

Indigenizing and contextualizing the use of cooperative learning strategies

Reynaldo B. Inocian¹, Leilani C. Dapat¹, Genara B. Pacaña¹, and Gerome M. Lasala²

¹*Institute for Research in Innovative Instructional Delivery (IRIID), Cebu Normal University, Cebu City, Philippines, 6000*

²*Cebu Normal University Museum, Cebu Normal University, Cebu City, Philippines, 6000*

Corresponding Author: inocianr@cnu.edu.ph

DOI: <https://doi.org/10.37134/jrppte.vol9.no2.1.2019>

Received: 24 June 2019; Accepted: 10 October 2019; Published: 25 November 2019

Abstract

Exploring the indigenous Cebuano cultural practices contextualizes a culture-based Cooperative Learning (CL) strategy. The study explored the socio-cultural background of Cebuano cooperation as reflected in the communal practices of the *tagay*, *alayon*, *yayong*, *tambayayong*, and *unong* (TAYTU); the process of localized cooperative learning strategies contextualized in the TAYTU; designing lesson exemplars in the TAYTU way. This qualitative study used a directive content analysis design using relevant research findings and initial codes that serve as bases of future projections, as a form of trend studies in CL strategies. The exploratory design was used to provide visualization of TAYTU exemplars. FGDs were conducted among the 60 research participants: *alayon* farmers (20), *tambayayong* fishermen (20) and male-drinkers (20), using enumeration sampling and inclusion criteria to establish the socio-cultural background of the study. The indigenous identities of the Cebuano cultural practices bridge a potential exploration of the localized and contextualized CL strategies in realizing the noble aim of *malasakit* in the Philippines' *AmBisyon Natin 2040*. Catharsis in *tagay*; togetherness and unity of command in *alayon*; sensibility and sensitivity in *yayong*; sharing of extreme emotions in *tambayayong*; and intimacy and solidarity in *unong* featured a socio-cultural background necessitated in the crafting of the TAYTU Models of CL Teaching exemplars.

Keywords: Localization, contextualization, indigenizing, TAYTU Model of CL, CRP

INTRODUCTION

Learning in Western perspective cascades several influences in most academic disciplines. Theories and application for teaching strategies developed by renowned social scientists and educators in the West becomes very popular for the last centuries. Less is known about the teaching strategies developed in the East; except for a few Oriental scholars like: Confucius, Mencius, and Lao Tzu in China's past who were once known in the philosophy of education.

The phenomenal movement of globalization of Western perspective reasserts Eastern consciousness to maintain a global balance of education. The effect of an imbalanced perspective of globalization is crucial to scholars in searching for the truth (Hindi, 2014). Thinking glocal becomes a buzzword for internationalization of education to promote one's cultural identities in diverse contexts: collectivistic/cyclical and monolithic: individualistic/linear. The demands for globalization and internalization require the achievement of the nation's progressive status (Nor Hasnida Che, Nurulhuda, Norfishah Mat & Syaza Hazwani, 2018), by engaging in the knowledge economy produce creative, innovative, flexible, problem solving workers (Kennedy, 2011). In order to compete globally, 21st century learners need to master the 21st skills of creative and critical thinking (Inocian, 2015; Inocian & Inocian, 2016; Nor Hasnida Che, Norfishah Mat & Nurulhuda, 2017; Serbo & Ancho, 2019), using brain-based learning strategies (Inocian & Lasala, 2014). Rosaroso, Yap & Gador (2015) affirmed that for internationalization of education to become elemental and obvious, a shift from teacher and content-focused to collaboration and learner-oriented instruction necessitates a new paradigm; where sharing of thoughts and actions becomes a deliberate discourse in Cooperative Learning (CL) strategies. This paradigm supports people's collectivistic behaviour to achieve the noble ends of the education.

CL strategies are innovations by Western scholars in the 70's in order to maximize cooperation in the classroom, ensure effective learning, and enhance higher level of productivity (Brown, et al., 1971; and Gartner, et al., 1971 in Mai Nguyen-Phuong-Mai, 2018). However, other researchers develop their own strategies that realign the CL's wider scope like the Jigsaw I of Eliot Aronson in 1978; the Jigsaw II of Slavin in 1987; the Jigsaw III of Stahl in 1994; the Jigsaw IV of Holliday in 2002; the Jigsaw V of Mengduo & Xiaoling in 2010; the Reverse Jigsaw of Hedeem in 2003; the Subject Jigsaw of Doymus in 2007; the Remap Jigsaw of Indriwati, Susilo & Hemawan in 2019, and among others (Putnam, 1998; Maden, 2010; Mengduo, Quiao & Xiaoling, 2010; Hedeem, 2003; Doymus, 2008; Sevim, 2014; Indriwati et al., 2019). But these scholars are mostly Americans, except for Mengduo & Xiaoling; Doymus, Indriwati, Susilo & Hemawan who are respectively Asians. None in the Philippines shows interest in bringing an indigenous CL in the classroom since the last five decades, until the conceptualization of this study. Yaduvanshi & Singh (2018) asserted with the use of CL for a lively engagement of learners in the learning process. CL promotes a compassionate, friendly, encouraging, and cooperative relationship; a participative and interdependent learning environment; and a healthy psychological well-being (Johnson & Johnson, 2014).

Seeing the importance of these pieces of literature, the study is relevant in relation to the UNESCO's 21st-century framework of Learning to Live Together, as one of the four pillars of learning introduced by Jacques Delors in 1996. Though Southeast Asians often stereotyped for being ritualistic and mystical (Evers, 2015); but their minds transcended to contribute a greater value in the teaching and learning process, ...which makes their local culture epistemic despite being cosmopolitan (Evers, 2015). This character nuances that while embracing modernity; Southeast Asians retain their unique cultural identity and capable to live together in one region. The nation's cultural identities serve as a very important factor in a Culturally Responsive Pedagogy (CRP). CRP is a teaching initiative in a diverse classroom using culture as framework in lesson development, which provides easy access in facilitating students' learning (Irvine, 2009; Mette, Nieuwenhuizen & Hvidston, 2016). CRP also supports the previous works of Pacaña, Ramos, Catarata & Inocian (2019) in a *Bayle* Teaching Model grounded on the culture of dancing in the rural past; Tejada, Juarez, Molbog, Inocian (2018) in an *Ugmad* Teaching Model built on the culture of upland farming; and Estrelloso, Cuyno, Gimoros & Inocian (2019) in a *Labada* Teaching Model founded on the culture of traditional laundry practices in the rural areas.

One common way to make CRP relevant is through the use of CL in local and cultural contexts. As a Western approach to learning, CL has a certain discrepancy – a mismatch between its Western creators and the Asian clients – the learners who use it (Mai Nguyen-Phuong-Mai, 2018). This mismatch nuances the obvious culture divide between the West and the East, where Western context is not appropriate in the Oriental context, and once it is insisted to enforce, it creates a certain ‘cloning’ of Asian perspectives. This scenario violates the essence of indigenization or localization in the promotion of a Filipino national identity and solidarity in particular and for being an Asian in general. One way to make CL culturally appropriate is to adopt a learning pedagogy, i.e. culturally responsive by indigenizing and contextualizing the teaching and learning process, in support to Mai Nguyen-Phuong-Mai’s argument, as the main purpose of this paper. Thinking on whether the quest for indigenization of the lessons brings a positive result or not. Chao, Jiang, Yeh, Liu & Lin (2019) revealed that there is a significant performance in collaboration, communication, and creative thinking in the context of an indigenous culture.

Indigenizing CL strategy enforces the quest for localization and contextualization, by virtue of the Republic Act 10533 provisions on the implementation of basic education in the Philippines. Contextualization is an instructional process, which establishes connections between disciplinary contents and the learners’ real-life experiences, their characteristics as individuals and the culture and habits of a particular social context (RA 10533, 2012). To contextualize, a Cebuano CL is a distinctive learning strategy modelled on the basic elements of TAYTU localized procedures, i.e. *Tagay* (a friendly social drinking), *Alayon* (a communal cooperation), *Yayong* (a partnership), *Tambayayong* (a teamwork), and *Unong* (an empathy). Localizing strategies of teaching improved the learners’ reading performance than the common reading strategies (Indriwati et al., 2019; Egcas, Tabotabo & Geroso, 2017). Embracing a culturally-based TAYTU, the role of the teacher is a facilitator of a humanistic instruction, and a values carrier (Hindi, 2014), in the educative process.

By learning these indigenous TAYTU CL strategies, this makes Cebu and the Philippines ready for the ASEAN integration and internationalization of education, where the interplay of indigenous culture imperatively positions to promote a tapestry of an Asian identity in the academia’s global arena. Twenty-first-century learners can learn better using indigenous teaching strategies because they can understand their own culture and their physical environment (Chao et al., 2019). This aspiration follows the progressivist view that requires the use of reassertion of Filipino culture in general and the Cebuano culture in particular at par with the people’s diverse cultural contexts in Asia and the global community.

BACKGROUND AND RATIONALE

Cooperation is a universal concept; though, its context is culturally different. The Western cultures nurture the self to be individualistic; while, Asian cultures enhance the self to be interdependent and collectivistic (Mai Nguyen-Phuong-Mai (2018). Like other Asians, the collectivistic nature of Cebuano TAYTU strengthens the justification of the study. It is the desire of this study to look into the indigenous CL in Cebu as reflected in the practices of TAYTU manifested by the locals in Cebu’s remote farming and fishing villages, where they also engage in social drinking after the day’s toil. This context describes the process of localization. Taylor (2004) as quoted by Egcas et al. (2017), accentuated that “Localization is the freedom for schools or local authorities to adapt the curriculum to local conditions and relating the content of the curriculum and the process of teaching and learning to the local environment.” Concepts, principles, and values of these practices can be made as benchmarks, to develop a functional pedagogical content knowledge in the classroom, as an

imprint of Cebuano identity in Asia. The results of this study are significant among the local and international teachers to appreciate the application of the indigenous cultures in the academic world. This is one way to bring back the tapestry of the Malayo-Polynesian cultures, which were once obliterated by foreign influences. Justifying the constitutional mandate that teachers are trustees of the cultural heritage of the nation, it strengthens the desire of this study to completion, as one of the noble contributions of the Philippines to the academic communities in the world.

THE CL TRADITIONS

Based on existing literatures, the use of CL in the classroom contributes to higher academic performance (Meng, 2017; Najmonissa & Saad, 2017; Santos Rego et al., 2018; Nejad & Keshavarzi, 2015), certain degree of motivation (Indriwati, et al., 2019; Cornelius-Ukpepi, Aglazor & Odey, 2016), increased socializations (Munafo, 2016; Gillies, 2016), enhanced positive relationships and psychological health (Cornelius-Ukpepi et al., 2016; Johnson & Johnson, 2014). These results are signs of human beings' social nature and their ability to maximize optimum cognitive potentials. Their ability to interact and be a part of a social group makes human interaction possible with social connections. To socialize is one of the 21st century skills to be contextualized culturally in the teaching and learning process.

Enumerable studies show that improvement is made possible through CL (Mehta & Kulshrestha, 2014; Fini, Zainalipour, Hossein & Jamri, 2012; Ocampo & Ocampo, 2015; Fisher, Bernazzani & Meyer, 1998; Nevin, 1998). Cepni & Temizbas (2015) believed that in CL, learners work together to maximize their own learning, in order to achieve a common goal in small groups. In the Philippines, CL gained attraction for more than 40 years, since its introduction in the West. Thus, Serbo & Ancho (2019) recommend the use of collaborative and cooperative activities in the field of social sciences. The values of communication, candor, trust, volunteerism, conflict resolution, synergy, and actual interaction are the social skills that need to be practiced in the learning process (Johnson & Johnson 1998, 2014; Johnson, Johnson & Holubec, 1993 in Mengduo & Xiaoling, 2010). These social skills create attraction among Filipino educators in the classroom because of their similar local practices within the fabric of the Filipino culture like the *bayanihan* (sense of social communal responsibility) and the *damayan* (sense of empathy).

SEARCHING THE ASIAN INDIGENOUS IDENTITY

The culturally diverse Asians need to reassert their collectivistic identity (Mai Nguyen-Phuong-Mai, 2018) to be socially cooperative within the continent; and to be mystical and epistemic in reasserting their identities; while being cosmopolitan in the global arena (Evers, 2015). This suggests that a culturally appropriate CL would result to better learning outcomes. In order to preserve these indigenous identities, there is an imperative to look back on the unique collective social patterns of cooperation in different parts of Asia. The *kibbutz* of Israel; the *gung-ho* of China; *nonghyup* of Korea; and *teikei* of Japan are evidences of an Asian social nature, which are not given enough recognition as an important teaching strategy in the classroom, because of their farming group orientation that develops into successful cooperatives. The *kibbutz* is a collective community of farmers in Israel which provides social services such as health and education (van IJzendoorn, 1994). China's *gung-ho* is one of the oldest forms of communal cooperation following the principles of international cooperative movement (Bernardi, 2016). *Nonghyup* provides a sustainable development of specialized farmers of Korea (Guillian & Yang, 2015). In Japan, *teikei*, as a form of partnership promotes security of food consumption (Ealdama, 2012).

THE PHILIPPINE CONCEPT OF *BAYANIHAN*

Before the arrival of Spanish colonizers in the Philippines in 1521, the Filipinos exhibited the communal practices of cooperation known as the *bayanihan*. This shows when male members in the community help in the uprooting of a hut to a new location. Other versions of the *bayanihan* are shown in terms of helping one another during harvest and planting seasons. Ealdama (2012) mentioned that when the time of disaster, the *bayanihan* espouses strength of the Filipino to help one another in building a strong nation called *bayan* [nation], where its etymology derives. Being at the bosom of the Philippine archipelago, Cebu has similar concepts to *bayanihan* to show the potentials of the Western CL strategies using the Cebuano cultural practices of TAYTU. *Tagay* is a round-robin style of drinking among Cebuano *tangero* or male drinkers. This social drinking uses with only one glass i.e. shared among them. In the rural areas, the most commonly used is the *hungot*, a dried coconut shell, polished to make it functional for a drinking spree. The use of one glass or *hungot* suggests unity, solidarity, and social bonding.

Several scholars accentuate the prizing of drinkers' social bonding together with human motivation and behavior in drinking with reciprocal social norm (Creswell, Sayette, Manuck, Ferrell, Hill & Dimoff, 2012; Carrigan, Lindridge, MacAskill, Eadie, Gordon & Heim, 2009; Keenan, Saburova, Borova, Elbourne, Ashwin & Leon, 2015; Tingey, Cwik, Chambers, Goklish, Larzelere-Hinton, Suttle, Lee, Alchesay, Parker & Barlow, 2016; Walker & Bridgman, 2013). In the past, drinking was a primal motivation of Genghis Khan's success, as a mighty conqueror of Eastern Europe and Asia in the early 13th century to build the mighty Mongol empire (de Hartog, 1989). Manton, Pennay & Savic (2014) retorted that drinking promoted social connections in a favored activity. In the Philippines, *tagay* is usually done at the bar, at home or in the *tambayan* center or street corners during a special occasion, after office work, and/or when someone invites for a friendly drinking to hang-out. In drinking, emotions are embodied in the management of friendship and build interaction of social relations (Törrönen & Maunu, 2011).

On the other hand, *alayon* is a communal farm practice in exerting or spending support in each of the group members known as the *mag-alayon*, in order to work for a number of days in his or her farm; taking turns during the tilling of the soil, the planting of the seeds, the uprooting of the weeds, and the harvesting of the crops during specific seasons. Another Cebuano practice is the *yayong*. *Yayong* means to lift—a verb form of the noun *pagyayong*, which means lifting. This cooperation is usually done by two individuals to help one who can hardly lift a heavy object. As a sensitive response, the individual can voluntarily help each other. When the community needs help for a heavy task, community members join hands together to engage in a collectivistic effort. *Tambayayong* is a collectivistic effort of at least more than two individuals participating to facilitate the completion of the work on time. The members of a farming or a fishing community join their efforts together and share their harvest or catch to those who are in need. During unfortunate times, members of the community extend succor. This act called *unong* emphasizes a voluntary help to someone who is in need like sickness, death, and other misfortunes in life. Ealdama (2012) calls this practice empathy.

These aforementioned five indigenous communal practices prove the collectivistic behavior Cebuano people like the rest of the Filipinos and other Asians to have greater potential to develop culturally appropriate CL strategies which are relatable to both teachers and students in the local context. As a learner-centered strategy, CL stimulated critical thinking and increases active participation (De Guzman, 2016); boosted learner motivation

and varied learning experiences (Indriwati et al., 2019; Cornelius-Ukpepi et al., 2016; Thomas, 2015); and increased the individual scores of the members (Yoo & Son, 2015). CL also contributed both individual and group accountability in learning (Mattingly & VanSickle, 1991). With these related studies, the desire to explore the indigenous identity of the Cebuano CL becomes a condescending act in the field of culture education in the Philippines.

RESEARCH OBJECTIVES

The study explores the indigenous identities of the Cebuano cultural practices contextualized in the CL strategies; describes the socio-cultural background of Cebuano cooperation as reflected in the communal practices of TAYTU; explains the process of localized cooperative learning strategies contextualized in the TAYTU; and designs lesson exemplars in the TAYTU way.

METHODOLOGY

This qualitative study used a directive content analysis design, which started with relevant research findings with the use of initial codes (Shieh & Shannon, 2005) like the available information that served as bases of future projections, as a form of trend studies in CL strategies. The exploratory design was used to provide visualization of TAYTU exemplars. Secondary research findings were used as guidance for initial codes for Cebuano communal practices to contrast the established secondary data of CL Strategies, in order to create a parallel Cebuano CL. The research participants were the 60 key informants of the study who were identified by the village chiefs of the selected villages of the study. The research participants were 20 *alayon* farmers, 20 *tambayayong* fishermen of and 20 *tangeros* (male drinkers) of San Fernando, Bantayan, Island, and Tanay of Talamban Cebu City, using enumeration sampling who were subjected to focused-group-discussions (FGD's) to gather the study's socio-anthropological background. Inclusion and exclusion criteria selected the research participants of the study. These identified areas were selected because of the presumption that TAYTU cultural practices are not fully obliterated by foreign influences. Secondary data were also used in order to provide CL framework for western perspective, which was contrasted on how the essential elements and mechanisms of Cebuano cultural practices could develop an indigenized Cebuano CL strategy in the classroom.

DEVELOPMENT, VALIDATION OF THE INSTRUMENT, AND DATA ANALYSIS

Unstructured questions in the Interview Guide were reflexive which were used in the FGD's. Data in the FGD's were recorded, transcribed, and categorized in order to establish the cultural background of Cebuano CL practices. Participant observation generated the needed data for plotting the TAYTU exemplars. A thorough analysis of field notes reflecting the observations in three different locations matched the research participants' narratives. Questions used in the Interview Guide underwent an inter-rated review among three social science and research experts in recognized university in the region to establish dependability and credibility of the research results. Using thematic analysis, coded data clustered the themes and values needed for the modelling of the Cebuano CL Strategy. Adopting a system of triangulation and theoretical sampling revalidated the findings of the study before the finalization of technical report and the publication of the paper.

ETHICAL CONSIDERATIONS

To ask permission, sending for transmittal letters to the barangay chairmen formalized the approval of the planned FGDs. In order to avoid conflict of interest, this study followed the required protocol of CHED as a funding institution of the study and the Cebu Normal University-Ethics Review Committee (CNU-ERC) that provided the ethics certification. A Letter of Informed Consent signed by the key informants proved the ethical considerations of the study.

FINDINGS AND DISCUSSIONS

1.TAYTU’s Socio-Cultural Background

1.1 Catharsis in *Tagay*

Friends and relatives engage in *tagay* not just for social bonding; but for self-disclosure on their personal problems. There is a feeling of emotional relief once everyone pays attention to one of the members in the *tagay*. This supported the findings of Törrönen and Maunu (2011) and other scholars (Creswell et al, 2012; Carrigan et al, 2009; Keenan et al, 2015; Tingey et al., 2016; Walker & Bridgman, 2013) that in drinking, emotions are embodied in the management of friendship.

“My idea about *tagay* is that it serves as an avenue of expression of one’s feelings, whether you’re happy or sad. If you have a problem, it becomes the outlet wherein you can take out the burden that you feel (KI-1). *Tagay* relaxes me; it relieves my stress; and I forget my problems in life; and it removes my sadness and heartbrokenness (KI’s-4 & 5).”

1.2 Togetherness and Unity of Command in *Alayon*

In the rural communities, farmers and fishermen perform *alayon* in order to conserve effort, energy, and resources to facilitate farm and fishing activities on time. If there are seven members in the *alayon*, each of them works in the farm for seven days. The narratives of the key informants support this background. The values of oneness and obedience to agreement are evident in the *alayon*.

“*Alayon* is helping each other in doing farm work (KI-7). There is togetherness and oneness in *alayon* to succeed toward a certain vision (KI’s-6 & 8). *Alayon* is doing the tasks instructed by our leaders (KI-6).”

This narrative is obvious when a closer space allows farmers and fishermen to communicate in a typical fishing and farming community with no inhibitions of their communal nature, they become united among each other. Vis-a-vis, the practice of collective farming reduces the amount of inequality, transforms peasant agriculture, and increases farmers’ bargaining power (Leder, Sugden, Raut, Ray & Saikia, 2019). Wagner (2018) confirmed this result when certain cultural practices reinforce communicative spaces, togetherness occurs. Division of labour takes place with mutual dependence and collective action participation (Rosenblatt & Anderson, 2019; Vestergren, Drury & Hammar Chiriatic, 2019) that provides sustainable living in rural communities.

1.3 Sensibility and Sensitivity in *Yayong*

The popular quote on “No man lives in his ivory castle alone” makes sense in *alayon*. This is an act of volunteerism and sensitivity to help someone in lifting a heavy load. Sensibility and sensitivity in rural areas are foundational values in times of calamities and other life’s misfortunes. Rural agricultural societies learn to share their adaptive knowledge in finding out solutions to problems and advance policies for rural development (Thong Anh Tran, 2019). As revealed by the key informants, *yayong* members share the burden; to experience satisfaction and sense of achievement by means of being sensible and sensitive to the needs of others in the farm.

“*Yayong* is all about two or more persons helping one another to make their work easier (KI-9). It can be used in lifting hard objects like carrying a sand and gravel. *Yayong* is helping the neighbourhood and in lifting a hut to transfer to a new location (KI’s-9, 10 & 11). *Yayong* could be used in lifting the dead inside the coffin during burial; it is also used in fetching water; and all the heavy loads (KI’s-9 & 12).”

1.4 Sharing of Extreme Emotions in *Tambayayong*

When the *yayong* is extended to several persons, it becomes a *tambayayong*; it demands more persons to help ease the burden of someone in the community. This community sharing is associated with these words *ayuda* (extending support) *abag* (assisting), *tabang* (helping), and *tinabangay* (helping one another). Not only that in *tambayayong* is required for helping to carry out the heavy load; but this is also used in the context of easing out *kasakit*, pain or *kasubo*, a feeling of sadness and despair brought by loss of someone, *pagbuwag*, detachment of a relationship; and heartbrokenness. Orio in Lagahid & Puyo (2016) calls this *lahutay*—coherence—a resilient feature to help one another in trying times. *Tambayayong* is also manifested in the *hudyaka*, a celebration of happiness during weddings, birthdays, successes, and promotions. These are supported with the given narratives.

“*Tambayayong* is helping one another in times of happiness and sadness, and despair (KI’s 13-16).”

Extending support in times of need is one of a typical nature of a social being within the family or group. Sharing of emotions [be it positive or negative] among residents in rural communities strengthens the bond of interdependence in the completion of activities using the community’s collective behaviour and adaptive capacity (Uchida, Takemura, Fukushima, Saizen, Kawamura, Hitokoto & Yoshikawa, 2019).

1.5 Intimacy and Solidarity in *Unong*

In good times and bad times, the close family ties among the Filipinos can never be belittled. It is revealed in the fragments of *damayan* or *unong* during trying times. During times of difficulty, fishermen in Japan show high levels of self-esteem and avoidance of risk in building their communities (Uchida et al., 2019). Similarly, Cebu’s *unong* is manifested through material or non-material support extended to the individual or to the community and give hope. AmBisyon Natin 2040 of the Philippines emphasizes this as *malasakit*, to rekindle concern in enhancing the social fabric among the Filipinos (Sombilla, 2017). Intimacy and solidarity are enhanced in the given narratives.

“*Unong* is being together during trying times (KI-17). As a wife and a mother, it means supporting and helping my family’s needs. It is a means of unconditional love. As a teacher, it unites my colleagues and my students in giving them advice and support on what they want (KI-18). It means staying together or sticking with each other, with family members and friends through thick and thin (KI’s-19-22).”

2. Contextualization of Western CL Strategies in AYTU Exemplars

2.1 The *Tagay* Teaching Model

Tagay Teaching Model (TTM) requires a socialized drinking and eating inside the classroom while learning the lesson. Brain-based learning advocates that by grinding and chewing of foods can stimulate the brain to think actively more especially if there is light and buoyant moment for fun to make learning more enjoyable. Unlike in Round-Robin’s introduction that the teacher initiates the class (McTighe & Lyman, 1988), the *tagay*’s *Pasiuna* is definitely learner-centred; where the learners are given time to know each other to convince them in joining the team. In the *Pag-alirung* or formation, this is the time where the members find a comfortable place to stay and talk with one another. They do the *Pagpa-ambit* or sharing. Like an ordinary partying, *tagay* is enjoyable with the use of soda or juice [instead of wine] that the learners share a drink after their sharing on certain topic/s from one member to another in a clockwise movement. *Pakipagsandurot* or bonding is the process of getting closer to the members of the team. The members develop a friendly atmosphere in the team. *Pagtinu* or ascertaining one’s learning is the process of giving a formative assessment to culminate the *tagay*.

Table 1. Round-Robin as Contextualized in *Tagay*

American CL Strategies	Steps	Tagay Strategy	MgaLakang
Round-Robin (Kagan, 1998)	1. Introduction 2. Formation of Study Teams 3. Exploration of the Materials 4. Actual Sharing and Bonding 5. Evaluation	Tagay (Inocian et al. 2019)	1. Pasiuna/Pangagni 2. Pag-alirung 3. Pagpa-ambit 4. Pagkigsandurot 5. Pagtinu

Tagay can be best understood contextually through its illustrated steps using the selected topic on inflation:

Step 1: *Pasiuna*. The teacher introduces this question “What is the latest news about prices of basic commodities in the Philippines?” He or she instructs the learners to form into five teams. The students convince their classmates to join them in the group. The teacher prepares the needed chips to eat and juice to drink; to lighten up the day.

Step 2: *Pag-alirung*. While the team members are facing each other, eating their chips or crackers, they greet and know each other. They share about something that makes them emotionally stable for the day. This levelling off is very important before engaging in step 3.

Step 3: *Pagpa-ambit*. This is the time that the teacher tells them to go back to the original question on inflation. Team members explore the materials provided by the teacher and take turns in understanding its meaning, causes, and effects. Every member of the team who can share their thoughts regarding it is given a glass of juice to engage in a *tagay*.

Step 4: *Pagkigsandurot*. This step requires the students to raise and answer their own questions. Related issues to inflation, as regards to the TRAIN law in the Philippines, will be noted in the discussion like its advantages and disadvantages. The team members engage in quizzing each other to prepare the *pagtinu*.

Step 5: *Pagtinu*. This step requires the members of the team to take the written examination prepared by the teacher.

2.2 The *Alayon* Teaching Model

Similar to the Group Investigation of Shalom et al., in Putnam (1998), *Pagtumbok sa Hisgutanan* is the first step where the learners find an issue, a problem, or a situation that needs to be investigated in the team. *Pag-alayon sa Pagtulun-ang Pagpundok* is the levelling-off where the learners join the learning team and zero-in with certain agreement or rules to follow. In *Pagplano sa mga Gimbuhaton*, the learners initiate to plan a learning task that they agree to undertake. This is succeeded by the *Pag-uisang Pagdala* that signals the beginning of an investigation of an issue or problem. After getting the necessary solutions of the investigated problem/s, the *Pangandam sa Saktong Pagbutyag* follows the process. With this fifth step, the members of the team prepare the final report for the class. Onwards, the *Pagsangyaw sa Saktong Pagbutyag* takes place where the learners stage the actual reports to the big class. After processing and deepening is done, the *Pagtinusam ga Nahimo* follows, where the learners' performance is evaluated by the teacher using the appropriate rubrics.

Table 2. Group Investigation as Contextualized in the *Alayon*

American CL Strategies	Steps	Alayon Strategy	MgaLakang
Group Investigation (Shalom et al., 1984)	1. Topic Identification	Alayon	1. Pagtumboksa
	2. Organizing Students into Groups	(Inocian et al. 2019)	Hisgutanan
	3. Planning the Task/s		2. Pag-alayonsa
	4. Carrying the Investigation		Pagtulun-ang
	5. Preparing the Final Report		Pagpundok
	6. Presenting the Final Report		3. Pagplano sa mga Gimbuhaton
	7. Output Evaluation		4. Pag-uisang Pagdala
			5. Pangandam sa Saktong Pagbutyag
			6. Pagsangyaw sa Saktong Pagbutyag
			7. Pagtinu sa mga Nahimo

Alayon Teaching Model (ATM) requires the learners to investigate problem-related lessons. In World History, the lesson on Dark Ages in western civilization is selected. The learners are expected to read the text on Dark Ages; they identify the causes and effects of this problem.

Step 1: *Pagtumbok sa Hisgutanan*. The teacher initiates raising these questions: "Have you been trapped in a dark room alone? What was the experience? Which part of your life that you consider it dark? Why?"

Step 2: *Pag-alayon sa Pagtulun-ang Pagpundok*. This is the grouping of the class into learning teams. Each member is expected to participate in the team interaction and enjoined to read the text on the Dark Ages.

Step 3: *Pagplano sa mga Gimbuhaton*. Members of the team plan for the investigation of the causes and effects of Dark Ages in Europe. They anticipate for challenges and possible coping mechanisms to overcome them.

Step 4: *Pag-uisang Pagdala*. This is the actual implementation of the planned investigation. The team members cluster their generated information regarding Dark Ages. Through the use of mind webs, they can cluster these pieces of information into causes, effects, solutions in the past and solutions at present.

Step 5: *Pangandam sa Saktong Pagbutyag*. The members of the team plan for the presentation of their learning evidence to the big class. They give task to each other in the presentation and plan for the needed resources and style of presentation.

Step 6: *Pagsangyaw sa Saktong Pagbutyag*. This is the actual presentation of the learning evidence where members of the team showcase their learning into tangible and concrete outcomes.

Step 7: *Pagtinu sa mga Nahimo*. This is the team evaluation of learning evidences with the use of the SWOT Analysis. They recall their strengths, weaknesses, opportunities, and threats about the activities that they do.

2.3 The Yayong Teaching Model

The willingness to help in Think-Pair-Share of Lyman (Gunter, Estes & Schwab, 1995) or *yayong* is a very important trait among the Filipinos during the time of need like the occurrence of natural calamities. This contextualizes the necessity to have this nurtured and perpetuated in the instructional process in the classroom. This starts with *Paglabay ug Pangutana*, where the teacher poses a thought-provoking question to motivate the learners. This is trailed by another challenging question embedding the focusing problem selected by the teacher. This is followed by the *Pagtinagsang Hunahuna*, where each of the learners is given time to think about the problem and its solutions. After this, the teacher instructs them to find a partner and face one another; team members take turns in sharing their answers to the problems in the *Pagayayong sa mga Tubag*. This culminates with the *Pagpa-ambit sa mga Tubag ngadto sa Katibuk-an*. With the permission of one's partner in the *yayong*, he or she is permitted to share to the big class their answers and be responsible to give feedbacks among other members in the class.

Table 3. Think-Pair-Share as Contextualized in the *Yayong*

American CL Strategies	Steps	Yayong Strategy	MgaLakang
Think-Pair-Share (Frank Lyman, 1981)	1. Posing a Question 2. Thinking Individually 3. Pair sharing of Answers 4. Sharing of responses to the Entire Class	Yayong, (Inocian et al., 2019)	1. Paglabayug Pangutana 2. Pagtinagsang Hunahuna 3. Pagayayong sa mga Tubag 4. Pagpa-ambit sa mga Tubag ngadto sa Katibuk-an

Yayong Teaching Model (YTM) emphasizes the willingness to volunteer in responding to immediate situations. This can be enhanced in paired activities like *yayong*. In geography, the learners are expected to analyse the factors that affect the varying climate and weather conditions in some countries of the world.

Step 1: *Paglabay ug Pangutana*. This is the raising of motive question which directs the anticipated lesson. The teacher raises a question “Why countries in the world have different climate and weather conditions?”

Step 2: *Pagtinagsag Hunahuna*. Each student in the class writes his or her own hypothesis regarding the question in a piece of paper to be used in step 3.

Step 3: *Pagayayong sa mga Tubag*. Once the hypothesis is written, the teacher directs the learners to find a partner and take turns in sharing his or her hypothesis. This step requires each pair to compare and contrast their hypotheses and to prove them based on the reading text provided about absolute and relative locations using the grid lines of the map.

Step 4: *Pagpa-ambit sa mga Tubag ngadto sa Katibuk-an*. The pair decides who is going to present to the big class their collective answers. The teacher determines the common answers of everybody.

2.4 The *Tambayayong* Teaching Model

Tambayayong Teaching Model (TTM) emphasizes togetherness. Members of the team decide to either ‘swim or sink’ in the engagement of the task. Collective mindset is the important key in the *tambayayong*. The teacher prepares a topic selection for each of the teams to form the *Pagtambayayong sa Hisgutan*. The leader of the team facilitates the sharing of the given topic among the team members. In the *Pagsusisa Gihisgutan*, the learners raise questions and clarify about some concepts and issues in the given selection. They finally resolve the topic selection and think of a group output as an evidence of their learning in the *Pagmug-nasa Gitambayayungan nga Produkto*. Using the prepared rubrics in the *Pag-ila sa mga Mananaug nga Hugpong*, the winning team is awarded.

Table 4. Learning Together as Contextualized in the *Tambayayong*

American CL Strategies	Steps	Tambayayong Strategy	MgaLakang
Learning Together (Johnson & Johnson, 1975)	<ol style="list-style-type: none"> 1. Group Sharing of a Topic 2. The Clarification of a Shared Topic 3. The Production of a Group Product 4. Recognizing Winning Teams 	Tambayayong (Inocian et al., 2019)	<ol style="list-style-type: none"> 1. Pagtambayayong sa Hisgutan 2. Pagsusisa Gihisgutan 3. Pagmug-nasa gitambayayungan nga Produkto 4. Pag-ilasamga Mananaug nga Hugpong

One common lesson in Asian History is the centre of Asian civilization. The learners are expected to extrapolate the rise and fall of these civilizations. The lesson is divided into five where each team will have one civilization to take responsibility.

Step 1: *Pagtambayayong sa Hisgutan*. This is the selection of Asian civilization to be designated in each of the five teams. The team members read the reading material provided by the teacher. They share their insights taken from the material.

Step 2: *Pagsusisa Gihisgutan*. This phase ignites the members of the team to raise important clarifications that are seemingly missing in the given material or information that is not well-explained. They have to solve these issues among themselves by asking help from the teacher or by seeking additional readings from the internet. They plan for their output which serves as the evidence of their learning.

Step 3: *Pagmug-na sa Gitambayayungan nga Produkto*. This is the exhibit or the actual presentation of learning outputs from the civilizations of China, India, Mesopotamia, Japan, and Southeast Asia.

Step 4: *Pag-ila sa mga Mananaug nga Hugpong*. The teacher invites group of evaluators to evaluate the learning evidences by team based on the adopted rubrics for rating.

2.5 The *Unong* Teaching Model

Unong Teaching Model (UTM) focuses on nurturance of considerateness and sensibility in the learning process. To empathize the feeling of someone during difficult times is a Filipino trait of *damayan*, which contextualizes the Cebuano *unong*. This trait can be propounded in the instructional process to enhance effective learning. In the *Pagpakita sa Ginamitun*, the learners are excited to engage in the learning process. The teacher organizes them into *Pagtulun-ang Pagpundok*, where they are given the topic selection to be studied. With the initiative of the team, members can take the lead in the interaction process and solve problems (Pantiwati, 2013). When learning difficulty arises among the members of the team, *Pag-unong Pakigpundok* is the remedy where those who learn fast can tutor those who are at risk. When the results found effective, then there is the *Mausbawong Pakigpundok*, where the team is ready to be accelerated to hurdle a new lesson.

Table 5. Team Assisted Individualization as Contextualized in the *Unong*

American CL Strategies	Steps	Unong Strategy	Mga Lakang
Team Assisted Individualization (Slavin, Madden, & Leavy, 1986)	1. Presentation of the Material 2. Forming Study Teams 3. Team Assistance 4. Team Acceleration	Unong (Inocian et al., 2019)	1. Pagpakitasa Ginamitun 2. Pagtulun-ang Pagpundok 3. Pag-unong Pakigpundok 4. Mausbawong Pakigpundok

In the lesson on financial literacy, the students are expected to utilize sensibility in financial literacy.

Step 1: *Pagpakita sa Ginamitun*. The learners are provided different footages of poverty in the Philippines. They are asked on “Why there is poverty everywhere in the Philippines?” The material on financial literacy is presented that serves as an antidote to alleviate poverty in the Philippines.

Step 2: *Pagtulun-ang Pagpundok*. The members of the team are given loose copies on financial literacy. They are expected to read this and share its importance in the group.

Step 3: *Pag-unong Pakigpundok*. They master the concepts found in the reading material and provide remediation to their members who are at risk.

Step 4: *Mausbawong Pakigpundok*. They engage in quizzing the learned concepts to gain mastery. They also solve problems based on the situational contexts provided by the teacher.

CONCLUSIONS AND RECOMMENDATIONS

The indigenous identities of the Cebuano cultural practices bridge a potential exploration of the localized and contextualized CL strategies in realizing the noble aim of *malasakit* in the Philippines' AmBisyonNatin 2040. Catharsis in *tagay*; togetherness and unity of command in *alayan*; sensibility and sensitivity in *yayong*; sharing of extreme emotions in *tambayayong*; and intimacy and solidarity in *unong* featured a socio-cultural background necessitated in the crafting of exemplars for TAYTU Models of Teaching, which are culturally appropriate and culturally responsive among the 21st-century learners. The Commission on Higher Education (CHED) in the Philippines may include in their policy formulations for Higher Educational Institutions (HEIs) the possibility for conducting an experimental study on the efficacy of the TAYTU Models of teaching. Hence, trainings and workshops on these strategies will be sought to provide proper orientation on the use of these culturally-based teaching models in various regions of the country and abroad, to ensure the return of investment of the money spent on this project.

ACKNOWLEDGEMENT

Words of gratitude are given to the Commission on Higher Education (CHED) in the Philippines through the IDIG for the funding of this project. Similar words of gratitude to the administrators and the management of the Cebu Normal University for the support they extended to the Institute for Research in Innovative Instructional Delivery (IRIID) that facilitated in the completion and publication of the paper.

REFERENCES

- Bernardi, A. (2016). *Gung-ho, the Chinese cooperative movement*. Oxford: Roma Tre-Press. Retrieved from https://www.researchgate.net/publication/303543198_G_GUNG_HO_THE_CHINESE_CO-OPERATIVE_MOVEMENT.
- Carrigan, M., Lindridge, A., MacAskill, S., Eadie, D., Gordon, R. and Heim, D. (2009). Where's the harm? A social marketing approach to reframing 'problem' drinking cultures. Retrieved from http://oro.open.ac.uk/18521/1/Reframing_problem_drinking.pdf
- Cepni, O.C. & Temizbas, S. (2015). The opinions and self-assessment of the 7th grade students regarding the jigsaw I technique among the cooperative learning practices in the social studies course. *Journal of Curriculum and Teaching*, 4(2), 22-34. doi:10.5430/jct.v4n2p22
- Chao, J., Jiang, T. W., Yeh, Y. H., Liu, C. H., & Lin, C. M. (2019). Integration of ARCS motivational model and IT to enhance students learning in the context of Atayal culture. *EURASIA Journal of Mathematics, Science and Technology Education*, 15 (11), 1-16. doi: <https://doi.org/10.29333/ejmste/109608>
- Cornelius-Ukpepi, B.U., Aglazor, G.N. & Odey, C.O. (2016). Cooperative learning strategy as tool for classroom management. *Advances in Multidisciplinary Research Journal*, 2(2), 67-76.
- Creswell, C. G., Sayette, M. A., Manuck, S. B., Ferrell, R. E., Hill, S. I., & Dimoff, J. D. (2012). *DRD4 polymorphism moderates the effect of alcohol consumption on social bonding*. *PLoS ONE*, 7(2), 1-9. doi: 10.1371/journal.pone.0028914

- De Guzman, M.F., D. (2016). Preferred students-centred strategies in teacher education: input to outcomes-based instruction. *Asia Pacific Journal of Education, Arts and Sciences*, 3(1), 40-48.
- de Hartog, L. (1989). *Genghis Khan Conqueror of the World*. New York: Barnes and Noble Books.
- Doymus, K. (2008). Teaching chemical equilibrium with the jigsaw technique. *Research Science Education*, 38(2), 249-260. doi:10.1007/s11165-007-9047-8
- Ealdama, Y. G. (2012). BAYANIHAN: the indigenous Filipino strengths perspective. University of the Philippines (pp. 1-14). Quezon City: ResearchGate file:///C:/Users/Reynalo/Downloads/BAYANIHAN.revisedpaper.pdf.
- Egcas, R.A., Tabo-tabo, MTL, & Geroso, MJS (2017). Localized curriculum on the reading achievement of grade 8 students. *Asia Pacific Journal of Multidisciplinary Research*, 5(3), 137-142.
- Estrelloso, C., Cuyno, A., Gimoros, J. & Inocian, R.B. (2019). A complementation of the *labada* teaching model for a gender sensitized society. *International Journal of Advanced Research*, 7(1), 23-34. doi: 10.21474/IJAR01/8292
- Evers, H.D. (2015). Southeast Asia: Sociocultural Aspects. *International Encyclopaedia of the Social & Behavioural Sciences (Second Edition)*, pp. 70-74. <https://doi.org/10.1016/B978-0-08-097086-8.12020-3>
- Fini, A.A., Zainalipour, Hossein, & Jamri, Mahim. (2012). An investigation into the effect of cooperative learning with focus on jigsaw technique on the academic schievement of 2nd-grade middle school students. *Journal of Life Science and Biomedicine*, 2(2), 20-24.
- Fisher, M., Bernazzani, J.P., & Meyer, L. H. (1998). Participatory action research supporting social relationships in cooperative classroom. In J. W. Putnam (Ed.), *Cooperative learning and strategies for inclusion, 2nd Edition* (pp. 137-163). Baltimore: Paul H. Brookes Publishing, Co.
- Gillies, R.M. (2016). Cooperative learning: review of research and practice. *Australian Journal of Teacher Education*, 41(3), 39-52. doi.org/10.14221/ajte.2016v41n3.3
- Guillian, C., & Yang, T. (2015). Study on supervision system of chinese specialized farmers cooperatives. *Journal of Distribution Science*, 13(4), 21-28.
- Gunter, M. A., Estes, T. H., & Schwab, J. (1995). *Instruction A Models Approach*. Massachusetts: Allyn & Bacon.
- Hedeen, T. (2003). The reverse jigsaw: a process of cooperative learning and discussion. *Teaching Sociology*, 31(3), 325-332.
- Hindi, G. (2014). The effects of globalization to identity. *European Scientific Journal*, 1(special ed.), 531-538.
- Indriwati, S.E., Susilo, H. & Hemawan. M.S. (2019). Improving students' motivation and collaborative skills through remap jigsaw learning combined with modelling activities. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, 5(2), 177-184. doi: 10.22219/jpbi.v5i2.7888
- Inocian, R.B. (2015). 21st century skills in teaching economics: k to 12 spiral instructional modelling (SIM) in the Philippines. *Asia Pacific Journal of Education, Arts and Sciences*, 2(4), 1-11.
- Inocian, R.B. & Inocian, L.T. (2016). Outcomes-based teaching for brain-based learning vis-à-vis pedagogical content knowledge. *Asia Pacific Journal of Multidisciplinary Research*, 4(2), 65-75.
- Inocian, R.B. & Lasala, G.L. (2014). An assessment of social studies majors' whole-brain learning systems. *European Scientific Journal*, 10(11), 337-359.
- Irvine, J.J. (2010). Relevant beyond basics. *Teaching Tolerance*, 36(0), 40-44.
- Johnson, D. W., & Johnson, R. T. (1998). Cultural Diversity and Cooperative Learning. In J. W. Putnam (Ed.), *Cooperative learning and strategies for inclusion, 2nd Edition* (pp. 65-85). Baltimore: Paul H. Brookes Publishing, Co.
- Johnson, D.W., & Johnson, R. T. (2014). Using technology to revolutionize cooperative learning: an opinion. *Frontiers in Psychology*, 5(1156), 1-3. doi:10.3389/fpsyg.2014.01156
- Johnson, D.W., & Johnson, R. T. (2014). Cooperative learning in 21st century. *Anales de Psicologia*, 30(3), 841-851. doi.org/10.6018/analesps.30.3.201241
- Kagan, S. (1998). New Cooperative learning, multiple intelligences, and inclusion. In J. W. Putnam (Ed.), *Cooperative learning and strategies for inclusion, 2nd Edition* (pp. 105-136). Baltimore: Paul H. Brookes Publishing Co., Inc.

- Keenan, K., Saburova, L., Borova, N., Elbourne, D., Ashwin, S. & Leon, D.A. (2015). Social factors influencing Russian male alcohol use over the life course: a qualitative study investigating age based social norms, masculinity, and workplace context. *PLoS ONE* 10(11), 1-15. doi:10.1371/journal.pone.0142993
- Kennedy, K.J., (2011). Teacher quality and its cultural contexts: What can the west learn from the east? *Journal of Research, Policy & Practice of Teachers & Teacher Education*, 1(1), 8-15.
- Lagahid, P. A., &Puyo, N. A. (2016). Sugboanong' taras: a glimpse of Cebuano personality. *Philippine Journal of Psychology*, 49(1), 73-94.
- Leder, S., Sugden, F., Raut, M., Ray, D., & Saikia, P. (2019). Ambivalences of collective farming. *International Journal of the Commons*, 13(1), 105-129. doi:10.18352/ijc.917
- Maden, S. (2010). The effects of jigsaw IV on the achievement of course of language teaching methods and techniques. *Educational Research and Review*, 5(12), 770-776.
- Manton, E., Pennay, A., &Savic, M. (2014). Public drinking, social connection and social capital: a qualitative study. *Addiction Research and Theory*, 22(3), 218–228.
- Mattingly, R. M., &VanSickle, R. L. (1991). Cooperative learning and achievement in social studies: jigsaw II. Retrieved from <http://www.socialstudies.org/sites/default/files/publications/se/5506/550613.html>
- McTighe, F. & Lyman, F. (1988). Cuing thinking in the classroom: the promise of theory-embedded tools. *Association for Supervision and Curriculum Development*. Pdf file Retrieved from http://www.ascd.org/ascd/pdf/journals/ed_lead/el_198804_mctighe.pdf
- Mehta, S., & Kulshrestha, A. K. (2014). Implantation of cooperative learning in science: a developmental-cum-experiential study. *Hindawi Publishing Corporation Education Research International*. Advance online publication. doi.org/10.1155/2014/431542
- Mengduo, Q. & Xiaoling, J. (2010). Jigsaw strategy as a cooperative learning technique: focusing on the language learners. *Chinese Journal of Applied Linguistics*, 33(4), 113-125.
- Meng, J. (2017). An empirical study on the application of cooperative learning to comprehensive English classes in a Chinese independent college. *English Language Teaching*, 10(2), 94-98. doi:10.5539/3lt.v11n02p94
- Mette, I.M., Nieuwenhuizen, L. & Hvidston, D.J. (2016). Teachers' perceptions of culturally responsive pedagogy and the impact on leadership preparation: lessons for future reform efforts. *NCPEA International Journal of Educational Leadership Preparation*, 11(1), 2-3.
- Motomura, C. (2013). USDA foreign service report. Osaka: global agricultural information Network. Retrieved from [https://www.google.com/search?safe=active&rlz=1C1CHZL_enPH834PH834&sxsrf=ACYBGNQ6OQr6pLGw63GtriayEAKnfZYzfQ:1570591884419&q=Motomura,+C.+\(2013\).+US+DA+foreign+service+report.+Osaka:+Global+Agricultural+Information+Network&tbm=isch&source=univ&sa=X&ved=2ahUKEwjtju7ano7lAhUaFYgKHeYDAbMQ7A16BAgGECQ&biw=1366&bih=608](https://www.google.com/search?safe=active&rlz=1C1CHZL_enPH834PH834&sxsrf=ACYBGNQ6OQr6pLGw63GtriayEAKnfZYzfQ:1570591884419&q=Motomura,+C.+(2013).+US+DA+foreign+service+report.+Osaka:+Global+Agricultural+Information+Network&tbm=isch&source=univ&sa=X&ved=2ahUKEwjtju7ano7lAhUaFYgKHeYDAbMQ7A16BAgGECQ&biw=1366&bih=608)
- Munafo, C. (2016). Cooperative learning as formative approach in physical education. *International Journal of Science Culture and Sports*, 4(2), 195-205. doi:10.14486/IntJSCS513
- Najmonnisa and Saad, I. (2017). The role of cooperative learning methods in teaching of science subject of elementary school level: an experimental study. *Bulletin of Education and Research*, 39(2), 1-17.
- Nejad, S.G. & Keshavarzi, A. (2015). The effect of cooperative learning on reading comprehension and reading anxiety of pre-university students. *Journal of Applied Linguistics and Language Research*, 2(8), 169-180.
- Nguyen-Phuong-Mai, M. (2019). Culturally appropriate face strategies in cooperative learning with insight from cultural neuroscience. *Comparative Education*, 55(1), 66-96. doi:10.1080/03050068.2018.1541664
- Nevin, A. (1998). Curricular and instructional adaptations for including students with disabilities in cooperative groups. In J. W. Putnam (Ed.), *Cooperative learning and strategies for inclusion*, 2nd Edition (pp. 49-65). Baltimore: Paul H. Brookes Publishing Co.
- Nor Hasnida Che, G., Nurulhuda, H., Norfishah Mat, R., Zyaza Hazwani, Z. (2018). Confirmatory factor analysis of the teaching strategy for HOTS and LOTS inventory in the Malaysian context. *Journal of Research, Policy & Practice of Teachers & Teacher Education*, 8(2), 83-94.

- Nor Hasnida Che, G., Norfishah Mat, R. Nurulhuda, H. (2017). Development and validation of an inventory to evaluate the implementation of main educational elements in promoting higher-order thinking skills. *Journal of Research, Policy & Practice of Teachers & Teacher Education*, 7(2), 5-18.
- Ocampo, R., & Ocampo, R. B. (2015). Effectiveness of students' team achievement division on students' attitude towards physics. *Asia Pacific Journal of Multidisciplinary Research*, 3(4), 112-117.
- Pacaña, N.M, Ramos, C.D., Catarata M.N. & Inocian, R.B. (2019). Out-of-field social studies teaching through sustainable culture-based pedagogy: a Filipino perspective. *International Journal of Education and Practice*, 7(3), 230-241. doi: 10.18488/journal.61.2019.73.230.241
- Pantiwati, Y. (2013). Authentic assessment for improving cognitive skill, critical-creative thinking and meta-cognitive awareness. *Journal of Education and Practice*, 4(14), 1-10.
- Putnam, J. W. (1998). The process of cooperative learning. In J. W. Putnam (Ed.), *Cooperative learning and strategies for inclusion, 2nd Edition* (pp. 17-48). Baltimore: Paul H. Brookes Publishing Co., Inc.
- Republic Act 10533 (2012). An Act Enhancing the Basic Education System in the Philippines, Congress of the Philippines. Retrieved from https://www.senate.gov.ph/republic_acts/ra%2010533.pdf
- Rosaroso, R. C., Yap, C., & Gador, S. (2015). current initiatives on internationalization of education in selected higher education institutions in the Philippines, *Asia Pacific Journal of Education, Arts and Sciences*, 2(4), Part II, 23-30.
- Rosenblatt, P. C., & Anderson, R. M. (2019). Working Together. *The Family in Rural Society*. Routledge, New York.
- Santos Rego, M.A., Otero, M.J.F., Otero, A.G. & Moledo, M.M.L. (2018). Do cooperative learning and family involvement improve variables linked to academic performance? *Psicothema*, 30(2), 212-217. doi:10.734/psicothema2017.311
- Serbo, R.S. & Ancho, I.V. (2019). Authentic learning in teaching economics. *Journal of Research, Policy & Practice of Teachers & Teacher Education*, 9(1), 1-11.
- Sevim, O. (2014). Influence of the subject jigsaw technique on elementary school seventh grade students' academic achievement and on their problem-solving skills. *Global Journal for Research Analysis*, 3(8), 78-85.
- Shieh, H., & Shannon, S. (2005). Three approaches to qualitative content analysis. *Quantitative Health Research*, 15(9), 1277-1288.
- Sombilla, M. A. (2017). Ambisyon Natin 2040 and the and the Philippines Development Plan 2017-2022: Climate Change Mitigation and Adaptation and Disaster Risk Reduction Strategies. Retrieved from http://climate.gov.ph/images/NDC/4_PDP-and-Ambisyon-2040_NDC_v1.pdf: National Economic Development Authority.
- Tejada, C.J.B., Juarez, L.S., Molbog, M.M. & Inocian, R.B. (2019). upland farming practices basis for a culturally-based *Ugmad* teaching model. *International Journal of Advanced Research*, 6 (12), 1066-1074. doi: 10.21474/IJAR01/8236
- Tingey, L., Cwik, M., Chambers, R., Goklish, N., Larzelere-Hinton, F., Suttle, R., Lee, A., Alchesay, M., Parker, A. & Barlow, A. (2016). Motivators and influences on american indian adolescent alcohol use and binge behaviour: a qualitative exploration. *Journal of Child and Adolescent Substance Abuse*, 26(1), 1-11. doi: 10.1080/1067828X.2016.1210552
- Thomas, A.F. (2015). Creating lifelong learners: fostering facilitation, modelling, & choice in the classroom. *Journal of Curriculum and Teaching*, 4(2), 17-21. doi:10.5430/jct.v4n2p17.
- Thong Anh Tran (2019). Learning as an everyday adaptation practice in the rural Vietnamese Mekong Delta, *Climate and Development*, Advance online publication. doi: 10.1080/17565529.2019.1664974
- Törrönen, J., & Maunu, A. (2011). Friendship and social emotions in young adult Finns' drinking diaries. *Sociological Research Online*, 16(1), 1-8.
- Uchida, Y., Takemura, K., Fukushima, S., Saizen, I., Kawamura, Y., Hitokoto, H., Yoshikawa, S. (2019). Farming cultivates a community-level shared culture through collective activities: Examining contextual effects with multilevel analyses. *Journal of Personality and Social Psychology*, 116(1), 1-14. <http://dx.doi.org/10.1037/pspa0000138>

- van IJzendoorn, M. H. (1994). Kibbutz child-rearing as a Historical Context. Biennial Meeting of the International Society for the Study of Behavioural Development. Retrieved from https://openaccess.leidenuniv.nl/bitstream/handle/1887/1477/168_144.pdf;jsessionid=0CF2E38B0CB1966D495FDD327B810A30?sequence=1.
- Vestergren, SK, Drury, J and Hammar Chiriac, E (2019) How participation in collective action changes relationships, behaviours, and beliefs: an interview study of the role of inter- and intragroup processes. *Journal of Social and Political Psychology*, 7(1), 76-99. <http://doi.org/10.5964/jspp.v7i1.903>
- Wagner, S. (2019). Cultural revitalization and the ontology of communicative spaces: 'Mobile coordinating' among Guaraní. *International Journal of Cultural Studies*, 22(3), 417–433. doi.org/10.1177/1367877918793429
- Walker, B. & Bridgman, T. (2013). Organizational identity and alcohol use among young employees: A case study of a professional services firm. *International Journal of Drug Policy*, 24(0), 597-604.
- Yaduvanshi, S., & Singh, Sunita. (2018). Effect of cooperative learning strategies on students' achievement in biology at secondary level and its role to address gender issues. *Asia Pacific Journal of Multidisciplinary Research*, 6(2), 26-35.
- Yoo, Sang Eun & Son, Hong Chan (2015). A study on jigsaw model application in teaching and learning mathematics. *Korean Society of Mathematical Education*, Series D, 195-209.