

Enculturation, Education and Sustainable Development: Understanding the Impact of Culture and Education on Climate Change

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Abstract

Education should play an important role in sustainable development. However, we were also faced with the enculturation in the education systems that contribute to the literacy of the environmental issue and challenges in maintaining sustainable development. In this review, we aimed to synthesize the recent research findings on how enculturation was developed among students through social and cultural factors and the role of education for sustainable development. In synthesizing the enculturation in the education system, we found several contributing social and cultural factors such as family cultural background and parental values, school systems, teachers' beliefs, and the attitudes and appraisal of students used in the different school environments. Co-existing differences were also found when examining the environmental issue literacy among students from different cultures in the studies along with energy literacy and ocean literacy from cross-cultural studies perspectives. Drawing on these findings, we further add on how education for sustainable development in different cultures was integrated and emphasized in their existing school curricula to help other cultures to learn more about how education for sustainable development was developed across cultural contexts.

Keywords: climate change, cross-cultural, enculturation, education and sustainable development

1. Introduction

It is undeniable that culture and education can influence each other in shaping the view of the students. Culture can be learned over time and people often choose to accommodate themselves in the culture they live and this learning not only from others but through others (Dogutas, 2020; Matsumoto & Juang, 2016). Socialization is the process by which we learn and internalize the rules and patterns of the society in which we live. Closely related to the process of socialization is the process called enculturation. This is the process by which youngsters learn and adopt the ways and manners of their specific culture. Socialization generally refers to the actual process and mechanisms by which people learn the rules of society what is said to whom and in which contexts. The similarities and differences between the terms socialization and enculturation are thus related to the similarities and differences between the terms society and culture. Socialization agents are the people, institutions, and organizations that exist to help ensure that socialization occurs (Matsumoto & Juang, 2016). One of the ways how culture was transmitted to students to education is enculturation.

According to Güvenç (1997), enculturation is defined as the "process of enabling social peace and comfort by transmitting and gaining a specific culture to the people who form the society, creating a type of people desired by the society, providing cultural unity and solidarity by controlling over individuals" (p.85 as cited in Dogutas, 2020). Because enculturation best happens when learning in schools, some governments have begun to strategize the factors involved such as social and cultural factors in transmitting the culture established in the education system. Due to the influences of the social and cultures involved in the enculturation process at schools, different views on environmental issues begin to emerge across cultures. The spread of environmental issues and the

awareness were also introduced differently to different cultures in education which causes differences in their environmental issue literacy along with the energy literacy and ocean literacy that we will be going to introduce and analyze. In addition to the level of environmental issue literacy shown by different cultures in the studies we found, we also further synthesized the differences found in education for sustainable development in the various cultural context. Education for sustainable development (ESD) is needed to enable societies to progress and create a sustainable future. All educational institutions should consider ESD as part of integral quality in education to foster ESD among students and teachers. In pedagogy, the ESD also helps to equip people to respond to the uncertainties and complexities of the future such as future thinking and learning and not only seeks to teach about sustainable development and transmit knowledge in developing sustainability (Mader & Mader, 2012; Ryan & Tilbury, 2013; Sterling 2011; as cited in Mula et al., 2017). Such an action-oriented pedagogical approach not only helps the students and teachers to engage more in problem-orientation and self-directed learning but also help them to be engaged as an informed citizen in promoting sustainable societies and the future. The main objective of this paper was to investigate how enculturation was developed among students through social and cultural factors and the role of culture and education for sustainable development.

1.1 Social and Cultural Factors in Education

Several contributing factors in how enculturation and education were related and examined in the literature review over the past few years. The factors involved were important to be noted as education is one of the institutions in learning and at the same time the starting point of how social and cultural factors are reinforced and developed in the students when learning. In this section, most of the research articles were cross-cultural studies and were used to compare the differences of the existing social and cultural factors adapted by the education to transfer their knowledge to the students (Figure 1).

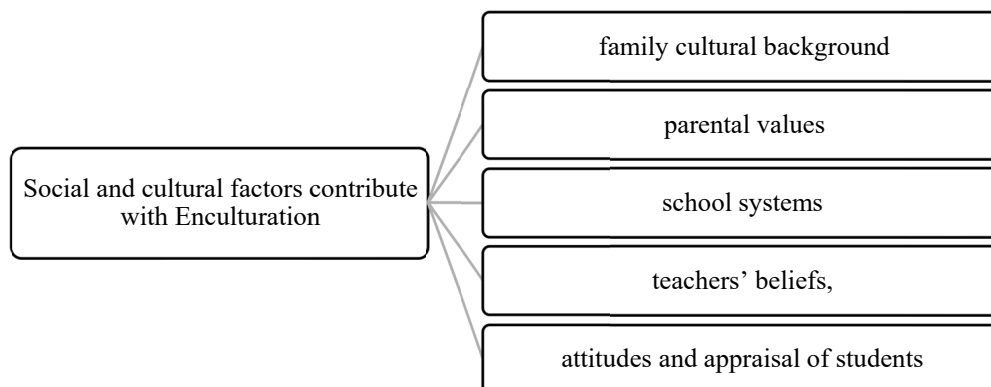


Figure 1. Social and cultural factors contribute with enculturation

1.2 Family Culture Background and Parental Values

Before children entered their first step in educational institutions such as kindergarten or primary school, they were taught by their parents and family first about values held in their culture. Culture can be learned over time but being taught from a very young age by an authority figure such as our parents about our own culture has made us form a cultural identity in ourselves. Parents and schools play equal roles and responsibilities for the enculturation of children and adolescents. Research indicated that parents and schools play a significant role in producing cultural values, sustaining social unity, and an individual's socialization (Gürel, 2018; Dogutas, 2020). According to Dogutas (2020), cultural identity is explained as the identity that someone gains by living in a culture to which that individual belongs and each identity formed culturally was intentional and regarded as different from other nations, societies, and communities. In this aspect, the study examined the effectiveness of social science courses on enculturation found that parents and schools play a key role in transferring new cultures to children and the younger generation. The results of this study show that the enculturation in which schools and parents as the main mediators were successful as almost all students that were recruited in this study shows a good knowledge of their own culture which is Turkish culture by using the semi-structured interview to examine their perspectives and knowledge (Dogutas, 2020).

We also further explored how the differences in culture of family background were also one of the influencing

mechanisms in students' academic performance. It has been examined and documented that over time, East Asian students often academically outperformed in education compared to their Western counterparts. By analyzing the large network of data collected from different cultures such as China, Taiwan, South Korea, the United States, Germany, and Australia, the results found an empirical pattern wherein East-Asian societies, both parents and children' educational expectations were less dependent on family socioeconomic status compared to Western societies. This finding is explained by the researcher that in East Asia, Asian children also hold high expectations in themselves when Asian parents hold high expectations for their children in education irrespective of the family socioeconomic status which is different from the West where both parents-children expectations in education were highly constrained by socioeconomic resources. These results were also probably attributed to Confucian cultural traditions in East Asians where they place high values on education effort and attainment despite their parents' low socioeconomic status (Li & Xie, 2020). This explained why there have been differences in East Asians' educational attitudes and their high academic achievement than Westerners' attitudes toward education and their academic achievement.

Similarly, we also further integrate the findings by Li and Xie (2020) that the parental expectations in academic achievement may have a stronger emphasis on collectivistic, non-Western countries compared to Western countries including the ethnic minorities from Western countries with collectivist cultural backgrounds compared to the ethnic majority as Hofstede (2001) synthesized that children in collectivistic culture were expected to hold loyalty to their family compared to the individualistic culture (as cited in Pinguat & Ebeling, 2020) which was also the possibility of why most East Asian students tend to hold high expectations in themselves in education compared to the Western countries students. In sum, the culture of the family background and their parental values factors were shown to have an influence in the enculturation of the students from different cultures in terms of their knowledge of their culture and their expectations in school achievement.

1.3 School Systems

The content taught in the school might be different across cultures. This is because students have limited time in school to learn everything and thus the content was filtered out which only prioritizes what our culture and society look like and what is important to be learned. By filtering and teaching certain types of content to the students, the educational systems have unconsciously reinforced a certain view in students' cognition and intelligence and how the students adapt it in their problem solving and learning processes.

According to Fachrutdinova and Sabirov (2017) study that examined the features of the structural and dynamic organizations of learning experiences among two different cultures participants from Russia and China adolescents, they found that the strengths of the interconnections and the characteristic in learning activity experiences among Russian teenagers were more qualitative than Chinese teenagers. The obtained results have also shown that Russian pedagogical schools are more developed in their subjective plan for educational activity compared to Chinese pedagogical schools. The researcher further synthesized that the educational process in Russia was built in such a way to increase the effectiveness of the educational process due to the synergistic effects in Russian students that regarded school day as a single, holistic event on a subjective level and were taught that all subjects and lessons, regardless of contents are related and reinforce each other. This educational process in Russian adolescents is different from Chinese adolescents as they regarded school days as something apart and no interrelationship was perceived between the lessons taught on a subjective level which led to the absence of holistic phenomenon in Chinese learning processes (Fakhrudinova & Shawamri, 2020). The evidence shows that the school systems adapted among Russian schoolchildren have reinforced them to adapt holistic views in their subject lessons in their education process while the school systems adapted among Chinese schoolchildren have reinforced them to have weaker perceptions and views in the interrelations of the subject lessons taught in their schools and at the same moment shown how the school system can operate as one of the social and cultural factors in enculturation among students in education. Regardless of how our education occurs, we still need to observe what we can also learn from other cultural education to see our biases and choices and compared them with our education system for better improvement in education.

1.4 Teachers' Beliefs

Teachers play an important agency in transferring knowledge or values to their students. However, there were differences in how every teacher in different culture transfers their knowledge. It is often documented that teachers' beliefs can directly or indirectly influence teaching-related decisions (Patterson et al., 2012; Thornberg, 2008 as cited in Reichert & Torney-Purta, 2019) which might affect the quality of the students' education. Studying teachers' beliefs is important as they function as guidance in instructional decisions and filters in teaching students. A cross-national comparison study by Reichert and Torney-Purta (2019) identified different profiles of teacher

beliefs about the aims of civic education. In this study, teachers' beliefs and priorities when teaching about democratic development to their students for civic education were synthesized. By using large-scale representative data of teachers from countries with different democratic tradition approaches, they found that almost all teachers in Korea believe that civic and citizenship education (CCE) should support the development of skills in conflict resolution and promote dutiful school participation. The researchers stated the reason why the teachers in South Korea support the development of skills in conflict resolution is that the Republic of Korea has conflict Democratic People's Republic of Korea (North Korea) and were often been omnipresent. In other profile findings, teachers from Western European countries and Hong Kong prioritized the acquisition of knowledge and community participation as CCE goals in teaching their students about democratic development. It is inferred that the results evoked by the teachers from Hong Kong were due to the recent resentment to the Chinese government about the imposition of national education which caused recognition that democratic citizens should know democratic institutions and willingness in community participation. Finally, almost half of the teachers in the samples recruited for this study prioritized independent thinking and tolerance as one of the most important aims in CCE for students' civic development. However, teachers in these profiles might not especially like to prioritize future political participation to accompany independent thinking although they aimed to promote independent thinking in democratic development for CCE subjects among students. In conclusion, this study provides pieces of evidence that teacher beliefs in teaching especially in civic education were not only associated with personal characteristics but also with the cultural and institutional context of a country (Hahn, 1998; Torney-Purta et al., 2005 as cited in Reichert et al., 2019). In these dynamic communities, teachers have to be always prepared and provide different learning and teaching styles despite their beliefs when addressing global issues or political processes to the younger generation.

In addition to this section, we also found a comparison study by Kim and Han (2019) that study the belief and practices of early childhood teachers from South Korea and the U.S to support children's social competence. Findings of the result showed that although there were similarities from all the teachers' beliefs and practices in terms of using environmental, natural activity and intensive instructional strategies to support children's competencies, there were significant differences in which U.S teachers rated all the strategies higher in the instrument given compared to South Korean teachers. A stronger relationship between belief and practices were also found among South Korean teacher. One of the explanations from sociocultural perspectives is that early childhood teachers are trained to proactively provide more identification, intervention, and individualized support to support children's social competence in the U.S (Clarke-Stewart et al., 2006; Brown et al., 2001 as cited in Kim & Han, 2019). On the other hand, the outcome for the South Korean was explained that the traditional beliefs and assumptions in the South Korean context through an existing literature review that South Korean teacher often does not consider the social competence of the children as their main focus in early childhood education. The teacher also perceived that they should focus more on academics and social competence was regarded as a naturally developed skill set at home (Clarke-Stewart et al., 2006; Steed et al., 2014 as cited in Kim & Han, 2019). Consequently, compared to early childhood teachers from the U.S, it is observed that not many South Korean early childhood teachers were exposed to the instruction on social competence topic. This is probably due to the instrument developed where much of the instruction on social competence topic is conducted in a Western context and therefore become unintentionally insensitive to teacher from another sociocultural context.

More differences in teachers' beliefs were also found in a study by Duisembekova and Özmen (2020) among Kazakhstani and Turkish students' teachers that explored their beliefs about English language learning. It is found that the Turkish participants have different beliefs in the pronunciation area for the English language while the Kazakhstani participants were more agreeable in the importance of speaking the English language with excellent pronunciation. The researchers suggested that the differences in learning contexts, cultural differences, and differences of language from both cultures could be related to the findings since both student and teachers' beliefs from different cultures appeared different in learning and communication strategies for the English language.

1.5 Students' Attitudes and Appraisals

Understandably, what students in different cultures pursued were different from each other in education due to the enculturation built in the school systems. It is also claimed that in cross-cultural psychology that the effects of goals may be different as a function of context (Cheng & Lam, 2013; Elliot et al., 2001 as cited in King et al., 2017). A study by King et al. (2017) found that although mastery goals were predictive in the data collected among students from 9 cultures (Singapore, Australia (Anglo-Australian, Vietnamese, Lebanese and Aboriginal Australian), United States (Navajo), Qatari, Hong Kong, and the Philippines) collected, there were still variances in other goals such as performance goals and social goals. The findings have shown that Hong Kong students were

more associated with performance goals which were positively associated with their learning outcomes such as motivational engagement, self-reliance, sense of purpose, and positive self-concept. It is inferred that performance goals are more normative among Hong Kong students due to the extremely competitive learning environment (King et al., 2012; Lau & Lee, 2008 as cited in King et al., 2017). In social goals, it was associated with positive predictors such as motivational engagement in 7 out of 9 cultures which were considered by the researcher as a collectivist culture. The differential pattern that exists for this goal maybe perhaps due to the cultural differences in the individualism-collectivism values. The results for social goals in this study were in line with existing literature where social goals are shown to be more salient in collectivist culture compared to individualist culture (Bernardo, 2008; Cheng & Lam 2013; King, 2017; King & McInerney, 2014; King et al., 2012; Urdan & Maehr, 1995 as cited in King et al., 2017). The use of extrinsic rewards in extrinsic goals was also found among Qatari students and was deduced due to the teacher-dominated and authoritarian teaching style used in Arab cultures (Eilla, 2003 as cited in King et al., 2017).

In another paper, we also found that a study by Martin and colleagues (2017) reported that Chinese students have shown higher mean levels of academic buoyancy (response to challenges) and adaptability compared to North American students and the United Kingdom students. The academic buoyancy and adaptability were also found to be correlated with other two factors such as motivation and engagement and were also reported to be higher for Chinese students compared to North American students and United Kingdom students. It is explained that the outcome was due to the significant challenges and changes faced by the Asian nations and Asian families that seek to improve their socioeconomic status and educational status which in return caused the saliency of academic buoyancy and adaptability among Chinese students that appeared distinct among North American and United Kingdom students (Martin et al., 2017).

In addition to the findings review about students' educational attitudes in different cultures, a study by Eriksson and colleagues (2019) found that there was a difference in feedback acceptance among students that come from different cultures. Feedback is considered important as one of the key points in learning but it can also backfire and lead to demotivation for some students that adapt to different cultural contexts. By analyzing the data from 49 countries, they found that students that come from countries that are high in power distance and religiosity such as the United Arab Emirates have a positive association between teachers' use of feedback on mistakes and the achievement of the students. Countries such as the United States however were found to have negative associations after some potential confounders were controlled by the researchers. The researchers hypothesized that mistake-based feedback is more effective when applied to the culture where teachers have more authority where the previous findings (Hofstede, 1986; Smith, 2013 as cited in Eriksson et al., 2019) found that cultural measures, power distance, and religiosity were thought by other scholars to be associated with teachers' authority. Overall, this study shows that young people that live in a culture that is high in power distance and religiosity were more accepting of negative feedback while in low power distance and religiosity countries, teachers are encouraged by the researchers to decrease the use of feedback when responding to the high performing learners.

Putting the findings together hold the pieces of evidence that students that come from different culture have used a different approach in terms of their goals, their academic buoyancy, and also in accepting the mistake-feedback from their teachers. Some of these differences were found due to the environment they lived in and the values held by their cultures such as individualism-collectivism, power distance, and religiosity. It is also found that the academic buoyancy and adaptability differences were related to the parental differences and the economic changes of the culture. It is also notable that cultural differences adapted among the students may affect their motivation to engage in education. Nevertheless, all the differences found were intimately related to the culture which has indirectly impacted the students' view and approach in the education setting and also their view on global issues such as environmental issues.

1.6 Environmental Issue Literacy

The increase of environmental issues was worrying the world as it is understood that there will be an impact or consequences if we are lacking in the literacy of environmental issues. Most of the environmental problems were caused by the irresponsible acts of human behaviour which in turn caused the uprising of campaigns, awareness, and pro-environment programs in education. In this section, we are going to analyze and compared the assessment and the evaluation of the environmental literacy of students from different cultural contexts.

According to Liang and colleagues (2018) study, environmental literacy was regarded as "an individual's knowledge and attitudes about the environment and its related issues, and through the acquired skills to help minimize and/or resolve environmental problems and remain an active participation that contributes towards an

environmentally literate society” (Roth, 1992 as cited in Liang et al., 2018). The key environmental literacy variables used in this study were based on the Environmental Literacy Assessment Consortium framework and have been used by other countries such as South Korea, Turkey, Israel, and the United States to assess an individual’s environmental literacy. By recruiting 32,321 Taiwan undergraduate students and using the environmental literacy instrument based on the established framework, they found that the environmental literacy among undergraduate students was relatively low level in environmental knowledge and behaviour while at the same time attained a moderate level of environment attitude from the samples. This outcome was explained by the researchers that the environmental education in Taiwan was more focused on knowledge and cognitive memory rather than developing students’ capabilities in exploring environmental issues and engaging and responsible in environmentally-friendly behaviour. So, simply focusing on teaching environmental knowledge to the students does not help in achieving the goals of environmental education. It is also claimed that it is insufficient to use environmental knowledge based on science itself to elicit attitudes, behaviour, and values which were considered as the important part of environmental literacy (Haverkos & Bautista, 2011 as cited in Liang et al., 2018). Lastly, the researchers also noted that practical pedagogies should be reformed and used more hands-on experience in environmental education among undergraduate students in Taiwan to increase environmental literacy.

Similar results were also obtained from other cultures in another study conducted by Veisi et al. (2019) in assessing environmental literacy among university students in Iran. They found that although the university students had positive attitudes and a high degree of concern and sensitivity towards the environmental issue, they had relatively low and moderate scores in environmental knowledge. The results obtained were somehow similar to the previous review research article in assessing the environmental issue literacy among undergraduate students in Taiwan where although they scored low in environmental knowledge, they still showed moderate scores in attitudes toward the environment. The researchers also proposed efforts that can be implied to improve the quality of environmental education and one of them was to let more opportunities for students to express their knowledge to improve the students’ environmental knowledge. The literature showed that there are four main categories of variables that can be considered as predictors of environmental literacy as responsible environmental behaviours. These categories are A) Personality factors (environmental concern, perception of moral responsibility, environmental sensitivity, environmental attitudes, locus of control, responsibility, and values); B) Cognitive factors (knowledge, awareness, beliefs, and problem-solving); C) Demographic factors (gender, age, educational level, income, and race); and D) External factors (pressure groups, external influences, and opportunities to choose different actions) (Figure 2).

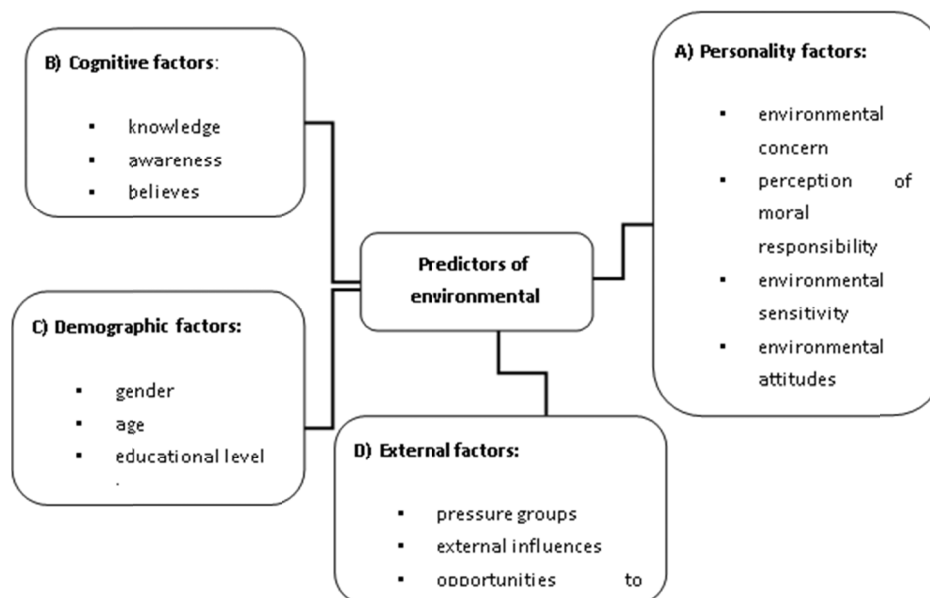


Figure 2. Predictors of environmental literacy

2. Cross-Cultural Studies Perspectives

We also considered taking the perspectives of cross-cultural studies to compare environmental literacy knowledge from each cultural context. While finding the recent research article for environmental literacy in cross-cultural

studies, we found that there is a lack of recent findings in this aspect. So, we decided to include energy literacy and ocean literacy assessment as the energy usage knowledge and the awareness of the ocean environment were also part of the environmental issues faced by the world today.

2.1 Energy Literacy

Energy literacy was important to be addressed as promoting the knowledge of energy-saving behaviour can indirectly help us to solve one of the environmental problems which are reducing the emission of carbon dioxide and reducing the greenhouse effect. However, according to Lorenzoni et al. (2007) research, they noted that although people are motivated in changing their energy-saving behaviour, they often lack the knowledge which is useful for positive energy-saving actions (as cited in Cotton et al., 2020).

In cross-cultural studies perspectives, the study by Cotton et al. (2020) in assessing the energy literacy among students from different cultures such as China and the United Kingdom was found to have significant differences in energy literacy. The findings found that the Chinese group scored higher in terms of knowledge about energy compared to the United Kingdom groups although both groups considered themselves as novices in energy knowledge. This outcome might be indicated by a more competitive culture or better educational system in the Chinese context which might also be related to the differences in disciplinary mixes of the 2 groups as the researchers also noted that the Chinese groups have more Science and Technology students while the UK group have more Medical and Nursing students. However, the researchers also noted that although the Chinese groups have shown a more correct answer to energy literacy, the UK groups were more likely than Chinese groups to undertake energy-saving behaviour and report on energy conservation behaviour. The researcher explained that the concept is known as ‘behavioural spillover’ which is described as “the tendency for individuals who have been encouraged to change a specific behaviour for environmental reasons to subsequently adopt additional pro-environmental behaviours, as a protective response to avoid cognitive dissonance” might be the reason why UK students report more energy conservation behaviours (Thøgersen, 1999 as cited in Cotton et al., 2020). This findings outcome has helped the researchers to identify that although Chinese respondents were highly knowledgeable in energy, they proposed that different approaches should be used such as using social norms and expectations to increase the stronger impact on energy-related behaviour in the Chinese context. This proposed approach might be suitable as it was in accordance with the collectivist values practice in the Chinese cultural context and fits with the findings where the Chinese were more likely to participate in environmental campaigns that involved people and less likely to undertake individual behaviour changes. The same goes for UK cultural context where different approaches should be used as the UK was reported to exhibit a stronger individualistic culture compared to Chinese culture.

Although the previous review researchers proposed using a different mix of individual and communal action for different audiences from different cultures that emphasize the value of individualism-collectivism, we also tried to take a deeper look at how other culture that also represents the collectivist culture take their approach in assessing the energy literacy and proposed different strategy to improve the knowledge of energy literacy among students. According to a comparative study between students from Thailand and Japan by Akitsu and Ishihara (2019) in assessing energy literacy, it is found that Japanese students scored higher in terms of basic energy knowledge and awareness compared to Thailand students. To understand these significant differences produced, the researchers synthesized it by using the OECD Programme for International Student Assessment (PISA) achievement in 2015 where Japanese students were ranked as the second among the 72 participating countries and economies while Thailand students were ranked 54th which were far lower than OECD average and other Asian countries. Furthermore, the researchers also further synthesized that the Thai school and education emphasized more on achieving high scores to pass the examination rather than applying the concepts in their communities (Akitsu et al., 2019). In terms of awareness differences produced in this finding, Japan tends to emphasize more on the environmental issue rather than social-economic aspects in environmental education in elementary and secondary school (Former Information Center for Energy and Environment Education, 2009 as cited in Akitsu et al., 2019). For example, it is difficult for teachers and students in Japan to discuss the advantage of nuclear power energy for the social economy due to the severe nuclear incident at Fukushima in 2011 (Akitsu & Ishihara, 2018 as cited in Akitsu & Ishihara, 2019) despite the declining energy self-sufficiency ratio, increasing in electric power costs and increasing of carbon dioxide emissions (Ministry of Economy, Trade, and Industry, Japan, 2016 as cited in Akitsu & Ishihara., 2019). To conclude, the researchers suggested that the energy education in Thailand should require their students to derive solutions from critical thinking based on their knowledge that is relevant to the energy and environmental issue while for Japan, it is suggested to implement energy education in their early learning to enhance their awareness of consequences with parents participation in the education and visiting facility that was related with energy (Akitsu & Ishihara, 2019).

2.2 Ocean Literacy

The ocean environment was also part of the environmental issue that needs to be addressed. For decades, the news that we often watch about the changes in ocean biodiversity were closely related to the irresponsible act of human behaviour such as pollution and the exploitation of marine resources together with the coastal urbanization that can destroy the habitat of marine life. The continuation of this act can be caused by severe consequences not only to the marine ecosystems but also to human health as well. Therefore, understanding by assessing ocean literacy was important to increase the effort to live in a sustainable environment in the future.

A study by Mogias et al. (2019) has found that the sample recruited from Mediterranean countries such as Italy, Croatia, and Greece with different cultures have shown to possess a moderate level of knowledge in ocean sciences issues. However, there were still differences exist in terms of ocean-related knowledge where the Italian students scored higher compared to the students from the other two countries but showed a decrease in their grades. Although the Italian students' other counterparts such as the Greek students did not score high in ocean-related knowledge among the three countries, researchers found that their knowledge increased progressively together with their grades over time and similar trends were also observed among Croatian students. Mogias et al. (2019) synthesized that the moderate level of knowledge among all the samples recruited was attributed to the fact that ocean sciences were not included as a basic part of the educational system in all the countries selected in this study (Italy, Croatia, Greece) national curricula as well as in most of the European countries (Mogias et al., 2019). Similar to what Akitsu and Ishihira (2019) proposed in their steps to increase the energy literacy among Japanese students, Mogias et al. (2019) also proposed to input ocean-related topics in national curricula in capturing the early attention of the students in ocean-related issues.

In conclusion, by taking all the findings in this section together, it is found that most of the students from different cultural contexts have moderate or relatively low knowledge of environmental issues literacy. Other than environmental issues, it also holds pieces of evidence that most students were still lack awareness about environmental issues such as energy conservation. Therefore, more action was needed to integrate issues about the environment into our education to provide sustainable development and increase the students' knowledge.

2.3 Education for Sustainable Development

Education is important as it is one of the parts that was related to sustainable development and plays a role in giving knowledge, skills, attitudes, and values which can help to shape a sustainable future for the next generation. To make it possible, the education system has tried to integrate the components of sustainable development such as environment, society, community into the school curriculum. Education for sustainable development (ESD) can make an impact on our future and the transferring agents of knowledge such as teachers, families, and communities are needed to help the students understand the components and the goals of a sustainable future.

2.4 Teachers' Role

Teachers play an important role in Education for Sustainable Development (ESD). However, a study by Ocetkiewicz in 2017 where it was conducted among Polish teachers revealed that the teachers are still not well prepared to include the key issues that were needed for sustainable development in school curricula (Ocetkiewicz et al., 2017). The knowledge of educational principles behind sustainable development is still lacking among the teachers together with their priorities and objectives to promote better understanding in developing a sustainable future for students. It is advisable that more efforts are needed in teachers' training in ESD as well as changing their attitudes to promote it. Nevertheless, the traits and the attitudes among teachers were needed first for the long run in ESD and we are going to synthesize the next article in regards to developing teachers' traits that will encourage the ESD.

One of the articles by Timm and Barth (2020) discussed that there were 2 types of the teacher such as in-class-teaching teachers and structurally oriented teachers in ESD setting and both have appeared to have the same goals in contributing to the social changes through ESD activities although there were also differences in sets of competencies when it comes to integrating ESD in their teaching. Since ESD is not an integral part of the curriculum, ESD appears to be more engaging if the teachers have traits such as *passion*, *self-efficacy*, or *persistence* which are relevant to ESD compared to other topics taught in school. ESD requires a certain amount of affinity and persistence to be integrated into teaching since it is not part of the basic curriculum. So, when integrating ESD into teaching, traits such as passion need to be strongly developed among teachers. Timm and Barth (2020) contributed that the traits are more strongly developed when teachers engaged more in structural works. This is because according to Nordén's (2018) findings, teachers feel more capable of conceptualizing interdisciplinary (related to more than one branch of knowledge) teaching when they have a sense of ownership in a large-scale interdisciplinary project. These will help to encourage the teachers to develop the traits more and at

the same time integrate ESD into their teaching and school curricula. In sum, using approaches such as letting the teachers engage more in structural work are encouraged to increase their competency and engagement to integrate ESD in the classroom and school curricula.

2.5 School Management

Besides teachers, institutions of education such as schools and universities are important to help in providing more programs about sustainable development (SD) to students. A comparative study by Yang and Maresova (2020) in China among students from public and private universities found that the students show great concern in SD and their universities in playing the role to promote SD. However, the samples also expressed the least concern with sustainability curricula and research. The researchers were not surprised with the outcome as they further explained that Chinese higher education mostly employed a top-down administrative approach (Yuan & Zuo, 2013 as cited in Yang & Maresova, 2020) which is the reason why the students are indifferent to sustainable practices and even express less willingness to participate in SD. Thus, it is proposed by the researchers to use another approach rather than top-down approaches in SD issues among university students in China's cultural context. The findings also show that students from private universities are more often agree on SD compared to public universities. By promoting SD, it can help the private universities to improve their image and reputation and at the same time provide image differentiation that extinguished them from public universities in the higher education setting. Therefore, students from private universities that were more submerged in the sustainable campus are more likely to perceive the importance of SD compared to students from public universities. The inference made by the researchers was in line with the previous study in the U.S context which also explained that universities with higher SD will provide more advantages to their universities such as higher intake in the number of students and more state grants. Lastly, the researchers suggested that authorities such as the Ministry of Education need to launch policy guidelines to mandate the university administration in helping to promote the SD for education among students due to the indifference shown by students towards sustainability curricula and research.

2.6 National Curriculum Differences

Different countries might be emphasized differently in their curriculum for education for sustainable development (ESD). As stated in comparative studies by Fredriksson et al. (2020) in upper secondary schools between Japan and Sweden, they found that different emphasis was put although ESD is present in both countries' national curricula. In Japan, ESD was emphasized by integrating it into the subject syllabus while in Sweden, the ESD was more to a part of the principles that guide the students' education. Based on the researchers' observation, the Swedish education system is more decentralized which means more national initiatives in implementing ESD practices compared to Japan which was more centralized in designing ESD activities. These observations were in line with the general structures that were adopted by the students from different countries where Swedish school systems are less emphasized on entrance exams compared to Japanese school systems that emphasized more on the entrance exam and thus create fierce competition among students just to enter the best-ranked universities. Not only do these countries show differences in ESD emphasizing, but we also found that another study by Friman in 2018 also showed that there are differences between Brazilian and Finnish university curricula emphasizing ESD in terms of sustainable development theme (Friman et al., 2018). This evidence helps to hold those different nations might have different strategies in promoting the ESD to integrate it into their national curricula.

Overall, although the countries have different traditions and cultures, there were dynamic changes in how they engage with ESD activities. It is hoped that the existing practices of ESD from countries such as Sweden and Japan can help other schools in implementing ESD into their education system to transfer the knowledge and skills of ESD issues to the students.

3. Conclusion

It is evident how social and cultural factors such as families' cultural background and the parental values held among some of the students can indirectly affect the students in establishing the enculturation process in education. Other social and cultural factors such as the school systems, teachers' belief in implementing the teaching strategies in regards to their environment and cultures, and students' educational attitudes can also be involved in enculturation development in the education system. Thus, it is critical to improvise the social and cultural values that are enculture among students to help them to become conscientious societies towards global issues such as environmental issues. As most of the students were found to have moderate and relatively low awareness of environmental issues, it is also vital to increase the efforts in promoting more effective ways such as integrating environmental education into their national school or university curricula to increase their knowledge on environmental issues. This leads us to education for sustainable development (ESD) in which we found how teachers and different nations with different cultures adapt it into their teaching and curricula. With regards to

promoting ESD as an integral part of the education curricula, it is important to address the existing factors such as teachers' role, the management of the institution, and the distinction of the curricula emphasized in different nations in this review article to help develop more effective ways to prepare learners towards sustainability future in this changing world. The whole review we think is worth to be noted as it was a merge of the enculturation process, education, environmental issue knowledge, and cross-cultural psychology studies.

Our study makes an important theoretical contribution in that the results help in articulating to understand the impact of culture and education on climate change. We make a theoretical contribution by explaining relevant theories on enculturation, education and sustainable development on students to establish the enculturation process in education. In doing so, we address the impacts of education for sustainable development through focusing on teachers' role, school management, and national curriculum differences to better understand how students able to shape a sustainable future for the next generation. To make it possible, the education system has tried to integrate the components of sustainable development such as environment, society, community into the school curriculum. This study would assist researchers and practitioners to focus their educational efforts and investments better on enculturation, education, and sustainable development among students. This is particularly significant since existing literature is almost silent on the investigation essential psychological theories.

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