a body of knowledge in practice (Giddings, 2006). This research uses a FraIM, involving quantitative (numerical) analyses of scale surveys and comparative data of the attitude levels, level of activity engagement, choice and decision making of participants. However, the survey and evaluation data by themselves do not give a whole picture. Whereas the qualitative (textual) investigation penetrated the invisible processes relating to the relationships. The textual accounts reveal various logical notions and lived experiences during the use of OT-MCS. A special blend of textual and numerical information coherently strengthens the effectiveness of OT-MCS approach. Exploring the lived experiences and interpretations during their engagement with therapeutic activities helps OTs understand the needs and volition of stroke clients.

In keeping with the interview analysis, these findings help to shed light on why some stroke participants are not satisfied and attach different values to those expressed by OTs in the numerical data. Additionally, the textual findings reflect that the

psychological expressions of stroke participants in activity and participation are linked to physical functions, the nature of individuals, cultural lifestyles (including religion), habit, and experiences. These challenges influenced me (author) to consider how to interpret both textual and numerical data of findings from the use of different methods. This research illustrates how connection of data gain deep understanding of activity selection related to educational levels, professions and cultures of stroke clients.

The survey gave a broad picture of knowledge and attitudes of stroke participants and OTs regarding therapeutic activities and selection, whilst comparative evaluation helps to clarify experimental interventions (pretest and posttest) of both group slow and fast stream rehabilitation. Lastly, the interview is the useful way to capture the issue of lived experience after the use of OT-MCS. The use of scenario is appropriate to elicit the important points to structure the main findings related to numerical data. These therefore are advantages of conducting the research which gives full understanding of the OT-MCS outcomes.

7.9 Limitations of this study

The limitations of this study stem from the premise that it specifically focuses on the stroke participants' experience in using OT-MCS approach. The respondent selection for interview was based on a convenience sample, this tended to exclude stroke participants who lived in the hills or at a far distance from the hospital as the researcher could not access them for interview within the limited time available at each location. This interview process recruited stroke participants who consented to give information confirmed by their family members. This has potentially led to a bias towards participants with a positive lived experience of OT-MCS and may not represent disagreement from others who could not provide information either through choice or location. However whilst this potential limitation must be acknowledged, the evidence of the respondents who were included was entirely positive and would support the further use and development of OT-MCS. In this study comparisons with other stroke rehabilitation services (due to different policies and administration of each regional hospital) have not been possible. The difficulties of evaluating a home programme of activity engagement where some stroke clients live long distances from the hospital are recognised. The research team assessed

these stroke participants at the OT clinics and asked their family members and relatives to ensure that they practised the activities at home. This restricts the study design and follow up at home with every stroke participants in fast stream rehabilitation (n=60) was impossible. However, the initial meetings between the collaborative team helped to build up sincerity and understanding of the research aims and outcomes which affect stroke clients. OTs' views were elicited through merely numerical data. The perspectives and experiences of regional therapists of the use of OT-MCS were not explored. Therefore, future studies will plan to interview Thai occupational therapists to elicit their experience of utilising the OT-MCS approach and their views on the characteristics of the new activity card sort (ACS) for Thai stroke rehabilitation.

Furthermore almost all of the stroke participants who were interviewed were recruited at a convenient time, live nearby, and had a willingness to participate which could mean that their use of OT-MCS and therapeutic stories had positive outcomes. There were 96 stroke participants in total who were unavailable for interview for a number of different reasons. For instance, some stroke participants were unavailable for interview, living at a distance in the hills (long distance), some of stroke clients had moved to live in another city with their families and were un-contactable after their participation in OT-MCS. Whilst some of them might have given dissenting information with OT-MCS intervention from their different standpoints which, ideally, should be captured and recognised, pursuing them was beyond the scope of the study. However, 24 interviewees participated in this study, nearly 20 per cent of stroke participants who received the intervention from OT-MCS approach. All interviewees expressed their lived experience of OT-MCS in positive terms with no dissenting voices and were drawn from a variety of regions and experience. It is possible that this positive feedback was due to the way the system framework provided opportunities and empowerment to stroke clients to take part in the collaborative team and hence led to their satisfaction and realisation of the importance or value of therapeutic activities. Moreover, this research gives insight into the traditional Thai OT service. Occupational therapy clinics for stroke rehabilitation in Thailand should be improved and upgraded by listening and understanding the needs of stroke clients and their families. This is a major reason for this research which explored and reflected the voices of stroke clients linking to

various problems on background and significance of the study (p.1-3). The Thai OT society needs to respond to these challenges and change. When conducting research it is essential to draw out various data representing all dimensions of the phenomenon and context (Karlsson, 1993). This research based on the effects of OT-MCS in occupational therapy intervention for stroke rehabilitation and did not draw on data from both stroke clients and OTs with clinical experience, nor did it consider negative outcomes in the both groups. Such a study could contribute new knowledge and deepen the understanding of both occupational therapist and stroke client in how OT-MCS can be used as a means for sustaining and improving occupational functioning and life-skills in slow and fast stream rehabilitation.

7.10 Implications for occupational therapy

This research reveals deeper understanding of phenomena within the contexts of stroke participants' lived experiences whilst engaging in OT-MCS therapeutic activities. The findings show an increase in stroke cases and the number of attendances after the period of OT-MCS (8 weeks) even though the OT department had the same amount of occupational therapists. Increasing the resources in care services during the programme will lead to better management of therapeutic interventions in both slow and fast stream rehabilitation. Hence, the stroke care pathway, based on occupational performance in relation to brain and body function, duration of stroke, and functional capacity of recovery helps OTs plan more effectively with the clients. Moreover, OT-MCS provides an ACS which is a special tool to encourage stroke clients to search according to for their own needs in particular activities and practice. Thus, ACS is a labour-saving device by putting autonomy and activity choices to the stroke clients and their families which can lead to contextually specific resolutions. The collaborative team approach enabled OTs to recruit other stroke patients from the waiting list, resulting in an increase in volume of stroke cases and number of attendances.

A major stroke group linked to the Thai National Census and Thai National Statistics Office (2011) shows that more 50 year olds in the population work in agriculture. Most of the stroke population graduated with final elementary education due to the compulsory policy of their generation. A large proportion of participants who received the OT-MCS programme was recruited from the home agriculture sector.

These people had lower levels of education. The approach however could be used effectively with this stroke group through collaborative teamwork. The process is supported by family members and relatives who embrace the agricultural tools, farming and gardening devices related to their local and cultural activities. Therapeutic media are changed and adapted to create new channels in rehabilitation, which aid strategic goal direction. According to Odawara (2005) stroke participants' experiences suggest ways to respect the differences of indigenous practices where local and cultural activities influence the individual's selection and choices. This OT process includes provision and support and flexibility in team task allocation.

Furthermore, the study results have implications for not only occupational therapists, but also for other health practitioners who provide rehabilitative intervention for stroke survivors. Education could be provided for clients, their families and caregivers regarding the roles of self-care, productivity, leisure and recreation lifestyles to sustain and improve health when living with a chronic condition (Caldwell, 2005). Some therapeutic activities may be more meaningful or more important to individuals than others, and the specific value attached to activities may affect the functional skills and occupational performance in stroke rehabilitation. Understanding the different satisfaction levels and importance of activities assessing the levels of activity engagement, together with the lived experiences during therapy may better guide interventions and advice to stroke clients resulting in positive effects and good outcomes. It is of substantial importance for OTs to comprehend the meanings clients assign to their stroke experiences as they plan together appropriate, responsive care and rehabilitation.

7.11 Summary

In this chapter, the relationships between the findings and research questions have been presented. Supporting and contradicting research evidence that reflects both the coherence and trustworthiness has been discussed. Future applications at home and in the community of OT-MCS within Thai cultural lifestyle are made clear. The strengths of this study stem from the framework for an integrated methodology (textual and numerical data) which enhances the horizon of understanding from a special blend of the rates of attitude and lived experiences of stroke participants in relation to the effects of an OT-MCS. In terms of limitations, the measurement of home programme activities with all stroke participants was not possible which requires the cooperation and involvement of family members (collaboration). The implications for OT in Thailand are evident. The progression should plan to introduce cooperative working with multidisciplinary health professionals in order to develop and improve the efficacy of holistic approaches in stroke rehabilitation.

Chapter 8

CONCLUSION AND RECOMMENDATIONS

8.1 Introduction

This chapter is divided into two main parts. The first part presents an overall conclusion and provides reflections on the contribution to knowledge of the study. The second part offers recommendations which are elicited from the research findings and are coherent with the data and analyses. The recommendations are provided at the level of general policy for stroke care in Thailand and Thai OT for future stroke rehabilitation. The aim is to seek ways to resolve the multi-dimensional problems for stroke rehabilitation from macro to micro solutions. In addition, recommendations are accommodated for further training and future research.

8.2 Overall conclusion

The previous chapter discusses the finding in relation to the research questions. The key points emerging are;

- Collaborative teamwork and goal setting within OT-MCS optimise occupational performance for stroke clients
- OT-MCS and ACS assist OTs to identify and recognise the individual stroke clients' attitudes via therapeutic activity engagement
- Using OT-MCS and ACS enhance the development of occupational performance skills for stroke clients
- OT-MCS helps stroke clients (slow and fast stream rehabilitation) to sustain and improve their occupational performance skills
- Most stroke clients' perspectives are dissimilar to those of occupational therapists, in respect of the needs and meanings in the range of therapeutic activities

This research, the first to be conducted across 6 regional contexts in Thailand, explored and evaluated the opinions and occupational performance of stroke clients whilst engaging in OT-MCS. The findings indicate that the approach can contribute to the maintenance of the stroke patient's functional performance during the

activities of daily life (slow stream rehabilitation) and the improvement of a stroke clients' functional skills and abilities (fast stream rehabilitation) through the application of meaningful and cultural activities at home and in the community. The findings reveal that the researcher consciously tried to explore the stroke participants, individual, cultural, and environmental contexts during their experiences of the OT-MCS approach. These stroke participants spoke of their experiences of previous functioning, and this appeared to assist in restoring occupational performance during the rehabilitation programme.

Whether slow or fast stream rehabilitation OT-MCS is in line with the components of the ICF model, OT models, frames and references. The research team collected data by providing the therapeutic intervention for stroke participants and by asking the participants to talk about their lived experiences after dealing with OT-MCS. The stroke clients' experiences from the past, their satisfaction and importance in activity selection and application in the home environment and their desires for the future were included in the life stories. The cultural lifestyle and local activities detected gave valuable therapeutic media to the occupational therapists, who used that information as tools in the strategies to assist the stroke clients in finding relevant therapeutic activities corresponding to their own ways. According to Wottrich et al. (2007) rehabilitation in the home environment after acute stroke which involves working with the patients and their families could help professional teams to view the reality and continuity of patients' home life.

During the rehabilitation process stroke participants were assessed and a programme for individual sustaining or improving competence and functional skills depending on their needs was designed with collaborative goal settings. OTs offered a programme of activity interventions after evaluating personal body structure and function to identify therapeutic activities which matched occupational performance. The team navigated a directional intervention in either the slow or fast rehabilitation streams which dependent on the functional skills and abilities of each stroke client when embarking on a journey of the OT-MCS indicative care package. Hence, the stroke client's needs and experiences including occupational skills are integrated when identifying and selecting the best therapeutic activities. Critical techniques used included clear communication and negotiation, a sense of autonomy and team partnership, confidence building, motivational skills, and inspiration for the future.

8.3 Contribution to knowledge

The findings of this PhD research illustrate possible pathways for stroke rehabilitation in OT practice in Thailand. The effectiveness of therapeutic interventions of the underlying OT-MCS approach (slow and fast stream rehabilitation) have been examined. For example, the activity card sort could be used as a package of therapeutic media in accordance with body function and occupational performance to apply at home and in the community for maintaining and improving functional skills and abilities. Hence, the collaborative working between OTs and stroke clients with their families can pave the way for strategic goal setting which includes tackling the specific circumstances within an integrated client-centred and holistic approach. Yet, with the help of culturally appropriate therapeutic activities provided by OT-MCS, individual stroke clients can engage in a dynamic process of adaptation and decision making. Such participation enhances a sense of mastery (autonomy) and control and fits with their needs and desires.

The knowledge gained from this study can inform both OTs and stroke clients (including families). The use of OT-MCS and ACS can assist OTs in their understanding of stroke clients and their families through collaborative teamwork to establish goals and plan culturally relevant activities which fit with occupational performance and needs. Meanwhile the stroke client and family, as a principle within OT-MCS, are enable to understand how they move from pre-functional rehabilitation activities in the hospital to develop improved functional skills and abilities by embracing local and cultural activities at home and in their environments.

Additionally, a collaborative teamwork with properly planned and meaningful activities in individual and cultural contexts supports the expansion of the OT service for stroke patients. Exploring features of the activity item generation and intervention produced a wider range of therapeutic media for different stroke clients and created new opportunities and choices to engage in the things that had meaning in their lives. As more Thai stroke clients from diverse ethnic backgrounds relocate to an OT-MCS intervention, the role of OTs will expand dynamically to search for more relevant culturally therapeutic activities. New activities will be entered to the databases for stroke rehabilitation therapies in Thai society.

In interdisciplinary cooperation, OT-MCS for stroke service provides a clear benchmark for the development and evaluation of practice. However, this system framework for stroke rehabilitation requires further attention and cooperation with the interdisciplinary team. From the point of shared idea and collaborative teamwork, this thesis could benefits all health care providers who work with stroke clients. The research outcomes may help physiotherapists to understand stroke clients' needs and application of exercise programme at home and in the community. The OT-MCS approach could help physiotherapists develop body strength, balance training, postural awareness and motor learning through selective therapeutic activities. Moreover, ACS and cultural activities could help rehabilitation physicians, nurses, psychiatrists and speech language therapists with interventions to improve patient perceptions of general health, and in particular to minimise negative impact of emotion, and social isolation via leisure and socio-cultural participation domain. Hence, OT-MCS could facilitate interdisciplinary cooperation and contribution to knowledge for stakeholders which is based on culturally relevant intervention and provides effective outcomes for stroke rehabilitation

8.4 Recommendations for Thai health care and stroke rehabilitation policies

Currently the Thai government launched the 'Universal Health Care Policy', which has created universal health insurance coverage for the whole population. Also in Thailand the elderly population, those above 60 years, will increase to 15.9 % by the year 2020 (Kovindha, 2010). Policy should consider this group who face a significantly higher risk for stroke than others. Meanwhile, the Ministry of Public Health, Thailand does not have a clear stroke policy and plan. Therefore, it is necessary to develop clear stroke prevention and rehabilitation policies to tackle the future impact of stroke. Healthcare providers, people living at risk of stroke, and the rehabilitation service for stroke survivors must all work together in policy planning. In this research, the numerical and textual findings of an OT-MCS approach may be used as evidence to support and strengthen the direction of stroke rehabilitation in multidisciplinary teams including physiotherapists, speech language therapists, rehabilitation physicians and nurses.

Even though the clinical practice guidelines for stroke rehabilitation (CPG) have been clearly identified, the current guidebook has been used as a bigger picture for each multidisciplinary health provider to give the direction of stroke care. However this CPG cannot provide details of how to apply OT interventions with stroke clients (Prasat Neurological Institute, 2007). Recently, the Department of Medical Service under the Ministry of Public Health has gathered 21 hospitals to establish a centre for stroke fast track and Thai hospital stroke networks (NIC, 2012). These aim to improve the service process so that within 3 hours after the onset of stroke hospital admission for treatment can recover blood circulation and reduce brain damage and resulting disabilities. Meanwhile the centres of stroke networks in 21 hospitals provide the therapeutic intervention for stroke patients covering early treatment and rehabilitation (MCOT, 2011). In this campaign, the study of '*Efficiency of Acute stroke Fast Track Network (FTN) offers an integrated intravenous thrombolytic therapy: Buriram Hospital in Rural of Thailand*'. The results show that this intervention empowered the network and enhanced stroke alert to reduce the impact of stroke and promote the accessibility to treatment for Thai people in rural areas (Wetchaphanphesat, 2011). Thus, this is a good opportunity for future cooperation to create links between OT-MCS in fast stream rehabilitation and collaborative working in the discipline of OT networks.

8.5 Recommendations for Thai occupational therapy in stroke rehabilitation

The presentation made by the author at the 5th Asia Pacific Occupational Therapy Congress APOTC-2011 (2011, pp.36) in Chiang Mai, Thailand stated that '*In Thailand, stroke is increasingly prevalent in men and women and affects all ages, but there are merely 600 occupational therapists, whilst Thai population has increased to nearly 66 million*'. This reflected the imbalance of proportion between OTs and stroke clients within the Thai population. The Ministry of Education and Ministry of Public Health, Thailand, take responsibility for determining the ratios for each discipline of health provider to serve the country. These organisations should collaborate on producing more occupational therapists (B.Sc.), because of the high demand from the healthcare sector, despite low supplies from the Ministry of Education. Hence, this research was motivated, in part, by the root cause of the problems and the need to promote effective OT for stroke rehabilitation as the way forward.

Practice recommendations in Thailand should first start with the screening test for stroke clients in OT and rehabilitation (Appendix A), which offers a way to evaluate occupational performance and functional skills of the stroke clients leading them into one of two pathways (slow and fast stream rehabilitation) (Figure 1.2). Secondly, occupational therapists should provide a new activity card sort to stroke clients and their families (Table 6.4). This process creates collaborative working and shares experience between therapists and users. Thirdly, the attitude of stroke assessment test should be evaluated with the judgment related to satisfaction and importance after performing therapeutic activities (Appendix C). This stage can help the collaborative team to plan, re-assess and find appropriate therapeutic media relevant to the stroke clients' preferences and values corresponding to their optimal function. Lastly, OT programmes should record and document the activities undertaken and these should be considered when assessing the stroke clients' performance (Appendix D). This process helps both therapists and stakeholders know about the development and improvement of the stroke clients during the OT programme.

Grasping knowledge and meaningful activities for stroke rehabilitation and long-term care, OT-MCS steers therapeutic intervention from hospital to rehabilitate clients effectively at home and in the community. Stroke patients and their families will save funds in healthcare and transportation. The collaborative teams should be extended to cooperate with social workers, village health volunteers etc. In OT in hospitals, the use of OT-MCS gives therapists more time to offer opportunities to new stroke patients who are on waiting lists to enter the therapy programme. Reflecting on the OT-MCS and ACS, stroke patients confirm the relevance of the cultural pattern and framework of this indicative care package. The author hopes to see OT clinics in each provincial hospital adopting the conceptual idea of OT-MCS to create collaborative networks and generate relevant therapeutic activities to fit with local stroke clients' needs and expectations.

8.6 Recommendations for future research

The findings of the current study have illustrated strong support for the link between an individual's needs in performing activities and choices which have meaning, and have illuminated the importance of activities of daily living and cultural lifestyles. Future research should plan to interview Thai OTs who utilise OT-MCS for stroke

rehabilitation to elicit their views, experiences and expectations. Moreover, research should further evaluate the outcomes of OT-MCS and how it assists the multidisciplinary rehabilitation team (e.g. physiotherapist, nurse, speech language therapist, and physician) to boost the effectiveness of outcomes in stroke care. Moreover, further investigation should examine the home environment and community elements and their relationship to benefits in stroke rehabilitation which facilitates adaptation and modification of activities.

The points of view from family members or caregivers of stroke clients should also be explored. A longitudinal design examining the holistic views of stakeholders in the use of OT-MCS would further enhance understanding of multi-dimensional influences. A clinical trial using the ACS technique may provide beneficial intervention outcomes in different populations with traumatic brain injury, which occurs regularly following road traffic accidents in Thailand (Suriyawongpaisal & Kanchanasut, 2003). With the considerable findings, the use of ACS will be used to monitor changes in activity and participation or in response to specific intervention approaches. The ability of the ACS to change activities related to occupational performance and skills should be further studied and measured. By investigating the differential impact of different types of domain areas of physical competency and functional skills, an innovative and modified programme may result. Outdoor and public activities are avenues for social integration that deserve further research to explore and improve services and rehabilitative intervention for stroke survivors and their facilities.

Conclusion

The indicative care package, OT-MCS, is a comprehensive OT service engaging collaboratively with stroke clients to perform meaningful and purposeful activities based on their local and regional lifestyles. This framework of rehabilitation offers Thai stroke clients culturally appropriate opportunities for sustaining and improving their functional abilities and occupational performance.

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APPENDICES

MAHIDOL UNIVERSITY

The Screening Test for Stroke Client in Occupational Therapy Rehabilitation

Department of Occupational Therapy, Faculty of Physical Therapy, Mahidol University

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Client name……Age…...Gender…….Type of Stroke……OTN……

OTs name……Date……

Guideline

Part 1: Occupational therapist check √ history profile of diagnosis and database client of stroke in order to indentify and divide into 2 groups for the suitability and compatibility with OT-MCS model of practice in terms of goal setting.

□ **Slow stream rehabilitation:** consider from client who are diagnosed with severe brain damage in clinical appearance such as hemiplegia, pathological condition in Cerebral cortex, Corona radiate, Posterior limb of Internal capsule, the loss of sensori-motor function in upper extremity, and post-stroke long than a years, have good perceptual and cognitive ability (Patten et al, 2004; Shelton & Reding, 2000; Duncan et al, 2005).

□ **Fast stream rehabilitation:** identify client who are detected with a mild or moderate levels of stroke pathology such as hemiparesis, brain attack on Putamen or Thalamus (deep brain nucleus), stroke attack less than a year and good prognosis in upper and lower limbs possess good self-perception and cognition (Doyle et al, 2004; Miyai et al, 2000).

Caution and Recommendation

Part 2: Occupational therapist check √ in front of the items that therapist analyse the problem from stroke clients (**ICF Framework for OT measurement)**

ICF Dimension	**Activities**		**Participation**		**Body Function**		**Environmental Factors**	
Occupational therapy classification	***Occupational performance***	√	***Role performance***	√	***Performance components***	√	***Environmental factors***	√
Examples of attributes	Dressing/Grooming		Community		Attention		Architecture	
	Feeding/ Eating		Mobility		Cognition		Attitude	
	Bathing/ Showering		Education		Endurance		Cultural norms	
	Making meal		Housing		Memory		Economic	
	Manipulation tasks		Personal		Movement patterns		Geography	
	Medication routine		Care		Mood		Light	
	Health maintenance		Play		Pain		Resources	
	Money management		Leisure		ROM		Health services	
			Social		Reflexes		Institutions	
	Socialization		relationships		Strengths		Social rules	
	Shopping		Volunteer work		Tone		Sound	
	Walking		Paid work		Fatigue		Weather	
	Washing				Sensorimotor integration			
	Writing							
	Communication				Perception			
	Learning				Psychosocial skills			

Part 3: Occupational therapist and client/family cooperate to chooses 5 critical problems in each classification in order to prepare the provision equipment and occupational therapy rehabilitation (To consider **Quality of Performance** from **1** = Independent, **2** = Guide Assistance with verbal prompt, **3** = Minimal Assistance with physical prompt, **4** = Maximal Assistance with physical and verbal prompt) including record the assessment and occupational therapy treatment process briefly.

Needs of Potential Clients

Ranking problems	**Quality of Performance**			
	1=Independent	***2=Guide Assistance***	***3=Minimal Assistance***	***4=Maximal Assistance***
1.				
2.				
3.				
4.				
5.				

Note: Part 2-3 adapted from

American Occupational Therapy Association (2002) 'Occupational therapy practical framework: domain and process. American *Journal of occupational therapy*, 56(6), pp.609-639.

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The Activity Catalogue Checklist

- This questionnaire has been designed to explore the attitude in therapeutic activity 40 items of Thai Occupational Therapist for serving stroke rehabilitation, which several pattern of activities in relation to 4 domain areas 1) Basic Rehabilitation Training and ADL; 2) Instrumental Activity of Daily Living (IADL) and Household activities; 3) Socio-cultural/educational activities; 4) Leisure activities, may be used to serve clients in your OT clinic.

- The key theme to investigate;
  - Satisfaction (Are you satisfied with this activity item?)
  - Importance (Do you think this activity item important?)

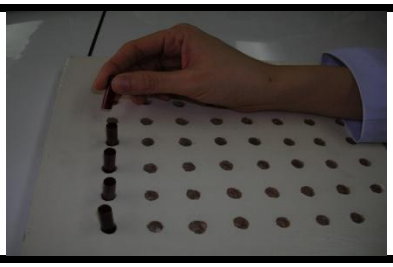
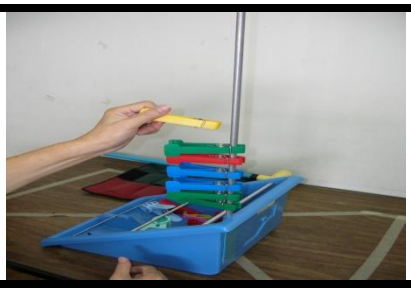
- The questionnaire consists of 6 level rating scales.
  0 = No accepted
  1 = Very low
  2 = Low
  3 = Moderate
  4 = High
  5 = Very high

- If your OT clinic has different therapeutic activities or you have seen local and regional activity media, please give suggestion

  ……
  ……
  ……
  ……
  ……
  ……

Activity Catalogue Checklist contains 40 picture items

Area 1. Basic rehabilitation training and ADL (18 items)

Therapeutic Activity	Picture	Satisfaction						Importance					
A1: Peg board		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A2: Key Grip Skills (Turning)		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A3: Pinch Grip (pinching)		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A4:Incline Board		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A5: Sliding Board		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

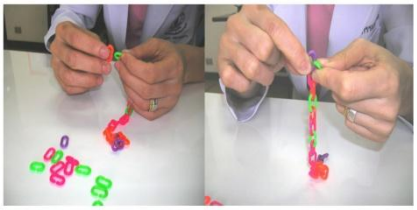
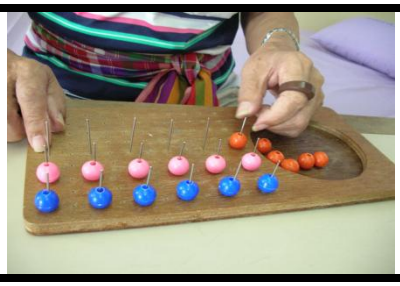
Therapeutic Activity	Picture	Satisfaction						Importance					
A6:Looping curve skills		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

A7: Bimanual putting pin in a bead		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

A8: Dressing with top (Shirt/Blouse and Button and tie)		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

A9: Putty activity (Plasticine)		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

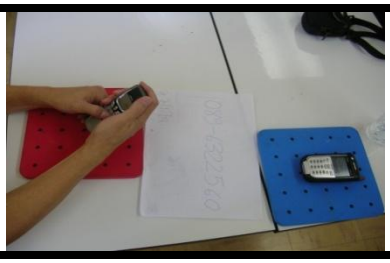
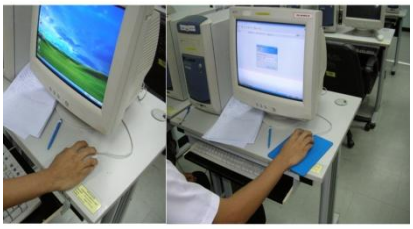
A10: Stacking cones or rod		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

Therapeutic Activity	Picture	Satisfaction						Importance					
A11: Constructing chain from plastic (small) link		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A12: Pick and place ball in small cone		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A13: Placing beads on pins		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A14: Pronation/ Supination task		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A15: Tennis ball pick and place		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

Therapeutic Activity	Picture	Satisfaction						Importance					
A16: Bimanual holding of cone and place		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A17: Forceps pick and place with ping pong ball		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A18: Trunk control/ bilateral arm movement		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

Area 2. IADL and Household activities (10 items)

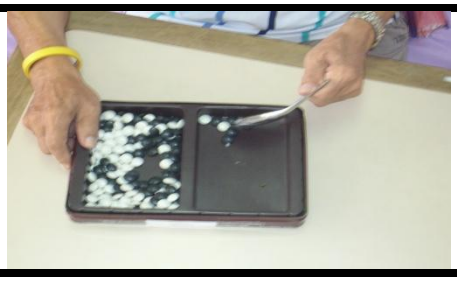
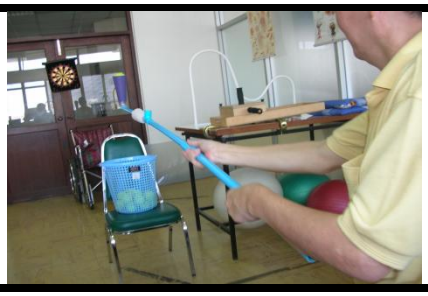
A19: Scoop and pour liquid into bottle		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A20: Washing skills		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

Therapeutic Activity	Picture	Satisfaction						Importance					
A21: Scrubbing and sweeping the house		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A22:Phoning skills		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A23: Opening and closing doors		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A24: Mouse skill		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A25: Pump action of lotion bottle		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

Therapeutic Activity	Picture	Satisfaction						Importance					
A26: Calculation skill		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A27: Hammer/Axe skills (plastic)		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A28: Bolt-screwing into board		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

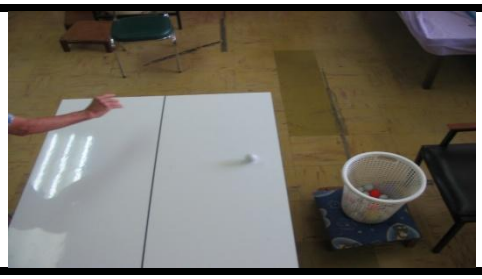
Area 3 Social cultural/educational activities (6 items)

A29:Chopstick-using skills		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A30: Picking and sorting small bead (like cleaning rice)		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

Therapeutic Activity	Picture	Satisfaction						Importance					
A31: Use of spoon and fork (bimanual) to remove bead from putty		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A32: Writing Skills		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A33: Sorting tidly winks with spoon		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A34: Fruit pole		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

Area 4 Leisure physical activities(6 items)

A35: Dart		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

Therapeutic Activity	Picture	Satisfaction						Importance					
A36: Ball throwing at target with a bounce		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A37: Throwing rings (quoits) at target		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A38: Key board skills (computer/piano)		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A39: Shape matching skills		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											
A40: Picture mosaic skill		0	1	2	3	4	5	0	1	2	3	4	5
		suggestion											

Appendix C

The Attitude of Stroke Assessment Test

- This assessment has been designed to explore the attitude of stroke client in therapeutic activity 40 items when serving in occupational therapy rehabilitation.
- The key theme to investigate;
  - **Satisfaction** (Are you satisfied with this activity item?)
  - **Importance** (Do you think this activity item important?)
- The test consists of 6 level rating scales.

  0 = No accepted

  1 = Very low

  2 = Low

  3 = Moderate

  4 = High

  5 = Very high

- If stroke client has suggested local or different therapeutic activities after final session, occupational therapist should record those activity media for increasing data collection.

1st week

Activity Items Stroke client's selection and negotiation with OTs in their functional performances	Satisfaction												Importance											
	The beginning session of week						The final session of week						The beginning session of week						The final session of week					
	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
1.																								
2.																								
3.																								
4.																								
5.																								

Suggestion .....

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2nd week

Activity Items Stroke client's selection and negotiation with OTs in their functional performances	Satisfaction												Importance											
	The beginning session of week						The final session of week						The beginning session of week						The final session of week					
	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
1.																								
2.																								
3.																								
4.																								
5.																								

Suggestion .....

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3rd week

Activity Items Stroke client's selection and negotiation with OTs in their functional performances	Satisfaction												Importance											
	The beginning session of week						The final session of week						The beginning session of week						The final session of week					
	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
1.																								
2.																								
3.																								
4.																								
5.																								

Suggestion .....

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4th week

Activity Items Stroke client's selection and negotiation with OTs in their functional performances	Satisfaction												Importance											
	The beginning session of week						The final session of week						The beginning session of week						The final session of week					
	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
1.																								
2.																								
3.																								
4.																								
5.																								

Suggestion .....

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5th week

Activity Items Stroke client's selection and negotiation with OTs in their functional performances	Satisfaction												Importance											
	The beginning session of week						The final session of week						The beginning session of week						The final session of week					
	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
1.																								
2.																								
3.																								
4.																								
5.																								

Suggestion .....

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6th week

Activity Items Stroke client's selection and negotiation with OTs in their functional performances	Satisfaction												Importance											
	The beginning session of week						The final session of week						The beginning session of week						The final session of week					
	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
1.																								
2.																								
3.																								
4.																								
5.																								

Suggestion .....

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7th week

Activity Items Stroke client's selection and negotiation with OTs in their functional performances	Satisfaction												Importance											
	The beginning session of week						The final session of week						The beginning session of week						The final session of week					
	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
1.																								
2.																								
3.																								
4.																								
5.																								

Suggestion .....

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8th week

Activity Items Stroke client's selection and negotiation with OTs in their functional performances	Satisfaction												Importance											
	The beginning session of week						The final session of week						The beginning session of week						The final session of week					
	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
1.																								
2.																								
3.																								
4.																								
5.																								

Suggestion .....

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The Activity of Occupational Therapy Programme Recording Document

- This assessment has been designed to measure the level of activity approach from stroke client engaging in therapeutic activity of occupational therapy rehabilitation.

- The measurement consists of 4 activity levels;

  1 = Therapist structured programme

  2 = Therapist-client/family cooperated programme

  3 = Client participation

  4 = Home programme

- This treatment and assessment have been collaborated with family member or caregiver in order to check stroke clients to apply their functional performances at their home and social environment.

- If stroke client has suggested and brought local or regional therapeutic activities from their environment, occupational therapist should record those activity media for increasing data collection.

- Suggestion and recommendation

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The Activity of Occupational Therapy Programme Recording Document

The beginning of 1st week

Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The end of 1st week

Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The Activity of Occupational Therapy Programme Recording Document

The beginning of 2nd week

Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The end of 2nd week

Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The Activity of Occupational Therapy Programme Recording Document

The beginning of 3rd week

Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The end of 3rd week

Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The Activity of Occupational Therapy Programme Recording Document

The beginning of 4th week

Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The end of 4th week

Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The Activity of Occupational Therapy Programme Recording Document

The beginning of 5th week

Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The end of 5th week

Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The Activity of Occupational Therapy Programme Recording Document

The beginning of 6th week

Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The end of 6th week

Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The Activity of Occupational Therapy Programme Recording Document

The beginning of 7th week

Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The end of 7th week

Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The Activity of Occupational Therapy Programme Recording Document

The beginning of 8th week

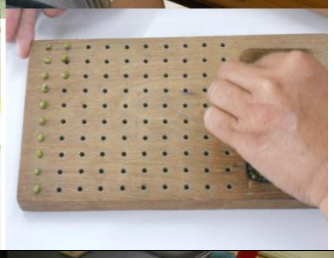
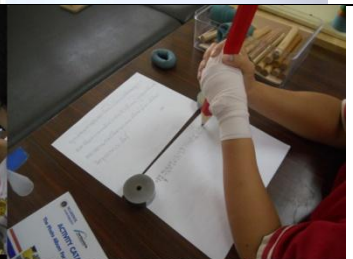
Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

The end of 8th week

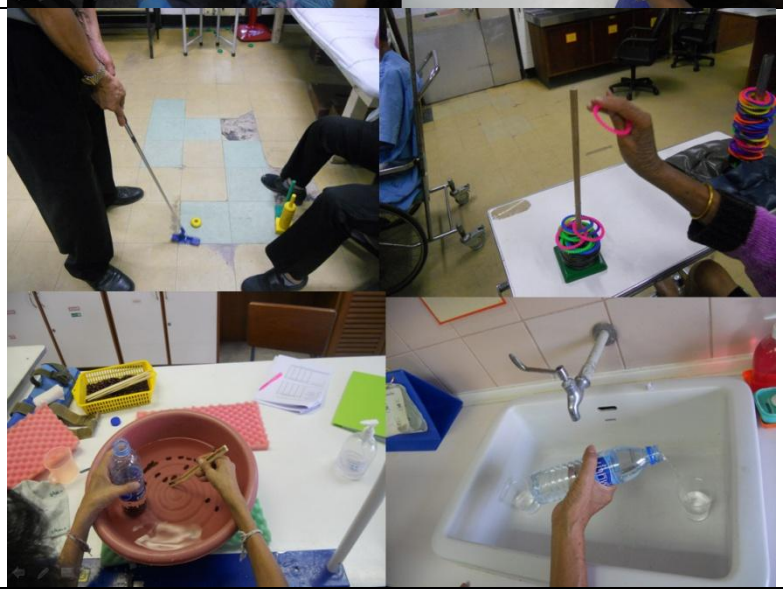
Therapeutic Activities	Level of Activity Approach			
	1	2	3	4
1.				
2.				
3.				
4.				
5.				
6.				
..				
…				

Appendix E

Example: Therapeutic Activities

Pump action of lotion bottle		Bolt-screwing
Pinch Grip (Pinching)		Pinching peas
Knife Skills Cooking meal		Writing skills
Folding banana or coconut leaves to carry food		Scrubbing and sweeping the house
Using chopstick		Key grip skill (Turning)
Fruit pole		Calculation skill

Sorting stone and crystal marbles Wearing a belt		Washing skill
Folding banana or coconut leaves to carry food Button Skills		Key board skills (computer or piano) Drying clothes
Basketry Mouse skill		Writing skills Using spoon and fork (bimanual) to remove bead from putty

Using spoon and fork (eating) Stacking cones		Pinch off veggie Holding and rotating the bottle
Climbing Board Putty activity		Looping curve skill Using scissors
Golf Skills Using chopstick		Putting rings (quoits) at target Holding and rotating the bottle

Activity checklist for the ACS development (40 activity items)

- The selection and decision making of participants is led to develop a new activity card sort (ACS) for Thai stroke rehabilitation
- This questionnaire is designed to explore the attitude and adjustment of Thai occupational therapists and stroke participants (low stream rehabilitation) to determine each therapeutic activity from 40 items into 4 domain areas 1) Basic Rehabilitation Training and ADL; 2) Instrumental Activity of Daily Living (IADL) and Household activities; 3) Socio-cultural/educational activities; 4) Leisure activities
- Please select **[√]**

[ ] 1) Basic Rehabilitation Training and ADL

[ ] 2) IADL and Household activities

[ ] 3) Socio-cultural/educational activities

[ ] 4) Leisure activities

Therapeutic activities	**1**	**2**	**3**	**4**
A1- Peg board				
A2- Incline board				
A3- Sliding board				
A4- Looping curve skill				
A5- Key grip skill (Turning)				
A6- Pinch Grip (Pinching)				
A7- Bimanual putting pin in a bead				
A8- Dressing with top (shirt/blouse and button/tie)				
A9- Putty activity				
A10- Stacking cones or rod				
A11- Constructing chain from plastic (small) link				
A12- Pick and place ball in small cone				
A13- Placing beads on pins				
A14- Pronation/supination task				
A15- Tennis ball pick and place				
A16- Bimanual holding of cone and place				
A17- Forceps pick and place with ping pong ball				
A18- Trunk control/bilateral arm movement				
A19- Washing cloth skill				
A20- Scrubbing and sweeping the house				
A21- Phoning skill				
A22- Scoop and pour liquid into bottle				
A23- Opening and closing door				
A24- Mouse skill				

A25- Pump action of lotion bottle				
A26- Calculation skill				
A27- Hammer/Axe skill (plastic)				
A28- Bolt-screwing (into board)				
A29- Using chopstick				
A30- Use of spoon and fork (bimanual) to remove bead from putty				
A31- Writing skills				
A32- Sorting tidly winks with spoon				
A33- Picking and sorting small bead (like cleaning rice, bean)				
A34- Fruit pole				
A35-Dart				
A36-Ball throwing at target with a bounce				
A37-Shape matching skills				
A38-Key board skills (computer or piano)				
A39- Throwing rings (quoits) at target				
A40- Picture mosaic skills				

Activity checklist for the ACS development (100 activity items)

- The selection and decision making of participants is led to develop a new activity card sort (ACS) for Thai stroke rehabilitation
- This questionnaire is designed to explore the attitude and adjustment of Thai stroke participants (fast stream rehabilitation) to determine each therapeutic activity from 100 items into 4 domain areas 1) Basic Rehabilitation Training and ADL; 2) Instrumental Activity of Daily Living (IADL) and Household activities; 3) Socio-cultural/educational activities; 4) Leisure activities
- Please select **[√]**

[ ] 1) Basic Rehabilitation Training and ADL

[ ] 2) IADL and Household activities

[ ] 3) Socio-cultural/educational activities

[ ] 4) Leisure activities

Therapeutic activities	**1**	**2**	**3**	**4**
A1- Peg board				
A2- Incline board				
A3- Sliding board				
A4- Looping curve skill				
A5- Key grip skill (Turning)				
A6- Pinch Grip (Pinching)				
A7- Bimanual putting pin in a bead				
A8- Dressing with top (shirt/blouse and button/tie)				
A9- Putty activity				
A10- Stacking cones or rod				
A11- Constructing chain from plastic (small) link				
A12- Pick and place ball in small cone				
A13- Placing beads on pins				
A14- Pronation/supination task				
A15- Tennis ball pick and place				
A16- Bimanual holding of cone and place				
A17- Forceps pick and place with ping pong ball				
A18- Trunk control/bilateral arm movement				
A19- Washing cloth skill				
A20- Scrubbing and sweeping the house				
A21- Phoning skill				
A22- Scoop and pour liquid into bottle				
A23- Opening and closing door				
A24- Mouse skill				
A25- Pump action of lotion bottle				

A26- Calculation skill				
A27- Hammer/Axe skill (plastic)				
A28- Bolt-screwing (into board)				
A29- Using chopstick				
A30- Use of spoon and fork (bimanual) to remove bead from putty				
A31- Writing skills				
A32- Sorting tidly winks with spoon				
A33- Picking and sorting small bead (like cleaning rice, bean)				
A34- Fruit pole				
A35-Dart				
A36-Ball throwing at target with a bounce				
A37-Shape matching skills				
A38-Key board skills (computer or piano)				
A39- Throwing rings (quoits) at target				
A40- Picture mosaic skills				
A41- Hand cycling exercise				
A42- Wiping the table				
A43- Tearing paper				
A44 -Holding and drinking water from bottle or cup				
A45- Gardening/growing plants				
A46- Zipper				
A47- Wearing trousers				
A48- Going to temple				
A49- Spray nozzle for butt wiping				
A50- Using cash machine				

A51- Using remote control				
A52- Bathing with bucket and bowl				
A53- Organising medicine				
A54- Playing jigsaw puzzles				
A55- Pinching peas				
A56- Playing card				
A57- Using a soup ladle				
A58- Flipping coin/ card				
A59- Lettering and enveloping skills				
A60- Taking shower				
A61- Wearing a belt				
A62- Grooming				
A63- weight bearing				
A64- Opening/closing a book				
A65- Key skills				
A66- Big Peg Board				
A67- Using scissors				
A68- Coins dropping into piggy bank				
A69- Washing hand				
A70- Folding paper boats				
A71- Drawing Skills				
A72- Stapler skills				
A73- Cooking meal				
A74- Folding banana or coconut leaves to carry food				
A75- Knife Skills				

A76- Pinch off veggie				
A77- Pliers Skills				
A78- Sorting stone and crystal marbles				
A79- Climbing Board				
A80- Driving Car				
A81- Drying clothes with clothesline/clothes rack				
A82- Holding and rotating the bottle				
A83- Playing table tennis				
A84- Golf Skills				
A85- Lashing rope				
A86- Thai chess game				
A87- Folding fabric				
A88- Throwing and receiving ball				
A89- Kick Ball				
A90- Using pencil sharpener				
A91- Pressing toothpaste				
A92- Watering plants				
A93- Bowling skills				
A 94- Handle a ball for wrist exercise				
A 95- Abacus skills				
A96- Basketry				
A97- Reading the Tripitaka/Bible/ Koran				
A98- Button Skills				
A99- Flower arranging				
A100- Stereognosis skills				

Appendix H

The Interview Outline for Stroke Participants

(Slow stream participants)

Participant name……...Age…...Gender…….Type of Stroke……OTN……

OTs name…….Date……

Interview Outline

The topic list for interview is designed to explore the outcomes of data collection. It is anticipated that it will explore significant issues in each different regions research sites, so that these areas can be predicted from the use of OT-MCS. In particular, the maintained performance track of OT-MCS will have given an opportunity to participants to select pictorial items by themselves for rehabilitation, which will be explored in-depth in the interview;

How have you got on with new approach?

- What do you think about new approach compared to what you were receiving before?

Is there anything you particularly enjoy about it?

- Anything, which you found challenging with respect to your health?
- Have you found it helped you to do any particular activity?

What do you feel about working with the therapist to plan your treatment?

- Was it easy? Was it difficult?
- What helped you to get better results? Was it because you collaborated, do you think?
- How do you feel about being involved in this?
- How easy did you find working alongside the therapist?
- Were you able to contribute do you think?
- Has this made it different when you are home in your real life situation?

Were these tasks relevant to your daily life?

- Do they match what you doing at home?

Did you feel you spent enough time on the tasks?

- Would you like to have spent more time?
- Did you find the tasks tiring?

How valuable did you find it?

- How are you going sustain your health in the future?

Appendix I

The Interview Outline for Stroke Participants

(Fast stream rehabilitation)

Participant name……...Age…...Gender…….Type of Stroke……OTN……

OTs name…….Date……

Interview Outline

The interview will be based on the outcome of data collection from stroke participants (improved performance). It is envisaged that the interview will explore the issues of functional abilities and applying life-skills from the OT-MCS practice which can be utilised at home as well as in the social environment.

How have you got on with new approach?

- What do you think about new approach compared to what you were receiving before?

Is there anything you particularly enjoy about it?

- Anything, which you found challenging with respect to your health?
- Have you found it helped you to do any particular activity?

How did you feel about working with the therapist?

- How did you find working with the therapist to plan your treatment?
- How did you plan your treatment with the therapist?
- Could your therapist understand what you needed?
- Did you take a long time to explain your needs to them?

How did you feel about therapist working with your family?

- What did they (family) talk about?
- Did your family welcome being involved?

Has the new approach helped you to transfer skills into your everyday life?

- Have you been able to transfer your skills learnt from the OT department into the world of work/home/leisure activity?
- Tell me about when you last went town? Are there any hindrances in your home/village or town?

Appendix J

University of Northumbria at Newcastle Upon Tyne.

School of Health, Community and Education Studies, Postgraduate Studies and Research Support Unit, Coach Lane Campus East, Newcastle upon Tyne, NE7 7XA,
Telephone: 01912156276,
Fax: 01912156605, http://www.northumbria.ac.uk/sd/academic/sches/

INFORMATION SHEET

Ask me if there is anything that is not clear or if you would like more information. Please take time to decide if you wish to take part.

Date: .....

Dear Participants (slow stream rehabilitation)

I would like to say thank you for your kindness to be volunteers in this research. This is research project being carried out by Mr. Anuchart Kaunnil as a PhD's thesis at Northumbria University under the supervision of Dr Colin Chandler and Dr Anna Jones. This study has been reviewed and given favourable opinion by the Research Ethics Sub Committee to protect your safety, rights, wellbeing, dignity and identity. The research's sponsor is The Royal Thai Government.

This information sheet offers a complete explanation of what's involved. It is important to help you understand the aim and worthiness of this research, so please read this sheet carefully. If you have any question or would like more information, please ask me at 00 (44) 7595229527, the United Kingdom and 00 (66) 839430131, Thailand, Email: anuchart.kaunnil@northumbria.ac.uk, ptakn@mahidol.ac.th

Thank you for your time and consideration

Mr. Anuchart Kaunnil

Researcher

Study Title

Development and Evaluation of Occupational Therapy – Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand

What is the study about?

This study is about how the occupational therapy (OT) service for stroke rehabilitation works in the Thai culture. Stroke is a major problem in Thailand as the fourth most common cause of death (after: Heart disease, Cancer and Accidents). However many people survive the stroke and need support as they recover. They may not ever completely recover and occupational therapy can help in their rehabilitation to improve or maintain individual skills and participation in life activities. At present the idea how best to help someone recover are based on developed countries. These approaches may not be the best for our Thai life-style. Also because of the high number of people living with stroke, there are not enough Occupational Therapists. This research is designed to investigate a new approach to Occupational Therapy [OT-MCS], it effectiveness with people with stroke and how well the Occupational Therapists feel about using it. This research will take place in 6 OT Clinics across the various regions of Thailand. In this way the overall aim to evaluating a model of practice (OT-MCS) from the perspective of therapists and stroke clients to provide evidence for the development of rehabilitation services in Thailand will be achieved. This fieldwork will be conducted over 6 months.

How will I have practiced?

Participants will be offered the Activity Catalogue of 40 pictures (Photo Album) in order to select therapeutic activity 5 items for rehabilitation in one week and further negotiate with therapist in terms of compatibility with functional capability. Participant will be changed therapeutic items every week to the new activity items of intervention until completely 8 weeks.

What I have been asked?

Participants will be asked about the attitude in terms of “satisfaction” and “importance” of each activity item.

How will the data be collected?

The Attitude of Stroke Assessment Test (Kaunnil & Khemtong, 2008) will be collected and captured your expression. The assessment scale comprises with 6 levels of rating (0=No accepted, 1=Very low, 2=Low, 3=Moderate, 4=High, and 5=Very high). This apparatus will be measured the participants attitude before and after giving intervention of each therapeutic activity items every week of session

What is the right of participants?

Any participants may withdraw from the study at any time without their usual care being affected.

What is said will be anonymised?

All information about you and this research will be kept strictly confidential. You will be identified by code. Information about your name and address will be removed so that you cannot be recognised.

What will happen to the data that is gathered?

Data from the assessment document will be analysed by descriptive statistics for comparison (satisfaction and importance) of repeated therapeutic activities before and after the end of sessions in each week. The data will be anonymised so that you as an individual will not be identified and then analysed and reported in my doctoral thesis. If you would like to know the outcome of this research, I will be happy to provide you with a summary when it is completed.

Will my taking part in this study be kept confidential?

All information from this study will be kept confidentially and preserved in the security area during research operation. After the finish of the research, the data will be destroyed.

Who is organizing and funding the research?

This research is organized by Postgraduate Studies and Research Support Unit, School of Health, Community and Education Studies, Northumbria University. The research has been funded by The Royal Thai Government.

Who do I contact if I want to ask more questions about the study?

You can contact me:

Researcher: Anuchart Kaunnil (Aek), Royal Thai Scholarship Student, PhD student, School of Health, Community and Education Studies, Northumbria University, University, Coach Lane Campus, Newcastle upon Tyne, United Kingdom, NE7 7XA, Tel: 00 (44) 7595229527

or Faculty of Physical Therapy, Mahidol University, 999 Phuttamonthon 4 Road, Salaya Sub-district, Phuttamonthon District, Norkhon Pathom Province, Thailand, 73170, Tel: 00 (66) 28 49 62 30, Mobile phone: 00 (66) 83 94 30 131, email : anuchart.kaunnil@northumbria.ac.uk or ptakn@mahidol.ac.th

You can contact the research supervisor: Dr Colin Chandler, Director of Postgraduate Research Reader in Rehabilitation, School of HCES, Northumbria University, Coach Lane Campus, Newcastle upon Tyne, NE7 7XA,Telephone: 00 (44) 191 2156049, email: colin.chandler@northumbria.ac.uk

Research administrator: Lorna Kennedy, School of Health, Community and Education Studies, Postgraduate Studies and Research Support Unit, Coach Lane Campus East, Newcastle upon Tyne, NE7 7XA, Telephone: 00 (44) 191 2156276, Fax: 0191 2156605, email: lorna.kennedy@northumbria.ac.uk

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Thank you for taking the time to read this, and for your help. To show that you've agreed, please sign the consent form.

(These Information and Consent Form will be used in the Thai language)

The University of Northumbria at Newcastle Upon Tyne

School of Health, Community and Education Studies

Participant Consent Form

Name of project:

Development and Evaluation of Occupational Therapy – Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand

Organisation initiating research:

Postgraduate Studies. School of Health, Community and Education Studies, The University of Northumbria at Newcastle Upon Tyne.

Researcher's name: Mr. Anuchart Kaunil

Research organisation: The University of Northumbria at Newcastle Upon Tyne

Participant'sname:_____

I confirm that I have been supplied with and have read and understood an Information Sheet for the research project and have time to decide whether or not I want to participate. I understand that my taking part is voluntary and that I am free to withdraw at any time without giving a reason. I agree with Northumbria University recording and processing this information about me. I understand that this information will only be used for the purposes set out in the information sheet. I have been told that any data generated by the research will be securely managed and disposed of in accordance with Northumbria University's guidelines. I am aware that all tapes and documents will remain confidential with only the research team having access to them. My consent is conditional upon the university complying with its duties and obligations under the Data Protection Act.

Signature of participant **Date**

_____ _____

Address:_____

_____

Telephone:_____**Email:**_____

I can confirm that I have explained the nature of the research to the above named participant and have given adequate time to answer any questions concerning it.

Signature of researcher **Date**

_____ _____

University of Northumbria at Newcastle Upon Tyne.

School of Health, Community and Education Studies, Postgraduate Studies and Research Support Unit, Coach Lane Campus East, Newcastle upon Tyne, NE7 7XA,
Telephone: 01912156276,
Fax: 01912156605, http://www.northumbria.ac.uk/sd/academic/sches/

INFORMATION SHEET

Ask me if there is anything that is not clear or if you would like more information. Please take time to decide if you wish to take part.

Date: .....

Dear Participants (fast stream rehabilitation)

I would like to say thank you for your kindness to be volunteers in this research. This is research project being carried out by Mr. Anuchart Kaunnil as a PhD's thesis at Northumbria University under the supervision of Dr Colin Chandler and Dr Anna Jones. This study has been reviewed and given favourable opinion by the Research Ethics Sub Committee to protect your safety, rights, wellbeing, dignity and identity. The research's sponsor is The Royal Thai Government.

This information sheet offers a complete explanation of what's involved. It is important to help you understand the aim and worthiness of this research, so please read this sheet carefully. If you have any question or would like more information, please ask me at 00 (44) 7595229527, the United Kingdom and 00 (66) 839430131, Thailand, Email: anuchart.kaunnil@northumbria.ac.uk, ptakn@mahidol.ac.th

Thank you for your time and consideration

Mr. Anuchart Kaunnil

Researcher

Study Title

Development and Evaluation of Occupational Therapy – Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand

What is the study about?

This study is about how the occupational therapy (OT) service for stroke rehabilitation works in the Thai culture. Stroke is a major problem in Thailand as the fourth most common cause of death (after: Heart disease, Cancer and Accidents). However many people survive the stroke and need support as they recover. They may not ever completely recover and occupational therapy can help in their rehabilitation to improve or maintain individual skills and participation in life activities. At present the idea how best to help someone recover are based on developed countries. These approaches may not be the best for our Thai life-style. Also because of the high number of people living with stroke, there are not enough Occupational Therapists. This research is designed to investigate a new approach to Occupational Therapy [OT-MCS], it effectiveness with people with stroke and how well the Occupational Therapists feel about using it. This research will take place in 6 OT Clinics across the various regions of Thailand. In this way the overall aim to evaluating a model of practice (OT-MCS) from the perspective of therapists and stroke clients to provide evidence for the development of rehabilitation services in Thailand will be achieved. This fieldwork will be conducted over 6 months.

How will I have practiced?

Participants will be independently selected therapeutic activity from both inside and outside OT clinic or can bring favour activity items your home in order to practise life-skills and focus on individual functional performance for rehabilitation.

What I have been measured?

Participants will be observed the pattern of activity level when engaging therapeutic activity in OT clinics and enquiring from family feedback.

How will the data be collected?

The Activity of Occupational Therapy Programme Recording Document (Kaunnil & Khemtong, 2008) will be collected and evaluated. This treatment guide consists of 4 activity levels;

1=Therapist structured programme

2=Therapist-client/family cooperated programme

3=Client participation programme

4=Home programme

This assessment test will be used for analysis the levels of activity engagement in functional ability before and after 8 weeks of OT-MCS operation.

What is the right of participants?

Any participants may withdraw from the study at any time without their usual care being affected.

What is said will be anonymised

All information about you and this research will be kept strictly confidential. You will be identified by code. Information about your name and address will be removed so that you cannot be recognised.

What will happen to the data that is gathered?

Data from the information record will be analysed the comparison of level of activity approach and development via Wilcoxon test in the period of 8 weeks before and after the use of OT-MCS. The data will be anonymised so that you as an individual will not be identified and then analysed and reported in my doctoral thesis. If you would like to know the outcome of this research, I will be happy to provide you with a summary when it is completed.

Will my taking part in this study be kept confidential?

All information from this study will be kept confidentially and preserved in the security area during research operation. After the finish of the research, the data will be destroyed.

Who is organizing and funding the research?

This research is organized by Postgraduate Studies and Research Support Unit, School of Health, Community and Education Studies, Northumbria University. The research has been funded by The Royal Thai Government.

Who do I contact if I want to ask more questions about the study?

You can contact me:

Researcher: Anuchart Kaunnil (Aek), Royal Thai Scholarship Student, PhD student, School of Health, Community and Education Studies, Northumbria University, University, Coach Lane Campus, Newcastle upon Tyne, United Kingdom, NE7 7XA, Tel: 00 (44) 7595229527

or Faculty of Physical Therapy, Mahidol University, 999 Phuttamonthon 4 Road, Salaya Sub-district, Phuttamonthon District, Norkhon Pathom Province, Thailand, 73170, Tel: 00 (66) 28 49 62 30, Mobile phone: 00 (66) 83 94 30 131, email : anuchart.kaunnil@northumbria.ac.uk or ptakn@mahidol.ac.th

You can contact the research supervisor: Dr Colin Chandler, Director of Postgraduate Research Reader in Rehabilitation, School of HCES, Northumbria University, Coach Lane Campus, Newcastle upon Tyne, NE7 7XA,Telephone: 00 (44) 191 2156049, email: colin.chandler@northumbria.ac.uk

Research administrator: Lorna Kennedy, School of Health, Community and Education Studies, Postgraduate Studies and Research Support Unit, Coach Lane Campus East, Newcastle upon Tyne, NE7 7XA, Telephone: 00 (44) 191 2156276, Fax: 0191 2156605, email: lorna.kennedy@northumbria.ac.uk

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Thank you for taking the time to read this, and for your help. To show that you've agreed, please sign the consent form.

(These Information and Consent Form will be used in the Thai language)

The University of Northumbria at Newcastle Upon Tyne

School of Health, Community and Education Studies

Participant Consent Form

Name of project:

Development and Evaluation of Occupational Therapy – Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand

Organisation initiating research:

Postgraduate Studies. School of Health, Community and Education Studies, The University of Northumbria at Newcastle Upon Tyne.

Researcher's name: Mr. Anuchart Kaunil

Research organisation: The University of Northumbria at Newcastle Upon Tyne

Participant'sname:_____

I confirm that I have been supplied with and have read and understood an Information Sheet for the research project and have time to decide whether or not I want to participate. I understand that my taking part is voluntary and that I am free to withdraw at any time without giving a reason. I agree with Northumbria University recording and processing this information about me. I understand that this information will only be used for the purposes set out in the information sheet. I have been told that any data generated by the research will be securely managed and disposed of in accordance with Northumbria University's guidelines. I am aware that all tapes and documents will remain confidential with only the research team having access to them. My consent is conditional upon the university complying with its duties and obligations under the Data Protection Act.

Signature of participant **Date**

_____ _____

Address:_____

_____

Telephone:_____**Email:**_____

I can confirm that I have explained the nature of the research to the above named participant and have given adequate time to answer any questions concerning it.

Signature of researcher **Date**

_____ _____

Appendix L

University of Northumbria at Newcastle Upon Tyne.

School of Health, Community and Education Studies, Postgraduate Studies and Research Support Unit, Coach Lane Campus East, Newcastle upon Tyne, NE7 7XA,
Telephone: 01912156276,
Fax: 01912156605, http://www.northumbria.ac.uk/sd/academic/sches/

INFORMATION SHEET

Ask me if there is anything that is not clear or if you would like more information. Please take time to decide if you wish to take part.

Date: .....

Dear Participants (Occupational Therapist)

I would like to say thank you for your kindness to be volunteers in this research. This is research project being carried out by Mr. Anuchart Kaunnil as a PhD's thesis at Northumbria University under the supervision of Dr Colin Chandler and Dr Anna Jones. This study has been reviewed and given favourable opinion by the Research Ethics Sub Committee to protect your safety, rights, wellbeing, dignity and identity. The research's sponsor is The Royal Thai Government.

This information sheet offers a complete explanation of what's involved. It is important to help you understand the aim and worthiness of this research, so please read this sheet carefully. If you have any question or would like more information, please ask me at 00 (44) 7595229527, the United Kingdom and 00 (66) 839430131, Thailand, Email: anuchart.kaunnil@northumbria.ac.uk, ptakn@mahidol.ac.th

Thank you for your time and consideration

Mr. Anuchart Kaunnil

Researcher

Study Title

Development and Evaluation of Occupational Therapy – Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand

What is the study about?

This study is about how the occupational therapy (OT) service for stroke rehabilitation works in the Thai culture. Stroke is a major problem in Thailand as the fourth most common cause of death (after: Heart disease, Cancer and Accidents). However many people survive the stroke and need support as they recover. They may not ever completely recover and occupational therapy can help in their rehabilitation to improve or maintain individual skills and participation in life activities. At present the idea how best to help someone recover are based on developed countries. These approaches may not be the best for our Thai life-style. Also because of the high number of people living with stroke, there are not enough Occupational Therapists. This research is designed to investigate a new approach to Occupational Therapy [OT-MCS], it effectiveness with people with stroke and how well the Occupational Therapists feel about using it. This research will take place in 6 OT Clinics across the various regions of Thailand. In this way the overall aim to evaluating a model of practice (OT-MCS) from the perspective of therapists and stroke clients to provide evidence for the development of rehabilitation services in Thailand will be achieved. This fieldwork will be conducted over 6 months.

What I have been asked?

Participants will be asked about the perspective of OT-MCS therapeutic media (i.e. the Activity Catalogue Checklist including 40 pictures). This questionnaire scale consists of 6 levels of rating in terms of satisfaction and importance (0=No accepted, 1=Very low, 2=Low, 3=Moderate, 4=High, and 5=Very high).

How will the data be collected?

In the questionnaire, data will be collected by taking note from occupational therapist who attending the Occupational Therapy of Thailand Annual Conference in December 2010.

What is the right of participants?

Any participants may withdraw from the study at any time without their usual care being affected.

What is said will be anonymised

All information about you and this research will be kept strictly confidential. You will be identified by code. Information about your name and address will be removed so that you cannot be recognised.

What will happen to the data that is gathered?

Data from the questionnaire will be analysed by Hierarchical Cluster Analysis programme of using the Predictive Analytics Software (PASW version17). The data will be anonymised so that you as an individual will not be identified and then analysed and reported in my doctoral thesis. If you would like to know the outcome of this research, I will be happy to provide you with a summary when it is completed.

Will my taking part in this study be kept confidential?

All information from this study will be kept confidentially and preserved in the security area during research operation. After the finish of the research, the data will be destroyed.

Who is organizing and funding the research?

This research is organized by Postgraduate Studies and Research Support Unit, School of Health, Community and Education Studies, Northumbria University. The research has been funded by The Royal Thai Government.

Who do I contact if I want to ask more questions about the study?

You can contact me:

Researcher: Anuchart Kaunnil (Aek), Royal Thai Scholarship Student, PhD student, School of Health, Community and Education Studies, Northumbria University, University, Coach Lane Campus, Newcastle upon Tyne, United Kingdom, NE7 7XA, Tel: 00 (44) 7595229527

or Faculty of Physical Therapy, Mahidol University, 999 Phuttamonthon 4 Road, Salaya Sub-district, Phuttamonthon District, Norkhon Pathom Province, Thailand, 73170, Tel: 00 (66) 28 49 62 30, Mobile phone: 00 (66) 83 94 30 131, email : anuchart.kaunnil@northumbria.ac.uk or ptakn@mahidol.ac.th

You can contact the research supervisor: Dr Colin Chandler, Director of Postgraduate Research Reader in Rehabilitation, School of HCES, Northumbria University, Coach Lane Campus, Newcastle upon Tyne, NE7 7XA,Telephone: 00 (44) 191 2156049, email: colin.chandler@northumbria.ac.uk

Research administrator: Lorna Kennedy, School of Health, Community and Education Studies, Postgraduate Studies and Research Support Unit, Coach Lane Campus East, Newcastle upon Tyne, NE7 7XA, Telephone: 00 (44) 191 2156276, Fax: 0191 2156605, email: lorna.kennedy@northumbria.ac.uk

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Thank you for taking the time to read this, and for your help. To show that you've agreed, please sign the consent form.

(These Information and Consent Form will be used in the Thai language)

The University of Northumbria at Newcastle Upon Tyne

School of Health, Community and Education Studies

Participant Consent Form

Name of project:

Development and Evaluation of Occupational Therapy – Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand

Organisation initiating research:

Postgraduate Studies. School of Health, Community and Education Studies, The University of Northumbria at Newcastle Upon Tyne.

Researcher's name: Mr. Anuchart Kaunil

Research organisation: The University of Northumbria at Newcastle Upon Tyne

Participant'sname:_____

I confirm that I have been supplied with and have read and understood an Information Sheet for the research project and have time to decide whether or not I want to participate. I understand that my taking part is voluntary and that I am free to withdraw at any time without giving a reason. I agree with Northumbria University recording and processing this information about me. I understand that this information will only be used for the purposes set out in the information sheet. I have been told that any data generated by the research will be securely managed and disposed of in accordance with Northumbria University's guidelines. I am aware that all tapes and documents will remain confidential with only the research team having access to them. My consent is conditional upon the university complying with its duties and obligations under the Data Protection Act.

Signature of participant **Date**

_____ _____

Address:_____

_____

Telephone:_____**Email:**_____

I can confirm that I have explained the nature of the research to the above named participant and have given adequate time to answer any questions concerning it.

Signature of researcher **Date**

_____ _____

Appendix M

University of Northumbria at Newcastle Upon Tyne.

School of Health, Community and Education Studies, Postgraduate Studies and Research Support Unit, Coach Lane Campus East, Newcastle upon Tyne, NE7 7XA,
Telephone: 01912156276,
Fax: 01912156605, http://www.northumbria.ac.uk/sd/academic/sches/

INFORMATION SHEET

Ask me if there is anything that is not clear or if you would like more information. Please take time to decide if you wish to take part.

Date: .....

Dear Participants (Stroke participant Interview)

I would like to say thank you for your kindness to be volunteers in this research. This is research project being carried out by Mr. Anuchart Kaunnil as a PhD's thesis at Northumbria University under the supervision of Dr Colin Chandler and Dr Anna Jones. This study has been reviewed and given favourable opinion by the Research Ethics Sub Committee to protect your safety, rights, wellbeing, dignity and identity. The research's sponsor is The Royal Thai Government.

This information sheet offers a complete explanation of what's involved. It is important to help you understand the aim and worthiness of this research, so please read this sheet carefully. If you have any question or would like more information, please ask me at 00 (44) 7595229527, the United Kingdom and 00 (66) 839430131, Thailand, Email: anuchart.kaunnil@northumbria.ac.uk, ptakn@mahidol.ac.th

Thank you for your time and consideration

Mr. Anuchart Kaunnil

Researcher

Study title

Development and Evaluation of Occupational Therapy – Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand

What is the study about?

This study is about how the occupational therapy (OT) service for stroke rehabilitation works in the Thai culture. Stroke is a major problem in Thailand as the fourth most common cause of death (after: Heart disease, Cancer and Accidents). However many people survive the stroke and need support as they recover. They may not ever completely recover and occupational therapy can help in their rehabilitation to improve or maintain individual skills and participation in life activities. At present the idea how best to help someone recover are based on developed countries. These approaches may not be the best for our Thai life-style. Also because of the high number of people living with stroke, there are not enough Occupational Therapists. This research is designed to investigate a new approach to Occupational Therapy [OT-MCS], it effectiveness with people with stroke and how well the Occupational Therapists feel about using it. This research will take place in 6 OT Clinics across the various regions of Thailand. In this way the overall aim to evaluating a model of practice (OT-MCS) from the perspective of therapists and stroke clients to provide evidence for the development of rehabilitation services in Thailand will be achieved. This fieldwork will be conducted over 6 months.

What I have been asked?

Participants will be asked about the perspective in terms of strength and weakness of OT-MCS, proper therapeutic activity provision (importance and satisfaction) matching with individual stroke life (profession, culture, belief, way of life and functional ability) in each region.

How will the data be collected?

In the interview, data will be collected by taking notes and audio recording. If you feel uncomfortable with audio recording during the interview or you do not want to be audio recorded, please tell me. You can stop any time you want.

What is the right of participants?

Any participants may withdraw from the study at any time without their usual care being affected.

What is said will be anonymised?

All information about you and this research will be kept strictly confidential. You will be identified by code. Information about your name and address will be removed so that you cannot be recognised.

What will happen to the data that is gathered?

Data from the interview will be transcribed and analysed by the computer software package NVivo. The data will be anonymised so that you as an individual will not be identified and then analysed and reported in my doctoral thesis. If you would like to know the outcome of this research, I will be happy to provide you with a summary when it is completed.

Will my taking part in this study be kept confidential?

All information from this study will be kept confidentially and preserved in the security area during research operation. After the finish of the research, the data will be destroyed.

Who do I contact if I want to ask more questions about the study?

You can contact me:

Researcher: Anuchart Kaunnil (Aek), Royal Thai Scholarship Student, PhD student, School of Health, Community and Education Studies, Northumbria University, University, Coach Lane Campus, Newcastle upon Tyne, United Kingdom, NE7 7XA, Tel: 00 (44) 7595229527

or Faculty of Physical Therapy, Mahidol University, 999 Phuttamonthon 4 Road, Salaya Sub-district, Phuttamonthon District, Norkhon Pathom Province, Thailand, 73170, Tel: 00 (66) 28 49 62 30, Mobile phone: 00 (66) 83 94 30 131, email : anuchart.kaunnil@northumbria.ac.uk or ptakn@mahidol.ac.th

You can contact the research supervisor: Dr Colin Chandler, Director of Postgraduate Research Reader in Rehabilitation, School of HCES, Northumbria University, Coach Lane Campus, Newcastle upon Tyne, NE7 7XA,Telephone: 00 (44) 191 2156049, email: colin.chandler@northumbria.ac.uk

Research administrator: Lorna Kennedy, School of Health, Community and Education Studies, Postgraduate Studies and Research Support Unit, Coach Lane Campus East, Newcastle upon Tyne, NE7 7XA, Telephone: 00 (44) 191 2156276, Fax: 0191 2156605, email: lorna.kennedy@northumbria.ac.uk

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Thank you for taking the time to read this, and for your help. To show that you've agreed, please sign the consent form.

(These Information and Consent Form will be used in the Thai language)

The University of Northumbria at Newcastle Upon Tyne

School of Health, Community and Education Studies

Participant Consent Form

Name of project:

Development and Evaluation of Occupational Therapy – Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand

Organisation initiating research:

Postgraduate Studies. School of Health, Community and Education Studies, The University of Northumbria at Newcastle Upon Tyne.

Researcher's name: Mr. Anuchart Kaunil

Research organisation: The University of Northumbria at Newcastle Upon Tyne

Participant'sname:_____

I confirm that I have been supplied with and have read and understood an Information Sheet for the research project and have time to decide whether or not I want to participate. I understand that my taking part is voluntary and that I am free to withdraw at any time without giving a reason. I agree with Northumbria University recording and processing this information about me. I understand that this information will only be used for the purposes set out in the information sheet. I have been told that any data generated by the research will be securely managed and disposed of in accordance with Northumbria University's guidelines. I am aware that all tapes and documents will remain confidential with only the research team having access to them. My consent is conditional upon the university complying with its duties and obligations under the Data Protection Act.

Signature of participant **Date**

_____ _____

Address:_____

_____

Telephone:_____**Email:**_____

I can confirm that I have explained the nature of the research to the above named participant and have given adequate time to answer any questions concerning it.

Signature of researcher **Date**

_____ _____

Appendix N

The University of Northumbria at Newcastle Upon Tyne. School of Health, Community and Education Studies, Postgraduate Studies and Research Support Unit, Coach Lane Campus East, Newcastle upon Tyne, NE7 7XA,
Telephone: 01912156276,
Fax: 01912156605,http://www.northumbria.ac.uk/sd/academic/sches/

CONSENT FORM FOR INTERVIEW

Study Title:

Development and Evaluation of Occupational Therapy – Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand

Name of Researcher:

Mr. Anuchart Kaunnil

Please initial box

1. I confirm that I have read and understand the information sheet dated .....for study mentioned above. ☐
2. I have had an opportunity to discuss this study, ask questions and have received satisfactory answers to all of my questions. ☐
3. I understand that my participation in this project is voluntary and I am free to withdraw from the study: ☐
   - at any time,
   - without having to give reasons,
   - will not affect on current or future relationship with the researcher,
   - will not affect on current or future study,
   - without affecting on relationship with the university, etc
4. I understand that my involvement is strictly confidential and that no information about me will be used in any way that reveals my identity. ☐
5. I understand that audio and photographic recordings will be made as part of the study; and this will not be used for any other purpose or shown to any other persons. ☐

6. I have been given a copy of the information sheet and a consent form for this study. I have read it and understood it. ☐

7. I have been confirmed that the audio recording for interview will be used before recording. ☐

8. I voluntarily agree to take part in the above study. ☐

Name of Participant	Date	Signature

Year or study_____ Age_____ Sex_____

Address_____

_____

Contact: Tel:_____ Email: _____

I certify that I have explained to the above participant the nature and purpose of this study, and the potential benefits and possible risks associated with participation in this study. I have given adequate time to answer any questions concerning it.

Researcher	Date	Signature

One copy of this form to be retained by participant, another by researcher

(These Information and Consent Form will be used in the Thai language)

Appendix O

A0195

CULTURALLY APPROPRIATE ACTVITY CARD SORT FOR STROKE REHABILITATION IN THAILAND: A PARTICIPATORY APPROACH WITH USERS AND THERAPISTS

Anuchart KUANNIL, C. CHANDLER, D. JONES
School of Health, Community and Education Studies, Northumbria University, Newcastle Upon Tyne, United Kingdom
E-mail: ptakn@mahidol.ac.th

In 2011 in Thailand it is estimated that 498,800 people will have a stroke (7.5 per 1,000). This number is likely to double within the next 5 years. Occupational Therapy has a key role in rehabilitation for stroke, in particular in enabling survivors to reengage with activities of daily living to resume work or family tasks. This study aimed to develop a culturally appropriate Activity Card Sort (ACS) for post-stroke rehabilitation in Thailand.

The development of the ACS was based on a survey of occupational therapists and stroke clients from OT clinics in 6 regions of Thailand. Activities were grouped by cluster analysis.

The survey was completed by 120 clients and 60 OTs who then engaged with ACS in therapy. An example from the south was folding banana and coconut leaves to carry food, a key manual dexterity activity. In the east sorting stone and crystal marbles was appropriate as most people had experience of stonecutting or jewelry; these activities reflect the natural resources, cultures and professions, at the root of regional lifestyle.

ACS-Thai Stroke Rehabilitation has 100 activity items from OT and stroke client input, which fall under four domains (Pre-functional rehabilitation and ADL, IADL and Household activities, Socio-cultural/educational activities, and Leisure physical activities). The tasks are culturally appropriate, relevant to the needs of stroke clients and build on activities that would be familiar and needed for everyday life.

The ACS-Thai Stroke Rehabilitation is a comprehensive instrument to engage collaboratively with stroke clients in activities based on their culture and way of life. It will facilitate rigorous clinical and population-based research, and culturally appropriate therapeutic engagement relevant to client needs and aspirations.

Key words: Activity Card Sort, Stroke rehabilitation, Thailand

Appendix P

School of Health, Community & Education Studies
Professor Kathleen McCourt, FRCN
Dean

This matter is being dealt with by:
Research and Enterprise Office
School of Health, Community & Education Studies
Room H007
Coach Lane Campus East
Newcastle upon Tyne
NE7 7XA
Tel: 0191 215 6276
Fax: 0191 215 6083
E-mail: lorna.kennedy@northumbria.ac.uk

Anuchart Kaunnil
21 Monkchester House
Coach Lane Campus West
NEWCASTLE UPON TYNE
NE7 7XA

5 May 2010

Dear Anuchart

School of HCES Research Ethics Sub Committee
Title: A Realistic Evaluation of Occupational Therapy – Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand.

Following independent peer review of the above proposal, I am pleased to inform you that University approval has been granted on the basis of this proposal and subject to compliance with the University policies on ethics and consent and any other policies applicable to your individual research. You should also have recent CRB and occupational health clearance if your research involves working with children and/or vulnerable adults.

The University's Policies and Procedures are available from the following web link:
http://www.northumbria.ac.uk/researchandconsultancy/sa/ethgov/policies/?view=Standard

All researchers must also notify this office of the following:

- Commencement of the study;
- Actual completion date of the study;
- Any significant changes to the study design;
- Any incidents which have an adverse effect on participants, researchers or study outcomes;
- Any suspension or abandonment of the study;
- All funding, awards and grants pertaining to this study, whether commercial or non-commercial;
- All publications and/or conference presentations of the findings of the study.

We wish you well in your research endeavours.

Yours sincerely

Professor Charlotte Clarke
Associate Dean (Research)

Vice-Chancellor
Professor Andrew Wathey

Northumbria University is the trading name of the University of Northumbria at Newcastle

Appendix Q

COA. No. MU-IRB 2010/278.0710

Documentary Proof of Mahidol University Institutional Review Board

TTitle of Project. A Realistic Evaluation of Occupational Therapy-Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand

Principal Investigator. Mr. Anuchart Kaunnil

Name of Institution. Faculty of Physical Therapy

Approval includes. 1) MU-IRB Submission form version received date 6 October 2010
2) Participant Information Sheet version date 6 October 2010
3) Informed Consent form version date 6 October 2010
4) Assessment Form version received date 16 August 2010
5) In-depth Interview Guideline version received date 16 August 2010

Mahidol University Institutional Review Board is in full compliance with International Guidelines for Human Research Protection such as Declaration of Helsinki, The Belmont Report, CIOMS Guidelines and the International Conference on Harmonization in Good Clinical Practice (ICH-GCP)

Date of Approval. 7 October 2010

Date of Expiration. 6 October 2011

Signature of Chairman......
(Professor Rutja Phuphaibul)
Vice Chair for Chair

Signature of Head of the Institute. .....
(Professor Sansanee Chaiyaroj)
Vice President for Research and Academic Affairs

Office of the President, Mahidol University, 999 Phuttamonthon 4 Rd., Salaya, Phuttamonthon District, Nakhon Pathom 73170. Tel. (662) 8496223-5 Fax. (662) 8496223

Appendix R

Document No. 53050

Institutional Review Board/Independent Ethics Committee

Prasat Neurological Institute, Department of Medical Services, Ministry of Public Health, Thailand

---

Name of project	A Realistic evalution of Occupational Therapy-Mahidal Clinic System (OT-MCS) for Post-Stroke rehabilitation in Thailand (Project No.53050)
Principal investigator	Mr. Anuchart Kaunnil
Trial site	Prasat Neurological Institute
Approved documents	Thai Protocal (Version date 19 July 2010) Patient/Participant Information Sheet and Data release consent form (Version date 15 September 2010) English Protocal (Version date 2 June 2010) English Protocal – Appendex 1-8 (Version date 15 September 2010)
Date of approval	20 September 2010

We also confirm that we are an ethics committee constituted in agreement and in accordance with the ICH GCP.

The Institutional Review Board/Independent Ethics Committee Prasat Neurological Institute, Department of Medical Services, Ministry of Public Health, Thailand had reviewed Thai and/or English protocol. In ethical concern, the committee has reviewed and approved for implementation of the research study as above mention, therefore the Thai protocol will be mainly conduct.

S. Hanchaiphiboolkul Chairman

(Mr. Suchat Hanchaiphiboolkul)

P. Pimchanok Secretary

(Ms. Pimchanok Puthkhao)

Appendix S

(Certificate of intellectual property under Royal Thai Government)

รสช.01

ทะเบียนข้อมูลเลขที่ ว.23806

หนังสือรับรองการแจ้งข้อมูล

ลิขสิทธิ์

ออกให้เพื่อแสดงว่า

มหาวิทยาลัยมหิดล

ได้แจ้งข้อมูลลิขสิทธิ์ ประเภทงาน วรรณกรรม

ลักษณะงาน สิ่งพิมพ์

ชื่อผลงาน ระบบคลินิกกิจกรรมบำบัดมหิดล (Occupational Therapy-Mahidol Clinic System : OT-MCS)

ไว้ต่อกรมทรัพย์สินทางปัญญา ตามคำขอแจ้งข้อมูลลิขสิทธิ์เลขที่ 254227

เมื่อวันที่ 17 เดือน กุมภาพันธ์ พ.ศ. 2554

ให้ไว้ ณ วันที่ 16 เดือน มีนาคม พ.ศ. 2554

ลงชื่อ.....

(นายสุรภูมิ ตีระนันทน์)

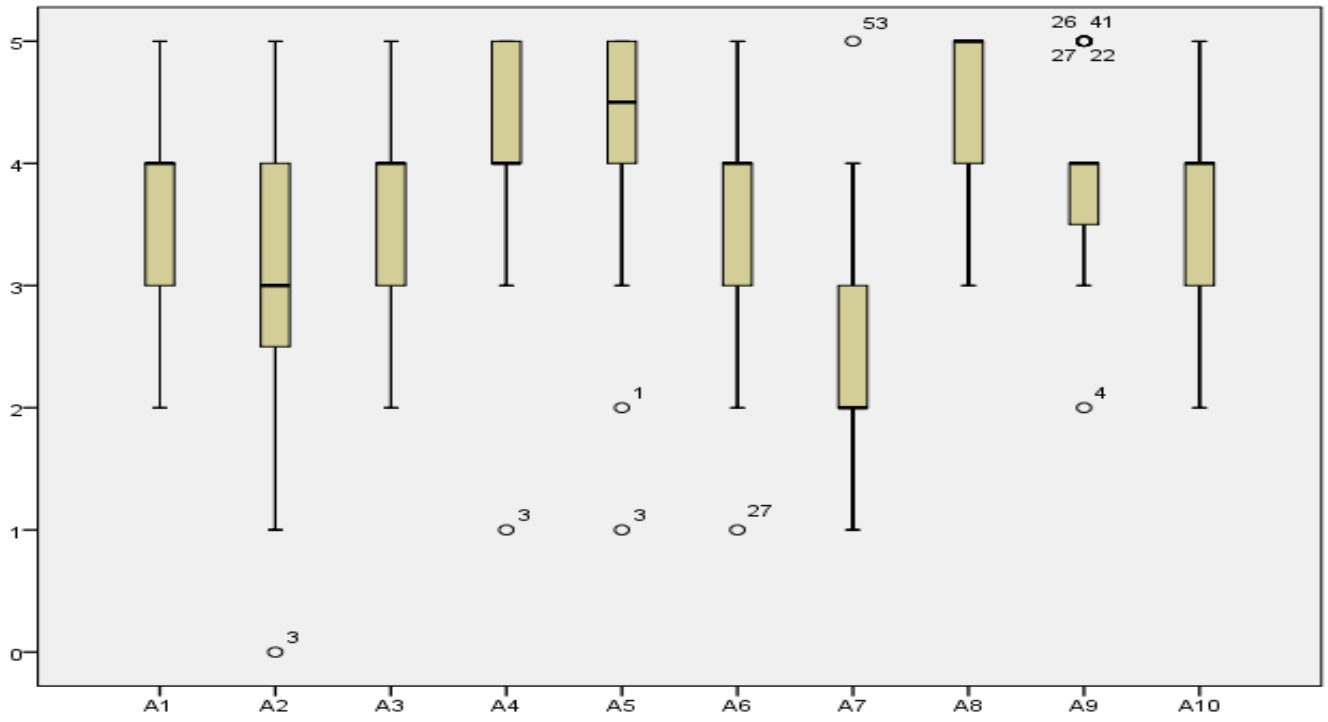
นักวิชาการพาณิชย์ชำนาญการ

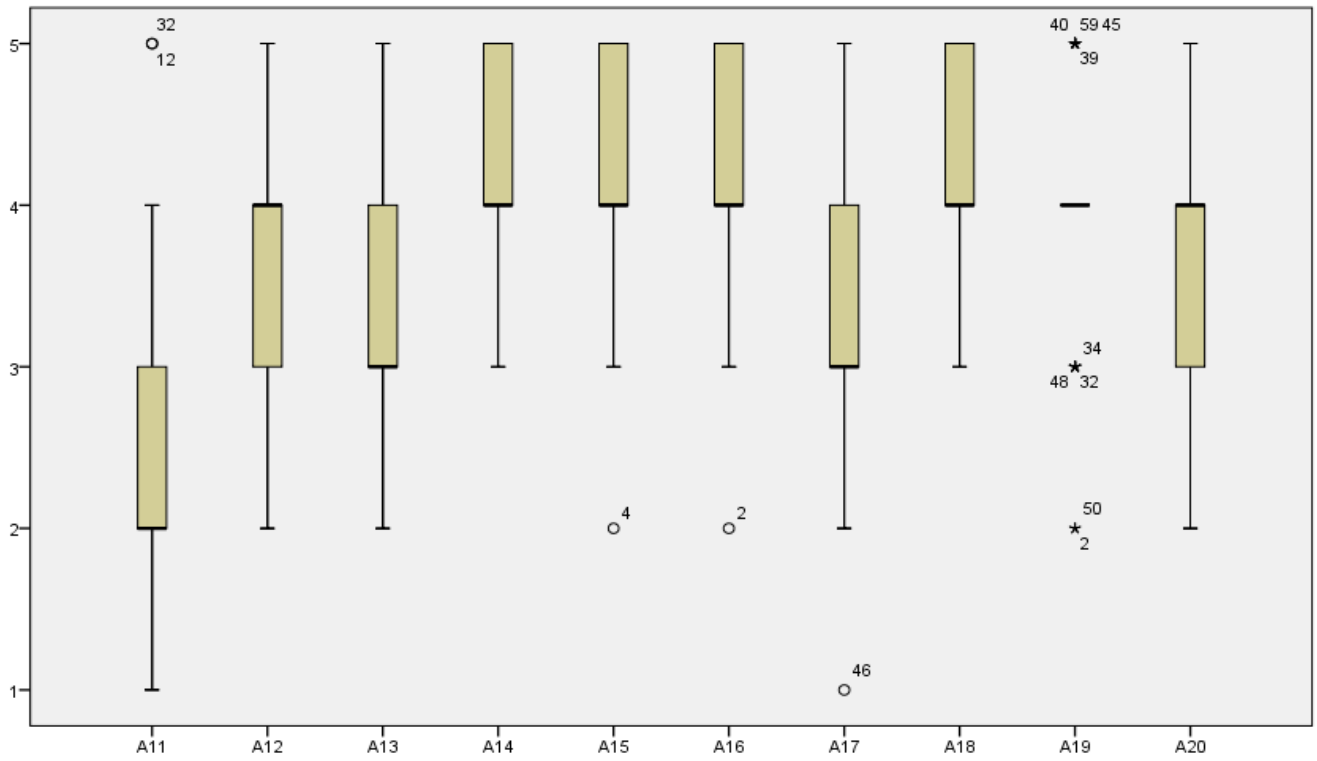
ปฏิบัติราชการแทนผู้อำนวยการสำนักลิขสิทธิ์

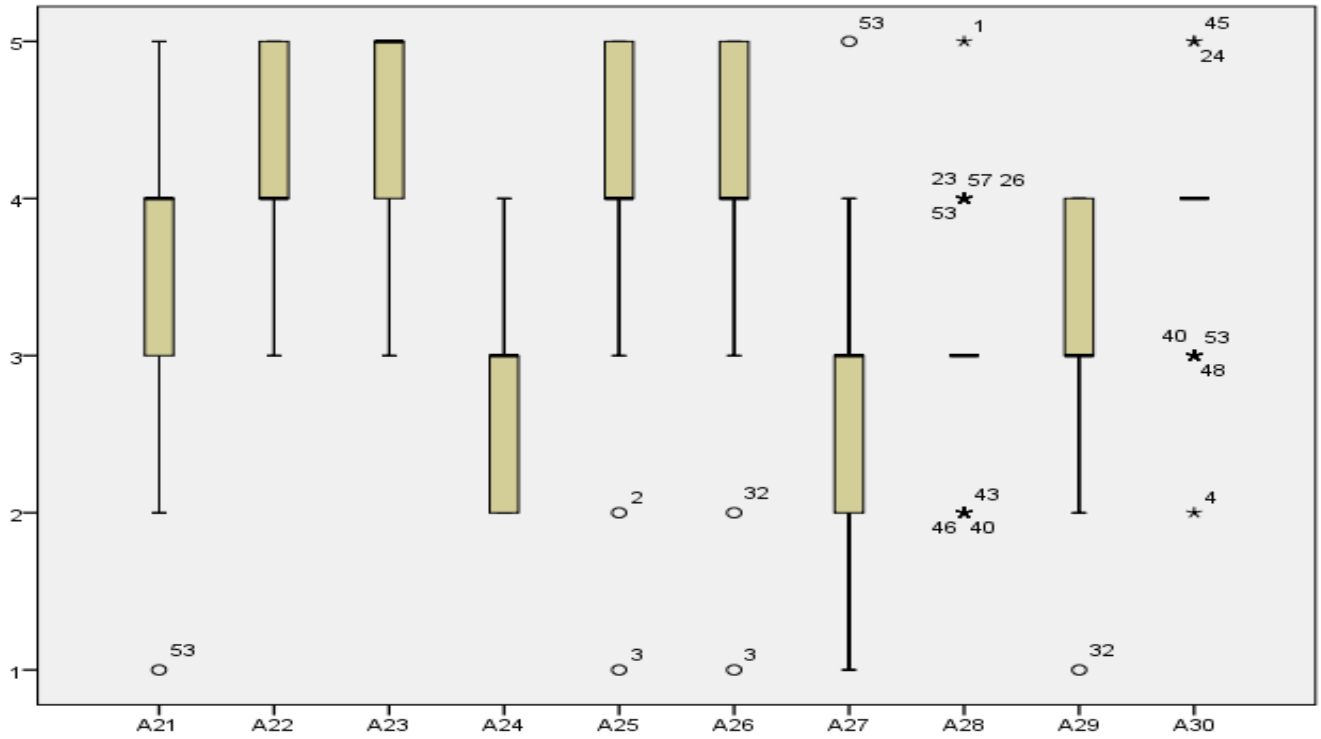
หมายเหตุ การเปลี่ยนแปลงรายการข้างต้น ให้ดูด้านหลัง

Appendix T

Stroke participants: Satisfaction in 40 activity items: Box Plot



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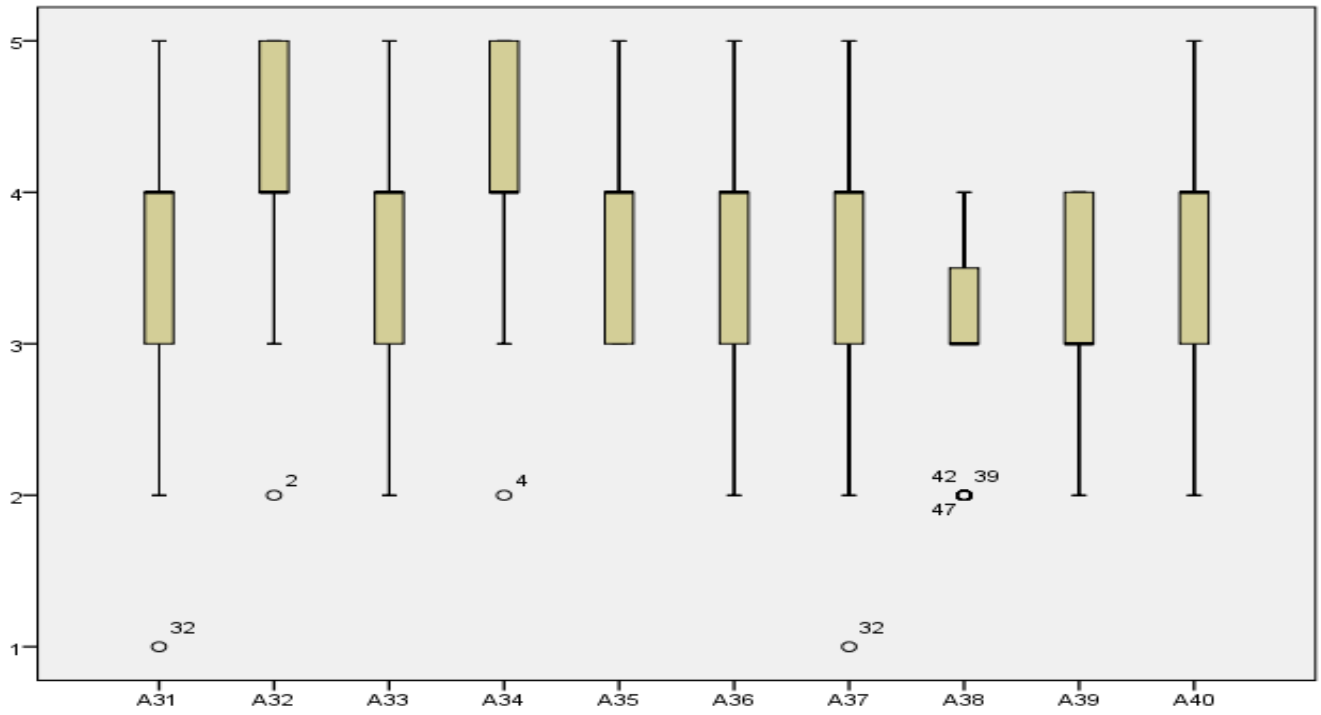
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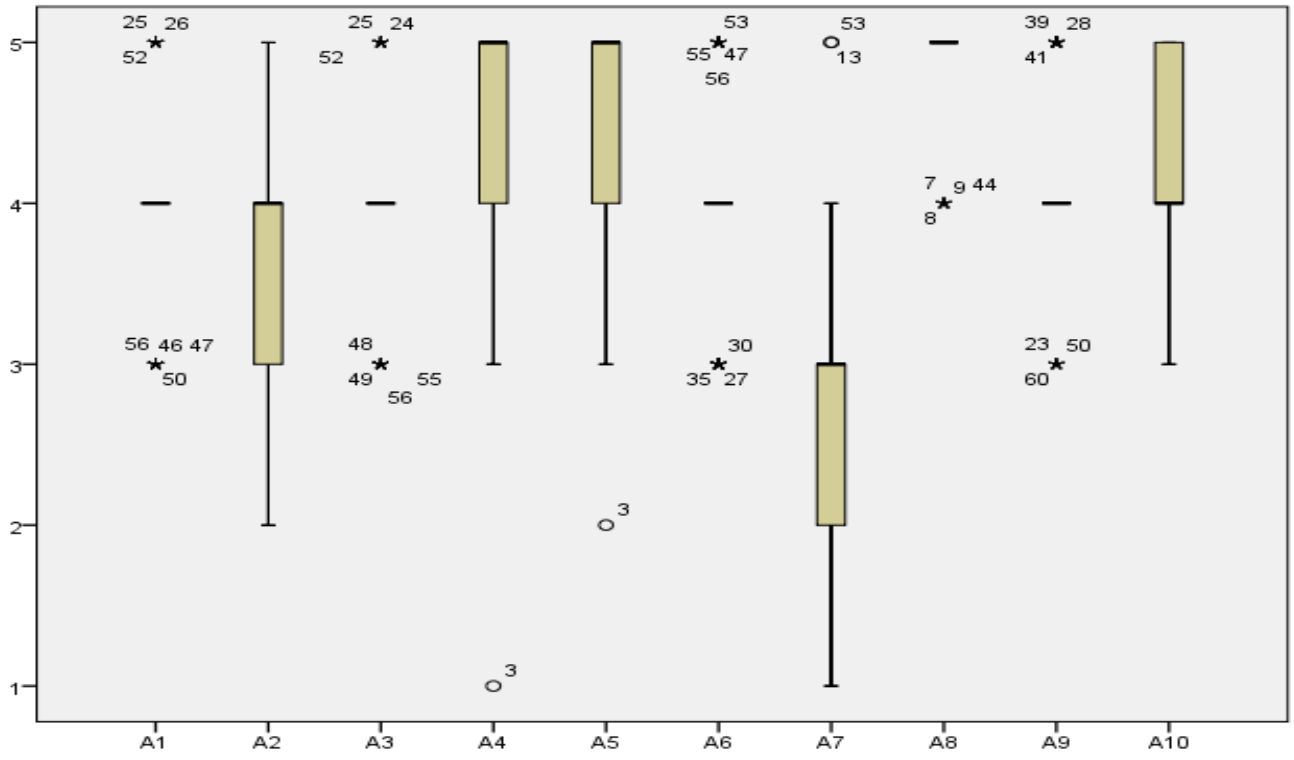
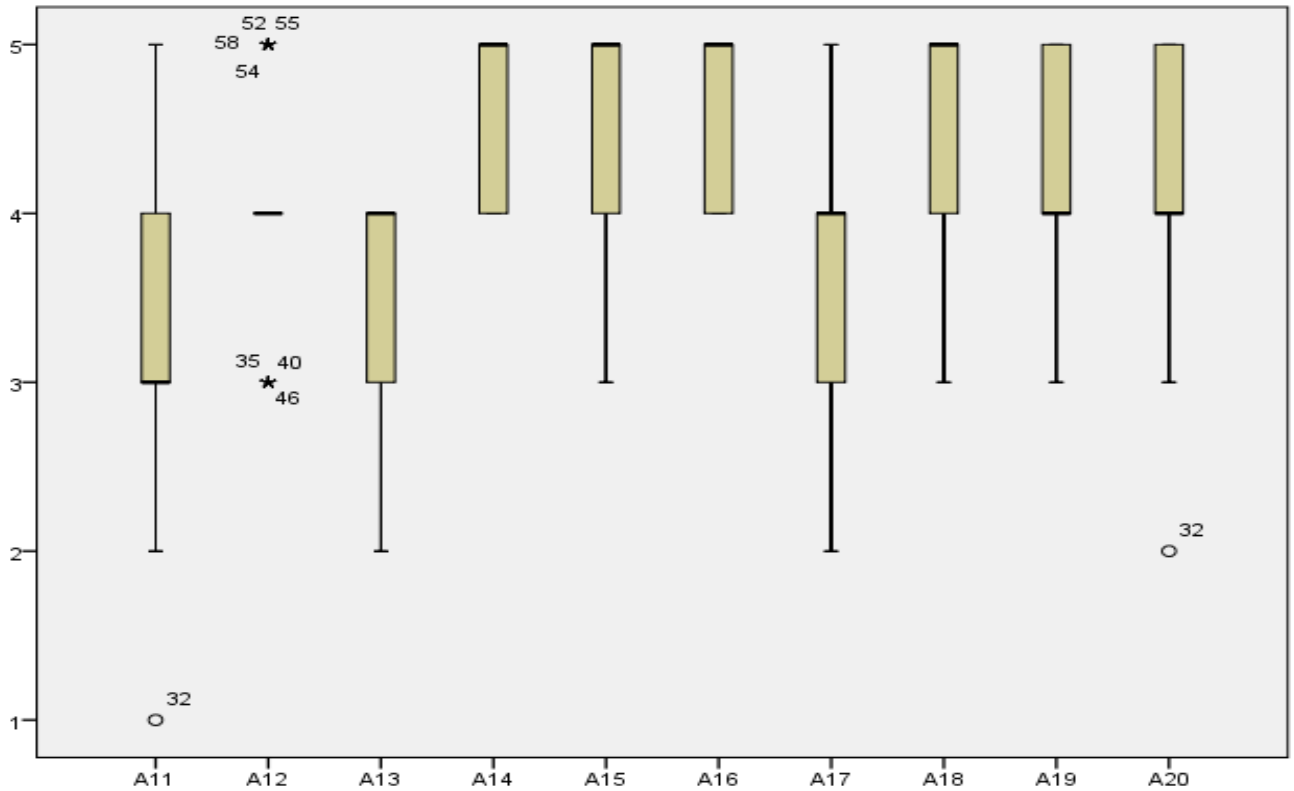
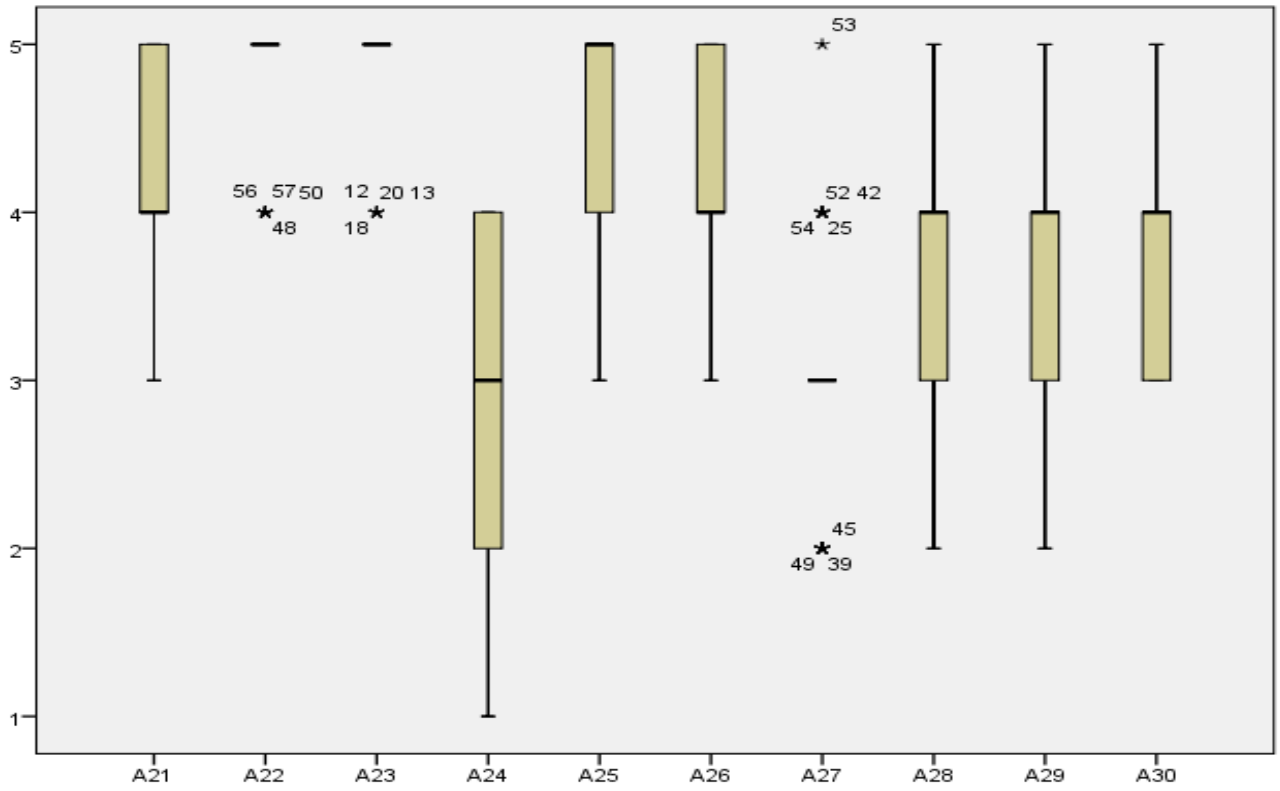
Appendix U

Stroke participants: Importance in 40 activity items: Box Plot



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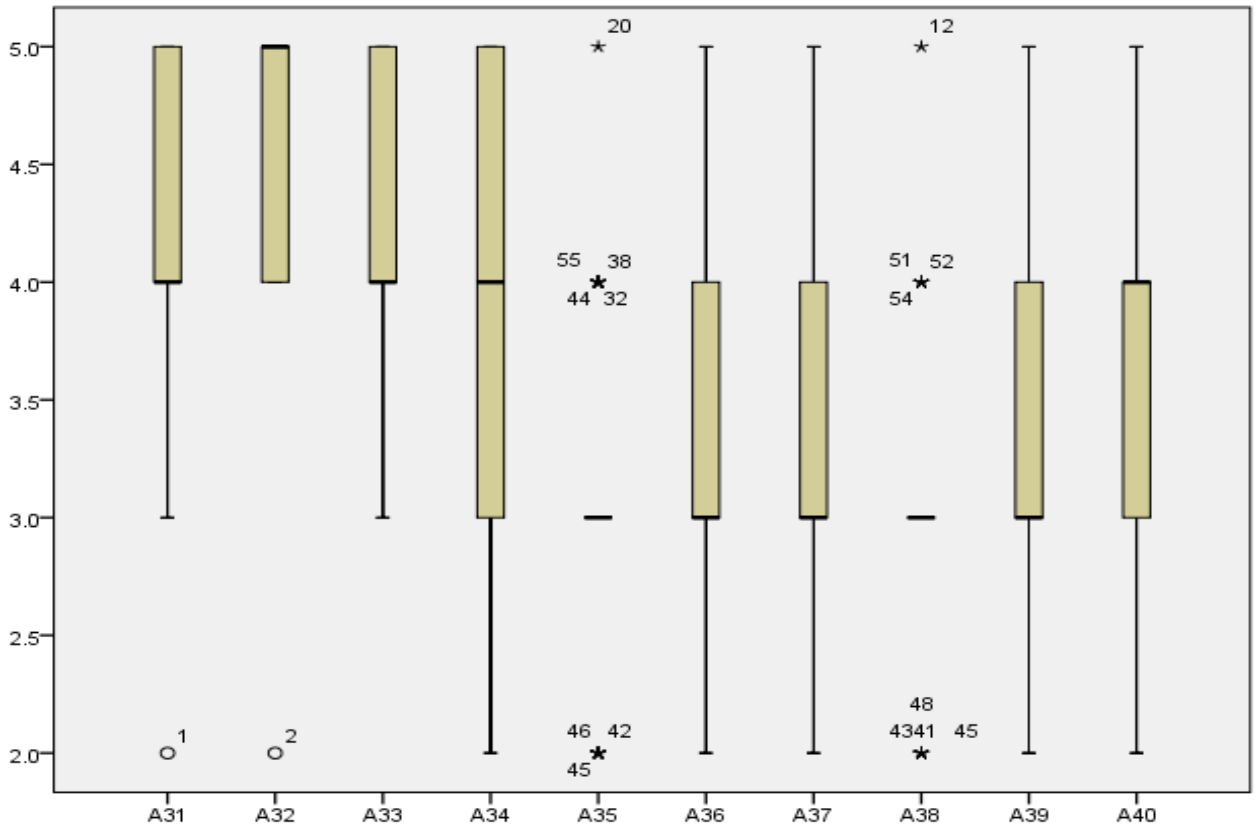
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Appendix V

Stroke participant characteristics and demographics for interviews (Slow stream rehabilitation) (Duration of stroke had been valid at the time of data collection)

Participants Alias	Age	Diagnosis	Length of stroke	Marital status	Location/ Region
Suchart	60	Hemiplegia/ Ischemic stroke	6 years	Married	Central
Kanchana	54	Hemiplegia/ Haemorrhagic stroke	3 years	Married	North
Chareompong	60	Hemiplegia/ Ischemic stroke	1.5 years	Married	North
Chutchai	47	Hemiplegia/ Ischemic stroke	4 years	Married	Northeast
Apai	63	Hemiplegia/ Ischemic stroke	5 years	Married	Northeast
Jerasak	67	Hemiplegia/ Ischemic stroke	5 years	Married	West
Sombat	68	Hemiplegia/ Ischemic stroke	7 years	Married	West
Nutchaya	33	Hemiplegia/ Haemorrhagic stroke	2 years	Single	East
Pitun	54	Hemiplegia/ Ischemic stroke	3 years	Married	East
Benchaporn	36	Hemiplegia/ Haemorrhagic stroke	4 years	Married	South
Thitipan	30	Hemiplegia/ Haemorrhagic stroke	2.5 years	Married	South

Stroke participant characteristics and demographics for interviews (Fast stream rehabilitation) (Duration of stroke had been valid at the time of data collection)

Participants Alias	Age	Diagnosis	Length of stroke	Marital status	Location/ Region
Supachai	58	Hemiplegia/ Ischemic stroke	4 months	Married	Central
Somprasong	55	Hemiplegia/ Ischemic stroke	7 months	Married	Central
Suwanna	69	Hemiplegia/ Ischemic stroke	8 months	Married	North
Saguan	73	Hemiplegia/ Ischemic stroke	7 months	Married	North
Prasit	55	Hemiplegia/ Ischemic stroke	6 months	Married	Northeast
Somwad	27	Hemiplegia/ Haemorrhagic stroke	8 months	Married	Northeast
Sakorn	37	Hemiplegia/ Haemorrhagic stroke	8 months	Married	West
Prayong	50	Hemiplegia/ Ischemic stroke	9 months	Married	West
Tong	70	Hemiplegia/ Haemorrhagic stroke	6 months	Single	East
Supap	45	Hemiplegia/ Haemorrhagic stroke	11 months	Married	East
Therapat	13	Cerebral venous sinus thrombosis	9 months	Single	South
Monthawat	56	Hemiplegia/ Ischemic stroke	4 months	Married	South

Appendix X

Official letters to six regional hospitals in Thailand

Central region

(Translated from Thai Language)

Professor Kath McCourt FRCN
Dean

This matter is being dealt with by:

Dr Colin Chandler (Principle Supervisor)
School of Health, Community & Education Studies
Room H021
Coach Lane Campus East
Newcastle upon Tyne, NE7 7XA

Tel: 0191 2156049
Fax: 0191 2156083

18 May 2010

Title: Request for Conducting Research
To: Chief Executive Officer (CEO) of Prasat Neurological Institute

Attach File: Details of Conducting Research and University Ethical Approval

Mr. Anuchart Kaunnil (นายอนุชาติ เรื่อนนิล), instructor at Department of Occupational Therapy, Faculty of Physical Therapy, Mahidol University, is attending PhD programme (Health Science emphasise on Occupational Sciences) at The University of Northumbria at Newcastle Upon Tyne, United Kingdom. He requested to conduct his research at Occupational Therapy Department of Prasat Neurological Institute by sending a letter of asking for permission via electronic mail and hard copy mail will be sent subsequently.

The thesis title is "A Realistic Evaluation of Occupational Therapy-Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand"
(การศึกษาประเมินระบบกิจกรรมบำบัดมหิดลสำหรับการฟื้นฟูผู้ป่วยโรคหลอดเลือดสมองในประเทศไทย). His supervisors are Dr Colin Chandler and Dr Anna Jones, School of Health, Community and Education Studies, The University of Northumbria at Newcastle Upon Tyne, Newcastle Upon Tyne, United Kingdom.

In order to conduct this thesis, researcher has been award from The Royal Thai Government scholarship, Ministry of Science and Technology, year 2006. Researcher hopes for your benevolence and thanks you in advance for supporting this research. The period of this research will installed about 8 weeks from 1 September 2010 to 31 October 2010. The details are attached.

Thank you very much for your consideration

Yours respectfully

Dr Colin Chandler	Dr Anna Jones	Mr. Anuchart Kaunil
Principle Supervisor	Co-supervisor	Researcher

Vice-Chancellor
Professor Andrew Wathey

Northumbria University is the trading name of the University of Northumbria at Newcastle

Details of Thesis Data Collecting

Thesis Title:

"A Realistic Evaluation of Occupational Therapy-Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand" (การศึกษาประเมินระบบกิจกรรมบำบัดมหิดลสำหรับการฟื้นฟูผู้ป่วยโรคหลอดเลือดสมองในประเทศไทย)

Thesis Objectives

This study is to undertake a realistic evaluation of the OT-MCS model of post-stroke rehabilitation in Thailand. It will construct a new dimension within OT by considering the development of life-skills, the value of activities in daily life (importance) and the volitional engagement (satisfaction) on their performance within the varied Thai context. It will provide a framework for service delivery for stroke rehabilitation of OT-MCS in 6 representative regional OT clinics of country. The research sites were selected from Occupational Therapy clinics as following:

1. North Region representative: Phrae Hospital
2. North-East Region representative: Srinagarind Hospital, Faculty of Medicine, Khon Kaen University
3. Central Region representative: Prasat Neurological Institute
4. West Region representative: Ratchaburi Hospital
5. East Region representative: Prapokklao Chanthaburi Hospital
6. South Region representative: Suratthani Hospital

Data Collecting relate to

1. Participants (n=20) will be selected from stroke clients who is attending occupational therapy department. The Screening Test for Stroke Clients in Occupational Therapy Rehabilitation will be used to identify the sampling criterion (Kaunnil & Khemtong, 2008). This assessment document is modified from International Classification of Functioning, Disability and Health (ICF) and Occupational Performance Profile (OPP) into the Thai context. This test will be divided participants into 2 groups (1) Maintained Performance (2) Improved Performance (AOTA, 2002; WHO, 2001; Law et al, 2001; Patten et al, 2004; Shelton & Reding, 2000; Duncan et al, 2005; Doyle et al, 2004; Miyai et al, 2000).
2. The OT-MCS model of practice will be installed to serve stroke participants (see the research proposal is attached)
3. The Attitude of Stroke Assessment Test will be used to investigate the attitude of stroke participants (maintained performance) in terms of "satisfaction" and "importance" of each therapeutic activity 40 items which is a part of OT-MCS pathway during 8 weeks.
4. The Activity of Occupational Therapy Programme Recording Document will be used to analyse the levels of activity engagement in functional ability of stroke participants (improved performance) during 8 weeks of OT-MCS operation.
5. The unstructured interview will involve one to four stroke participants in OT clinic who will be interviewed in-depth to find out the information and the outcome after attending OT-MCS operation. These participants will be selected by purposive sampling base on locations, genders, ages, rehabilitation programmes and outcomes.

Period of Data Collecting

1 September 2010 to 31 October 2010

Vice-Chancellor
Professor Andrew Wathey

Northumbria University is the trading name of the University of Northumbria at Newcastle

(Translated from Thai Language)

Professor Kath McCourt FRCN
Dean

This matter is being dealt with by:

Dr Colin Chandler (Principle Supervisor)
School of Health, Community & Education Studies
Room H021
Coach Lane Campus East
Newcastle upon Tyne, NE7 7XA

Tel: 0191 2156049
Fax: 0191 2156063

18 May 2010

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To: Chief Executive Officer (CEO) of Phrae Hospital

Attach File: Details of Conducting Research and University Ethical Approval

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Thank you very much for your consideration

Yours respectfully

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Principle Supervisor	Co-supervisor	Researcher

Vice-Chancellor
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Details of Thesis Data Collecting

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"A Realistic Evaluation of Occupational Therapy-Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand" (การศึกษาประเมินระบบกิจกรรมบำบัดมหิดลสำหรับการฟื้นฟูผู้ป่วยโรคหลอดเลือดสมองในประเทศไทย)

Thesis Objectives

This study is to undertake a realistic evaluation of the OT-MCS model of post-stroke rehabilitation in Thailand. It will construct a new dimension within OT by considering the development of life-skills, the value of activities in daily life (importance) and the volitional engagement (satisfaction) on their performance within the varied Thai context. It will provide a framework for service delivery for stroke rehabilitation of OT-MCS in 6 representative regional OT clinics of country. The research sites were selected from Occupational Therapy clinics as following:

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Period of Data Collecting

October 2010 to 30 November 2010

Vice-Chancellor
Professor Andrew Wathey

Northumbria University is the trading name of the University of Northumbria at Newcastle

North-east region

(Translated from Thai Language)

northumbria UNIVERSITY

Professor Kath McCourt FRCN
Dean

This matter is being dealt with by:

Dr Colin Chandler (Principle Supervisor)
School of Health, Community & Education Studies
Room HD21
Coach Lane Campus East
Newcastle upon Tyne, NE7 7XA

Tel: 0191 2156049
Fax: 0191 2156083

18 May 2010

Title: Request for Conducting Research
To: Chief Executive Officer (CEO) of Srinagarind Hospital, Faculty of Medicine, Khon Kaen University

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Vice-Chancellor
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6. South Region representative: Suratthani Hospital

Data Collecting relate to

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Period of Data Collecting

Start at 1 November 2010 to 31 December 2010

Vice-Chancellor
Professor Andrew Wathey

Northumbria University is the trading name of the University of Northumbria at Newcastle

(Translated from Thai Language)

Professor Kath McCourt FRCN
Dean

This matter is being dealt with by:

Dr Colin Chandler (Principle Supervisor)
School of Health, Community & Education Studies
Room H021
Coach Lane Campus East
Newcastle upon Tyne, NE7 7XA

Tel: 0191 2156049
Fax: 0191 2156063

18 May 2010

Title: Request for Conducting Research
To: Chief Executive Officer (CEO) of Ratchaburi Hospital

Attach File: Details of Conducting Research and University Ethical Approval

Mr. Anuchart Kaunnil (นายอนุชาติ เบื่อนนิล), instructor at Department of Occupational Therapy, Faculty of Physical Therapy, Mahidol University, is attending PhD programme (Health Science emphasise on Occupational Sciences) at The University of Northumbria at Newcastle Upon Tyne, United Kingdom. He requested to conduct his research at Occupational Therapy Department of Ratchaburi Hospital by sending a letter of asking for permission via electronic mail and hard copy mail will be sent subsequently.

The Thesis title is "A Realistic Evaluation of Occupational Therapy-Mahidol Clinic System [OT-MCS] for Post-Stroke Rehabilitation in Thailand"
(การศึกษาประเมินระบบกิจกรรมบำบัดมหิดลสำหรับการฟื้นฟูผู้ป่วยโรคหลอดเลือดสมองในประเทศไทย). His supervisors are Dr Colin Chandler and Dr Anna Jones, School of Health, Community and Education Studies, The University of Northumbria at Newcastle Upon Tyne, Newcastle Upon Tyne, United Kingdom.

In order to conduct this thesis, researcher has been award from The Royal Thai Government scholarship, Ministry of Science and Technology, year 2008. Researcher hopes for your benevolence and thanks you in advance for supporting this research. The period of this research will installed about 8 weeks from 1 December 2010 to 31 January 2011. The details are attached.

Thank you very much for your consideration

Yours respectfully

Dr Colin Chandler	Dr Anna Jones	Mr. Anuchart Kaunil
Principle Supervisor	Co-supervisor	Researcher

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Thesis Objectives

This study is to undertake a realistic evaluation of the OT-MCS model of post-stroke rehabilitation in Thailand. It will construct a new dimension within OT by considering the development of life-skills, the value of activities in daily life (importance) and the volitional engagement (satisfaction) on their performance within the varied Thai context. It will provide a framework for service delivery for stroke rehabilitation of OT-MCS in 6 representative regional OT clinics of country. The research sites were selected from Occupational Therapy clinics as following:

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Newcastle upon Tyne, NE7 7XA

Tel: 0191 2156049
Fax: 0191 2156083

18 May 2010

Title: Request for Conducting Research
To: Chief Executive Officer (CEO) of Prapokklos Chanthaburi Hospital

Attach File: Details of Conducting Research and University Ethical Approval

Mr. Anuchart Kaunnil (นายอนุชาติ เกื้อนนิล), instructor at Department of Occupational Therapy, Faculty of Physical Therapy, Mahidol University, is attending PhD programme (Health Science emphasise on Occupational Sciences) at The University of Northumbria at Newcastle Upon Tyne, United Kingdom. He requested to conduct his research at Occupational Therapy Department of Prapokklos Chanthaburi Hospital by sending a letter of asking for permission via electronic mail and hard copy mail will be sent subsequently.

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