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# Collaborative Online Learning in the Cultural Context of South East Asia: A Systematic Review

**Christin GROTHAUS*, Olaf ZAWACKI-RICHTER****

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**ABSTRACT**

Collaborative online learning in higher education through such as discussion boards, blogs and social network technologies can increase knowledge exchange across large student cohorts, independent of time, across borders and at lower cost. With a surge of internationalization of education, the question arises whether and how collaborative online learning should be adapted to cultural contexts students and instructors operate in. With the help of a systematic literature review, this paper aims to shed light on the role of culture in designing collaborative online learning pedagogies and its tools in the context of South East Asia, a region that grows in online education and shows significantly different value orientations as compared to Western contexts. Out of 1,786 initially identified publications, 21 articles were included for final synthesis based on explicit inclusion and exclusion criteria. Themes that emerged across studies showed the influence of cultural values for interdependence and social harmony on critical discussions as well as on ingroup orientation when choosing whom to exchange knowledge with. Studies highlighted the importance of maintaining social harmony and increasing community building through indirect online communication as well as scaffolding through peer tutoring and lecturer support to increase self-responsible collaborative learning and open exchange.

**Keywords:** culture, online learning, higher education, internationalization

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## 1. INTRODUCTION

An increasing use of technologies influences various areas of our lives rapidly and education does not remain unaffected. Online learning allows students to study independent of space, enabling them to learn from home and to connect across borders, collaborating with students from diverse backgrounds. Studying collaboratively with help of digital media in higher education has shown to be positively related to shared problem-solving skills, critical thinking, creativity and deep learning (Chapman et al., 2005). Computer-supported collaborative learning offers educational approaches suitable for a globalized, networked society where knowledge exchange in international environments plays a critical role for social and economic development. However, with an increase in online collaboration among students of diverse country contexts comes the responsibility of scholars to provide a systematic understanding how to possibly adapt pedagogies to cultural environments learners operate in or exchange with.

The e-learning industry is growing globally with a predicted 7.5 percentage average annual growth until 2022 and does so most rapidly in emerging economies with expectations of the largest percentage sales growth in the Asia-Pacific region (Research and Markets, 2019). Some regions, such as that of South East Asia, show an increase in online learning and use of digital media in higher education but at the same time remain strongly understudied. Scholars and practitioners have been calling to consider the role of the country context when investigating in student's online learning preferences and behaviors as to find suitable pedagogical approaches. This paper aims to provide a systematic review of studies conducted in South East Asia that discuss the influence of culture on collaborative online learning.

One of the most significant trends in online learning, based on a large-scale study in the US (Allen & Seaman, 2017), is that of an increasing diversity among learners. Diversity in such as nationality and cultural backgrounds can offer opportunities but also posts the challenge to foster inclusion whilst respecting differences, spanning physical and mental borders when exploring alternatives to social and cultural boundaries. The majority of scholars that discuss collaborative online learning have studied Western countries and regions with a focus on the US, Europe and Australia. Comparative studies often contrast online learning

* Mahidol University International College, Social Science Division, Bangkok-THAILAND. e-mail: christinmarie.gro@mahidol.ac.th (ORCID: 0000-0003-1220-2614)

** Prof. Dr., University of Oldenburg, Faculty of Education and Social Sciences, Oldenburg-GERMANY. e-mail: olaf.zawacki.richter@uni-oldenburg.de (ORCID: 0000-0003-1482-8303)

in Western cultural contexts with those that significantly differ from the West, such as for example the region of Asia (e.g. Chen & Caropreso, 2006). However, Asia in itself compromises of heterogeneous nations influenced by various religions, different colonial periods as well as stages of economic development. Researchers have started to discuss collaborative online learning in East Asia, with a focus on China and with some studies comparing East Asian countries with Western national contexts (MacLeod et al., 2017; Yang et al., 2014; Zhang, Z. & Xue, Y., 2015). However, such findings cannot be easily generalized across Asia. South East Asia shows lower levels of economic development and differences in cultural characteristics as compared to East Asia which could influence online learning accordingly. Scholars have argued that a majority of studies focuses on WEIRD contexts, an abbreviation referring to the characteristics of western, educated, industrial, rich and developed nations (Henrich et al., 2010). Authors have consequently called for studies discussing online learning in less developed countries such as those of South East Asia. While Singapore has achieved the first and second place in the last two PISA studies (2018, 2015) and has shown considerable investment in learning technologies, many other South East Asian countries such as Thailand, Malaysia and Indonesia that show lower economic and educational performance also jump on the bandwagon of computer-supported learning. Scholarly efforts that focus on developing regions such as that of South East Asia can be fruitful as online learning, through such as massive open online courses (MOOC's), can help make education accessible to those who could usually not afford higher education. Furthermore, through international collaboration among universities, such as when conducting online dual degrees, developing countries can prevent a brain drain where students otherwise would migrate to receive education abroad. Instead, developing countries can keep their talents at home. Efforts of scholars and practitioners could thus support a democratization process.

The region of South East Asia does not only differ in economic development but also, and partly due to that, in cultural norms and values which could influence online preferences and behaviors. While national culture, often measured with a focus on value orientations (e.g. Hofstede, 2001), has shown to affect online learning, scholars have stressed the need to further explore possible subcultures such as educational cultures, online cultures as well as hybrid cultures fusing online and offline norms (Gunawardena, 2014). If, for example, in a particular country context, authorities such as instructors are highly valued and respected, students may refrain from discussing and challenging ideas openly in the offline context. The question arises if such cultural behaviors directly translate into the online environment or if digital spaces offer more neutral rooms where the lack of social presence and a possible increase in autonomy could support students to share their ideas more openly. With the aim to investigate into cultural adaptation of online environments we further raise the question whether studies conducted in South East Asia consider the influence of such subcultures.

In summary, this literature review shall provide insights into collaborative online education in South East Asia. It aims to explore the role of culture to be able to support developments in higher education and knowledge exchange among students in the region and across borders. The paper shall offer a systematic review of empirical studies centering the role of culture and possibly subcultures when designing collaborative online learning in higher education. An overview of research in the field shall help guide scholars and practitioners with questions related to the adaptation of pedagogies and selection of appropriate tools, considering the cultural context of South East Asia and reaping the above described economic and social potential of computer supported collaborative learning.

The systematic review poses the following central questions:

- How is collaborative online learning as well as culture defined and conceptualized in studies conducted in South East Asia that consider the context of culture in higher education?
- What role does culture play in collaborative online learning in higher education in the context of South East Asia?
- How can pedagogies be designed and technologies be selected to support collaborative learning outcomes in the context of South East Asia considering possible challenges and opportunities that may arise due to cultural differences?

## 2. COLLABORATIVE ONLINE LEARNING AND THE INFLUENCE OF CULTURE – A FLEXIBLE APPROACH

While over the last 15 to 20 years scholars have been discussing the role of computer technology in the context of collaborative learning, many authors have referred to collaborative learning theories assuming those theories would be directly applicable to the online learning context. Those scholars who focus particularly on computer-supported collaborative learning have shown two main streams in research with one discussing knowledge construction of the individual through mental representations with help of methods such as that of content analysis. The other stream emphasizes the process of shared knowledge building within groups, which has been often assessed through such as conversation analysis having originated in sociological studies (Stahl et al., 2006).

Studies by such as Stahl (2006), a US scholar, suggest online content, instructional design and teaching methods based on pedagogical concepts of how we learn best. However, it should be critically observed that if such approaches stem from Western contexts they may carry bias with societal values shaping learning theories and approaches (Moore et al., 2005; Collis & Remmers, 1997; Rogers et al., 2007). Hegemonic perspectives that impose cultural values and practices undermine the importance of culture specific online learning. Reeves (1992), for example, developed a model of effective dimensions of interactive learning to assess where the instructional practices in a culture would be located on a continuum with contrasting values at both ends. It was criticized that the side of his model that referred to constructivist as opposed to instructivist approaches and cognitive as opposed to behavioral approaches were described as favorable. Other scholars question

constructivism pointing out that there is little evidence that unstructured, unguided learning leads to bester student outcomes (Kirschner et al., 2006).

As such studies may carry bias, scholars have started to discuss online learning whilst considering the context of culture and with it the diversity of learners as well as their motivation and behaviors. Studies in the field often refer to Vygotsky's social learning theory (1978), sharing the central assumption that knowledge construction is achieved through interaction with others with different skill sets that contribute towards a common goal. Vygotsky emphasized the idea that knowledge is developed as we interact with our surrounding culture and society. Culture could influence stakeholders in online education in various ways, affecting students and lecturers preferred ways of learning and instruction as well as their behavior online, such as their communication. According to Boubsil et al. (2011) culture could influence online learning through linguistic plurality, innovations in pedagogical methods, localized cultural character of online programs as well as through content and teaching models. Collis (1999) argued that multiple cultures exist and pointed at cultural values and practices shared among students, teachers and institutions, proposing a flexible approach arguing that online learning should be able to cater to diverse cultural perspectives. Such flexibility could be achieved through adapting course designs, considering a variety of learning styles and by designing course websites and activities so that students and instructors can make use of different kinds of resources that suit their preferences. However, while such flexible designs seem promising, before stakeholders in education can redesign their websites and activities, there needs to be an in-depth understanding of different concepts of culture as well as the possible influence of culture on online learning. Scholars should therefore provide such an in-depth understanding as a basis to then be able to create more flexible educational approaches.

While there are countless definitions of culture, many cross-cultural scholars that study online learning refer to shared values and behaviors in a country context to define national culture. Culture can be defined as: "*A set of attitudes, values, beliefs, and behaviors shared by a group of people, but different from each individual, communicated from one generation to the next" (Matsumoto, 1996, p.6).*

Though values, attitudes and behaviors can be shared among people within one national context defined by its borders, culture can also be shared among other groups such as those of different ethnicity within one country context. Further, students in educational institutions could share values and behaviors being part of an organizational culture. Lastly, digital cultures may emerge with the rise of various technologies in our everyday life. Digital cultures could differ from national cultures, for example in the way we communicate with each other and form relationships.

Scholars that have considered the role of culture in online education have mostly relied on models describing national culture, often referring to Hofstede (1980), particularly with a focus on his main dimensions of individualism–collectivism, power distance, uncertainty avoidance, and masculinity–femininity. A number of scholars have measured culture using Halls' model of high- and low-context communication styles (1973, 1990). While these models are among the most cited and well-known cross-cultural theories, such approaches can be also limiting as they generalize cultural value dimensions across different contexts. Values such as those of power distance, for example, may not express in the same way across regions with possibly different expressions in Western as compared to Eastern contexts. Furthermore, with the introduction of new technologies and a flow of information across borders and cultural contexts new cultural spaces may emerge online. Offline behavior resulting from national culture as conceptualized by Hofstede or Hall may not translate in the same way into the online environment. Ess (2009) discussed third or so-called hybrid identities and stressed that those who communicate online may be influenced by multiple frames of references that make up their identity. Online environments allow users to conduct identities that may not align with those cultural models proposed. Instead, plural and hybrid identities may challenge the idea that a single community or region would influence our identity (Black & Cameron, 2002; Heaton, 2001).

Gunawardena conducted several studies that consider the role of culture in online learning (e.g. Gunawardena & La Pointe, 2007; Gunawardena & La Pointe, 2008; Gunawardena et al., 2009) with student samples from countries such as China, Mexico, Morocco, Spain, Sri Lanka, Turkey, and the United States. Her findings show that offline behavior does not directly translate into online environments. For example in a study that elaborated on Sri Lankan and Moroccan participants' perceptions (Gunawardena et al., 2009) these high power distance societies would experience the online medium as liberating as it would allow to equalize status differences which influenced their communication patterns accordingly. While Hofstede's model was not applicable in this study, Halls' (1973,1990) model of high context cultures could be related to as participants adapted their communication style to the context through such as direct and indirect forms of communication. Guawardena et al. (2008) further elaborated on the use of discussion forums between American e-mentors and Sri Lankan participants. Sri Lankans while not disagreeing openly in formal discussions did so in the informal online virtual café. This showed the role of context in communication. While scholars have argued that in cultural contexts where students avoid disagreement and confrontational discussions there may be a lack of higher forms of reasoning as a consequence (Biesenbach-Lucas, 2003), Guawardena (2014) raises the question whether it is necessary to challenge each other's ideas in order to develop higher forms of reasoning. Further, it is not clear how stronger values for collectivism, as present in many Asian cultural contexts, influence online learning. While a strong group orientation may encourage collaborative learning in the classroom, it may also reduce students' motivation to collaborate online if there is a lack of social proximity. However, in a study comparing Mexican and US participants (Tu, 2001) Mexicans perceived that having personal information about participants, which may increase social presence, was unnecessary. This was led back to the value for high power distance. As social presence could reveal status differences participants would prefer the equalizing power of the online environment.

## 2.1. Concepts of culture - The region of South East Asia

When discussing cultural characteristics of country contexts in Asia and comparing those with countries in the West, a common way to discuss cultural differences is to highlight an East-West or Asian-Anglo or Asian-Europe divide. Such categorization may lead to generalizations neglecting specific regional and country characteristics. Geographically regions in Asia can be divided into South Asia, South East Asia, East Asia and Central Asia. South East Asia, which cannot easily be compared with other Asian region due to for example differences in economic development and cultural characteristics, compromises of the countries of Myanmar, Thailand, Malaysia, Laos, Cambodia, Vietnam, Indonesia, Brunei, Singapore, the Philippines and East Timor.

The Globe Study (House et al., 2004) which mapped cultures based on value clusters, identified among most Asian clusters significantly stronger values for collectivism, power distance and uncertainty avoidance as compared to Western contexts. The Globe Study included many of the above listed South East Asian countries in the South Asian cluster. Singapore, however, was grouped into the Confucian cluster among China, Hong Kong, Japan, South Korea and Taiwan. Countries in the South Asian cluster were defined as highly family and group-oriented, male-dominated, and hierarchical. Such value orientations could, for example, motivate the instructors to apply behavioristic concepts with a focus on teacher-centered pedagogies as opposed to student-centered approaches more commonly applied in prototypical individualistic societies of the West. The Confucian cluster showed mostly value orientations similar to those of countries of South Asia but scored among the highest of all regional clusters on performance orientation. Confucian cultural contexts (e.g. China, Hong Kong) have received significantly more scholarly than South East Asia. Scholarly attention could support to identify possible regional or country specific differences that may influence online learning. Furthermore, according to Hofstede (2001), many South East Asian countries show higher levels of femininity as compared to other Asian regions. Feminine societies show lower levels of assertiveness and a need for social harmony. Such characteristics of Hofstede's value orientation of femininity are similar to the performance orientation identified by the Globe Study. Values for femininity could for example influence knowledge exchange with possibly lower levels of critical discussion and debate if students aim to avoid conflict. Thus, a review of studies conducted in the region of South East Asia could help to better understand how culture influences online learning and what tools and methods could support students as well as those country contexts with similar cultural value orientations when studying collaboratively online.

While the above research findings show that cultural differences in online learning exist and, if neglected, can affect such as the motivation for critically discussions online, literature reflecting upon the role of culture in computer supported learning with a focus on collaborative online learning, particularly in the context of South East Asia, remain scarce. Several scholars have urged to conduct research that compares learning and online learning across cultures (Edmundson, 2007; Rogers et al., 2007; Uzuner, 2009). Current reviews provide overviews of collaborative online learning (for example: Cherney et al., 2018) with one review of learning across cultures which dates back to 2009 but does not particularly focus on collaborative online learning (Uzuner, 2009). To our best knowledge so far, there is no systematic review of existing literature in the field of collaborative online learning across cultures and none on the context of South East Asia.

## 3. METHOD

Systematic literature reviews give structure to the findings of larger amounts of empirical studies and show advantages over standard literature reviews as they investigate in clearly defined questions in a highly structured, transparent and reproducible manner (see Gough et al., 2017; Zawacki-Richter et al., 2020), which can further help to prevent bias.

Guided by the above questions that center the role of culture in online learning in South East Asia, this study aimed to identify and systematically structure related research findings. A search strategy was developed gathering literature using explicit search protocols that led to specification of inclusion and exclusion criteria. The identified articles were then analyzed with help of descriptive content analysis and findings were summarized with regards to the above questions as to finally give recommendations. The search tool PICO (Huang et al., 2006) was applied focusing on: (1) the characteristics of the population (P= students participating in higher education in South East Asia), the problem (P= understanding collaborative online learning in the cultural context of South East Asia), (2) the intervention (I= pedagogies and technologies), (3) the comparison group (C= groups who attend face to face class rooms or groups exposed to different pedagogies and/or tools or groups from different cultural backgrounds) and (4) the outcome (O= effective collaborative learning) which could be measured qualitatively or quantitatively by such as numbers of entries in discussions, content analysis of such discussions, self-report of perceptions of participants, group assignments, observations and other measurements.

## 3.1. Search strategy

A search string was identified that included empirical studies, (1) in the fields of higher education, (2) conducted in South East Asia or outside of South East Asia with student samples from any SEA country, (3) that centered the context of culture (4) and collaborative online learning and/or its tools. Furthermore, only peer reviewed relevant journals from the databases ERIC, Web of Science and Scopus published in English were included. No publication date limitation was applied.

Table 1.
*Initial Search String*

| Topic | Search term |
|---|---|
| Country context | Singapore OR Thailand OR Indonesia OR Malaysia OR Vietnam OR Philippines OR Laos OR Myanmar OR Burma OR Brunei OR Timor- leste OR "South East Asia" |
| **AND** | |
| Educational setting and level | learning OR education OR learner* |
| **AND** | |
| Collaborative Learning | collaborative OR cooperative OR community OR cooperation OR facebook OR wechat OR "Discussion Board*“ OR blog* OR wiki OR chat* OR scaffold OR CMC OR e-mail* OR email* OR "bulletin board*" OR googledocs OR baihui |
| **AND** | |
| Culture | culture OR intercultural OR cultural |
| **AND** | |
| Online learning | "online learning" OR "computer supported" OR "distance learning" OR "distance education" OR "blended learning" OR elearning OR e-learning OR technology-enhanced OR "computer mediated communication" |

Table 2.
*Inclusion and Exclusion Criteria*

| Inclusion Criteria | Exclusion Criteria |
|---|---|
| English language | Not in English |
| Countries in South East Asia | Countries outside of South East Asia |
| Higher education | Not in higher education |
| Empirical, primary research | Not empirical, not primary |
| Collaborative learning in education | Collaborative learning outside of education |

## 3.2. Screening

As the above listed keywords were entered and the search limitation criteria for English language and journal articles was applied, 1690 articles were found. After screening of titles and abstracts based on the above inclusion and exclusion criteria, out of the 1690 articles, 60 relevant studies were identified. The authors still included those articles where it was not clear whether inclusion and exclusion criterion were met when reviewing abstracts. After viewing the full text of the remaining 60 studies, 35 studies were excluded as those studies did not show a clear focus on culture or collaborative learning. For four articles, the full text could not be retrieved which left 21 articles. The 21 relevant studies were included as they discussed collaborative online learning in higher education in the context of South East Asia considering the cultural contexts of the countries studied.

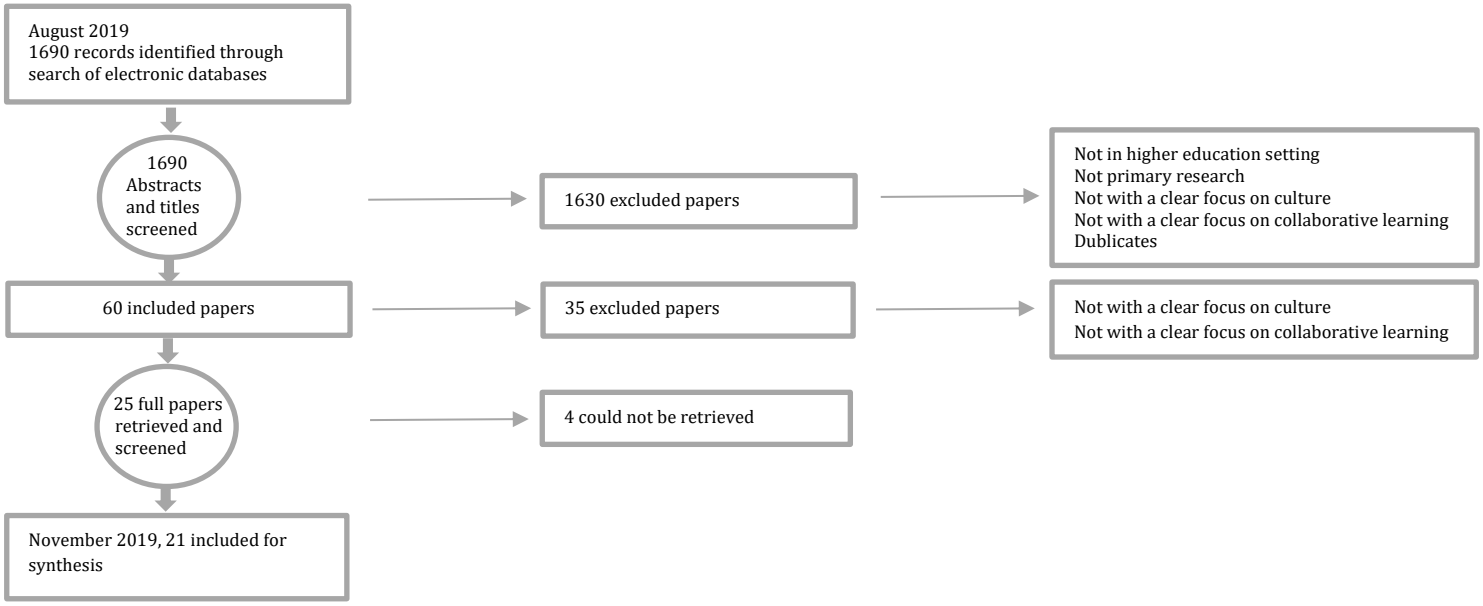


Figure 1. PRISMA diagram

## 3.3. Coding, data extraction and analysis

Descriptive content analysis was applied for the systematic review of the identified studies to answer our research questions. A number of content analysis strategies such as systematic coding and categorization were applied to determine patterns such as those of how particular cultural values and behaviors would influence online learning (Gbrich, 2007).

The coder started with coding and extracting data from the selected studies based on the previously defined main research questions to answer how collaborative online learning as well as culture would be defined and conceptualized in studies, what role culture plays in online learning and how pedagogies could be designed and technologies be selected to support collaborative learning whilst considering the role of culture in the context of South East Asia. In order to answer the above questions, the coder reviewed articles based on the following coding criteria applying deductive coding: the aim and outcome of the study, samples, methods, concepts of culture as well as of collaborative learning, collaborative tools and the influence of culture on collaborative learning. Data that met the above criteria was summarized and organized into tables. After this first coding step, the extracted content organized in tables was viewed again with help of inductive free coding across categories with the central research questions in mind to identify common themes. The process was repeated several more times, organizing data into coding frames, until clear themes and subthemes had emerged.

Scholars who have described how to analyze data to assess findings of systematic reviews have suggested to identify key concepts in studies (e.g. Campbell et al., 2003). However, key concepts such as those of definitions of different types of cultures, collaborative forms of learning as well as of the role of culture on the later could not always be easily identified in studies. For example, authors of the reviewed studies may have referred to concepts of power distance but not to the conceptual framework of Hofstede or may have described online and offline cultures without directly mentioning the different types of culture. Authors further applied different reporting styles and methods of analysis with some scholars lacking conceptualization and/or using simple forms of analysis. Therefore, as to go beyond the content with the analysis of the original studies, the coder would infer with existing terms and concepts in mind.

### 3.4. Limitations

Major large internationally recognized data bases were selected but other data bases were left out. Since the review paper centers culture, other languages besides English may have given more emic (culture specific) insights. However, we found only a few studies in other languages after all selection criteria were applied. Book chapters or other documents that were not peer reviewed were not included. This may have led to the exclusion of studies of authors operating in cultural contexts that have little resources/support to publish in peer reviewed journals.

## 4. FINDINGS

In the following section, we provide an overview of the types of journals that published our selected studies as well as the countries being represented. We furthermore elaborate on major themes and subthemes related to our main research questions. As major themes, we present an overview of concepts of collaborative learning and of cultures mentioned in the reviewed studies as well as of the influence of culture on online learning and finally of pedagogical approaches that support online in learning in the context of South East Asia. We further elaborate on subthemes of these major themes, such as those of different types of culture conceptualized in the reviewed studies which mainly focused on national cultures and its value dimensions. As for the influence of culture on online learning we organized our findings along values that were predominately mentioned in the studies with three major value orientations which were the value for and acceptance of the teacher in a position of power, the value for the collective as well as values related to achievement. Particular effects of those value orientations were identified such as the influence of power on communication and the influence of ingroup building on idea generation and motivation. While most country contexts shared values for hierarchies and group orientation, studies on Singapore and Malaysia with a larger ethnic Chinese population also highlighted values for achievement and pragmatism. After having assessed the influence of culture on online learning we focused on pedagogical approaches which were divided into subthemes that dealt with approaches such as to increase community building through indirect communication online as well as to scaffold through peer tutoring and lecturer support to increase self-responsible collaborative learning. Lastly, we reflected upon those collaborative online tools mostly discussed in the reviewed studies, particularly blogs, discussion forums and social media.

### 4.1. Journals

Papers were published in 16 different journals with three papers published in Pertanika Journal of Social Science and Humanities as well as in Journal of Educational Technology and Society followed by Australasian Journal of Educational Technology (2). The majority of journals identified were those in which only one article per journal was published. Those included journals related to educational technology, educational media, e-learning, teaching and learning, communication research as well as journals related to the context of Asia.

Table 3.
*Journals Ranked by Number*

| Rank | Journal | n |
|---|---|---|
| 1 | Pertanika Journal of Social Science and Humanities | 3 |
| 1 | Journal of Educational Technology and Society | 3 |
| 2 | Australasian Journal of Educational Technology | 2 |
| 3 | Others with one article | 13 |

## 4.2. Countries

After having applied selection criteria studies conducted in the countries of Malaysia, Singapore, Thailand and Indonesia were identified. Though the initial search string also included the South East Asian countries Vietnam, Philippines, Myanmar, Cambodia, Laos, Brunei and Timor-Leste, those country context were not found among the reviewed studies after having applied inclusion and exclusion criteria.

Table 4.
*Distribution of Articles by Country Origin of Student Samples*

| Rank | Country | n |
|---|---|---|
| 1 | Malaysia | 10 |
| 2 | Singapore | 7 |
| 3 | Thailand | 5 |
| 4 | Indonesia | 3 |

## 4.3. Concepts of Collaborative Online Learning

In order to identify studies that discuss collaborative online learning in the cultural context of South East Asia the authors searched not only for studies that included terms such as collaborative, cooperative or community in combination with learning but further searched for studies discussing collaborative tools and applications such as for example blogs, discussion boards, Facebook and wikis in the context of South East Asia in higher education.

Surprisingly, among all studies only one study defined and conceptualized the term collaborative computer supported learning in-depth. Alavi et al. and Cohen & Levinthal as cited in Lee & Cho (2011) describe CSCL as the following:

> *Computer-supported collaborative learning (CSCL) involves interpersonal processes by which students work together to complete a learning task designed to promote learning and intellectual discovery (p. 213).*
>
> *The distinguishing feature of CSCL is interaction among distributed learners. Peer-to-peer sharing of information, ideas, and knowledge is important for learners in increasing exposure to diverse problem-solving approaches, conflicting viewpoints, and different sets of knowledge. Each of these points enhances an individual's ability to recognize opportunities, to adapt, and to learn (p. 213).*

Despite a lack of definitions and in-depth conceptualization of the term collaborative learning, the majority of studies identified different aspects of collaborative learning such as different types of interactions when collaborating, stakeholders involved as well as their relationships and roles. Studies discussed collaborative learning as interactions between students and teachers as well as between students and students acquiring, exchanging and constructing information to foster a sense of a classroom community online. Buraphadeja & Kumnuanta (2011) stressed the importance of participation and collaboration and referred to five relationships: student-to-student, academic-to-student, student-to-others, academic-to others and others-to-others. Student-to student collaboration was described as students communicating verbally as well as through emoticons and likes in discussion forums. The number as well as the content of messages exchanged between students was said to be considered when defining collaboration.

A number of authors (e.g., Alias, 2012; Buraphadeja & Kumnuanta, 2011; Usman, & Y., 2018) referred to theories of collaborative learning. Such theories were the developmental theory of Vygotsky (1987), the cognitive-elaboration theory (Barndon & Hollingshead, 1999) as well as the situated learning theory (Lave & Wenger, 1991) and the community of practice (Wenger 1998) which all center peer interaction as a key mechanism to construct knowledge. The situated learning theory suggests that learning happens through collaborative social interaction, social construction of knowledge and participation in the social world. An online learning environment in which learners can engage in social interactions and community-based practices could support such social knowledge construction. Wenger (1998) who conceptualized the community of practice (CoP) stated that learners learn as they focus on the experience of meaning in a trusted community with a shared objective. In one of the reviewed studies Usman & Y. (2018) conceptualized a community of practice as a group of people that interact in cyberspace and share an identity and objective or interest among group members in informal interactive spaces. They discussed Wikipedia as a potential community of practice and argued that it allows users to contribute to the subject with resources they could edit, add and remove freely. Increased interaction and Wikipedia characteristics brought about a strong identity within the community and further enhanced promotion, trust and participation. They found that, different from Indonesian students, Italian students were only willing to promote the Wikipedia community if they perceived the quality of information as relevant. This result is one example of how the concept of collaborative learning environments as informal spaces does not always lead to increased knowledge sharing or satisfaction across cultures, in this case if not perceived as professional or effective. Cho & Lee (2008) also assessed information seeking and argued that individuals should collaborate to collect, analyze, synthesize, and disseminate information and that one has to consider the cultural context information seeking happens in.

Furthermore, authors related constructivist learning theory and social cognitivism to concepts of classroom community and social exchange. Peer tutoring and scaffolding was described as being closely linked to social constructivism. Studies described teacher-student collaboration as well as peer support to scaffold learning through providing feedback, initiating communication, assessing performance as well as giving guidelines and structure. One of the reviewed studies (Buraphadeja & Kumnuanta, 2011) referred to Topping (1996) who linked peer tutoring to social constructivism stressing its advantages of social interaction with experienced guiding which could lead among others to greater sense of ownership of learning and empathy. The authors argued this would be particularly relevant for the Thai context where the teacher is often assumed to take the role of second parent. In their study online scaffolding did raise a sense of community and improved attitudes of students towards learning and thus changed the behavior of Thai students, which were according to the author usually more passive learners. Alias (2012) who discussed the concept of scaffolding referred to Vygotsky's (1978) concept of assisted learning and found that Malaysian learners were still mostly motivated to log in because of the instructor. Dependence on the instructor was still dominant. Thus, the sense of ownership according to the social constructivist perspective could not be observed.

One study (Balakrishnan et al., 2016) mentioned the term cooperative learning but did not point out a difference between collaborative and cooperative learning. Scholars have previously conceptualized that while cooperative learning highlights a shared learning process with participants focusing on the same task, cooperative learning often includes and suggests a stronger separation and delegation of tasks that contribute to a common project (Dillenbourg, 1999).

As we included collaborative learning tools in our search, we found a number of scholars who discussed educational technologies and channels such as blogging, forums, discussion boards, social media and instant messaging and their role to encourage collaboration. Zhong et al. (2008) described computer-mediated communication (CMC) tools to be able to increase participation, satisfaction, group cohesion, create greater equality of influence, as well as to reduce domination, free riding production blocking, and cognitive interference. In decision-making tasks, CMC tools were said to facilitate users in analyzing alternatives as well as in negotiating, and building consensus among group members. According to Gray et al. (2010), CMC tools may enable and sustain creative and compelling new ways for students to express and exchange their diverse experiences and perspectives with some social software tools permitting user-created content to be reviewed and thereby facilitating students' critical reflection on their own learning and appropriate contingent teaching.

While authors of the reviewed studies did refer to several concepts and theories, according to the authors of this paper, collaborative online learning can be conceptualized as follows: Collaborative online learning is based on the interaction between teachers and students, as well as among students supported by communication technology. Such interactive relationships should be characterized by a positive social interdependence with students giving and seeking support, providing resources, exchanging information, and/or communicating to provide positive encouragement. Encouragement could happen non-verbally, such as through using a 'like function' of a social media tool and can still be considered collaborative if non-verbal communication serves to increase feelings of social presence and community.

Before assessing the role of culture in online learning, the following section shall introduce commonly used definitions of culture among the reviewed studies such as those of national, ethnic, educational and cyber cultures.

## 4.4. Concepts of Culture – National, Ethnic, Educational and Cyber Cultures

The majority of authors did not define the term culture thoroughly but instead focused mostly on a single or on multiple cultural value dimensions that could explain behavior in the online context. Many authors referred to the national cultural value dimensions of Hofstede (2001), particularly those of collectivism and power distance. While culture was mostly conceptualized as national culture describing shared values, norms and behaviors in a particular country context, some studies described different ethnic cultures within the same national context, cyber cultures especially with a focus on the digitally literate younger generation as well as educational cultures reinforced through higher education institutions and governmental agendas.

Fang (2007) who assessed various layers of culture and their interplay in a qualitative study discussing how culture influenced the behavior of Singaporean Chinese students in higher education when collaboratively learning online referred to the following concepts of culture by Hoftede (1994) and (Bell, 2001).

People inevitably carry several layers of mental programming that correspond to different levels of culture—namely, the national, the regional and/or ethnic and/or religious and/or linguistic affiliation, the gender and generation, the social class and the organization or corporate levels (p.238).

A newly emerging level of culture, known as the digital, Internet or cyber culture that transcends ethnic, national and regional boundaries, allows millions to be part of a global virtual community (p. 238).

### *4.4.1. National culture and ethnic culture*

Many studies referred to Hofstede's framework of national value dimensions (1991) to describe how online behavior could be influenced by national culture. The value for collectivism and its related values were mostly mentioned. Some studies referred

to values for power distance and its influence on online behavior. Hofestede's model has been criticized with scholars stressing that one has to consider the context of time the study was conducted in and the possible dynamic changes in culture as well as the limitation of the particular industry sample used. Many of the authors that conducted quantitative research and compared countries (n = 7) assumed differences they found in perceptions and outcomes could be explained by cultural differences. However, culture was not measured as variable (through such as value orientations) but instead authors related to what previous studies found. Others did so when describing a single culture context (n = 2). Furthermore, critics highlight that Hofstede designed his model at the national level of analysis, not at the individual. Only two studies considered the above criticism. Nawa (2018) who studied Thai students' attitudes towards e-learning stressed that values change over time, referring to Buraphadeja & Kumnuanta (2011) who conducted a study in Thailand showing lower power distance, lower masculinity, higher individualism and higher uncertainty avoidance as compared to Hofstedes' original study (1991).

Studies that discussed Singaporean student samples and in some cases Malaysian samples emphasized values for pragmatism and achievement orientation which authors led back to economic growth, meritocracy and an orientation towards life-long education resulting from an utilitarian perspective to survive in these country contexts (e.g. Tongkaw et al., 2009; Siew & Barton, 2013; Gabarre & Gaberre, 2010). Furthermore, studies that discussed Malaysian and Singaporean samples were among the only studies that considered different ethnic cultures within a national context, possibly because those can be considered as multi-ethnic societies. As in Singapore the majority of its inhabitants is of Chinese descent followed by Malays and Indians, Chinese culture was particularly elaborated on and often with reference to values related to the Chinese philosopher Confucius, such as those for ingroup orientation and societal hierarchies. Goh et al. (2010), who studied Singaporean Chinese students, stressed Confucianism to remain dominant in living philosophy among Singaporeans being transmitted through formal education and the government securing hegemony and deploying "Asian values" ensuring its stability and reinforcement.

### *4.4.2. Cyber culture*

Studies mostly did not explicitly define the concept of cyber culture or digital culture but described patterns of behavior online. Such behavior was found to be often similar to that of offline cultures. For example, authors would describe high levels of power distance or uncertainty avoidance, as measured by previous researches in offline context, and relate those to lower engagement in discussions in the online context. Fang (2007), however, stressed that while national and ethnic culture may influence students' behavior, students at the same time grow up in a strongly networked society with regular use of technology in different areas of life, especially among students between 15 and 24 years, which could affect their online learning behavior. Scholars that highlighted differences between online and offline behavior, indirectly referred to digital or hybrid cultures describing online spaces as liberating, informal and playful environments. They further referred to the effect of online spaces neutralizing power relations which could influence how students communicate with each other and their instructors and which led in some studies to an increase in students' motivation to study and to exchange (e.g. Song & Yuen, 2008). Online environments however, would not generally be perceived as such playful spaces as authors found when contrasting Asian with Western cultures: For example, Gray et al., (2010) found Singaporeans in a blogging environment to be more willing to try out more advanced interactive media authoring and publishing techniques as compared to Australian students.

### *4.4.3. Educational culture*

While culture can be identified as shared values and behaviors within a country context or an online environment, institutions, such as educational institutions and its stakeholders can play an important role in fostering values and attitudes related to learning, teaching and its pedagogies. Educational cultures in South East Asia encouraging computer supported learning were, according to several reviewed studies, influenced by governmental agendas.

Some studies also stressed reluctance of educational stakeholders with regards to implementing online learning and the possible changes coming with it. Buraphadeja & Kumnuanta (2011) emphasized that despite pervasive use of technology in Thailand and the promotion of using e-learning in education, studies have shown low e-learning readiness and instructors' reluctance to use e-learning and to face changes in learning. Many authors referred to traditional approaches reinforced in educational systems, such as that of rote learning due to teachers' attitudes towards as well as experiences with behavioristic approaches. Such attitudes could be an obstacle to collaborative online learning. In a study conducted by Tongkaw et al. (2009) a lecturer interviewed described how the cautious Malaysian culture would challenge the introduction of 2.0 in education as the educational culture would be influenced by the requirements of national examinations that Malaysia borrowed from the British educational system. This system would encourage students to prepare for testing in traditional classrooms where technology is rarely integrated for collaborative purposes but rather for scheduling and announcements. Authors of this study concluded that while online collaborative learning can benefit self-expression, it would be important that online learning did not change values of the society. They stressed that it would be "extremely unfortunate if students in South East Asia do not retain the positive aspects of their cultural values, such as respect, tolerance and humility" (p.11). This shows concerns of instructors that new forms of online learning may change national cultural values and/or behavior.

After having reflected upon how authors conceptualized different types of cultures, the influence of such cultures on online learning will be elaborated on in the following.

## 4.5. Influence of Culture on Collaborative Online Learning – The Role of National Value Orientations

When discussing the influence of culture on online learning authors mostly applied concepts of national culture and its predominant values while some also reflected upon ethnic and educational cultures. Cyber or online cultures were most of the time not highlighted but indirectly mentioned describing distinct patterns of online behavior.

A number of studies referred to the value for and acceptance of the teacher in a position of power. However, descriptions of the power of the teacher also included elements of nature and care. Acceptance of power and authority would further influence communication styles and self-regulation of students. Besides values for hierarchies, the majority of studies reflected upon national values for collectivism linking such values to the motivation to maintain social harmony, to avoid conflicts and to foster ingroups. The lack of critical discussion of ideas due to the value for social harmony and for saving face was stressed in several studies. While this shows how values in the offline context may carry over to the online environment, in some cases the online environment influenced behavior serving as a neutral, informal and/or fun space that encouraged students to exchange or to participate through such as reading others contributions. Further online spaces allowed time for reflection and introspection and thus helped students to respond more thoughtfully which wasn't possible in classroom environments. While value orientations across country contexts were similar, Singapore and partly Malaysia stood out as exceptions with authors highlighting values for pragmatism, achievement and competition. In the following the above-mentioned major value dimensions such as those of authority, collectivism and achievement orientation as well as possible effects of such cultural values on online learning will be elaborated on.

### *4.5.1 The role of the teacher as an authority and its effect on communication and self-regulation*

Students reacted to the teacher as being in the role of the authority, which though was described often as the role of a parenting teacher who was expected to take care. Hierarchies would affect the way students and teachers communicated and would further challenge self-regulation of the students as elaborated in the following.

#### *4.5.1.1. The role of power – The teacher as a caring parent*

A number of studies referred to power relations between students and teachers. For example, Subramaniam (2008) found a preference for teacher-centered instruction as well as for classroom over online learning among Malay learners which were compared with Indian students. Most studies that dealt with the concept of power did not describe the teacher as solely autocratic but referred to a kind authority. According to Fang (2007), while valuing high power distance (Hofstede, 1991), Singaporeans would also value warmth and relationships. Another study emphasized that in the Thai context the teacher would be often seen as a second parent (Buraphadeja & Kumnuanta, 2011). Authors highlighted the influence of power distance on online learning, particularly on communication and self-regulation as outlined in the following.

#### *4.5.1.2. Effect of power relations on communication*

In many studies, students were described as passive or hesitant which often led to low levels of knowledge exchange. According to Buraphadeja & Kumnuanta (2011) Thai pedagogy can be seen as an obstacle towards e-learning fostering rote learning and respect towards the teacher that may lead to passive learners receiving input from the teacher and asking fewer questions. Further, authors argued that online learning would make it more difficult to convey respect for the authority or the older. Tongkaw et al. (2009) elaborated on views of Malaysian teachers on social networking. They focused on blogging, describing the way the learner-instructor relationship was viewed with lecturers being addressed as Sir or Madame in postings and highlighted language that showed the aim to respect seniority and the teacher as an authority. Fang (2007) found that Chinese-Singaporean students would perceive feedback of the instructor as more useful than that of their peers.

#### *4.5.1.3. The effect of power relations on self-regulation*

A lack of self-regulation among students was seen as a challenge when introducing online learning, which would require the teacher to take more responsibility and to provide guidance. Alias (2012) reflected upon the design of a motivational scaffold for Malaysian students studying online via distance with the aim to sustain the motivation of students. The students with Chinese ethnic background were referred to as having Confucian cultural values, viewing the instructor as the authority in the classroom with students being spoon-fed and less independent, expecting closer supervision. The students were said to be less aware of what was expected of them and to postpone their work accordingly in online environments. In one study that tested a CSCL assignment that encouraged self-regulation among Malaysian students learners appreciated autonomy but 25 percent of the learners also said that freedom and shared responsibility was tiring (Gabarre & Gabarre, 2010). While Ngampornchai & Adams (2016) found slightly positive perceptions towards e-learning among Thai students. Those students who were more self-regulated showed a more positive attitude. However, self-regulation did not correlate well and did not load with the rest of the items on the same scale after factor analysis was applied. The item 'As a student, I enjoy working independently' did not correlate with other items which could indicate that in Thai culture self-regulation does not have to mean studying independently. One could be self-regulated and at the same time work with others in an effective manner. This shows that self-

regulation can be understood differently across cultures, which should be considered when choosing scales as to measure self-regulation.

### *4.5.2. The role of the collective – Ingroup building and social harmony affecting idea creation and motivation*

The majority of studies related concepts of culture to relationship-based values, attitudes and behavior with many authors referring to Hofstedes' (1991) value dimension of collectivism as well as to the influence and importance of peer relationships, ingroup orientation, sense of belonging and social harmony. An orientation towards the group would express in such as the tendency to build ingroups with those students similar to oneself such as those from the same institutional context. Ingroup orientation could foster communication within familiar groups but would reduce exchange with outsiders. Gaining new and diverse knowledge would be limited as a consequence. Furthermore, the need for social harmony which could lead to avoiding critical discussions was mentioned by several authors.

#### *4.5.2.1. Ingroup building and knowledge exchange*

Many studies mentioned Confucius' concepts of close networks and relationship building ('guanxi'). Such values influenced how students communicated, with whom they exchanged knowledge with, as well as their motivation to participate in e-learning. Some studies focused on social values such as ingroup building and the need for social harmony stressing a decreased knowledge exchange among students as a consequence. Others referred to individualism as being looked down upon in South East Asia, relating it to the notion of a braggart that brings negativity to others.

Fang (2007) found Confucian values for social harmony and close networks of friends and family with the aim to protect face of these groups and of oneself to affect who Singaporean-Chinese would exchange information with in online activities. While showing similar values for building relationships, Singaporean national culture was described as being less influenced by an ingroup orientation, the desire to belong to certain groups, as compared to the ethnic Chinese culture. The study showed that students of ethnic Chinese cultural background showed stronger preference to work with students they knew or could relate to. However Fang (2007) suggested that the cyber culture may help to break down ingroup orientation and barriers which was found in the case of one activity. In this activity a larger organized group online chat that did not allow for group forming was enjoyed by students and motivated them to discuss.

Lee & Cho (2011) assessed Singaporean students' information sharing behavior. Students participated in an online discussion forum with students from their own university (ingroup) and of other universities (outgroup). They found that individual cultural proclivity measured as a collectivist orientation would influence knowledge sharing as students with an individualistic orientation sought information more so outside of their school boundaries as compared to those with a collectivistic orientation. Authors argued that the common conceptualization of online environments as a neutral space that breaks down barriers could not be confirmed in this study. A second study by the same authors (Cho & Lee, 2008) compared how individuals from different country contexts exchange information across borders comparing Singaporean and American students. They found that socially bounded nature of online information seeking was more significant in the collectivist cultural context.

#### *4.5.2.2. Maintaining social harmony – Lack of diverse ideas but increase in motivation*

Many studies that found students to be hesitant to exchange with fellow class mates offline and online led such tendencies back to the values for maintaining social harmony and protecting face of oneself and others. Students avoided offending others which further increased indirect communication. One study that assessed a discussion forum among Malaysian students found that students who were cautious to voice feedback as not to offend others could better do so using social clues and indirect communication. In their study on blogging among Singaporean students Goh et al. (2010) noticed that few students were willing to share their personal views for discussion which was particularly the case when views were sensitive. They would often not reply to posts of their classmates either as they were afraid to embarrass themselves or others. It was stressed that despite Singapore's rapid economic growth and changing social lifestyles Confucian values would remain a central moral concept which may explain conservative, cautious reactions of students who avoided expressing their thoughts as not to be perceived as arrogant. While many studies based on South East Asian samples stressed that students hesitated to comment, one study (Kabilan et al., 2019) compared Malaysians, Maldivians, Indonesians and Japanese. Authors found that while the Malaysians, Maldivians and Indonesians shared ideas and opinions frequently and regularly commented on others posts, Japanese in comparison tended to share photos more frequently, seldomly commented, showed higher fear of making mistakes and felt that Facebook did not help much to use English for writing, speaking and reading.

The consequences of the motivation to maintain social harmony were interpreted in different ways. Studies showed lack of diversity of ideas and quality of information but also an increase in motivation and cooperation as outcomes in some studies. One study tested the use of Wikipedia (Usman & Y, 2018). While Italian students were only willing to promote the Wikipedia community if they perceived the quality of information of posts as worthy this was not the case for Indonesian students. It was argued that Indonesian students representing a collectivist culture may have tolerated low usability of content if it helped to achieve a common goal even if information posted did not benefit them. In Fangs' study (2007) Singaporean students avoided to reply to students posts or waited until others posted to give similar replies but enjoyed reading each other's post or used other posts to improve their own answers.

While the motive to avoid conflict was similar to that in offline contexts, the online environment gave students other opportunities to learn from each other and therefore offline behavior and cultural values did not always translate into online behavior. Some studies showed that while students were rather quiet in the classroom, the online environment helped to overcome fear of voicing ideas openly. A study (Subramaniam, 2008) that discussed challenges and strategies when implementing autonomous learning among Malaysian students found that especially shy students experienced the learning environment to be liberating as they could plan and contribute without the competition from more vocal students. It allowed them to be creative and critical through being thoughtful rather than spontaneous and that way to experience a democratizing atmosphere.

### *4.5.3. Achievement, competition and pragmatism – The cultural context of Singapore and Malaysia*

While cultural values such as those for collectivism, power distance and uncertainty avoidance were identified across most reviewed studies, only among studies that assessed Singaporean students, with many of those of Chinese ethnicity, or in some cases Malaysian students, authors stressed values for achievement, pragmatism and competition (Goh et al., 2010; Tongkaw et al., 2009; Siew & Barton, 2013; Gabarre & Gaberre, 2010; Gray, Chang & Kennedy, 2010).

In some studies, Singaporean students perceived e-learning as a means to save time which could be related to a value for pragmatism. The motive for achievement resulted in some studies into competition. In a case study (Siew & Barton, 2013) that looked into the role of social capital among Singaporean, Turkish, Malaysian, Indonesian and Australian students and lecturers, Singaporean culture was described as strongly valuing 'kiasu'. Kiasu was related to the motivation to get something in return for what one invests and to get ahead of others when striving to be the best. In four out of five case studies competitive instrumentalism was seen as merely important whereas based on the analysis of the Singaporean case study it seemed essential. Students in the Singapore case study tried to avoid low performance due to fear of loss of their own face but also loss of family face. Utility was mostly stressed among Singaporean and Turkish subjects and less so among those from Malaysia, Indonesia or Australia. Gray et al. (2010) explored social media use as well as blog use of international Singaporean and domestic Australian students in an Australian university. Referring to Hofstede (1991), the authors considered Singapore a collectivistic society where communication and making decisions was described to be more strongly influenced by expectations of others. Peer pressure was found to act as a motivator for Singaporean students to post online whereas students from Australia rather published online for personal satisfaction and to a lesser degree due to peer pressure.

However, while values for achievement and pragmatism were often stressed among studies with Singaporean samples, a high need for achievement would not necessarily lead to competition which may be led back to Singapore being a collectivistic society valuing group harmony. Confrontational competition was generally not highlighted by authors. Instead students compared grades online without personally competing. For example, Alias (2012), who tested the design of a motivational scaffold for the Malaysian e-learning environment in order to sustain motivation of first year distance students, concluded that the tool provided a sense of achievement as students were able to view progress through display of points. Learners were mainly concerned about their own performance rather than about competing with others. In a study of Gabarre & Gabarre (2010) among Malaysian learner's of Chinese background group pressure and intense competition were seen as exhausting. The publicity where everyone could see posts was assumed to have contributed to this. Points were given for being original and creative which motivated learners to score at their best comparing each others results before submitting and going beyond guidelines and a marking schemes. Some team leaders pushed their members more than their moderators did. Students mentioned that the fact that all messages in the forums were permanently recorded and that everyone could see these messages would put considerable pressure on less active members. Autonomy was appreciated but a number of members explained that competition and group pressure for high marks could be exhausting.

## 4.6. Pedagogical Approaches for Online Learning in the Context of South East Asia

Having elaborated on concepts of culture and collaborative online learning as well as the relationship between both, in the following pedagogical approaches that support collaborative learning in South East Asia as identified in the reviewed studies are outlined. Pedagogical approaches in the reviewed studies included the following central aspects: A few authors suggested to reward students with points or in other ways to increase participation. Such extrinsic motivators in some cases led to intrinsic, creative and free exchanges among students once communication was initiated. Many authors stressed scaffolding as a way to increase participation and motivation as well as to guide self-regulation. Scaffolding could happen through the teacher, a co-teacher or students taking the role of moderators that supported and guided other students. Such guidance could happen through initiating communication, answering questions, supporting indirect communication as well as to give structure, such as with help of learning management platforms. While some authors found that establishing a sense of community and social presence would support motivation and participation among students, others suggested anonymous online environments to prevent ingroup building and loss of face. Furthermore, the selection of collaborative learning tools was considered when designing collaborative online learning. Most studies referred to either blogs, online discussion forums or social media as to encourage collaboration. The above summarized major themes will be elaborated on in the following.

### *4.6.1. Creativity and freedom vs compulsory activities*

A number of studies showed that students collaborated online, though many times not through engaging in critical discussions. However, many authors also pointed out that they incentivized students to collaborate providing points and making activities a compulsory part of the grading schema. While this served as an extrinsic motivator as it did not center learning itself as the reward, some studies showed that previously extrinsic motivators led to intrinsic motivation in the process. Enjoyment, relaxation and connection motivated students in these cases, such as for example during an activity which required Singaporean students to upload a self-description as a file as well as on a home page. Participants disclosed personal details and used emoticons, added photos and unusual background music in creative and cheerful ways. In the same study another compulsory group activity with two chat groups, each of ten participants, aimed at a serious discussion to share knowledge on a topic with online leaders briefed by the tutor who provided guidelines and sample questions. It turned out a fun and social event which increased knowledge exchange and where the moderator had to remind students to proceed with the next activity (Fang, 2007).

### *4.6.2. Scaffolding – Lecturer and peer support*

Many studies centered the strategy to scaffold online learning with the help of a moderator. While several authors described it as challenging to encourage students to exchange knowledge offline and online, this was less often the case if knowledge exchange did not threaten harmony or loss of face. A harmonious exchange happened more likely if supported through a moderator which was in some cases the lecturer and in others peers in class. Furthermore, a moderator could help students who struggled with structuring learning independently online. Nawa (2018) referred to the concept of scaffolding to be grounded in Vygotsky's (1978) concept of assisted learning as conceptualized with help of the zone of proximal development. Scaffolding involves providing learners with more structure during the early stages of a new learning venture and can help to gradually turn responsibility over to them as they internalize and master skills resulting in self-regulated learning. Scaffolding may employ technology, for example electronic performance support systems or strategies such as diagnostic pre-assessment, one-to-one advising or an orientation to an online program (Ludwig-Hartman & Dunlap, 2003). As suggested by Oliver and Herrington (2001), scaffolding is essentially a teaching strategy that involves social interaction, discussion, and collaboration.

Subramaniam (2008) showed that Malaysian students mostly appreciated about an online forum the opportunity to exchange with others expressing their views through writing. They found the forum to be liberating as it gave room for everyone in the class to participate without needing to worry about maintaining their 'face'. The authors concluded that the role of the instructor as a moderator played an important part in supporting students, considering their different learning styles and abilities. Buraphadeja & Kumnuanta (2011) argued that peer tutoring could increase meta-cognitive skills and several higher order thinking skills, reduce anxiety, increase self-esteem and empathy and foster a sense of community. In an experimental study with Thai students, peers were assigned as tutors to help class mates with self-paced learning. Results showed that online learning could increase a sense of community and students' perceptions towards learning where peer tutoring was assumed to be fundamental for acquiring and constructing knowledge in a group. Those students who finished their in-class assignments earlier were asked to guide less skilled students through peer tutoring. The instructor also took the role of a tutor. The author mentioned that scaffolding would be particularly useful for the Thai context where teachers would be often assumed to take role of second parent.

In a study by Hashim (2017) who assessed perceptions of online learning among Australian local students and Singaporean exchange students as well as of their instructors, Australian instructors stressed that in many Asian cultures words would be less important than their context. Indirect communication can help in such cultural contexts to convey meaning. Tan (2016) found that students were able to self-direct and regulate their learning with the support of a moderating teacher that would ensure politeness and provide structure which was said to be important to students from a Malaysian cultural background. A clear majority (78.3 percent) of posts showed that students came up with alternative perspectives and their own opinion instead of simply agreeing with class mates as they had time to think about how to articulate themselves. 51.6 percent used social cues with messages that included personal feelings such as greetings, compliments, acknowledgement, names of intended recipients and emoticons which showed a form of indirect communication while expressing different points of views. Being polite, students were careful in how to point out mistakes of others. Students would write phrases such as 'in my humble opinion…' to provide feedback. Social cues were linked to apologies ('I am sorry if I am being too outspoken') which authors identified as culture-specific communication.

### *4.6.3. Forming a community of practice and increasing social presence*

Many authors mentioned students' motives and behaviour to maintain face and social harmony among peers, which mostly meant to get accepted as part of the group which was led back to values prevalent in collectivistic societies. The sense of community that could increase students' motivation to participate in online learning but less so to voice critical opinions was also in some cases referred to as social presence. Usman & Y (2018) for example found that a knowledge community could increase knowledge sharing among Indonesian and Italian students and referred to the following definition of a virtual community:

> *The concept of a virtual community is defined by Balasubramanian and Mahajan (2001) as an entity that displays several major characteristics comprising: (i) the aggregation of people within the group, (ii) rational utility-*

*maximiser among members, (iii) interpersonal interactions in terms of cyberspace that is not followed by the physical co-location, (iv) the social-exchange process found in the interaction and (v) the presence of a shared property or identity, objective and or interest among members (p. 254).*

Gabarre & Gabarre (2010) found that social presence would be important to Malaysian Chinese learners. Students preferred social harmony over competition. While critical discussion was more difficult to encourage knowledge exchange in general, in some cases it could be increased after a sense of community was established. Both Nawa (2018) and Tananuraksakul (2014) assessed Thai students' attitude towards and behavior in online environments. They emphasized that Thais perceived online learning as positive but mostly responded to posts by clicking the like button. If an online community requires knowledge exchange between two participants, such behavior may not be related to on online community. However, through the non-verbal communication in this case Thai students felt they were part of a community which motivated them to read others comments and to learn from each other. In another study that focused on Thai students, Subramaniam (2008) stressed that a common perception of Thais to be passive learners would be unjust, showing that the online environments could raise a sense of community and increase students' motivation to study as a consequence. Some studies emphasized the role of group formation with a particular focus on ingroups being considered more so as part of the community, while other studies highlighted the importance to consider the group size of a community with students being more vocal in smaller groups.

### *4.6.4. Anonymity to reduce ingroup orientation and loss of face*

As ingroup orientation can cause members to communicate and share information within rather than across their subgroups such segregated communication and information sharing can degrade a group's ability to learn as exchange can be overlapping and redundant with only local information. Lee & Cho (2011), after having identified ingroup orientation and its limiting effect on knowledge sharing among students, suggested to decrease the chance of such group building, for example through making chats anonymous. One paper found Singaporean students' individual orientation towards collectivism predicted willingness to participate, evaluation of collaboration effort and preference for anonymity feature. Willingness to participate and preference for anonymity feature also positively influenced perception of decision quality and enjoyment from e-collaboration. Anonymity could serve as a mechanism to avoid confrontation and maintain harmony. Authors suggested that systems should include functions that allow for social support to people with varying degrees of collectivism through such as allowing users to adjust the degree of anonymity in communication (Zhong et al, 2008). However, one has to also consider that in many cases in the reviewed studies students were motivated to participate through extrinsic motivators such as grades which may be impossible to identify in case users stay anonymous.

### *4.6.5. Choice of collaborative online learning tools*

Out of the reviewed studies, three studies dealt with blogs and an additional two studies focused on blogging but also included data on social media use. Three studies discussed social media in general and an additional three studies focused solely on Facebook as a social media tool. Another three studies centered online forums while two were of the same authors but with a different sample. One paper assessed knowledge exchange through Wikipedia. The remaining studies mainly focused on a combination of different tools or did not mention what tools they used but described student's behavior in online environments. Tools could in some cases provide neutral spaces that led to an increased knowledge exchange and to a decrease in fear of loss of face, allowing students to present their views and to comment on those of others. They could do so with more time to reflect and to think about how to articulate themselves without facing the pressure of the offline open class exchange. Tools such as blogs could support personalization and feelings of ownership. Social media channels such as Facebook provided a fun and informal environment leaping from spaces used for informal exchanges with friends into the educational environment. Different functions of discussion forums where perceived as more useful to encourage knowledge exchange than blogs in some studies. A moderator encouraged students to answer, to post and to read other comments as well as to compare others entries as to learn collaboratively. One study addressed knowledge sharing with help of Wikipedia among undergraduates in Italy and Indonesia. Wikipedia was seen as having more infrequent member interactions compared to other virtual community platforms (Usman & Y, 2018). In the following the above mentioned tools as discussed in the reviewed studies will be elaborated on more thoroughly.

#### *4.6.5.1. Blogs*

Blogs were identified by authors as tools that offer freedom to express ones' identity and to take ownership with the possibility to customize ones' blog. One study (Gray et al., 2010) found that Singaporeans were more willing to try out more advanced interactive media authoring and publishing techniques as compared to Australians, such as placing chat boxes and music in their blog, using Java script and HTML, sending messages, viewing posts and photos and finding friends. However, while blogs may increase a sense of ownership among students, the study showed that few students were willing to post personal views in discussions. The authors concluded that literature that supports blogging for collaborative learning cannot be generalized across cultures. Song & Yuen (2008) assessed educational blogging in the country context of Malaysia to improve communication and critical thinking skills of students as students were described as reluctant to voice their ideas in class. Each student would be assigned as authors of a group blog with a project leader who was supposed to administrate it. The blog was announced as a relaxed and informal space allowing them to interact with one final review at the end of the trimester as well as the compulsory task to post a reflective and three informal responses as well as to comment on at least two group members'

critical reviews. Overall the majority (70.2 percent) agreed or strongly agreed that they were motivated to voice their opinion in the group blog and perceived blogging as positive for learning. The blog was seen as a possible tool to create a sense of belonging, to be experienced as fun and to be able to increase confidence. A few students preferred the discussion board over blogging having more functions to have everyone share ideas and respond to each other where one can easily quote others replies instead of needing to copy and paste by oneself and to have to take note which post one refers to.

### *4.6.5.2. Online discussion forums*

Although one person or a group takes the role of the administrators when using blogs usually, discussion forums mostly allow students to participate more equally in ongoing conversations. Tan (2016) who explored an online discussion forum (ODF) using Moodle as a learning management platform for paraphrasing among students in Malaysia. The author tried to identify how students interacted and supported each other in the ODF and how to structure the ODF. Students were asked to post a reply to at least two classmates. While participation in ODF is often measured by numbers, views and lengths of comments, in this study it was measured interactivity through analyzing content. It was argued that interaction can be influenced by facilitation techniques of peers and may lead to critical and reflective thinking. A clear majority (78.3 percent) of posts showed that students came up with alternative perspectives and their own opinion instead of simply agreeing with class mates as long as politeness was ensured. Few students (14.3 percent) invited others to comment on their posts but those who did received most comments, which again may be due to the polite culture to not speak if not being asked. As previously mentioned with regards to anonymity settings discussion forums may allow students to express their opinions freely if students cannot be not identified which can further prevent ingroup orientation.

### *4.6.5.3. Social media*

Reviewed studies that discussed social media channels either reflected upon social media in general without mentioning a particular tool or focused specifically on Facebook. Social media environments were often described as informal spaces that students also exchange in outside of the educational field. Tongkaw et al. (2009) stressed advantages of social software technologies over learning management systems (LMS) arguing that while LMS systems have similar collaborative functions such as discussion boards, comments and profiles, students would be more accustomed to social media. Social media was referred to as more personalized and supportive of socializing being able to encourage creative and reflexive learning beyond educational contexts. Balakrishnan et al. (2016) who investigated in the use of and engagement in social media in the academic context comparing Malaysian and Australian students highlighted social media channels such as Facebook as to be highly interactive, to have simple layouts and to enable collaboration in a more liberal and informal way as compared to more structured bulletin boards or online forums. Facebook users for example could post their opinions on a wall with an option to decide who can view the post, chat with users and send messages to be directed at an individual or a group. They found that Malaysian students perceived Facebook more so as an effective collaborative academic tool as compared to Australian students.

Nawa (2018) analyzed in which ways Facebook could be used as a learning management system to enhance Thai students' motivation and attitude towards English language learning. The Facebook group provided convenience, relaxation and helped to reduce power distance between instructor and students. However, students more often made use of the like function to support their class mates than to share ideas through messages and even less so in the form of critical feedback. Tananuraksakul (2014) also explored Facebook use in Thailand for the use of paragraph writing and essays and found while a number of students expressed joy of interaction with the instructor and classmates online through posting and commenting and most students experienced Facebook as positive, students mostly used the like function as a form of interaction. This function gave them a chance to participate without losing face. It was further perceived positively that the lecturer could be contacted at all times. Kabilan et al. (2019) argued that Facebook could support the motivation as it allows students to share personal stories in the form of words, pictures and videos which could support social presence.

## 5. CONCLUSION AND IMPLICATIONS FOR FURTHER RESEARCH

This systematic review study aimed to explore the role of culture in collaborative online learning settings in higher education in the context of South East Asia. With one of our research questions, we asked how culture as well as collaborative online learning would be defined and conceptualized in the reviewed studies. Few studies conceptualized collaborative online learning profoundly and, in many cases, studies lacked a clear theoretical foundation. Some scholars referred to related theories such as the situated learning theory (Lave & Wenger, 1991), the related community of practice (Wenger 1998) and the developmental theory of Vygotsky (1987). While the majority of studies discussed national cultures, some particularly referred to online cultures and few considered ethnic cultures within a country context as well as educational cultures. Educational cultures in Asia were said to be influenced by governmental policies that would encourage and support online learning as well as by the reluctance of lectures when needing to adapt to these changes. Ethnic cultures were mentioned in studies that discussed ethnic Chinese in Malaysia and Singapore which differed in their value orientations with a stronger focus on values for achievement, pragmatism and competition as compared to students from other reviewed country contexts. Online cultures or cyber cultures were mostly not centered in the reviewed studies but were indirectly discussed when comparing the influence of values found in offline environments on online learning.

One of our major questions centered the influence of culture on online learning. Authors of reviewed studies primarily referred to national values that were measured with the help of studies conducted in offline contexts (e.g. Hofstede, 2011), particularly those related to collectivism and power distance. In many cases, such values continued to exist and were expressed in online environments through such as polite speech and lower levels of initiative expecting the teacher to act as the guiding authority. An orientation towards collectivism found in offline contexts would also express online with students hesitating to discuss critically which was led back to values for social presence and social harmony. Thus, offline cultural models in these cases could be applied to describe online behavior.

However, in some cases technology led to changes in students' behavior, differing from that found in offline contexts. For example, anonymity in online settings allowed students to express themselves more openly. Further, the informal, fun and playful character of online environments such as that of Facebook were in some studies perceived as liberating. Such experiences led to an increase in engagement and reduced fear of losing face in front of classmates or the authority. One study conducted among Malaysian students showed that especially shy students experienced the learning environment as liberating since they could plan and contribute without the competition from more vocal students. It allowed them to be more creative and critical through being thoughtful rather than spontaneous (Subramaniam, 2008). Fang (2007) found Confucian values for social harmony and close networks of friends to affect Singaporean-Chinese ingroup orientation but suggested that the cyber culture may help to break down ingroup orientation and barriers. This was the case in a larger organized group online chat that did not allow for group forming but was enjoyed by students and motivated them to discuss. However, Lee & Cho (2011) assessed Singaporean students' information sharing behavior and the influence of ingroups and argued that the common conceptualization of online environments as neutral spaces that break down barriers could not be confirmed.

Some studies showed that while values in offline and online environments did not change, online tools and technologies allowed for different forms of collaboration and thus would lead to different learning outcomes despite similar value orientations. Community, for example, could be also strengthened through nonverbal participation which is possible in online contexts. Tananuraksakul (2014) and Nawa (2018) both showed that liking other students comments in a Facebook environment led to more enjoyment of learning and increased positive perception of online learning. In Fangs' study (2007) Singaporean students avoided to reply to students posts or waited until others posted to give similar replies but enjoyed reading each other's post or used other posts to improve their own answers. This shows, while the value for social harmony is still present, the online environment would allow for different ways to collaborate such as reading each other's posts which was enabled through technologies such as discussion forums.

Sometimes, the online environment could change how values would express but with negative consequences. Singaporean students, and in some cases, ethnic Chinese students studying in Malaysia showed a preference for achievement and pragmatism which was not found in studies reflecting upon other South East Asian countries. Such behaviors can be related to the dimension of masculinity by Hofstede (2010) or the Globe Study findings conducted in offline contexts. However, Malaysian students in a study by Gabarre & Gabarre (2010) perceived much pressure in online environments as messages in the forums were permanently recorded and visible. This may show how a value that is present in offline contexts could express differently and have different outcomes in online contexts.

As we further asked how pedagogies would be designed and which technologies could be selected to support collaborative learning outcomes in the context of South East Asia, we identified several instructional strategies, including what tools to use, that considered the role of culture. Authors stressed the importance of peer and lecturer tutoring. Such forms of scaffolding would serve students who were used to more structure and guidance. Establishing social presence helped to increase motivation in a number of studies. Further, choosing appropriate online tools would increase motivation and attitudes towards online learning as well as an increase in knowledge exchange. Tools mostly reflected upon in the reviewed studies were online discussion forums, followed by blogs and social media channels. Some studies pointed out that blogs would allow to create a sense of ownership as well as the option to personalize ones space for those being administrators of the blog. Social media was seen as a tool to engage students, offering an informal, fun and relaxing environment. Grading and providing extra points for contributions such as for posting ones' own ideas or replying to others would often be used as a way to increase participation. This could be especially helpful when students were reluctant to respond to classmates posts trying to avoid conflict. While extrinsic motivators helped to trigger an exchange, the initial push in some cases also further led to intrinsic motivation as knowledge exchange continued without any further external rewards.

Many studies discussed only one cultural context. However, scholars in the field of cross-cultural psychology have suggested to compare at least three different cultural contexts for systematic sampling which could reduce the number of rival explanations (Van de Vijver & Leung, 1997). Further, culture was mostly identified as national culture with a focus on value dimensions (Hofstede 1991) and its resulting behaviors. Scholars (Byrne et al., 2009) have criticized that the majority of cross-cultural studies meaure culture on the country and not on the individual level. More recent models (e.g. Triandis, 1994, 2003) have moved away from bipolar constructs, such as that of individualism and collectivism. It can be further critically observed that quantitative approaches often compared countries without actually measuring culture as a variable but instead assumed differences based on previous studies. Finally, with regard to qualitative approaches, the authors would suggest that qualitative studies discussing the influence of culture on collaborative online learning should more clearly conceptualize culture as well as collaborative online learning and may need to move away from applying models of national culture (e.g. Hofstede, 2010) only.

Instead, as suggested by Gunawardena (2014), concepts of online, offline and hybrid cultures should be included in the discussion.

Besides the criticism of how to measure and conceptualize culture, future studies may need to further consider sampling strategies. Scholars mostly used samples in their respective university contexts. Such convenience samples can result into selection biases as organizational cultures may influence perceptions and behaviors of students' and lectures. Student cohorts similar in demographics such as in income or ethnic background could represent particular subcultures and thus may make it difficult to generalize findings to the overall student population. In addition student's experience prior to the assessed course were often not considered but may play a role, for example when discussing passive behavior of students expecting lecturer centered approaches, which may be more likely the case among students coming directly from high school. Whether students have had experience with online learning may also influence their attitudes towards online learning. Further, language skills may influence the quantity and quality of knowledge exchange.

Scholars may also more thoroughly relate to theories. A recent article titled 'Where is the "theory" within the field of educational technology research?' (Hew et al., 2019) concludes after having assessed 503 most recent empirical articles published in three selected education-technology-related journals that educational technology is largely under-theorized. Many studies we reviewed confirmed this as they did not relate to theory at all or made vague use of theory. Theory, if so, was used rather to conceptualize research studies but few studies showed theory advancement.

International scholars studying the effects of culture on collaborative learning in their own contexts may consider that there is a lack of studies moving away from the traditional models of national culture. Scholars studying culture with help of quantitative approaches could measure culture not only on the country but also on the individual level. The systematic review showed that values such as power distance or achievement orientation could express differently in online environments. Future qualitative studies could further explore how values previously measured in offline contexts express in cyber cultures. While the reviewed studies touched upon both offline and online cultures, they mostly did not clearly differentiate between both and neither focused on elaborating on possible hybrid cultures. Scholars should carefully consider the process of globalization and the likelihood that education and its assisting technologies constantly evolve and that at the same time culture can be understood as a dynamic construct. Publishing research that considers such changes that may affect collaborative learning across cultures would be fruitful for all educational stakeholders involved. Lastly, there is much research needed in the fields of collaborative online learning in South East Asia. Studies that discussed country contexts such as those of Laos, Vietnam, the Philippines or Myanmar could not be identified by the authors based on their selected keywords and databases.

Practitioners, such as instructors and educational institutions, who operate in similar value contexts, may review the above-mentioned pedagogical approaches as well as the possible influence of cultural values on online learning. While many authors suggested scaffolding, implementing such pedagogical approaches will inevitably raise the question of human resources. If institutions and lecturers decide that changes and adaptation of teaching approaches should happen, appropriate training and technical assistance should be implemented. This could help to deal with such changes whilst considering possible reluctance of instructors that may occur due to their cultural backgrounds and level of experience with online learning. Institutions may need to discuss with their staff if previous instructional approaches based on cultural norms and values should be embraced, reinforced or adapted. Stakeholders involved should also pay attention to the normative context students will operate later to identify which learning outcomes would best prepare students for such contexts.

**Research and Publication Ethics Statement**

Authors present an accurate account of their work and an objective discussion. Their work contains references and refrains from any form of plagiarism which would constitute unethical behavior.

**Contribution Rates of Authors to the Article**

Christin Grothaus as the first author conducted the review paper which included the article screening, selection of articles, coding, data extraction, analysis as well as the discussion of the findings. Olaf Zawacki-Richter has made a major contribution to the conception and design of the research.

**Statement of Interest**

There was no conflict of interest.

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