The Seybold Report

ISSN 1533-9211

DOI: 10.5281/zenodo.10444544

EXPLORATORY AND CONFIRMATORY FACTOR ANALYSIS OF COLLABORATION NETWORK TO PROMOTE THE UNDERPRIVILEGED GROUPS IN ACCESSIBILITY AND UTILIZATION OF BROADCASTING AND TELECOMMUNICATION INFORMATION

POOMPAT PALAKARN*

Doctor of Public Administration (Candidate), Department of Social Sciences, Faculty of Social Sciences and Humanities, Mahidol University, Phutthamonthon Sai 4 Road, Phutthamonthon, Nakhonpathom, Thailand. *Corresponding Author E-Mail: poompala@hotmail.com, ORCID ID: 0009-0001-6491-494X

GAMOLPORN SONSRI

Associate Professor, Faculty of Political Sciences, Thammasat University, Prachan Road, Phra Nakhon, Bangkok, Thailand. Email: gamolporn@gmail.com

Abstract

The objectives of this study were 1) to examine the elements of collaboration networks that promote accessibility and utilization of broadcasting and telecommunication information among underprivileged groups and 2) to analyze both exploratory and confirmatory elements of collaboration networks. A mixed-method approach was employed, combining qualitative tools such as interviews and focus groups, with a quantitative tool in the form of a questionnaire. Data analysis involved content analysis, exploratory factor analysis, and confirmatory factor analysis. The study revealed that the established collaboration network model was suitable for the empirical data (sig. = 0.102). Moreover, a significant indicator for a successful collaboration network comprised 7 components, further divided into 24 observed variables. These variables can be utilized to create 8 practical models.

Keywords: Collaboration Network, Underprivileged Groups, Accessibility, and Utilization.

1. INTRODUCTION

Information is a fundamental resource that holds significant importance for the public, including the elderly, disabled, and underprivileged groups. The ability to access, comprehend, and utilize information is not only a fundamental right but is also enshrined in the Constitution of the Kingdom of Thailand across various iterations, such as in 1997, 2007, and 2017 (Constitution of the Kingdom of Thailand 2017, 2017). The Government Information Act of 1997, a legislation that upholds the "right to know" for citizens, outlines the right to receive official information and the corresponding responsibilities of government agents and officials. This law aims to both support and protect the rights of the people (Government Information Act 1997, 1997). In the era of globalization and borderless communication, characterized by the information society, technology has ushered humanity into a fully digital realm. The rapid advancement of technology has led to numerous innovations that have significantly impacted human life. It's undeniable that technology has become an integral part of our daily existence, with individuals surrounded by various technological devices. However, despite the general

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

public's access to and utilization of new media in the Convergence Technology Media Era, certain groups, such as the disabled, elderly, and underprivileged, face barriers in fully accessing and utilizing these technologies. Economic constraints and limited opportunities prevent these individuals from enhancing their quality of life through technology. Consequently, the issue of digital inequality is a prevalent concern in many countries, including Thailand (Narongsak Srithanan, 2011).

Underprivileged groups are those who face multiple difficulties and challenges affecting various aspects of their lives, including the economy, society, education, public health, and more. This category encompasses individuals who lack access to basic government services. When we examine the issue of disadvantage resulting from poverty, it becomes evident that Thailand still exhibits a high concentration of income and wealth. The wealthiest 20% of the population hold 56% of the income and 70% of the wealth. The Gini coefficient, a measure of income inequality, is comparable to levels seen in Latin American countries. This disparity leads to a loss of economic efficiency, resulting in reduced state income and an inability to distribute resources equitably and efficiently. These factors, in turn, have adverse consequences for the overall economy and society (The Research Fund, 2022). These disparities give rise to 'social inequality' and contribute to the growth of underprivileged groups. This can be considered the root cause of various social issues. Society fails to provide equal access to various community resources, and even employment opportunities are marred by low wages and exploitation. These conditions can lead individuals within these underprivileged groups to resort to unlawful activities as a means of coping with their dire circumstances.

The Office of the National Broadcasting and Telecommunications Commission (NBTC) is an independent government agency tasked with the allocation of radio frequencies and the regulation of Broadcasting, Television Broadcasting, and Telecommunication. It also plays a crucial role in safeguarding the rights and freedoms of the people, preventing exploitation by operators, and protecting individual privacy and liberty in telecommunications. The NBTC is committed to promoting the rights, freedoms, and equal access of all citizens to Broadcasting, Television Broadcasting, and Telecommunication frequencies. When addressing the issue of information access and utilization, particularly for underprivileged groups, the NBTC adheres to a policy that emphasizes transparency, fairness, and comprehensiveness in all dimensions. Importantly, the NBTC places great importance on upholding people's rights and freedoms in communication and ensuring equitable access to diverse and high-quality information (NBTC Office, 2020). The National Broadcasting and Telecommunications Commission of Thailand (NBTC) has developed Telecommunication Master Plan No. 2 (2019-2023) in conjunction with the broadcasting commission television business and the national telecommunications commission's announcement of Plan for Universal Basic Telecommunication and Social Services No. 2 (2017-2021) and Master Plan for Broadcasting and Television Business No. 2 (2020-2025). These initiatives prioritize the promotion of people's rights and freedoms, enabling the public to access, utilize, and stay informed about a wide range of news and information in the fields of broadcasting and telecommunications. They also aim to ensure that disabled, elderly, and underprivileged individuals have equal access to information on par with the public. To achieve these goals, the NBTC has established community media centers as

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

community learning resources. These centers aim to provide people with access to valuable information, including economics, career, education, technology, and public health news. Additionally, the NBTC mandates the installation of digital terrestrial TV antennas on high-rise buildings to extend comprehensive services in various areas, including the promotion of media literacy skills among underprivileged and elderly populations (Office of the NBTC, 2020).

However, when it comes to the implementation plan, the Office of the NBTC only provides support for individuals with disabilities to access and use information on an equal footing with the public, such as through the provision of subtitles and audio descriptions. The Office of the NBTC does not extend its coverage to underprivileged groups, and its objectives in this regard remain unclear. Efforts to promote information access for underprivileged groups have been limited to just three regions and five provinces. One of the primary challenges faced by underprivileged groups is that entrepreneurs often overlook or neglect them, considering them as a low-priority audience. This may be attributed to the commercial nature of most broadcasting and telecommunications operations, which frequently leads to the neglect and exploitation of underprivileged groups (NBTC Office, 2020).

Furthermore, the current mission aimed at improving the accessibility of information for underprivileged groups does not integrate broadcasting and telecommunications businesses with local collaborative networks. It is crucial to carry out this work within a collaborative network to enhance access to and utilization of information in Broadcasting and Telecommunication for underprivileged groups, particularly in remote areas where people rely on this information for their daily lives. In the present context of a single-party government, there may be limitations in adapting to changing circumstances.

Representative democratic governments emphasize democratic values, equality, and participation. As a result, agencies are exploring alternative approaches to network or sectoral cooperation, including collaborations between the public and other sectors, to enhance efficiency and effectiveness in policy implementation. Regrettably, the communication resources available in community media centers are sometimes diverted to other purposes, such as distribution to resource-deficient agencies, rather than serving their original intent. This diversion has led to certain underprivileged groups being unable to access and utilize information on an equal footing with the public.

The advancement of collaborative governance can be an integral component of collaborative networks aimed at enhancing the accessibility and utilization of broadcasting and telecommunication information for underprivileged groups. Government agencies will need to transform their roles, shifting from mere supervisors issuing orders to becoming supporters of such initiatives. They must also prioritize increased public participation in collaborative government administration, fostering collaboration across all sectors both horizontally and vertically (Office of the Public Sector Development Commission, 2017).

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

This approach promotes transparency, fairness, and ultimately, the well-being of the people. Therefore, the primary objective of this research is to establish success criteria, including components and indicators, for collaborative networks focused on improving information access and utilization. These criteria can be applied across various domains, ultimately leading to an improved quality of life for underprivileged groups.

2. LITERATURE OVERVIEW

2.1 Concept of public policy implementation

Public policy implementation is the process of delivering public policy to the target group in alignment with the policy's objectives. Policy implementation occurs after the policy decision and entails outlining the steps and details of activities so that practitioners can effectively carry them out and achieve the policy's set objectives. Public policy implementation models can be classified into three types: 1) Top-down model, which centers on the decision-making authority, emphasizes the policymakers' ability to clearly define policy objectives, and maintain control over policy implementation (Dunsire, 1990). 2) Bottom-up model, which focuses on local-level operators as service providers and views policy implementation as a negotiation process within a network of policy leaders (Lipsky M., 1980). 3) Hybrid model, a policy design that involves more than just policy formation; it encompasses decision-making and policy implementation. Policymakers must consider the cost-effectiveness of aligning objectives and tools for implementing policies to ensure successful outcomes. This approach operates under the concept of policy implementation through a top-down model (Top-down model)."

2.2 Concept of collaborative network

This concept represents a shift in management perspective, transitioning from traditional government-centric approaches to innovative administrative processes that transform rigid rules and regulations into more inclusive forms of societal engagement (Rhodes, 1997). It involves harnessing market or quasi-market mechanisms to address the interests and concerns of the public and stakeholders (Lynn et al., 2000). This approach can be categorized into various concepts, with this research focusing on 'new public governance'. New public governance involves cooperation between the government sector and other relevant sectors in pursuing missions aimed at addressing societal issues and benefiting the public. It goes beyond confining roles and responsibilities solely to the government sector, requiring active involvement from social actors in delivering public services.

The government plays a pivotal role in facilitating this participatory process and fostering network governance, which relies on stakeholder networks to shape policy formulation and the implementation of public services (Rhodes, 2012). This approach views the administration of public affairs through a network dimension, emphasizing the role of networks in coordinating collaborations among various self-management organizations. In particular, it highlights the network's significance in the processes of public policy making and the delivery of public services, where diverse actors interact, leading to the establishment of a cohesive framework among the involved parties (Torfing, 2008).

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

2.3 Components and conditional factors of collaborative network

Scheuing (1994) emphasized that the success of collaborative networks should be assessed not only by the number of members or partners within the network but also by the overall achievement of specific goals. These success factors included: 1) Commitment 2) Continuous improvement 3) Long-term commitment 4) Empowerment 5) Shared values 6) Leadership Furthermore, Kickert and colleagues (1997) highlighted essential elements in managing collaborative networks to control interaction processes that might affect existing relationships, consensus, and conflict resolution.

These critical processes encompassed: 1) Stimulating interactive initiatives for problem-solving and goal achievement 2) Managing interactions involving diverse personalities 3) Establishing structures, rules, norms, and cultures to support cooperation 4) Skillful negotiation, mediation, and compromise, incorporating various ideas, understandings, and solutions 5) Facilitating interactive processes that lead to strategic consensus development. Additionally, Linden (2007) noted that collaborative networks involve: 1) Public participation and shared goal setting 2) Champions who contribute to potential cooperation 3) Emphasis on trust 4) Identification of significant issues that motivate cooperation 5) Agencies working together on tasks 6) The appointment of leaders to coordinate cooperation among various organizations. In contrast, Beverly Cigler (as cited in Ricardo S. Morse, 2005: 7-8) identified nine preconditions for successful collaboration: 1) Crisis or problems that spur collaboration 2) Budget constraints 3) Political contributions 4) Financial assistance or support 5) Ongoing support from local politicians 6) Clear benefits arising from collaboration 7) Individuals or organizations that advocate for collaboration 8) The importance of crafting a joint plan or strategy 9) Emphasis on building collaborative skills

3. RESEARCH

3.1 Method

In this research, the researchers employed a mixed-method research approach, utilizing both quantitative and qualitative research techniques as follows**:**

1. Qualitative research consisted of in-depth interviews and focus groups to study the elements, criteria, and successful conditions of collaborative networks to promote underprivileged groups in accessibility and utilization of broadcasting and telecommunication information. The key informants for in-depth interviews could be divided into 4 main groups: 1) Eight NBTC committee or representatives and executives, 2) Six executives of central government agencies who were partners in promoting the underprivileged groups in accessibility and utilization of broadcasting and telecommunication information, 3) Five private sector executives or operators who were key partners in promote the underprivileged groups in accessibility and utilization of broadcasting and telecommunication information, and 4) Fifteen executives or representatives of regional and local government agencies working in the five target provinces which were a pilot area with a “community media center to promote the underprivileged groups in accessibility and utilization of broadcasting and

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

telecommunication information. (Mukdahan, Kalasin, Chiang Rai, Chiang Mai, and Nakhon Si Thammarat provinces). In addition, the researcher also conducted the focus group discussion in the five target provinces. The focus group stakeholders were selected using the purposive sampling method, consisting of 1) broadcasters in each targeted province 2) representatives of government agencies in the area 3) representatives of civil society organizations such as non-profit organizations, community organizations, relevant associations, etc. 4) community leaders and 5) representatives of underprivileged groups. There were groups of 2 people per group, 10 people in each target province, a total of 50 people (5 provinces). The in-depth interview and focus group discussion questions were tested for content validity by three experts using the Index of Item Objective Congruence (IOC) method. All the questions exhibited consistency scores ranging from 0.67 to 1.00. These collected data will be subjected to content analysis to interpret and draw conclusions. Furthermore, qualitative data will be employed to synthesize collaborative indicators aimed at promoting accessibility and utilization of broadcasting and telecommunication information among underprivileged groups.

2. Quantitative research in this study consisted of a field survey aimed at conducting exploratory factor analysis to examine the promotion of underprivileged groups in accessing and utilizing broadcasting and telecommunication information. Additionally, confirmatory factor analysis was conducted to validate theoretical models using empirical data. The study's target population comprised representatives from regional and local government agencies operating in the five specified provinces. These agencies served as the primary networks for promoting accessibility and utilization of broadcasting and telecommunication information among underprivileged groups at both the central and regional levels. The sample size was determined based on the number of observed variables as suggested by Hair et al. (2006), resulting in a sample-variable ratio of 10:1. The researcher identified 52 variables, indicating a minimum sample size of 520. However, data was collected from a total sample of 600 individuals. The snowball sampling method was employed to select the sample of 600 participants. A questionnaire served as the data collection tool, and its reliability was assessed through Cronbach's Alpha Coefficient using a test group (Try out) consisting of 30 participants. The questionnaire yielded a Cronbach's Alpha Coefficient of 0.945, indicating high reliability.

The collected data were then subjected to exploratory factor analysis to group elements before proceeding to confirmatory factor analysis using Lisrel. This analysis aimed to assess the consistency between the theoretical model and empirical data.

3.2 Result

3.2.1. Components of collaboration to promote the underprivileged groups in accessibility and utilization of broadcasting and telecommunication information

According to the results of in-depth interviews and group discussions, the researcher could divide the components into 4 groups as follows.

1) Resource availability and support from government agencies: According to in-depth interviews and focus group discussions with stakeholders, it was found that in a collaborative network to promote the underprivileged groups in accessibility and utilization of broadcasting

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

and telecommunication information, it was important that government agencies supported various resources including budget allocation, places, and facilities, and sufficient necessary communication equipment such as receivers, antennas, cables, high-speed internet, and various learning materials to promote the underprivileged groups in accessibility and utilization of broadcasting and telecommunication information. In the operation, it was necessary to develop the potential, strengthen the necessary knowledge of the network, allocate sufficient human resources, and develop a database of network members who had participated in activities or cooperation. More importantly, there should be modern and/or innovative information technology systems to facilitate communication, data exchange, and network support. In addition, to promote access and utilization of information, information/content must be provided that was diverse, useful, and adequate to the needs of underprivileged groups. A content-based database was created to meet the needs of underprivileged groups and was updated so that they could be applied in their daily lives. As for mechanisms to support network operation, the main host agency must formulate policies, laws, and measures to promote the underprivileged groups in accessibility and utilization of broadcasting and telecommunication information. Most importantly, the work structure, work methods, and administrative tools must be organized that facilitate network work and promote resource mobilization.

2) Characteristics of effective collaborative networks: According to in-depth interviews and focus group discussions with stakeholders, it was found that in collaborative networks to promote the underprivileged groups in accessibility and utilization of broadcasting and telecommunication information, agencies, organizations, or groups in the network must have sufficient knowledge and skills to drive operations and must understand the targeted spatial context, share awareness of events, and understand the problems in the common area. In addition, network members must come from various agencies such as local underprivileged groups, the disabled, community leaders, local operators, local government organizations, etc. Individuals/government organizations, the private sector, and civil society must make sacrifices and realize the public interest first. In this regard, these groups may be co-drivers of work/activity in the past and who have common objectives of driving operations resulting in good relationships, mutual trust, and acceptance of differences in norms, values, and organizational cultures. However, individuals /government organizations, the private sector, and civil society must voluntarily join the network.

3) Role of leaders/cooperators: According to in-depth interviews and focus group discussions with stakeholders, it was found that the collaborative networks to promote the underprivileged groups in accessibility and utilization of broadcasting and telecommunication information required collaborators with good interpersonal skills and communicative and change-building abilities. It should present accurate, impartial, mission-driven information, and the ability to mediate, reconcile, and resolve conflicts during rapid collaboration. The collaborators must act as intermediaries in transferring knowledge, linking work among network members, facilitating a collaborative learning process, and encouraging network members to realize the value and importance of mission-driven action. Moreover, there should be a clear understanding of mission-driven approaches and building trust and reliability between all parties, and negotiating a collaborative resolution. More importantly, there was a written

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

agreement or contract between the networks involved in driving joint missions to achieve formal collaboration to promote the underprivileged groups in accessibility and utilization of broadcasting and telecommunication information.

4) Participatory processes of collaborative networks: According to in-depth interviews and focus group discussions with stakeholders, it was found that collaborative networks to promote the underprivileged groups in accessibility and utilization of broadcasting and telecommunication information included planning, collaboration, collaborative implementation, and collaborative performance monitoring and evaluation, starting from jointly setting the rules, regulations, goals, objectives, and roles and responsibilities of network members. Network members must plan short-, medium- and long-term collaboration for continuity and seek a compromise, collaborative approach. Network members must exchange resources to promote the accessibility and utilization of broadcasting and telecommunication information. There must be a mechanism for communication between networks through channels that are beneficial to collaboration. Knowledge, information, experience, and learning should be exchanged among network members to promote the accessibility and utilization of broadcasting and telecommunication information. There should be ongoing operational communications to promote the accessibility and utilization of broadcasting and telecommunication information. Network members must meet, negotiate, discuss, and decide on ongoing collective action. Network members must enhance each other's work processes by using one's strengths to complement the other's weaknesses, thereby achieving synergies. Organizations in member networks must be independent to work on the basis of their roles. Individuals/governmental organizations, the private sector, and civil society in the network are responsible for their assigned roles. Network members must monitor performance to promote the accessibility and utilization of broadcasting and telecommunication information. Once the mission is completed, network members must evaluate their achievements to promote the accessibility and utilization of broadcasting and telecommunication information. Ultimately, members of the network shall receive benefits to promote the underprivileged groups in the accessibility and utilization of broadcasting and telecommunication information.

3.2.2 Exploratory factor analysis and confirmatory factor analysis of collaboration network

The researcher conducted a questionnaire to analyze the component factors within the collaborative network aimed at promoting accessibility and utilization of broadcasting and telecommunication information for underprivileged groups. Initially, an exploratory factor analysis was carried out to identify the variables' components, which were subsequently confirmed through structural analysis via confirmatory factor analysis. Based on the results obtained from a survey involving 600 respondents, it was determined that the component with the highest average score was the 'role of leaders/cooperators' ($\overline{x} = 3.90$, SD = 0.544), followed closely by the 'characteristics of effective collaboration network' ($\overline{x} = 3.82$, SD = 0.577).

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

Table 1: Components of collaborative networks

Component	$\bar{x}$	XD	Result
Resource availability and support from government agencies	3.8	0.5	High
Characteristics of effective collaborative networks	3.8	0.58	High
Role of leaders/cooperators	3.9	0.54	High
Participatory processes of collaborative networks	3.8	0.48	High

The questions in the initial component were derived from the questions generated through grounded theory. Consequently, these questions needed to be categorized based on common factors, a process accomplished through exploratory factor analysis (EFA) employing principal component analysis (PCA) and orthogonal rotation using the varimax method. The analysis led to the grouping of all 52 questions into seven new categories, as presented in Table 2, an expansion from the original four groups. For each of these groups, the researcher assigned a new name corresponding to the questions within each group, labeling them as variables A to G, as detailed in Table 3. The next step involved considering the number of variables within each component. It was observed that certain components contained numerous variables, potentially arising from the complexity of the analytical models, making practical implementation challenging. Consequently, the researcher opted to reduce redundant variables through factor analysis, retaining only the variables with the highest total loading values that could predict latent variables with an accuracy exceeding 80 percent. The resulting question variables are detailed in Table 3.

Table 2: Result of exploratory factor analysis

Compo-nent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumula-tive %	Total	% of Variance	Cumula-tive %	Total	% of Variance	Cumula-tive %
1	23.858	45.880	45.880	23.858	45.880	45.880	11.312	21.753	21.753
2	3.836	7.378	53.258	3.836	7.378	53.258	6.838	13.151	34.903
3	3.372	6.485	59.743	3.372	6.485	59.743	6.683	12.852	47.756
4	2.504	4.816	64.560	2.504	4.816	64.560	5.887	11.320	59.076
5	1.430	2.749	67.309	1.430	2.749	67.309	2.411	4.637	63.714
6	1.197	2.301	69.610	1.197	2.301	69.610	2.287	4.398	68.112
7	1.107	2.128	71.738	1.107	2.128	71.738	1.886	3.626	71.738
8	.964	1.855	73.593						

Table 3: Abbreviation, symbol, definition, and number of questions in every factor

Abbreviation /symbol	Definition	Number of questions	Reduced N of questions
A	Basic resources for collaborative support	9	4
B	Mechanisms to support collaborative networks	3	3
C	Key characteristics of collaboration	4	4
D	Network and collaborator capabilities	15	3
E	Taking initiative at work under collaboration	10	5
F	Collaborative-driven action	8	2
G	Collaborative monitoring and evaluation	3	3

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

The researcher conducted a confirmatory factor analysis to assess the consistency of the model with empirical data (observed data). The initial chi-square statistic for the structural model, prior to any adjustments, was 1545.638, with a corresponding p-value of 0.000. This initial analysis indicated that the structural model did not align with the empirical data, failing to meet the specified criteria. Consequently, adjustments were deemed necessary to align the structural model with the observed data.

To modify the correlation model, the researcher considered recommendations from program-generated modification indices (MI) and the standard expected parameter change (SEPC). These adjustments aimed to establish relationships among observed variables that corresponded more closely to actual conditions.

The outcome of the adjusted structural model yielded a chi-square statistic of 45.080 and a p-value of 0.102, indicating that the structural model now aligned with the empirical data. When assessing various measurement indices, the results were as follows: CFI (Comparative Fit Index) was 0.999, GFI (Goodness of Fit Index) was 0.980, AGFI (Adjusted Goodness of Fit Index) was 0.952, RMR (Root Mean Square Residual) was 0.001, RMSEA (Root Mean Square Error of Approximation) was 0.016, and CN (Critical N) was 661.971. These values all fell within the specified criteria (Fig. 1).

The capacity of the observed variables was then assessed to measure latent variables in a correlation model, taking into account the significance of the factor loading. The extracted variance was evaluated, and the confidence of the latent variables was examined (Table 4).

It was determined that the basic resources for collaborative support (A) had the highest component factor loading, at 0.836, followed by the key characteristics of collaboration (C) at 0.808, and collaborative-driven action (F) at 0.779, respectively.

Therefore, the development of cooperation among network partners in promoting accessibility and utilization of broadcasting and telecommunication information for underprivileged groups can primarily focus on these three factors.

Based on the results of the exploratory and confirmatory factor analysis, the researcher identified crucial indicators for constructing a collaborative network aimed at promoting accessibility and utilization of broadcasting and telecommunication information for underprivileged groups to achieve success and maximum efficiency. These indicators consist of 7 elements and 24 observed variables, as shown in Table 5.

ISSN 1533-9211

DOI: 10.5281/zenodo.10444544

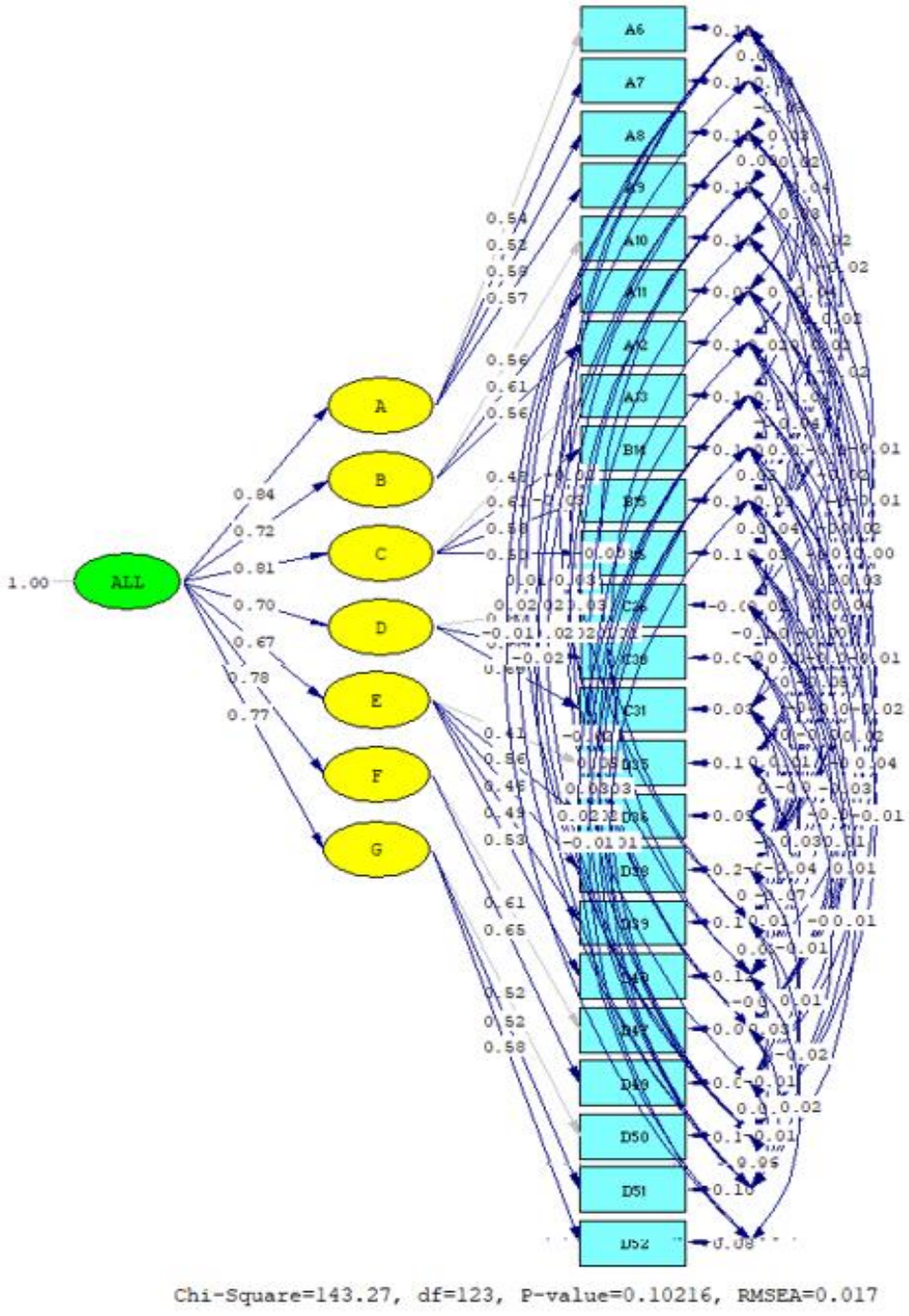

Fig 1: The structural equation model of collaboration network to promote the underprivileged groups in accessibility and utilization of broadcasting and telecommunication information

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

Table 4: Result of confirmatory factor analysis

Latent Variable Name	Observe Variable Name	Latent Variable			Observe Variable		
		variance	Std. Error	co-efficient of determination	Factor loading	Std. error	co-efficient of determination
A		0.836	0.046	0.698			
	A6				0.535		0.702
	A7				0.524	0.026	0.701
	A8				0.577	0.031	0.732
	A9				0.568	0.030	0.728
B		0.720	0.044	0.519			
	A10				0.561		0.753
	A11				0.610	0.020	0.837
	A12				0.555	0.022	0.652
C		0.808	0.047	0.654			
	A13				0.483		0.685
	B14				0.607	0.029	0.766
	B15				0.575	0.032	0.648
	B16				0.501	0.027	0.604
D		0.703	0.037	0.494			
	C26				0.873		0.924
	C30				0.694	0.033	0.894
	C31				0.692	0.033	0.933
E		0.671	0.052	0.450			
	D35				0.408		0.511
	D36				0.560	0.032	0.777
	D38				0.459	0.030	0.455
	D39				0.493	0.039	0.575
	D40				0.527	0.041	0.700
F		0.779	0.044	0.607			
	D47				0.609		0.844
	D49				0.649	0.022	0.825
G		0.770	0.046	0.594			
	D50				0.520		0.679
	D51				0.521	0.015	0.735
	D52				0.578	0.027	0.806

Table 5: Indicators for successful collaboration network

Number	Name	Indicators
Component 1	Basic resources for collaborative support	Creating a content database that meets the needs of the underprivileged groups to use in their daily lives
		Arrangement of venues and facilities to support the work of collaboration network in driving operations to promote access to news and information.
		Support for essential communication equipment such as receivers, antennas, cable, high-speed internet, various learning media, etc.
		Sufficient budget allocation to promote collaboration among network partners in driving operations.
Component 2	Mechanisms to support	There is a working structure that facilitates the work of network partners and encourages all parties to play their roles together.

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

Number	Name	Indicators
	collaborative networks	Having policies, laws, and measures that support operations.
		Organize or modify the way of working, seeking new techniques and management tools to support the work of network partners.
Component 3	Key characteristics of collaboration	Various resources are mobilized together in driving operations.
		Network members must have sufficient knowledge and skills to jointly drive operations.
		Network members must have an understanding of the spatial context in which they are targeted.
		Members in the network must be the ones who are aware of the incidents and understand the problems that occur in the area together.
Component 4	Network and collaborator capabilities	The work requires a coordinator to act as an intermediary in transferring knowledge between members of the network.
		Collaborators must play a role in activating change to promote access and utilization of information.
		Collaborators must be able to mediate, compromise and resolve conflicts during collaboration quickly.
Component 5	Initiatives to work under collaboration	Members in the network must have a set of rules for working together
		Network members must have targets and objectives to drive collaboration
		Members of the network must seek ways to work together with compromise.
		Network members want to plan together, both in the short, medium and long term to ensure that the work continues.
		Members of the network must exchange resources with each other to help drive operations.
Component 6	Collaborative-driven action	Groups of individuals/organizations from government, private and civil society sectors that join the network are responsible for the assigned roles.
		Members of the network must continuously drive joint activities for the sustainability.
Component 7	Collaborative monitoring and evaluation	Members of the network must monitor their performance.
		Members of the network must evaluate the achievements.
		Members of the network must reap the benefits arising from promoting access to and utilization of information together.

4. DISCUSSION

The results revealed that a collaborative network to promote the underprivileged groups in accessibility and utilization of broadcasting and telecommunication information consisted of 4 groups as follows**:** 1**)** availability of resources and support from government agencies 2**)** characteristics of effective collaborative networks 3**)** leadership/collaborator roles, and 4**)** participation process of collaborative networks**.** The researcher discussed the study results of exploratory and confirmatory factors as detailed below**.**

1) Factor 1 **"**Basic resources for collaborative support**":** These results underscore the critical importance of providing basic resources in dimensions such as useful information, physical location, essential communication resources, and budget allocation to promote the accessibility and utilization of broadcasting and telecommunication information for underprivileged groups in policy implementation. These findings align with the

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

perspective of Wiphasiri Boonchuay (2015), who emphasized the significance of resource availability in policy implementation. Key resources required for successful policy implementation encompass human resources, equipment, facilities, operational sites, budgets, and more. These resources represent the initial steps towards effective policy implementation. Without adequate resource availability, policy implementation can be hindered or rendered difficult. Furthermore, these results are consistent with Katz et al. (2004), who stressed that a critical factor in network development and the effective management of network support lies in the availability of operational capital. Adequate financial resources are essential for ensuring the sustainability of networks. Networks must allocate budgets for supplies, equipment, and the involvement of personnel to thrive and achieve their objectives.

2) Factor 2 **"**Mechanisms to support collaborative networks**":** The results revealed that the Office of the NBTC supported a horizontal network model where network organizations maintained equal and supportive relationships. Additionally, organizations or individuals could take on roles in inter-network collaboration, such as information distribution or collaboration centers (Narumon Nathorn, 2000: 18-21). These findings are in alignment with Bevir (2010), suggesting that the policy implementation process, when guided by successful network management, involves a shift from a controlling state to a facilitating state. This transition promotes and supports effective policy development across various state sectors, delegating responsibilities and granting decision-making autonomy for operational flexibility. The government's role in this context primarily revolves around regulatory functions that encompass rulemaking, regulation, and audits within the bounds of the law, aiming to prevent excessive autonomy within the network.

   These results are also related to Wasan Luangpraphat et al. (2014), who emphasized that conditional factors influencing the establishment of a multi-sectoral collaborative governance process included institutional design. This design sets the rules, regulations, and norms of practice that bind all parties together in a multi-sectoral collaborative governance process. Furthermore, they align with Kjær (2004), who posited that the role of government actors in network-based governance was to shift from a command-and-control approach to exploring new techniques and administrative tools. This transformation aims to enhance the management process through non-government networked institutions.

3) Factor 3 **"**Key characteristics of collaboration**":** The results were in line with Beverly Cigler **(**cited in Ricardo S**.** Morse, 2005**:** 7-8**)** who emphasized that one of the fundamental prerequisites for collaboration is the emphasis on developing collaboration skills. This is also consistent with Bevir (2010), who highlighted that a crucial aspect of the policy implementation process for successful network management is the cultivation of collaboration within network management. This involves integrated work, collaboration, and the exchange of resources, ultimately contributing to success in public policy management.

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

4) Factor 4 **"**Network and collaborator capabilities**":** The findings align with those of Emerson, Nabachi, and Balogh (2011: 10-19), who highlighted one of the prerequisites for successful collaborative governance: system drivers must exhibit leadership qualities that foster motivation among stakeholders, promote interdependence, and account for the uncertainties inherent in collaborative systems. Furthermore, this correlation is supported by Katz et al. (2004), who emphasized that a key factor in network establishment and management is the presence of liaisons, individuals, groups, and organizations serving as coordinators and administrative units responsible for overseeing routine tasks. Within such networks, facilitators play a critical role by connecting and facilitating learning and developmental processes, acting as catalysts for change, and contributing to networking efforts. The communication process serves as a mechanism for connecting network members, fostering a shared understanding of the network's mission among its members, facilitating the dissemination and exchange of knowledge, and enhancing awareness of issues among members.

5) Factor 5 **"**Taking initiative at work under collaboration**":** The findings align with Kriengsak Charoenwongsak (2000, pp. 36-43), who explained that key elements of a network encompass a shared vision, a common understanding of future goals, a collective sense of direction, and shared action objectives. These elements contribute to a dynamic network movement, fostering unity and helping to resolve conflicts that may arise from differing perspectives. The results also underscore the importance of personal collaboration or collaborative work, which should involve three key activities: (1) planning, (2) sharing, and (3) goal achievement (Graham and Wright, 1999).

6) Factor 6 **"**Collaboration-driven action**":** The findings align with Weltch & Turbert (2000), as they indicate that key elements of collaboration involve network members sharing assistance, exchanging valuable information, maintaining organization and punctuality, and taking responsibility for their designated roles. This also resonates with Sonthaya Polsri (2007), who emphasized that a crucial aspect of networking is the development of lasting relationships among members who perceive each other as complementary. Even when some networks have sporadic events, their members remain connected and are readily available to participate when the need arises.

7) Factor 7 **"**Collaborative monitoring and evaluation**":** The results were consistent with Apinya Kangsanarak **(**2001**)'**s public participation process, the community must participate in 4 steps**:** 1**)** Participation in project-oriented startups 2**)** Participation in the planning phase 3**)** Participation in project implementation and 4**)** Participation in project evaluation**.** Consistent with Weltch & Turbert, **(**2000**)**, an important element of collaboration was that network members should share the benefits of joint operations that stimulate the desire for further participation by members of the organization**.** It was also related to Kjær, A**.**M**. (**2004**)** who mentioned that collaborative networks aimed to engage relevant actors in negotiations to find common ground in various public activities in society with the primary goal of mutual benefit for all**.** In addition, Provan and Kenis **(**2008**)** also stated that collaboration was an opportunity to build relationships, foster friendships and alliances, raise awareness of

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

mutual benefits, and share resources, effectively reducing duplication. Consistent with Ansell and Gash (2008), collaborative processes must take into account intermediate outcomes after consensus and mission commencement. Although small outcomes were achieved by stakeholders during implementation, it was a driving force for successful collaborative governance to provide a positive mechanism for the collaboration process, especially in the case of stakeholders who had conflicts before.

5. CONCLUSIONS

According to the components of collaboration to promote the underprivileged groups in accessibility and utilization of broadcasting and telecommunication information, the in-depth interviews and focus group discussions results revealed that the components of collaboration could be divided into 4 groups consisting of 1) Resource availability and support from government agencies 2) Characteristics of effective collaborative networks 3) Collaborative network role 4) Participatory processes of collaborative networks. The researcher could be classified into 52 observed variables. The quantitative method by using exploratory factor analysis was applied to identify underlying variables, or factors, that explain the pattern of correlations within a set of observed variables. In exploratory factor analysis, the researcher used common factor analysis with principal axis factoring and orthogonal rotation by the varimax method to obtain the most variable between groups. The results of exploratory factor analysis could be grouped from 52 variables into 7 new groups. In each group. However, the researcher required analysis to reduce the observed variables of more than four latent variables using factor analysis. After that, the variable with the highest total loading value was left that predicted the latent variable accuracy by more than 80%.

Finally, The results of exploratory factor analysis consisted of 7 latent variables and 24 observed variables and the researcher created a new name corresponding to the question as follows: Group A, or the "Basic resources for collaborative support" factor, consists of 4 observed variables; Group B, or the "Mechanisms to support collaborative networks" factor, consists of 3 observed variables; Group C or the "Key characteristics of collaboration" factor, consists of 4 observed variables; Group D, or the "Network and collaborator capabilities" factor, consists of 3 observed variables; Group E, or the "Taking initiative at work under collaboration" factor, consists of 5 observed variables; Group F, or the "collaborative-driven action" factor, consists of 2 observed variables; and Group G or the "collaborative monitoring and evaluation" factor, consists of 3 observed variables. Subsequently, the researcher examined the variables using confirmatory factor analysis (CFA) to check for model congruence and empirical data (observational data) using data analysis with the Lisrel package to analyze, examine, and modify the linear relationship model that was consistent with the relationship model derived from the relevant theoretical concepts. The results found that all indicators were within the specified criteria.

In conclusion, it can be established that the essential factors and indicators for enhancing the accessibility and utilization of broadcasting and telecommunication information among underprivileged groups comprise 7 latent variables and 24 observed variables. Consequently,

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

this study has successfully identified components and indicators to serve as criteria for collaboration among network partners.

As a result, the researcher formulated recommendations aimed at enhancing the accessibility and utilization of broadcasting and telecommunication information for underprivileged groups. These recommendations include: 1) Review and improvement of authority under the legal framework. 2) Establishment of an ad hoc task force. 3) Development and integration of databases. 4) Enhancement of personnel and network capabilities. 5) Mobilization of resources to support collaboration. 6) Adoption of effective patterns and methods for communicating information with underprivileged groups. 7) Ongoing support for activities promoting accessibility and utilization of information among underprivileged groups. 8) Implementation of performance-driven monitoring and evaluation through collaboration.

Notes:

This study has limitations as it was only conducted in pilot areas **(**5 provinces and 13 areas**)** with a **"**community media center**"** to promote accessibility and utilization of information in Broadcasting, Television Broadcasting, and Telecommunication of the underprivileged groups**.**

Acknowledgment:

The researcher would like to express gratitude to the following co-advisors: Associate Professor Dr. Siriporn Yamnill, Professor Dr. Srisombat Chokprajakchat, Associate Professor Dr. Piyakorn Whangmahaporn, and Associate Professor Dr. Krish Rugchatjaroen for their encouragement, knowledge transfer, and invaluable suggestions that significantly contributed to a more comprehensive and higher-quality dissertation. Additionally, I would like to extend my heartfelt thanks to the NBTC Board of Directors, NBTC executives and staff, government agency executives, broadcasting, and telecommunications licensees, as well as all stakeholders who served as key informants in this research. Their dedication in providing information through in-depth interviews, focus groups, and questionnaires was of utmost importance, and the researcher greatly appreciates their kindness. This information proved to be extremely valuable for the research.

Declaration of interest statement:

The authors have no conflicts of interest to declare. We have seen and agree with the contents of the manuscript and there is no financial interest to report. We certify that the submission is original work and is not under review at any other publication.

References

1) Ansell, C. and Gash, A. (2008). "Collaborative Governance in Theory and Practice**.**" *Journal Of Public Administration Research and Theory*, 18(4), 543-571.

2) Apinya Kangsanarak. (2001). *Effective organizational participatory management model at the faculty level of higher education institutions*. Bangkok: Chulalongkorn University.

3) Bevir, M. (2010). *Democratic governance*. Princeton, N.J. : Princeton University Press

4) Cigler, B. A. (1999). Cite in Ricardo S. Morse. 2005. "Facilitating Interlocal Collaboration: Community and the Soft Skills of Public Management." Paper prepared for the 8th National Public Management Research Conference, hosted by the University of Southern California, September 29 to October 1, 2005. Accessed December 5, 2011 Retrieved from *http://localgov.fsu.edu/readings_papers/regional%20governance/ Morse_Facillitating_Int erlocal_Cooperation.pdf*

5) Constitution of the Kingdom of Thailand. (2007). *Royal Gazette*. 124, 47a (August 24, 2007).

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

6) Dunsire, A (1990). "Holistic Governance." *Public Policy and Administration*. 5(1):3-18. Retrieved from https://journals.sagepub.com/doi/10.1177/095207679000500102

7) Eberhard E. Scheuing, Bo Edvardsson, (1994) "Service Integrity", *Managing Service Quality: An International Journal*, 4(4), 24 – 31. Retrieved from *https://www.researchgate.net/publication/235314301Service_Integrity*

8) Emerson, K., Nabatchi, T. and Balogh, S. (2011). "An integrative framework for Collaborative governance." *Journal of Public Administration Research and Theory*, 22, 1-29. Retrieved from *https://doi.org/10.1093/jopart/mur011.*

9) Graham, J. & Wright, J. A. (1999). What does interprofessional collaboration mean to professionals working with pupils physical disapilities? *British Journal of special Education*, 22(1). Retrieved from https://eric.ed.gov/?id=EJ585844

10) Government Information Act 1997. (1997). Retrieved on 10 November 2021. From https://www.ipthailand.go.th/images/633/law_info2540.pdf.

11) Hair, J. F. Jr. Black, W. C., Babin, B. J. Anderson, R. E. and Tatham, R. L. (2006). *Multivariate data analysis*. (6th ed). New Jersey: Prentice Hall

12) Katz, N., Lazer, D., Arrow, H., & Contractor, N. (2004). "Network theory and small groups." *Small Group Research,* 35(3): 307-332. Retrieved from DOI: 10.1177/1046496404264941

13) Kickert, W.J.M., Erik-Hans Klijn and J.F.M. Koppenjan. (eds.). (1997). *Managing ComplexNetworks : Strategies for the Public Sector*. London: Sage.

14) Kjær, Anne Mette. (2004). *Governance.* Cambridge: Polity Press.

15) Kriengsak, Charoenwongsak. (2000). *Network management: key strategies for successful educational reform*. Bangkok: Success Media.

16) Linden, R. (2007). "A Framework for change in the U.S.D.A Forest Service's," *NEPA Process. For the 21 Century Project.* (Accessed Jan. 17, 2016).

17) Lipsky, M. (1980). *Street-Level Bureaucracy: Dilemmas of the Individual in Public Services*. New York: Rusell Sage Foundation.

18) Lynn E. L., Jr. and Robichau W. R. (2000). Governance and organisational effectiveness: towards a theory of government performance. *Journal of Public Policy*, 33(2): 201-228. Retrieved from https://www.researchgate.net/publication/259433830_Governance_and_organisational_effectiveness_Towards_a_theory_of_govern ment_performance

19) Narongsak Srithanan. (2011). Approaches to new media regulation in the age of technology convergence. Executive Journal, 31(4) : 126-134. Retrieved from https://www.bu.ac.th/knowledgecenter/executive_journal/oct_dec_11/pdf/aw021.pdf

20) Naruemon Nirathon. (2000). *Networking: Some Considerations*. Bangkok: International Program on the Elimination of Child Labor. Office of the National Broadcasting and Telecommunications Commission (NBTC) of Thailand. (2020). *Performance report for the year 2020 [in Thai]*. Retrieved on 10 November 2021. from https://www.nbtc.go.th/getattachment//Information/AnnualReport/49325.

21) Office of The Public Sector Development Commission (OPDC), (2017). *Participatory Public Administration: Techniques and implementation.* Bangkok: Kaewchaochom Media and Publishing Center, Suan Sunandha Rajabhat University.

22) Office of the Public Sector Development Commission. (2017). *National strategy for creating opportunities for social equality [in Thai]*. Retrieved 19 October 2021. from https://www.sme.go.th/upload/mod_download/download-20201012114016.pdf

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10444544

23) Parker, G. M. (2003). *Cross-functional teams: Work with allies, Enemies, and Others Strangers*. San Francisco: Jossey-Bass.

24) Provan, K. G., & Kenis, P. N. (2008). Modes of network governance: Structure, management, and effectiveness. *Journal of Public Administration Research and Theory*, *18*(2), 229-252. Retrieved from https://www.researchgate.net/publication/31025597_Modes_of_Network_Governance_Structure_Management_and_Effectiveness

25) Research Fund Office. (2022). *Reducing economic inequality through fiscal measures*. Retrieved on September 25, 2022, from http://prp.trf.or.th/trf-policybrief/

26) Rhodes, R.A.W. (1997). *Understanding Governance: Policy, Networks, Governance, Reflexivity and Accountability*. Buckingham: Open University Press.

27) Rhodes, R.A.W. (2012). *Waves of governance. In Levi-Faur, The Oxford handbook of governance*. New York: Oxford University Press. 33-48.

28) Robbin, S. P. (2001). *Essential of organizational behavior (8th ed.).* New Jerscy: Pearson Prentice Hall.

29) Scheuing, Eberhard E. (1994). *The Power of Strategic Partnering*. Oregon: Productivity Press,

30) Sonthaya Phonsri. (2007). *Learning Network for Community Development*. Bangkok: OS Printing House

31) The Research Fund office of Thailand. (2022). *Reducing economic inequality through fiscal measures [in Thai].* Retrieved on 25 September 2022, from http://prp.trf.or.th/trf-policybrief/.

32) Torfing, J. (2005). *Governance network theory: towards a second generation*. European Political Science, 4, 305-315. Retrieved from https://link.springer.com/article/10.1057/palgrave.eps.2210031.

33) Wanchai Meechat. (2013). *Organizational management. (6th edition).* Bangkok: Samlada. [in Thai]

34) Wasan Luangprapat et al. (2014). *A complete research report on the project of synthesis of theoretical models and management from research results to develop collaborative mechanisms to solve common problems of local people.* .Bangkok: The Research Fund Office.

35) Welch, M., & Tulbert, B. (2000). Practitioners' perspectives of collaboration: A social Validation and factor analysis. *Journal of Educational & Psychological Consultation,* 11(3-4), 357-378. Retrieved from *https://www.researchgate.net/publication/247502984_Practitioners'_Perspectives_of_Collaboration_A_Social_Validation_and_Factor_Analysis.*

36) Wiphasiri Bunchuchuay. (2015). *An educational policy-driven approach to improve the quality of life of children with disabilities. (Master of Education thesis).* Bangkok: Chulalongkorn University.

37) Wright M. and Chiplin B. (1999). *Corporate Governance and Control: Beyond Managerialism and Marxism*. Human relation, 52(9): 1189. Retrieved from https://journals.sagepub.com/doi/10.1177/001872679905200905.