Open Education and Information and Communications Technology to Promote Functional Literacy and Mother Tongue Language among Ethnic Girls and Women in North of Thailand

Kamolrat Intaratat

School of Communication Arts, Sukhothai Thammathirat Open University, Thailand.

Corresponding author. Email: kamolratchim@gmail.com

Abstract

This study is based on participatory action research for development using qualitative approaches including document analysis, interviews, focus group discussions, observations, and participatory approaches such as trainings and workshops. Main findings in the context of the ethnic girls and women are: 1.1) General socio-economic conditions indicate that most of them are mountainous farmers, marriage age between 15 years to 20 years, and generally have gained primary education (whilst some of them have gained high school education) from a non-formal education centre in their community (if their family allowed); 1.2) Functional literacy levels suggested that most of them aim for better living; 1.3) Language literacy revealed that the Thai language is mostly used followed by English and Chinese languages; and 1.4) Information and communications technology literacy showed smart phones and social media are widely used. Findings within Functional literacy contexts are: 2.1) Gender aspect still un-balanced but improves if the girls and women can have greater opportunity to improve their functional literacy, the Thai language, income, and contribution for the farm; and 2.2) Priorities of functional literacy skills range from smart farming, nutrition, to the Thai language. 3) In the contexts of mother tongue language via open education and information and communications technology: 3.1) Mother tongue language is used to transfer their local wisdom, heritage, and crafts; and 3.2) Open education and information and communications technology are used to meet their priorities in the following order: gender sensitization, self-identity, mother tongue language base learning, and creative economy. Open education and information and communications technology should be used as a tool to integrate their local wisdom, creativity, use of mother tongue language, and resource management for their own betterment.

Keywords: *functional literacy, information and communications technology, mother tongue language, Northern Thailand ethnic girls and women, open education*

1.   Introduction

"Indigenous languages matter for sustainable development, peacebuilding and reconciliation" (UNESCO, 2019). The current situation and field report on Ethnic Girls and Women Empowerment through Functional Literacy in Northern Thailand, 2018 found some of the ethnic groups especially girls and women of the ethnic groups have their own "mother tongue" language and culture identity. Some of the ethnic group in Nan province, North of Thailand were found to the following identities: 1) Lau group

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whose ancestors have been lived in the mountainous area and engaged in farming; 2) Mhong group who have entrepreneur skills in managing and marketing their farm products as well as heritage crafts (in addition to earning more income, they also sustain their tribal heritage); while 3) Malabri and Khamu groups have their own unique culture and mother tongue language under the similar contexts of natural resources, environment but face problems related to Thai language literacy for functional tasks and life. Thai language limitation had created some gaps in terms of land ownership, gender status, life's security, education, job opportunity, and others aspects.

Gap between Thai language and mother tongue languages challenges the life of ethnic groups in leading quality life with sufficient resources is a major concern. The mother tongue languages of every ethnic group play a crucial role amidst all ethnic groups, not only as a tool for communication, education, social integration, and development, but also as a repository of their unique identity, cultural history, traditions, and memory. However, despite the immense value of mother tongue languages, they seem to be disappearing not only in Thailand, but also from other places around the world. The United Nations declared 2019 as The Year of Indigenous Languages (IY2019) in order to raise awareness, not only for the benefit of the people who speak these languages, but also for others in order to appreciate the contribution they make in enriching our world's rich cultural diversity. The digital technology disruption challenges the ability of digital technology to increasingly penetrate to more people of all ethnic groups in Thailand. Open education embedded with information and communication technology (ICT) can help to facilitate the improvement of functional literacy which then can help to empower, preserve, and sustain all mother tongue languages.

2.   Literature Review

The study of "Open Education and ICT to promote functional literacy and mother tongue language among ethnic girls and women in North of Thailand" has its main relevant literature as follow.

Open education is very important under the era of disruptive digital technology where all gaps and challenges keep widening especially among all marginalized people. It provides an opportunity to increase access to all the un-reached and marginalized people by proving fundamental knowledge and skills that are based on each group's identity, capacity, and heritage. ICT infrastructure that are commonly used to facilitate all forms of open education to enable possible and appropriate opportunities to all of ethnic groups can be improved. Open education often designed for self-directed learning with integrated stages and learning resources to serve well with life-long learning embedded through any kind of convergent media especially social networks, digital tools to facilitate any kind of interaction in the learning platform or the learning management systems (LMSs). Accessible social media are used widely and effectively. Open learning is flexible and caters to the demanding contexts of the learners with interactions throughout the learning process and use of open educational resources (OERs) (Verena Roberts, 2013).

Open and Distance Learning (ODL) is an innovative, flexible, and in-time learning design that is aimed to open opportunities to all learners. ODL can be used to provide tailor-made or personalised learning to all the outreached or the marginalized people. There is no doubt that under the current digital technology disruption, ODL solutions are much more accepted throughout the world in all education tracks: formal, in-formal, and non-formal educations embedded by ICT. More and more groups of people including the marginalized people can have easy access to various kinds of new horizons knowledge and opportunities that are well-integrated to real life needs including the new lifestyles that had to be adapted by all people amidst the present technology disruptions brought about by the recent pandemic. Such adaptation is seen as a new norm of the present global world. Advancement in technology-enhanced ODL and Lifelong Learning environment brought about new and innovative pedagogy that has helped to create effective learning environment. Scott McLean, et al. (2006), and Minnaar (2013) proposed ODL template analysis and challenges that can be strategically applied onto any ODL delivery systems points out that ODL has a great potential for helping a wide range of learners to achieve desirable and rewarding outcomes for themselves and their communities. ODL has proven its numerous possibilities to fulfil the promise of lifelong learning for all in many countries around the world.

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Massive Open Online Courses (MOOC) is a massive open free online course available for anyone under the concept of accessible, equity, affordable, designable and flexible context of open education. MOOC is the video-based learning embedded with any digital tools and OER aims to serve for diverse learning outcomes and purposes such as cooking, farming, gardening, physics, chemistry, media literacy, ICT, computer, etc. MOOC can serve all kinds of educational types: Formal, Non-formal, and In-formal education to achieve its final goal of self-learning and life-long learning.

Functional literacy refers to practical skill sets that are needed to read, write, and mathematics for real-life purposes in order to support people in performing their functions effectively within their community. Some of the examples are: 1) Health literacy which is the ability to understand healthcare information, particularly for making medical decisions or lifestyle choices about nutrition, exercise, sleep, and other elements that can affect physical and mental well-being; 2) Civic Literacy which refers to the awareness about how government functions, as well as your rights and responsibilities as a citizen and a voter; 3) Financial Literacy which describes the ability to manage finances and make decisions about money; and 4) ICT Literacy that identifies the ability to access, evaluate, utilize, and create messages through different types of media; and others.

Mother tongue language is a core component of human rights and fundamental freedoms that is essential to the realisation of sustainable development, good governance, peace, and reconciliation. A person's freedom to use his or her chosen language is a prerequisite to freedom of thought, freedom of opinion and expression, access to education and information, employment and other values enshrined in the Universal Declaration of Human Rights. Linguistic diversity contributes to the promotion of cultural identity, diversity, and intercultural development which affected to functional education and development for inclusive development of self, community, and societies as a whole (https://en.iyil2019.org/about/).

2.1   Relevant studies

Akello, Lutwama-Rukundo, and Musiimenta, in their 2017 work titled, "Functional Adult Literacy: An Alternative Gateway to Grassroots Women's Improved Income Generation in Lango Subregion, Northern Uganda" presents findings of women's experiences of Functional Adult Literacy (FAL) as a gateway to their financial progress and welfare in Lango region, Uganda. The qualitative study of 45 participants aimed at examining women's live changes resulting from using their acquired FAL knowledge and skills to participate in Income Generating Activities. The study demonstrates that FAL brings out women's individual and collective agency through "conscientization" concept and dialogue as tools for marginalized people in the act of social and economic change agents. Findings revealed that FAL training improves women's livelihood. The government, international development partners, non-governmental organisations, and civil societies should ensure strong support for FAL program.

UNESCO's Institute for Education and Luzac Oriental, Hamburg, Germany, supports the study "Landscapes of literacy: an ethnographic study of functional literacy in marginal Philippine communities" that was undertaken in 1996 to improve the design and delivery of the Literacy Coordinating Council of the Philippines' throughout the Philippines. It examines the social meanings of literacy in a number of marginal communities, in which the common characteristic is an average income below the poverty threshold. Issues investigated include the meaning of functional literacy and its measurement found the concepts of literacy and numeracy are embedded in their social and cultural contexts. The findings have important implications for the design of community literacy programs.

Following the above discoveries, it is important for all ethnic groups in Thailand to empower themselves to cope well with changes by improving their functional literacy through open education and ICT. Thus, the objectives of this research are:

i.   To study context of the ethnic girls and women in North of Thailand: the socio-economic context, the Functional literacy, the Language Literacy, and the ICT literacy;
ii.   To study the Functional literacy on the ethnic girls and women in North of Thailand: Gender aspect and Priority demands;

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iii.   To study the Mother Tongue Language situation and its transition integrated with better living by Open education and ICT.

3.   Research Method

Participatory action research for development with the qualitative approach with its two stages are as follow; 1st stage involve documentary analysis, followed by focus group discussion for group interview and observation. The results from the 1st stage, were then used to organize the participatory training and workshop as its 2nd stage of participatory approach. Purposive samples involved as key informants were 1) Three leaders of ethnic girls and women as the representatives from three main tribes; and 2) Fifty stakeholders from all three tribes (the non-formal education teachers, the development workers, the staff of the local administrative bureau, and the community leaders).

4.   Findings

4.1.   Contexts of the ethnic girls and women in North of Thailand: Nan province: Socioeconomics, Language, and ICT literacy
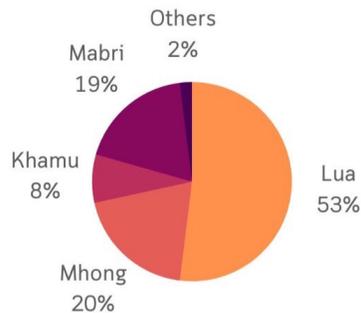

Figure 1. Ethnic groups of girls and women in Nan province, Kanyaporn, 2018

Case1-Ms. Tam: Lua ethnic at BanTanoi village, 18-year-old, was born into a family with two children in Phuka sub-district, Pua District in National Forest Park. Her family is a highland farm family with rice and corn produce. Tam graduated Grade 9 from a local public school. She was forced to leave school due to lack of financial support, but she obtained a chance to study again with the vocational training centre, The Silver Handmade Group. Her saving of around 6,000 THB per year encouraged her mother to let her work at the village community. Currently, she's working with her family in village, and just got married.

   Functional literacy: Ms. Tam said she became a leader among women empowerment through functional literacy project because she is very active and in need for any change to improve her life and her family. She wants to improve her occupational skills, self-empowerment, as well as keen towards greater opportunities. Most importantly, she says, she desires to share her experiences, knowledges and skills among her friends and others who have similar needs and problems like her.

   Language Literacy: "My Thai language is quite ok now, then I plan to improve my ability of language, which is English because I think that it is necessary to be able to communicate English with tourists as a tour guide. So, my future career might be a guide in my community. For Thai language, I usually help my teacher whom mobile to teach us at the community hall, so, it is really fasten my Thai language's learning".

   ICT literacy: Ms. Tam is able to use social media tools such as Facebook, Line and You Tube. She loves watching Thai movies from YouTube. She said. "If I can get the better education, I want to be a nurse, or may open my own shop by selling hand-made silver".

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Case2-Ms. Ms. Mam: Lua ethnic from Ban Tanoi village, 18 years old, born into a family with three children in Phuka sub-district, Pua district in National Forest Park. Ms. Mam never attended any school before or even participated in any available training although they were offered to her and her family. The main barrier is that she cannot read, write or even count, she said, "I use only my own language". Her family needs her to do farming. She got married when she was 15 years old and currently has one son. She is living with her parents and her husband; both her parents and her husband are rice and corn farmers.

Functional literacy: Ms. Mam is interested to join with the Functional literacy Project because of its attraction to her interests. Ms Mam said, "I have planned to send my son to the school even though I never experienced with any schooling before, I believe that education can change our life to be better".

Language Literacy: Despite the lack of schooling, Ms. Mam is able to communicate well in Thai language because she often communicates with all the visiting local staff such as the health officers, and the family planning staff who provided contraceptive pills. She cannot write when she was asked to fill any form, but she can understand. She voiced that, "If I can write Thai language as I communicate, I am sure that myself and my family can access more benefits and even can protect ourselves, our properties, and our community as a whole".

ICT literacy: Ms. Mam uses smart phone during her available time more that others in her family. Thus, she often acts as the "speaker" for her family. "My husband, and my mother-in law listens to me more, I feel thank to my smart phone because they listen to me more, they consult me more". "Anytime that I got a chance to meet anyone who seems to know about ICT, I always ask them more technics, and functions". She aims to be ICT savvy.

Case3-Ms. Nong: Lua ethnic at Salai Luang village, 20 years old, was born into a family with two children. Her family lives in Boklor Nua sub-district, Boklor district in National Forest Park. Ms. Nong graduated at primary level from her village local school when she was 12 years old. She is the only one in her family who was educated but could not continue her study since her parents needed her to help them with farming. Furthermore, they did not have sufficient money, and the school is very far from home. She got married when she was 19 years old and now has one daughter. Her family's main income is mainly from natural farming.

Functional literacy: Ms. Nong never thought about attending in any education or training, she just received two trainings from government officers. She was interested to join the Functional Literacy project because one of her friends had inspired her. "I am very happy and relax to join the Functional Literacy project because I can be out from my family from time to time to see more outside world, to use my own mother tongue language, to listen to myself and others' stories both inside my own community and others".

Language Literacy: Ms. Nong is very relaxed to use her own mother tongue language but she is also open and curious to use Thai and English languages. "Thai and English languages is more and more important now, because we must use it for selling our farm products, we don't want to pay for any middle man. And for English, we want to earn more from all the tourists who keep coming into our community and many of them use our home stay, drink our coffee, and eat our food…".

ICT literacy: Ms. Nong regularly uses smart phone for various purposes: communicating, coordinating, negotiating about farm products among all stakeholders, and also among her family members. "Anytime of breaking news, my husband will ask me to search for all such news and let me warn the other family members such as floods, forest waters or fire, drought, irrigation, storm, epidemics, etc".

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4.2.   Functional literacy contexts on Gender aspect and Priority demands

4.2.1. Functional literacy contexts on Gender aspect

The responses were examined by content analysis from the FGD interviewed. Refer Table 1.

Table 1. Functional literacy skills affected to the Family's role: Gender aspect

Ranking (top to least)	Functional literacy skills (Gender aspect)	High role in family (%)	Remark
1	Thai Language literacy	67%	Because the Thai language is the gateway for opportunities for the ethnic groups
2	Can earn more extra income	65%	If girls or women can help the family to earn more income, they would be more recognized by the male as well as the family's members
3	Can produce more farm products	63%	Can help, contribute to the farm production
4	Can do the family planning and management	62%	To be the leader in family (management, planning, saving, resources, etc.)
5	Can communicate well with the others outside the village	61%	For purposes such as tourism, trading, etc.
6	Can do a well calculation	60%	Calculation is one among the key skill required in their farms' product sales and negotiations
7	Can use ICT	55%	ICT are used for communication, marketing, coordination, information, etc.
8	Can use English	52%	For tourism purpose and others
9	Can use the farm technology	51%	For effective farm production
10	Can use Chinese language	51%	For tourism and trading purposes

4.2.2. Functional literacy contexts on Priorities.

The responses were examined by content analysis from the FGD interviewed. Refer Table 2.

Table 2. Functional literacy is based on priorities measured

Ranking	Priorities of Functional literacy	Priorities (%)	Remark
1	Smart Farm	66%	Farming is their main career, so the effective farming can bear more products and income
2	Nutrition	65%	Girls and women are mostly married young, thus need to know how to care for themselves and their family members
3	Sanitary	62%	Same to Nutrition
4	Thai language	60%	Followed by English and Chinese languages
5	Entrepreneurs	59%	Aims to have more skills for their farm marketing
6	Extra job / income	56%	Aims to earn more income for the family
7	How to use ICT for communication and others	53%	For greater access to general information (benefits & welfare, etc.)
8	How to use innovation for farm / job production	52%	For greater farm production
9	Calculation, Accounting, Numeracy	51%	For their farm product marketing
10	More productive skills	50%	Marketing, Local products value added -Local products design

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4.3.   The contexts of Mother Tongue Language facilitated by Open Education and ICT

4.3.1. The contexts of Mother Tongue Language – refers to the overview situation and process of using the Mother Tongue Language among all ethnic groups to empower the girls and women in transferring their local wisdom, heritage, and crafts base on their own creativity and readiness. The contents analysis was done based on gender aspect's indicators as of Pictures 1-2.

Pictures1 Reflecting the scenario of the tribes: family, gender, community, beliefs, religion, and environment.
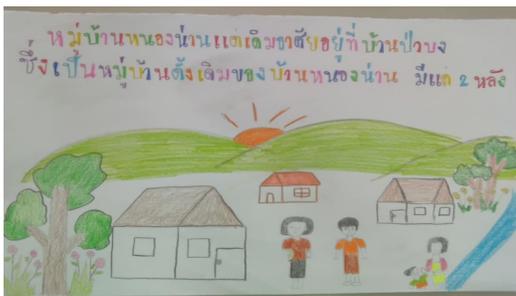

Table 3. Content Analysis from Story -Telling of the ethnic girls and women in Nan province (Reflection of community, tribe, gender, local wisdom, Mother Tongue, and leadership)

The ethnic girls and women reflections in their Story Telling	Yes	No	Other/ More reasons
1. The story has all gender balance?	5	1	-
2. Girls/women are the leaders of the story?	1	5	-
3. Men are the leaders of the story?	6	-	-
4. The story give value to women in the family / in the community?	4	2	-
5. The story give value to men in the family / in the community?	5	1	-
6. The story reflects all genders, races, social status, marginalizes, etc.	2	4	-
7. The story reflects the gender balance in workforces / working	1	5	-

From Table 3: Content analysis by using gender indicators from story-telling of the ethnic girls and women in Nan province reflecting their current contexts in their daily life and community which focuses more on gender analysis found gender balance in the family of ethnic groups still leans towards male domination but seems to be more balanced.

4.3.2. Open Education and ICT for Functional Literacy Curriculum to cater for the priorities of ethnic girls and women in Nan province

i.   **Functional Literacy Curriculum design** by using Open education and ICT has been used to design the Functional Literacy Curriculum to cater for the priorities of ethnic girls and women in North of Thailand: Nan province.

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Table 4. Tailor made of Functional Literacy MOOC Curriculum to serve priority demands of ethnic girls and Women in North of Thailand: Nan province
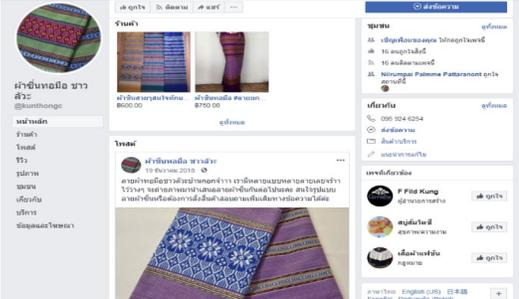
Module	Functional Literacy Curriculum via MOOC
1	**Gender Sensitization and Education** - Gender and Gender status - Gender balance and workforces - Gender and education opportunity & how - Gender power to support each other - Women participation under frame of gender
2	**Self – Identity and Self Sufficiency** - Women identity analysis and cultural calendar - How to make cultural calendar - Gender analysis - Calculation
3	**Mother Tongue Base Learning** - Definition and importance of mother tongue language - Development of written mother tongue language - Educational assessment by using the mother tongue language - How to create the story telling by using the mother tongue language via "Big Book"
4	**Information Technology** - Fundamental of ICT (especially the Information System) - "Must Know" Applications for Professional Work - How to create the creative media based on their local wisdom
5	**Creative Economy by Ethnic Group** - Alternative solution: Creative economy by your own - Learning from your idol/ role model - Experiences sharing

ii. Functional Literacy to access online channels: Marketing and Advertising of community products for income generations

Use of ICT to train all ethnic girls and women to create their own idea and use existing resources that are ready for more market. ICT has been used as a tool to embed all local wisdom, creativity, mother tongue language, and their own resources management.

- **Transition from physical shop to e-Shop** created through their own creativity and existing resources as shown in Table 5.

Table 5. Examples of the e-shop or online marketing created by the ethnic girls and women

Name of e- Shop	e-Shop Banner and Identity	Link of e- Shop
Phasintormua Chao Lau By Lua Tribe (Indigenous handmade textile)		https://www.facebook.com/kunthongc/

- **Transition from Written and Oral Mother Tongue to Digital Story telling** created through their own creativity and existing local wisdom and resources.

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Story-telling has designed as the combination and integration of various aspects: local wisdom, mother tongue, lifestyle of the tribe, identity and pride. ICT was used as the transferring tool from the analogue channel to the online or the digital channel aimed at greater visibility and sustainability.

5. Discussion

5.1 Contexts of the ethnic girls and women in North of Thailand: Nan province found;

(1) **General socio-economic** found most of them are the mountainous farmers, their common marriage age is around 15-20, and generally gain primary education from nearby school then continue the high school from Non-Formal education accessible in their community (if their family allowed); (2) **Functional literacy** found most of the ethnic girls and women want to attain the Functional literacy class aim for their better living as a whole. "I need the better chances of life by improving her occupational skills". "If I can get the better education, I want to be a nurse, or may open my own shop by selling hand-made silver"; (3) **Language Literacy** found "Thai language is a must" because if we can use it, it would be easier for us to trade, to negotiate, and to coordinate with the others"; and (4) **ICT literacy** found "Smart Phone is everything for us now, we can communicate freely compared to before. Because it is more affordable and accessible". "Social media tools are very important for us: Facebook, Line application, YouTube, because we can also learn Thai language from all these media too". "To be able to use smart phone to access to any urgent or important news, really add value to me, my husband and other members listen to me more and even request me to search some more information, I am so happy and feel be powered".

5.2 Contexts of Mother Tongue Language facilitated by Open education and ICT found;

(1)   Contexts of Mother Tongue Language found all ethnic groups use it to transfer their local wisdom, heritage, and crafts base on their own creativity and readiness. From the story -telling analysis, it was found that gender balance in the family of ethnic groups still leans on male domination, but seems to be more balanced; (2) Open education and ICT for Functional Literacy Curriculum to serve priority demands of ethnic girls and women should be more gender sensitization, more aware of identity, mother tongue, and Creative economy; and (3) Functional Literacy to access more online channels to promote the community products and increase income generation were found to be very effective and quickly learnt by the ethnic girls and young women. They can use ICT to create their own idea based on existing resources that are ready for more market. They can use ICT to transit their farm products selling from physical shop to e-Shop based on their own creativity and existing resources; they also can transform their written and oral mother tongue to digital language via story telling reflecting their ethnic aspects: local wisdom, mother tongue, lifestyle of the tribe, and identity with pride and confidence.

6.   Conclusion

Main findings under the contexts of the ethnic girls and women in North of Thailand in Nan province are: 1.1) most of their general socio-economic are the mountainous farmers, marriage age is around 15-20 with primary education; 1.2) Functional literacy are mainly for better living; 1.3) language literacy found "Thai language is a must"; and 1.4) ICT literacy found "smart phone" as their fundamental tool to serve all their purposes. Under the gender aspect and priority demands found mostly un-balanced in all dimensions, but it seems to be better if they can be more access to more functional literacy; and top three priorities are smart farming, nutrition, and Thai language respectively. Under the contexts of mother tongue language facilitated by open education and ICT, it was found that: 3.1) Mother Tongue languages still being used to transfer their local wisdom, heritage, and crafts base on their own creativity and readiness; and 3.2) Open education and ICT for Functional Literacy Curriculum should be more aware followed by identity, mother tongue, and creative economy. They can use ICT to change their community products sale from physical sales to online-based sales using their own creativity and existing resources;

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they also can transform their written and oral mother tongue language to digital language via story telling reflecting their ethnic aspects in terms of local wisdom, heritage, lifestyle, and identity with pride and confidence.

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