Chapter 2
Facilitating Student-Centered Learning: In the Context of Social Hierarchies and Collectivistic Culture

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Abstract Following the nature of student–teacher relationship in the hierarchical and collectivist culture, facilitating learning in this context brings its consequences. Few studies from this cultural context show that students from this cultural background perceive the small group discussion differently from the Western students. In this culture, teachers are seen as the ultimate rules, so small group discussion to formulate learning objectives may be puzzling, as the conclusion is the final words from the teachers. Therefore, health professional students anywhere in the world should be carefully trained to reflect on experiences and pieces of evidence and to learn from the lessons confidently. To be independent, self-regulated, and

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self-directed learners, students should begin to trust their reflections to plan further learning. Consequently, to stimulate reflection needs sufficient feedback, which means two-way dialogue between students and teachers. In this chapter, we emphasize on teacher training to start a constructive discussion and avoid misuse of social 'power'. However, we understand that the majority of teachers that grew up in this cultural context have a lifetime experience of social-power. So, generation gap are potentially influencing their approaches in educating future health professionals. This chapter will discuss the endeavor of teachers in this cultural context in approaching student-centered learning.

2.1 Introduction

2.1.1 The Philosophy Tree of Knowledge

"The metaphysics is the root, physical sciences on the trunk, and other sciences are in the branches; which grouped into medicine, mathematics, and ethics. By the science of morals, I understand that the highest and the most perfect which presupposing the entire knowledge of other sciences is the last degree of wisdom." René Descartes (1676).

Descartes, the father of modern philosophy, had his most profound reflection on the goal of education and the purpose of learning, which can be found in his metaphor of 'Tree of Knowledge'. His philosophical tree of knowledge illustrated that the root of the philosophical tree is the metaphysics or ideas from God and the trunk is the most real subjects; the atomic, quantum physics, chemical, and how the universe work, and then it has three branches of medicine, mechanics, and ethics. These branches illustrated the life sciences from plants, animals, human, and biological living system, mechanicals that can help the live ones have better living, and also the ethics which include psychosocial sides of the human; behavior and mental state, and finally to the interaction of social, believes, education, culture, economics, politics, and linguistic (Ariew 1992; Bicknell 2003).

Figure 2.1 illustrated the development of knowledge in the philosophical tree. We can see that 'medicine', 'mechanical sciences', and 'social sciences' can be interrelated. Medical and allied health professions education can consider the sociocultural factors, i.e., health believes, which lies in the knowledge of 'social science'. All factors that can influence health has been known as the 'social determinants of health' (WHO 2019). When the 'medicine' needs tools or techniques to improve health, i.e., the cardiovascular ring to prevent heart attack, then 'medicine' also studies about 'mechanical sciences.' So, at this point, 'medicine' actually considers all range of sciences, from physics, life sciences, behavioral science, to social sciences.

There has been a long discourse of where in the knowledge tree, the 'medical-education' lays. 'Medicine' is in one branch of 'life-science', and 'education' is in the other branch of 'behavioral' or 'social science.' Therefore, based on the continuum

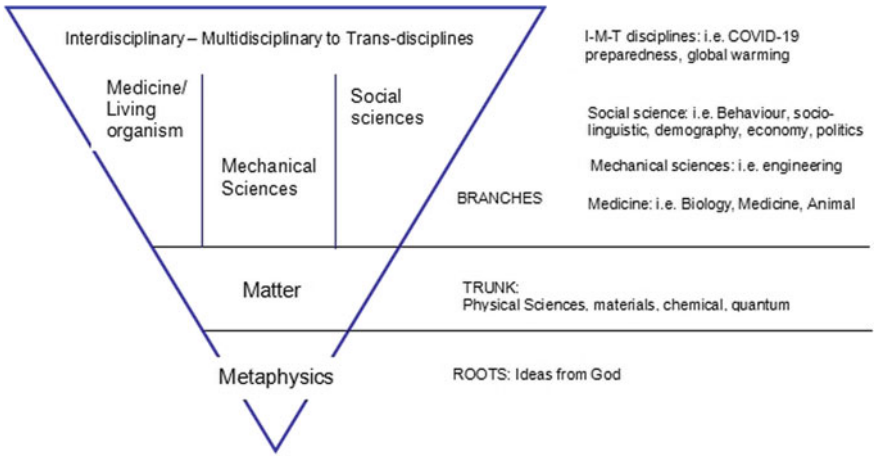

Fig. 2.1 Modification of the 'Tree of Knowledge' from René Decartes, 1676 into an 'Inverted Triangle of Knowledge'

and the nature of the 'medical-education' at the philosophy tree of knowledge, 'medical-education' which dedicates to empower medical teachers to teach medicine appropriately and to motivate students to learn to be the better health professions, is placed in the two branches of knowledge: the 'life sciences' (for the biomedical site) and the 'behavioral-social sciences' (for the educational side). Consequently, those who learn 'medical-education' should understand the nature of both sciences.

'Medicine' is also about taking care of the patients who have many factors, included in the social-determinants of health, who may not know anything about 'medicine' or 'diseases.' So the psychosocial part of the patients cannot be neglected; otherwise, patients may fail to achieve their utmost health outcome, which also the failure of the health professionals in facilitating the patients to understand the approach toward better health outcomes. Therefore, understanding the specific branch of 'medical-education' (both sides of biological and behavioral sciences) will help medical teachers to approach their students and patients better. To have the skills to facilitate the learning process of human bio-psycho-socio-cultural science for medical students is the goal of medical or health professions education.

2.2 Learning Theories in Medical Education

The main universal challenge of medical education lies in the equilibrium of approaching both biomedical and behavioral sites, when facilitating medical students within their journey medical curriculum. However, as reviewed in the first chapter about the cultural context, perhaps the reasons of this equilibrium issue in most of global southern/eastern part of the world are the acceptance of 'wide power

distance' and 'collectivistic decision making' culture. The influence of modern logical medicine, which initially comes from the northern/western context, may seem like the focus of medical and health professional training globally. However, when the 'western' evidences is moving toward 'patient-centered care' and empowering the students to be independent learners (student-centered learning), the 'eastern' still focusing down on the diseases and the teacher-centered learning. This phenomenon primarily occurs also because of the cultural nature that is oriented toward acceptance of the wide social gaps as explained in Chap. 1.

Where the socio-hierarchical gap exists, people may perceive that higher hierarchy is other people outside their local territory. And because the other part is the 'western', then the eastern people will perceive that the western people has the higher hierarchy that eastern should follow, consequently. This acceptance of the social hierarchy also leads to a minimum dialogue between the two hemispheres during the adaptation of the northern evidences to the local eastern wisdom. Ideally, the eastern context should develop medical education evidences based on their healthcare circumstances, the variety of diseases, the culture, and uniqueness of the people, instead of directly following the evidence from others that may not be fully well suited their cultural context. However, to reach this stage of independence and interdependent stage, which means a global collaborative network, we need to work hard on the elements of learning, as discussed further in this chapter.

To understand the learning process and the skills to facilitate learning for medical students, in the context where socio-hierarchy and collectivism in decision-making exist, we need to know several 'learning theories.' The following discussion emphasizes on the development of learning theories which developed from the 'behaviorism' paradigm in the mid-twentieth century and moving into a more 'humanistic' paradigm. Behaviorism started with famous Pavlov's dog research (1890) (Rehman et al. 2020), positive reinforcement for a particular behavior could stimulate a stable specific behavior.

Although 'behaviorism' is an old theory, the fact that behaviorism is still in practice recently, cannot be ignored. In this world of socio-hierarchy, some teachers still reinforce the students to have a certain behavior, i.e., 'respect' to their teachers but, the behavior was not expected based on what the teachers 'do, but because as students, they have to obey, or to show politeness to the teachers by having minimum questions and following teachers' instruction. In deep hierarchical cultural settings, this kind of behaviorism enforcement can lead to the non-verbal etiquettes of politeness (Claramita et al. 2013), and thus in the extreme continuum is, to come to the dishonesty. People tend to please others who they perceived as at the higher hierarchy (i.e., teachers, parents, government officials, health professionals), even if they should not tell the truth. Unfortunately, or perhaps it is fortunate, that the perceived higher hierarchy in this cultural context will usually feel pleased, instead of exploring the truth. The example is written by the famous medical-anthropologist from Harvard, Kleinmann (1981). In one of the chapters, he explained that in Chinese background of cultural context (one of the countries with wide power distance gap), when a family member was on a palliative care, none of the family, neither the patient, would talk

about the patient's condition, his needs, worries, or expectations. However, everybody seems to know the current condition and prognosis. Instead of talking about these issues, the family gathers around the patient every day, as they would accompany the patients to the end of life, and it seems enough. Everybody seems to know what they should do, but they never say anything or discuss it. Other example is another book of 'When the spirit catches, and you fall down', a famous story from Hmong people of Vietnam, explains about a stigma that a 'spirit' is the one who makes you ill ('disease' is the unfamiliar term) (Fadiman 2012) and everybody in that particular culture tries to believe it that instead of exploring or listening to the more logical healing process.

'Behaviourism' also enriched by Skinner (1989); who explains that specific behavior is an active mind who always seeks the truth, different with Pavlov that considers a passive subject that does not have mind/will. The most significant contribution of Skinner in education is the learning objectives, which will guide the educators to focus on the end of the educational process. This called a 'cognitivism'. The ending of 'cognitivism,' raised 'humanism' paradigm of learning theory which see human as a complex creature, see learning as an integral part, influenced by human physiology and psychology. Albert Bandura (1991) raised a new paradigm, the 'social constructivism', a paradigm that sees how human change is based on what they know through interaction. As a consequence of his theory, 'modeling' will be a key of people to change.

On the other side of psychology, starts in 1900, human has their personality, which influences how they perceive their environment, including on how feedback comes. Therefore, only humans with specific personalities could reach their optimum development in their lives. In this perspective, several theories of personality already develop such a theory of Freud, as part of developmental psychology theory. It is proven that any broken stage of psychological development will influence how people react or behave on a specific environment in the future adults and influence on how people learn in their adulthood (McLeod 2018).

2.3 Student-Centered Learning

Trends in the current medical education are based on the 'social constructivism' theory since medical school involves many components like learning environment; physical, biological, psychological, including the teachers, media for learning, and the students. Medical science is also moving from understanding the diseases (up to early twentieth century) into recently, more understanding about the patients, culture, and socio-behavioral factors that influence the health outcome. A new paradigm is also transforming from teacher-centered into more student-centered learning (SCL). European principles of SCL put the students as the center of learning, to facilitate their individual goals, toward medical and professional abilities. Thus, teachers will serve as facilitators rather than provide straight directions (EHEA 2016). Vigotsky, in the 1930s, found the scaffolding system to facilitate the students for better learning.

The key is to ask questions. He described with an illustration of a mother who is helping her under a 5-year-old daughter to find her doll. The mother is just asking questions, "Is it in the living room? No – said daughter," "Is it in your room? No—said daughter," "Is it in the bathroom?" And finally, the daughter can find the doll by herself assisted by the question of her mother (Werstch 1993). This questioning skills, nowadays, are the core skills for facilitating learning (van Berkel Henk et al. 2010).

Along with the time, the peak of SCL was in 1994 with the development of the Coalition of Essential School by Theodore Sizer. Seven principles as student-centered learning's characteristic already stated, (1) student have a positive relationship with peer and environment that care, (2) believe in, and hold them; (3) students' needs (physical, psychological, and safety) are met; (4) student are fully embraced for who they are and develop a sense of positive identity and belonging; (5) student have the freedom to pursue their interest with the teacher who facilitates them; (6) student solve a real-world problem and learn skills that they will use in their world; (7) students mastering clear learning objectives and receive support for that; and the student learns in the simulated community (Sizer 1994). In medical education, Mehta (2013) and colleagues wrote the consequences of student-centered learning. Thus, article also implies technology, which will bring the disruptive era to medicine and encourage medical educators to be aware of technology, which could be used to enhance teaching and learning activities by putting the students at the center of learning.

The problem-based learning strategy, one of spirits to implement the SCL approach, had been started at McMaster University, Canada, in the mid-'60s, which introduce a structured small group discussion facilitated by a tutor. The small groups was intended to increase collaboration among students, to have a more peer-group learning rather than individual, to help the teachers to act as facilitators instead of giving information, and to give the group an adequate space of independent learning to work individually, in between the sessions. There were many studies and guides that were made afterward by Maastricht University, The Netherlands, and many other followers, to make PBL globally implemented in health professions institutions, from the '80s until today (van Berkel Henk et al. 2010). Now PBL is already known worldwide, of course with range of variation of its implementation.

One recent study using a systematic review found that students from the egalitarian and individual culture and students from hierarchical and collectivistic culture, have similarities in the perception of the benefits of PBL. PBL in both cultures was found satisfying to support student-centered learning, self-directed learning, the depth of learning strategies, and medical skills acquisition (Silawani 2019). However, one specific challenge in the hierarchical and collectivistic culture is the teacher-centered learning conditions (Silawani 2019). Students from this context has more dependent opinions toward the teachers. So, the students from the Western contexts seem to be more adaptable to PBL. Many medical schools in the Asian region claimed to have a student-centered learning approach. However, the evidence of interaction between students–teachers and health provider–patient did not maximally show what was intended in the curriculum.

Interestingly, there was a phenomenal teacher from Indonesia, from one of the hierarchical countries, in mid'20th, Ki Hadjar Dewantara recognized the student-centered learning principle and called it, with his famous idiom of "Tut Wuri Handayani" (let the students lead the way) (Tauchid et al. 1962). He was one of a prince with a well-known royal name of 'Raden-Mas' that can distinguish him from the ordinary people. But, he preferred to have the name of an ordinary people as 'Ki' and that he would like to be called 'Ki Hadjar Dewantara' than with his real royal name. He often mentioned that the purpose of changing his name was to erase the social gap between him and the people of Indonesia. He became the first Minister of Education of Republic Indonesia in 1945. He established several schools from kindergarten to high schools with a specific name of 'Taman-Siswa' (Garden of students) in early'20-'30, accommodating student-centered learning principles (McVey 1967; Tsuchiya 1975; Hing 1978). It is interesting that at almost the same time as Vygotsky's time of 'socio-constructivism,' there was a movement for a more socio-constructivism learning approach in one of the deeply rooted socio-hierarchical country of Indonesia.

Ironically, almost none of Dewantara's students and followers understand the meaning behind 'Taman-Siswa' or the 'Tut Wuri Handayani' principle. Therefore, although this motto stays as the symbol of the current Ministry of Education Rep. of Indonesia (Ministry of Education Rep Indonesia 2015), Dewantara's schools and philosophy did not widely well-recognized throughout the decades. One famous national semi-military high school was considering his philosophy in the '90s (Taman Taruna Nusantara). However, those schools still exist until today, the principles by KHD were not fully recognized by its *civitas academica* (Parmi IT 2009). The general reason can be as simple as that the Indonesian society, which holds a rather hierarchical culture, was failed to understand the message of a more partnership relationship between students and teachers that Dewantara proposed. Dewantara did not use a simple term as we used today, like the 'student-centered learning.' Instead, he used Javanese's terms of being 'present' (*Among*), being like a 'pedagog' (*Momong*) to follow the students to prevent them from harm, and 'being facilitators' (*Ngemong*) by letting the students to find their own way. Indonesia is the fourth highest populated country and Java is one of the 700 s its ethnic tribes, but including the most dominant and having the Javanese local language; beside the Malay dominancy who uses Bahasa Indonesia—the national language. But not only the terms of Dewantara that were difficult to digest, the message of an equal principle of education also seemed to 'fall from the sky', so no one in the society, can understand it easily.

2.4 Student Motivation

To understand more about student-centered learning and self-directed learning, we should recognize student-motivation to learn. There is a Hadith from the Islamic perspective about 800 after century, said 'Innamal amalubinniah', which means that everything that humans do will depend on his/her motivation/niah/niat. This Hadith fits with the motivation theory, in which 'niah' means something came from inside

human mind and could become an externally seen as behavior/action (Syarah Arba'in by Imam Nawawi, ninth century, rewritten in Al-Bugha and Mitsu, translated in Bahasa Indonesia 2018) (Al-Bugha and Mitsu 2018). So the motivation theory is not a new one, it is already originated in the ninth century and perhaps away behind centuries.

The current theory of motivation, start from Maslow who said that humans would act according to his five levels of needs; physiological needs, safety needs, social needs, esteem needs, and self-actualization needs. However, the theory struggling in the application of its hierarchy of needs, because it is hierarchical, the basis of levels will have to fulfill before the higher ones (Maslow 1987). In medical-education, we knew that motivation divided into two, internal and external, internal from inside the person and external from the outside environment that stimulates a person to do/learn something. Ryan and Deci (2000) raised the self-determination theory (SDT) of motivation that said people has his/her determination on how they will become, which in turn will influence how they will seek information, doing things, and then learning. They also imply that motivation is like a fluid thing that could change. A recent article adds more on the quality of the motivation; it divides internal motivation into three stages that has sequential power: only to know/understand, to experience, and to pursue; whereas external motivation are: externally regulated, introjection, to identification (Vallerand et al. 1992). Vallerand (1992) also add assessment tools that determine people's motivation, whether internal or external or a motive. Thus elaborated by Kursurkar, she explains more on how medical student motivation could change, from original motivation or external regulation to gradually move into internal motivation (Kusurkar et al. 2011). Capturing the journey of students' motivation will be an interesting study.

Kursurkar detected factors of student-motivation such as (1) unmodified factors (age, gender, ethnicity, socioeconomic status, personality traits, and educational backgrounds, year of the medical curriculum, teacher, and parents support), and (2) modified factors (autonomy in learning, relatedness, and competence). Therefore, student-motivation should be monitored, followed, and nurtured in the curriculum accordingly as part of students 'professional identity' development. Figure 2.2 explains the continuum of student motivation. In the socio-hierarchical gap context, to increase students' autonomy in learning is already a challenge, especially when the students brought up from the primary schools with a more teacher-centered

	A-motivation	**Extrinsic Motivation**			**to**		**Intrinsic Motivation**	
		External regulation	Introjected regulation	Identified regulation	Integrated regulation	To experience stimulation	Towards accomplishment	To know
Examples	Does not want to do any of the topic	Source of motivation is derived by external rules, regulation, norms, believe	Source of motivation is fear, obligation, guilty	Source of motivation is achievement of personal development	Source of motivation is internally recognized and regulated	Source of motivation is to have a new experience/ new sensation	Source of motivation is towards accomplishment of something new	Source of motivation is to comprehend the curiosity
		Least autonomous	←				→	Most autonomous

Fig. 2.2 Modification of continuum of student-motivation in medical education from Ryan and Deci 2000, based on Kursurkar 2011

approach. To increase relatedness (by overcoming barriers in the dialogical communication between senior–junior students and between teacher–student) is also quite a trial. Both components of autonomy and relatedness will affect students' acquisition of competencies. An example is the lack of team-based clinical supervision and constructive feedback, especially in a context that is highly hierarchies; which applies only one national exit-examination which determine student passing grade to be a medical doctor (Suhoyo et al. 2018).

From our recent national survey across 12 medical schools in Indonesia (number of samples was 850 students), we learn about 60% of Indonesian students have the tendency of internal motivation to choose the medical schools (Nurokhmanti et al. 2022). However, the followed up qualitative interview, 72 students think that they decided to choose the medical schools, but apparently, mostly their parents (especially the mothers) who asked them to do. The parents are even more direct them to pursue which of medical specialty to continue further. The main reason is to maintain the higher social status by being medical doctors. Nurokhmanti further found that when feeling down, students get re-motivated by these two main motivations: 'for the sake of their parents' (half students) and 'was helped by their peers' (another half). We can see that as part of the hierarchical culture and collectivistic, students might base their answers to both cultural dimensions (the parents for the hierarchical cultural dimension and the peers for the collectivistic part), not to neglect that they are still in the adolescent period who needs parents and peers at the most until 25 years old (Sawyer et al. 2018). Therefore, the challenge to facilitate the medical students to move to a more internal motivation can be done by considering these cultural factors in the construction of the curriculum.

2.5 Peer-Assisted Learning

Peer-assisted learning (PAL), which is often referred to as peer learning, is a particular teaching–learning approach where students learn from their peers who are not qualified teachers or professionals (Ross and Cameron 2007). PAL implementation has been recorded as early as Plato's era and is still widely used in the current medical and health professions education (Olaussen et al. 2016). The unique attributes of PAL are 'social congruence' and 'cognitive congruence'. Social congruence reflects on the similarity of learners' and teachers' social level as peers or colleagues in the learning journey (Lockspeiser et al. 2008). The similarity might result in a more convenient learning environment for learners. Simultaneously, cognitive congruence between learners and peer teachers allows easier understanding of complex concepts as explained by fellow students (Lockspeiser et al. 2008). Both characteristics are favored by students, faculty members and educational institutions.

In a high-power distance and collectivistic community, the student–teacher relationship could be top-down. Students might have fears approaching their teachers due to the relationship nature. The employment of student-teachers to facilitate PAL

may remedy the challenging relationship. Institutions should not hesitate to implement peer learning as PAL is comparable to faculty-led teaching, as reported in a systematic review (Yu et al. 2011). Moreover, PAL will provide advantages to peer teachers, not only learners. Peer teachers might have better learning acquisition as teaching is among the best learning methods to improve knowledge and skills retention (Masters 2013). The application of PAL also nurtures leadership and teaching skills to prepare future medical teachers (Herrmann-Werner et al. 2017).

PAL is applied in a range of learning activities in medical and health professions education. The use of PAL to facilitate clinical skills learning has been reported effective in many countries (Nomura et al. 2017; Weyrich et al. 2009). Interprofessional learning activities can also be delivered using peer learning to enhance engagement and outcomes (Carr et al. 2016). Peer teachers may also effectively facilitate small group discussions or tutorial sessions (Herrmann-Werner et al. 2017). PAL is also effective in facilitating laboratory practical sessions (Manyama et al. 2016). The overall acceptability of PAL application in various settings proves that it is a valuable pedagogical approach in medical education.

2.6 Epistemology Belief

Concerning the cultural challenges, we find the term of epistemological beliefs interesting in this regard. The definition of 'trust epistemology' (epistemological belief) is the individual belief of the certainty of knowledge, organizational knowledge, and individual control of the acquisition of knowledge (Schommer-aikins and Hutter 2002). According to Schommer, epistemological beliefs can be divided into five dimensions, as explained in Table 2.1.

Various studies show that epistemological beliefs have an impact on student achievement, the ability of understanding, as well as the ability of learners to search for information. In the case of search information, people with the maturity level of confidence higher epistemology showed better ability in terms of addressing conflicting resources and identify the source of authoritative information (Whitmire 2003).

Also, studies show that trust epistemology is closely related to motivation and learning strategy selection. Individuals with mature epistemological beliefs will have good self-efficacy and tend to be motivated intrinsically. Research by Hofer and Pintrich (1997) showed the importance of the effect of epistemological beliefs in self-regulated learning (SRL). Quick learners with learning and fixed beliefs abilities tend not to use the strategy SRL. They do not have the planning, control, and monitoring of their learning activities.

The more naive belief of an individual in terms of stability and the structure of knowledge, they will increasingly rarely evaluate or monitor the results of their learning in terms of learning strategies. Budiastuti (2017) reported that during a discussion in a Problem-Based Learning (PBL) program, students who have a

Table 2.1 Dimensions of epistemology-belief according to Schommer-Aikins and Hutter (2002)

Dimensions of epistemological-belief	Continuum of naive learners	Continuum of mature learners
Source of knowledge	*Omniscient authority* Knowledge gained from omniscient figure (example: teachers, professors)	Knowledge is acquired as a result of a process of reasoning and empirical evidence
Stability of knowledge	*Certain knowledge* Knowledge is fixed	Knowledge is growing, and is not sure/tentative
Organization of knowledge	*Simple knowledge* or knowledge is simple	Knowledge is complex and is an integrated concept
Control of acquisition of gaining knowledge	*Fixed ability* (Intelligence/ability to learn it is permanent and derived genetically)	The intelligence can be increased, and can be obtained from the experience
Knowledge acquisition speed	*Quick learning* (Knowledge can be acquired and mastered quickly)	Knowledge is acquired with the business, and can be mastered gradually

naive epistemological belief are more likely to use problem-solving way for a well-structured problem. They use a sequence of steps, logical, detailed, and is limited to solve a problem that is systematically arranged. Meanwhile, students who have more confidence and mature epistemology, do a thorough analysis of a given scenario (scrutinizing and analyzing). They like to analyze the scenario to be able to find the problem, connect the data or information to be able to see issues in their entirety. Therefore, students who have mature epistemology belief prefer a tutor who can conduct a critical analysis of the data submitted when discussing with the student to approach deeper understanding. This phenomenon is different from the student with a naive epistemological belief. They hold the view that a tutor who can manage a good discussion is capable of making the discussion be structured. In addition, they also depend on the tutor to lead the discussion. According to them, an excellent tutor is a tutor who always provides assistance or guidance to learners. Most of the students' population in Budiastuti's study, the first-year students of one of the countries with wide power distance culture of Indonesia, falls into the 'naive' group. Although the result was not generalized to national or regional levels, it may be an indication of the characteristic of students in a hierarchical and collectivistic culture.

Metacognition ability can also affect one's maturity level of confidence epistemology indirectly. There are many factors that can affect a person's maturity level of confidence epistemology. Among them are age, level of education, constructivism learning environment, and parenting (Hofer and Pintrich 1997). Various studies have also shown that the development of individual epistemology beliefs influenced by cultural factors around the individual. Various studies have shown differences in the maturity level of epistemological belief among Asian countries, the Middle East, and the West (America and Europe). The results showed that the respondents from Asia and the Middle East have in common, which tends to have certain knowledge

epistemology and simpler knowledge, in which knowledge is originating from the authority figure. While the results of research in the global north of the United States and Europe indicate that their respondents tended to believe that knowledge is tentative and is complex, and can be obtained from anywhere, regardless of the authority figure (Chan and Elliott 2004; Hussain et al. 2007).

Given the above, then the application of learning strategies should always pay attention to many factors, and among them are cultural factors. Cultural factors include many things, including parenting, perspectives about what is considered appropriate and inappropriate, and others that will ultimately affect the formation of epistemology beliefs. At this point, surprisingly, Dewantara as cited by Tauchid and colleagues (1994) in the second book about 'Culture', had explained around better parenting, the psychological background of parenting from the perspective of Javanese, and also how parenting and cultural beliefs can intensely influence education.

2.7 Challenges of Student-Centered Learning in Hierarchical and Collectivistic Culture

In medical-education, it is well known that the curriculum for medical doctor divided into (1) undergraduate bachelor degree (the classic classes and laboratory sessions) and clinical phase in the hospital or ambulatory care settings, with some various type of modifications, (2) postgraduate education, and (3) continuing medical education (World Federation in Medical Education 2015). However, each dimension of Hofstede's theory has consequences within the medical, educational contexts.

From the above explanation, we know that the student-centered learning approach depends on student self-directed learning (SDL), students' motivation to learn, and epistemology beliefs. Some significant and recent studies in medical-education areas explored the differences between students from the Western and Eastern contexts, using the data collected from its original sources of mostly the Eastern world. Frambach and colleagues study (2012) explains that students from a more hierarchical culture (in her example were Asian and Arabian), during small group discussions at their undergraduate medical education, depends more on teacher direction than a student from a more egalitarian culture (in her example was the Netherlands). The context of doctor–patient relationship in one of Asian countries, is also found to be more one-way style (Claramita et al. 2013). Similar phenomena were found in the same region, between other allied health professional–patient interaction (Susilo et al. 2013). Therefore, reflecting into the cultural context, it is not surprising that during the clinical phase of medical education, specifically, there is evidence on how cultural effects on minimum feedback by the clinicians to their students (Suhoyo et al. 2018). The unfamiliar dialogical interaction was found between students and teachers in the clinical phase of education. A similar study also found in a midwifery training (Nugraheny et al. 2016). These evidences followed by many publication afterwards. Overall,

new findings from the hierarchical and collectivistic culture articulated significant challenges of interaction between three parties as the core stakeholders of medical-education: 'teacher-student-patient'. Lack of two-way dialogical communication, meaning lack of observation-based feedback to medical students, can lead to less self-directed learning, and hamper the student-centered learning principles.

2.8 The Im/possible Solution of Strengthening the 'Soft-Skills' in the Hierarchical and Collectivistic Culture Within the Global Movement of Information Technology

While it remains a significant challenge to approach students in the hierarchical and collectivistic culture to be independent learners and ultimately to be better health professionals and future leaders, hence the global stream of technology information comes.

> How can we prepare students for jobs that have not yet been created, tackle societal challenges that we cannot yet imagine, and to use technologies that have not yet been invented? How can we equip them to thrive in an interconnected world where they need to understand and appreciate different perspectives and worldviews, interact respectfully with others, and take responsible action toward sustainability and collective well-being? (OECD Future of Education and Skills 2030)(OECD/CERI 2008)

The practice of medicine in the twentieth century is marked by the rapid technological advances in the field of biomedical science. This progress produced a lot of new information and the emergence of unique specialties and caused the practice of medicine to be fragmented. A medical student must remember so much current information in his education that may no longer be relevant when they graduate and practice as a doctor (Muller 1984). Students are also expected to be active and able to study independently. Students must be equipped with the ability to identify, formulate, and solve problems; understand and use basic concepts; and to be able to collect and assess data critically, to become independent learners.

Today, in the twenty-first century, rapid advances in information and communication technology and globalization are changing the paradigm of current medical practice (Dent and Harden 2013; Wartman 2017). Especially when the pandemic of Covid-19 affect worldwide, medical education has been enforced to use mostly online learning system instead of face-to face. On top of that, rapid advances in information and communication technology have enabled patients to use any media to get information whenever and wherever they are. This phenomena changes the pattern of conventional visits to the clinic to telemedicine and telehealth. And consequently can only be done by collaborative work with other health care workers, even with some other health professionals that have not been defined at this time. Large data-based patient management to be managed and analyzed; the increasing role of machines to replace human roles; and the globalization of the health economy

and medical services that changed the concept of 'local' doctors to become open to regional, national and even international information, as well as being internationally recognized, which changed patterns in doing business of care (Pellegrino and Hilton 2013; Bialik et al. 2015; Wartman 2017).

2.8.1 What is the Twenty-First-Century Skills?

Twenty-first\-century skills are not a set of skills that have just emerged but are a set of skills that were previously known and considered useful since centuries ago (Pellegrino and Hilton 2013; Ontario Ministry of Education 2016). This twenty-first century a series of skills shows an increase in their needs in society, along with an increase in people's desire for someone to be able to apply what they have learned at school to the real world—which in the past was not considered necessary (Pellegrino and Hilton 2013). Emphasis on what a person can do with the knowledge he has is the core of twenty-first-century skills (Silva 2009). Most people say it is the 'soft-skills' or 'human skills' that will determine individual success.

Several different terms are used in finding and formulating a series of fundamental skills/competencies in the twenty-first century, including 'deeper learning,' 'college and career readiness,' 'student-centered learning,' 'next-generation learning,' 'new basic skills', 'competence-based education', and 'higher-order thinking' (Pellegrino and Hilton 2013). These terms usually include cognitive and non-cognitive skills, which can all be demonstrated in the core content of academic activities and are useful for one's success in every aspect of his life as responsible adults (as parents, workers, and citizens).

The formulation of twenty-first-century learning skills from the National Research Council (NRC), USA, is used as a main reference in this discussion. The formula divides skills into three domains, namely 'cognitive', 'intrapersonal', and 'interpersonal'. The cognitive domain includes reasoning and memory; the intrapersonal domain includes the capacity to control his behavior and emotions to achieve his goals, and the interpersonal domain includes how one conveys ideas, interprets, and responds to messages from and invite others.

Pellegrino and his colleagues define the skills into these following details: (1) Cognitive domain: critical thinking skills, reasoning and argumentation, information literacy, and innovation, (2) Intrapersonal domain: intellectual openness, self-awareness and self-evaluation, conscientiousness, and metacognition, and (3) Interpersonal domain: communication skills, teamwork and collaboration, and ultimately leadership. These three domains represent different aspects of human thought and are in line with previous efforts to identify and organize the dimensions of human behavior. An example is in Bloom's taxonomy (1956), learning goals are divided into three broad domains, namely, cognitive, affective, and psychomotor. Based on Bloom's taxonomy, the National Research Council considers the cognitive domain to involve thinking and other related abilities such as reasoning, problem-solving, and memory. The intrapersonal domain is similar to the affective domain in Bloom's

taxonomy, which involves emotions and feelings and includes self-regulation to determine and achieve its goals. The proposed interpersonal domain was not based on the Bloom's taxonomy but based on the latest research from NRC (Pellegrino and Hilton 2013). The interpersonal skills are quite a new set of skills toward leadership that comes from the attitude (the inside skills), but articulated as manners, communication skills, furthermore teamwork, and leading team.

2.8.2 The Cognitive Skills

Critical thinking is defined as the ability to apply higher order cognitive skills (conceptualization, analysis, evaluation) and the disposition to be deliberate about thinking (being open-minded or intellectually honest) that lead to action that is logical and appropriate' (Papp et al. 2014). Critical thinking has been defined more specifically in medical and health professions education context, such as critical judgment, clinical reasoning, diagnostic reasoning, and adaptive expertise, by which critical thinking is a process of assessing information, retrieving further information and interpreting them to finally come with problem-solving or decisions (Krupat et al. 2011). The skills are becoming more critical in the current era because it is needed to process the information overload experienced by students critically. The notion that critical thinking skills are a developmental process should inform the medical and health professions education curricula. It is proposed that the milestones of critical thinking skills consist of five stages which can be implemented contextually (Papp et al. 2014):

Stage 1—Unreflective thinker

The unreflective thinker does not have the ability to think about his/her cognitive process, is often fixed with his/her own beliefs, and has a single approach in gathering and processing information, for example, through rote memorization.

Stage 2—Beginning critical thinker

Students at this stage understand different approaches of thinking in him/herself and others, although it requires the external motivation to stay reflective and receptive of feedback. He/she still often come to incorrect conclusions or still having challenges in applying their understanding of principles into practice.

Stage 3—Practicing critical thinker

Students can apply conscious effort in critical thinking, more open-minded to uncertainties and new approaches, and can utilize new approaches for problem-solving.

Stage 4—Advanced critical thinker

Students at this stage perform critical thinking effectively, and he/she understands different approaches of critical thinking. He/she seeks feedback consistently based on the need and can apply different analytical strategies to solve a problem.

Stage 5—Accomplished critical thinker

Students are mature and responsible in their thinking and improve their thinking approaches continuously. Students at this stage are creative and can approach problems innovatively using elaboration of analytical and intuitive approaches.

Critical thinking skills, therefore, become foundations of the development of other twenty-first-century skills such as intellectual openness and information literacy. Information literacy includes the ability to search the best evidence available, critically appraise the information, and apply that for practice. It is indeed beyond technical ability to suggest the right keywords and hit the searching process on the online search engine. Given the development of big data with high velocity, volume, veracity, variety, value, and variability (Wang and Alexander 2015), information literacy is increasingly important. Also, medical and health professions education should also instill competency for evidence-based practice through specific courses within the curriculum by considering local resources and context (Widyahening et al. 2012).

2.8.3 Intra-Personal Skills

Reflective thinking is also closely related to intrapersonal skills in which emphasize on the self-awareness of his/ her potential and limitation. Through continuous 'self-talk' based on honesty and integrity, one may find their strength and weaknesses, and therefore seek information and feel the need of others to help them to grow together. Cognitive competence has been widely studied compared to intra and interpersonal competencies. The results showed a consistent and positive (medium size) correlation between cognitive abilities and desired educational, career, and health outcomes (Pellegrino and Hilton 2013).

Traditionally, cognitive competencies such as critical thinking, analysis, and problem-solving have been considered as key indicators for success. However, changes that occur in the economic, technological, and social contexts of the twenty-first century show that intrapersonal and interpersonal competencies are increasing in importance compared to the previous period. Business owners increasingly value soft skills, such as work skills in groups and leadership. Human skills ('people skills') are important determinants of the work and wages received, and the social skills possessed by adolescents influence their employment prospects in adulthood.

Studies on health and well-being show that between intrapersonal and interpersonal competencies, the characteristics of perseverance, fortitude, tenacity sometimes become more accurate determinants of one's success than IQ scores. Among intrapersonal competencies, conscientiousness (a tendency to be organized, responsible, and work hard) is the highest relation to education, employment, and health outcomes (Pellegrino and Hilton 2013).

2.8.4 Inter-Personal Skills

Following the ability to communicate with one-self, comes the ability to communicate with others. The ability to communicate is not only, verbally and in writing with various media but also the ability to 'listen' and more importantly in the context of hierarchical culture is the ability to 'listen to what is unsaid', or to catch the non-verbal cues (Claramita et al. 2013). When one can communicate well with other individuals, he/she may start communicating with groups. Then comes collaboration as the ability to work in groups, learn from and contribute to the learning of others, (use) social networking skills, (and demonstrate) empathy in working with others. However, in this cultural context that deeply discussed in this edited volume, there is a one-way practiced communication during health provider–patient consultation, as well as teacher-student interaction, in purpose to maintain harmony between people and to avoid conflict (Claramita et al. 2013; Nugraheny et al. 2016). The root of the minimum dialogue also starts at home (i.e., between parents and children and between siblings—the younger and elder ones) (Geertz 1989).

As given shreds of the evidence above, for the society that holds wide gaps in the social hierarchy and also collectivism in decision-making, to apply the cognitive skills can be more possible than to apply the 'intra' and inter-personal skills, which are much perplexing. 'Interpersonal skills', perhaps sounds easy, as to chat with everyone and being nice, as we hold the non-verbal etiquette of politeness culture in this part of the southern world. Still, the ideal interpersonal skills that will lead to teamwork and leadership cannot be started without originated from a truthful intra-personal skills or self-talk with deep reflection, and critical thinking, as the initial steps of opening one's mind to him/herself. In a context with non-verbal etiquette of politeness culture, to speak up the thought is considered impolite. As consequences, generally, people rarely speak what they thought, rarely asking questions (also implies with medical students), and that they accept people from the perceived higher hierarchy to have their opinion. Often, people are also accepting the information as it is. Curiosity can be regarded as impolite as well. So, to teach reflectivity to medical students in this cultural context, is a true challenge. There are many guidance of reflection tools, i.e., GIBBS reflection cycle (Gibbs 1988), that can be used. But should be done continuously within the curriculum and with adequate and constructive feedback. A portfolio of learning should be strongly emphasized for medical education in this cultural context (Driessen et al. 2008) (Greviana et al. 2020). Not only the documentation, but more importantly is the continuous feedback and teacher–student dialogue of learning plan.

2.9 Learning for Transfer

Reflecting back to the 'socio-constructivism' theory of learning as the basis of student self-directed learning and furthermore student-centered learning, the current recommendation of strengthening the 'intra' and 'inter' personal skills toward teamwork and leadership, to produce the 'agent of social change', are tied up. The essence of twenty-first-century skills is what a person can do with the knowledge and skills he has in the real world (transferable knowledge and skills). Therefore, we need a learning environment that can support the achievement of cognitive, intrapersonal, and interpersonal competencies that can support anyone to apply what they already know into new conditions and new problems.

Studies showed the relationship between transfer and deeper learning needs effective instructional methods. It is effective if (1) previous knowledge that is well organized in a domain is ready to be reused into the new problem in the same domain, (2) requires extensive training with extensive feedback that can help students to correct the mistakes, and (3) meaningful/contextual learning which supports transfers (Pellegrino and Hilton 2013; Suto 2013; Qomariyah et al. 2016). In his articles, KHD also emphasize the three design for contextual learning that is in line with the current evidences of student-centered learning: (1) working in a more partnership with the students, (2) enhancing local culture and community activities as rigorous learning resources, and (3) strengthening the professionalism, begin at home and school. He said "*Everyone is a teacher and every home is a school*" (Claramita 2016). So, in the context of wide power distance and collectivism, more well-structured and more inviting student participation of instructional design is needed, emphasizing the development of student as a person and as professional, with more constructive feedback and two-way teacher–student dialogue that are even more essential than ever.

There are many theories of instructional design that we can use. The one that strongly recommended is the four component of instructional design 4C/ID which proven to increase self-reflection and learning, also in the wide socio-hierarchical gap settings (Susilo et al. 2013; Musharyanti et al. 2019). The emphasize of the 4C/ID is the space for experience, space to be heard concerning the experience, space for constructive feedback, space for supportive information, and space for independent learning. If we reflect to the conception of 'teaching' by the medical teachers in the southern world, mostly they come up with 'teaching is giving information to the students' (Cilliers et al. 2011). So we should work on this conception, first, before we create the more compatible instructional design to come to the world of 'facilitating student-centered learning.'

2.10 Future Abilities for Medical and Health Professionals

Globally, Human Development Index (HDI) is considered as a reflection of a country's prosperity and governmental success. The HDIs which comprises life expectancy, education and per capita income indices are evaluated regularly to assess whether the development is on the right track (UNDP 2019). The development in health sector also aims to support the prosperity of the countries and their citizen. As suggested by Frenk and his colleagues (2010), the healthcare needs should define the competence of medical and health professionals and the way they are taught and prepared in their education and training. Furthermore, the development of smart system and machine as well computational world, the expansion of communication tools and global connectivity, and the extension of life expectancy, foster healthcare to become more predictive, personalized, precise and participatory (Auffray et al. 2010). These phenomena further encourage innovation and changes in medical and health professions education, one of which by introduction of new literacies for future medical doctors and health professionals which consist of data, technology and human literacies (Aoun 2017). Data literacies cover capabilities in interpreting and utilizing the data and big data in the current era. Technology literacies expected to support students and graduates in using technology and collaborating with automated system wisely. Finally, human literacies are also the backbone of future competence through humanities and values, communication, and design that are important for facilitating learning in the twenty-first century.

Given expanded expectation of future medical and health professionals, teaching and learning processes which take place in the curriculum should support the development of relevant competencies. In terms of knowledge, skills, and attitude outcomes, it is argued that human competencies should be transformed to fulfil future needs. For example, since knowledge has been developing vastly and that it can be stored in huge external databases and easily accessed anytime, more critical capacities of human are in practicing metacognitive skills in which ones critically appraise the knowledge, constructive new knowledge and apply it to solve encountered problems. In addition, human is also expected to be able to collaborate with machine and technology. This is even more important in medical and healthcare context since the presence of machine and technology may improve patient outcomes when human doctors and health professionals can use them wisely according to the patients' problems. Human doctors and health professionals can collaborate with the technology/machine which can be allocated to conduct automated process thus human can focus more on interacting, caring and emphasizing with patients and their families (Susskind and Susskind 2015). Finally, it has also been highlighted that further human skills such as complex problem-solving, creativity, people management, coordinating with others, emotional intelligence, judgment and decision-making, service orientation, negotiation and cognitive flexibility should be developed in the education and training, which can be categorized in cognitive, intrapersonal and interpersonal domains (National Research Council 2012).

2.11 Some Examples on the Strategies in Student-Centered Curriculum

2.11.1 Innovation, Design Thinking and Entrepreneurship

Innovation is new ways of thinking, processes, products which touch and support everyday life of human. Skills in approaching problem which aim to create solution based on the understanding of the users' needs, one of which using the design thinking approach, are believed to support climate for innovation (Brown 2008). While medical and health professions students have to learn basic science and clinical knowledge and other relevant skills to contribute in health problem prevention and health care in the future, they are expected to be innovators who have design mindset. It is suggested that design thinkers have several characteristics which are empathy, integrative thinking, optimism, experimentalism, and collaboration (Brown 2008). Design thinking process involves several steps (Plattner 2010): a. *Emphatize*; the very first step to understand people whom the innovation will target on. This is very central since any innovation should always be meaningful. It can be done through observation, engage, discuss, and listen to the people to contextualize the innovation well, b. *Define*; following empathy process, design thinkers need to define the challenge they are taking on. It is similar to developing problem statement to start the innovation, c. *Ideate*; it is a transition from defining the problem to create solution. The ideation process can be done systematically using value proposition canvas hence the ideas will always be grounded on the previous processes (emphatize and define), d. *Prototype*; generation of artifacts to visualize, communicate, start the conversation of the idea. By doing this, innovators can fail early and improve the idea early before building it to the next level, e. *Testing*; the innovation is then tested to the actual users and can get further feedback on.

The steps are basically cyclical and can be implemented iteratively until certain innovation can be improved and better answer the users' needs. They can be implemented in the medical and health professions education to initiate design mindset among students as well as transdisciplinary or interdisciplinary collaboration (van de Grift and Kroeze 2016). While educational strategies to integrate this approach may vary (McLaughlin et al. 2019), it is highly potential to introduce disruptive approach of complex healthcare problem-solving to medical and health professions students as well as students from different fields (van de Grift and Kroeze 2016; McLaughlin et al. 2019).

Design mindset and innovation are ideally followed by entrepreneurship hence the innovation can actually be actualized and become valuable for wider users. Of course, in medical and health professions context, the entrepreneurship capacity should still be framed within professional conduct. Critical attributes which support this capacity are autonomy, innovation skills, risk taking and proactive attitude, and willingness to compete (Bacigalupo et al. 2016). The emphasis is on the value creation which further promote social technopreneurship and digital entrepreneurship. The EntreCom conceptual model introduces three main areas in entrepreneurship: ideas

and opportunities, resources, and action, which are further elaborated as 15 competencies. The 15 competencies are as follows (Bacigalupo et al. 2016): a. Ideas and opportunities (5 competencies): taking the initiative, planning and management, coping with ambiguity, uncertainty and risk, working with others, learning through experience, b. Resources (5 competencies): self-awareness and self-efficacy, motivation and perseverance, mobilizing resources, financial and economic literacy, mobilising others, c. Into action (5 competencies): spotting opportunities, creativity, vision, valuing ideas, ethical and sustainable thinking.

Project-based and experiential-based learning involving students from different backgrounds can be considered as a way to integrate the development of design and innovation mindset, collaboration, and entrepreneurship in medical and health professions education both in preclinical and clinical years.

2.11.2 Teamwork and Collaboration

Teamwork and collaboration are among critical skills that need to be mastered by medical and health professionals. The strategy of solving health problems within silos of health professions and specialty is obsolete and does not prepare the professionals to face more complex problems in the future (Frenk et al. 2010). Trust and interdependence are believed to be the foundations of collaborative skills which further requires critical thinking, willingness to share, accept responsibility, and create things together (Oganisjana 2015; Preston and Rich-Tolsma 2018). In medical and health professions education context, interprofessional education has been introduced for the past 15 years (Reeves et al. 2016) and it aims to nurture interprofessional collaboration competence which includes teamwork, roles and responsibilities, communication, learning and critical reflection, relationship with and recognizing the need of the patient, and ethical practice (WHO 2010). The impact of interprofessional education toward interprofessional collaborative care and quality of patient care still needs to be strengthen since studies mostly highlight results on satisfaction, behavioural and organizational change (Reeves et al. 2016). Beyond interprofessional education of medical and health professions students, the scope of teamwork and collaboration learning experience can also be expanded to other fields (van de Grift and Kroeze 2016). The development of teamwork and collaboration skills should also consider the role of technology and overall health system (Samarasekera et al. 2018).

2.11.3 Leadership

Given dynamic transitions of global population, environment, social-economy, technology use and health problems, future health care should be more precise, participatory, predictive and preventive, it is not exaggerating when the aim of medical and health professions education is to nurture change agents who can be part of creation

of the future better world (Frenk et al. 2010). Becoming change agents requires leadership skills in addition to subject content expertise and professional development. Leadership can be considered as a means of shaping goals, motivations, and actions of others to create changes or assure sustainability which is constructed by both leadership and followership interaction (Spillane et al. 2004). All three elements: leadership, followership and management, are all required in making the change with consideration of task, role, and context (McKimm and O'Sullivan 2016). The knowledge, skills, and attitude of effective leadership can be taught and learned in medical and health professions education. It is recommended that medical schools take necessary actions in developing leadership skills among students (Till et al. 2018).

2.12 Summary

2.12.1 The Emphasize of the Student-Teacher Two-Way Dialogue

To facilitate the innovative project, teamwork learning, and leadership skills for the medical students globally, and especially those who come from Eastern cultural context with wide power distance and collectivistic culture, a project-based and experiential-based learning seems suitable to offer a deeper and meaningful engagement of a group as well as each individual students; while giving them adequate time and responsibilities to learn independently. In the Eastern context of mostly developing and underdeveloped countries, the community-based/rural-based educational project and the interprofessional-education and collaborative practice project, can be a longitudinal curriculum theme with specific instructional design that will enhance student-centred learning principle.

A longitudinal project-based and experiential-based educational program will disseminate the tasks that require students to fulfill systematically, by working in groups, as well as leaning independently, in a period of time. Motivation, autonomy, and relatedness shall be stimulated with this kind of longitudinal project. Students in a collectivistic culture will have more space to work with their peers and will develop maturity when they deal with the community, but still under supervisors of the teachers. Student will also learn from their community context by having dialogue directly with the community members. Students will learn between the ideal and reality that happens naturally in life. The educational program should also start with the simplest skills,, i.e. listening skills, responding skills, surveys, peer group feedback, and move along within the year of the medical curriculum to the more complex ones i.e. health promotion, informed and shared decision-making skills.

However, those innovative longitudinal programs which will emphasize more on the complex skills, may be in dilemma with the basic medicine that the students

will learn in the early years of medical school; such as anatomy and biochemistry, that needs minimum interaction with living people. At this point, the feedback from the facilitators of the learning experience is the key to stimulate student-reflection and furthermore, the learning process. Teachers should be skillful in listening to what students have learn, in the class, or in the community context, and furthermore, questioning the students to stimulate reflection. Generally, any instructional design that we use, should emphasizes on the feedback and reflection. Again, two-way dialogue between student–teacher should be continuously nurtured in a culture which mostly having the hierarchical and social gap acceptance. In clinical education, the dialogue should be expanded to the simulated patients, furthermore, the real patients and the community members. The facilitating tasks are not as easy as just pouring information to the students; moreover, all information are now can be accessed within the electronic learning media. As Vigotsky explain about scaffoldings, questioning is the skills to facilitate thinking and learning. If Dewantara, who were born and raised in a high score of hierarchical country can have the idea of a more partnership relationship between students and teachers in early twentieth century, then we who live in the twenty-first century should do better than those philosophers.

Key Learning Points

- The development of 'medical education' as a branch of knowledge moves towards the 'socio-constructivism' theory, where constructive dialogue between people is critical for independent learning
- The culture that holds wider 'power distance' hinders the dialogue between people with different capacities (i.e., teacher–student, doctor–patient, and parents–children), limiting meaningful learning and ultimately preventing future independence
- The challenge of facilitating student-centered learning in this kind of culture may use the other cultural characteristic that allows interactional dialogue, that is 'collectivism,' i.e., by empowering people with similar capacity/peers, but should not neglect individual autonomy in decision-making that is the critical element for future leadership ability

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