Enactive Social Cognition: The interplay of mind, language, and culture

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Abstract

The goal of the enactivists is to present a paradigm showing the development of our cognitive structures from the embodied processes with a history of recurrent interactions between organisms and their environment. In enactivism, interaction plays an important role in cognitive development since causes change for both organism and its environment. Autonomy, adaptivity, and sense-making are essential core ideas in enactivism, and without them, the whole cognitive process will break down. It is from this idea where Ezequiel Di Paolo and Hanne de Jaegher developed their concept of participatory sense-making, an enactive account of social cognition.

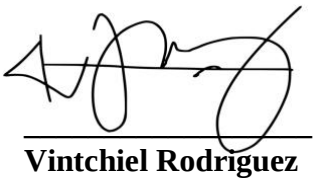
My thesis will focus on the effect of linguistic and cultural differences in participatory sense-making. I will study how differences affect cognitive beings' regulation of interaction with others in forming coupled system to generate meaning. In understanding participatory sense-making, it is always important to go back to this paradigm and see how we can apply the dynamics of an organism and its environment to enactive social cognition.

In this thesis, I will illustrate the development of enactive social cognition or participatory sense-making. I will pay particular attention to autonomy, adaptivity, and sense-making since these elements play the vital role for the success of the process. Lastly, I will discuss the implication of this research and suggest possible solution to bridge the gap in multilingual and multicultural interaction.

Statement of Candidate

I certify that the work in this thesis entitled "Enactive Social Cognition: The interplay of mind, language, and culture" has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree to any other university or institution other than Macquarie University.

I also certify that the thesis is an original piece of research and it has been written by me. Any help and assistance that I have received in my research work and the preparation of the thesis itself have been appropriately acknowledged. All information sources and literature used are indicated in the thesis.



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Introduction

The world is becoming highly multicultural. With the immense development in transportation and communication and the emergence of migration cross-cultural interaction is indeed inevitable. This phenomenon brings a lot of positive implications such as awareness of cultural diversity and recognition of the uniqueness of different practices, norms, and traditions. It is equally important to also look into possible problems that we might come across during intercultural interactions. Problems such as the different ways of communication, accents and fluency, conflicting norms during interaction, different understanding of meaning and a lot more. Many researchers have already started looking for ways to avoid gaps because of these differences, be it in educational, (Creese & Blackledge, 2010; Mazak & Herbas-Donoso, 2015; Norris & Tsedendamba, 2015) work, (van Mulken & Hendriks, 2015; Firth, 1996; Wagner, 1996) or social settings. (De Keere & Elchardus, 2011; Harzing & Maznevski, 2010; Li, 2011; Tagg, Hu, Lyons, & Simpson, 2016) But these studies failed to pinpoint the cause of the problem and in doing so, provided limited solution to address this gap. Enactivism offers an answer on how development proceeds among cognitive beings. I believe that this is essential in tracing the problem in intercultural interaction and also in providing possible solution.

My thesis will focus on participatory sense-making, specifically on how language and cultural differences affect the process. Participatory sense-making is the enactive account of social cognition. The living organism, which is deeply embedded in its environment, serves as the basis of enactivism. The process involves regulating its interaction thereby creating change not only to itself but also to the environment. In understanding participatory sense-making, it is important to go back to this paradigm and see how we can apply the dynamics of an organism and its environment to enactive social cognition.

We are primarily distinct and unique because we came from a different environment. We may have similar neurological functions and components when we were born, but the society at some point influence the development our cognitive functions. Now, the important part of our cognitive development is through social interaction. We contribute and take part in the development not only of ourselves but also of the environment in which we are situated. More importantly, we also interact with other individuals, and we bring our embodied selves in this interaction. Given that our environmental interactions develop our

cognitive structures, and part of this environment is of course language and culture, we cannot but participate in this social interaction in sense-making,

Following the idea of enactivism and participatory sense-making The problem I am to address is;

How will linguistic and cultural diversity affect our participatory sense-making?

With this, I will also address the following sub-questions:

- **In multilingual and multicultural interaction, can the interactors still maintain their autonomy and adapt to the interaction to form a coupled system and generate a unified meaning?**
- **What happens during the process of sense-making and how do these differences contribute to the interactors as a (potential) coupled system?**
- **How will this limit participatory sense-making and on what level of the process these differences come into play?**

Aside from these, I believe that it is also important to discuss the relationship of language, culture, and cognition to illustrate my objective further.

In this thesis, intercultural communication pertains to the interaction of individuals coming with different linguistic and cultural background. Other might think that there shouldn't be any problem as long as both participants use one language, say English as the medium. But this is not just a question of language but how each participant will make sense and whether they, as a coupled system able to generate a unified meaning despite their differences. How will the elements of participatory sense-making work such as autonomy and adaptivity work in this kind of interaction? Can interactors keep their autonomy as well as the autonomy of interaction, and up until what point they can maintain their adaptive capacity.

Since my thesis gives particular attention to language, culture, and cognition, I'll be using excerpts of actual conversations between people from different cultural and linguistic background from existing literature and empirical studies. Using this methodology, it will give me sufficient information to see how mind, language and culture interplay during the process. I will examine the interaction and analyse its effect in sense-making. These studies will also serve as the basis of my analysis on Ezequiel Di Paolo and Hanne De Jaegher's concept of participatory sense-making. I will evaluate whether cultural and linguistic differences affect the process of sense-making. I will analyse how autonomy, adaptivity, and sense-making works in multicultural and multilingual interaction. I believe that this will be a significant contribution to improve our social interaction despite differences.

In the first chapter, I will illustrate the development of enactive cognition on how living organism and its environment serves as the paradigm for this theory. I will also cover preliminary discussion on the place of language and culture in enactive cognition in this chapter. After that, I will discuss how this gives rise to my research problem and address some key sub-questions. The second chapter will specifically discuss participatory sense-making which is the primary focus of my thesis. I will give a careful analysis on the important aspects of this phenomenon and illustrate how meaning is generated within coupled systems. What are the essential elements in this process? In this chapter, I will determine at which level of sense-making language and culture come into play. I will also answer some of the important criticisms here on enactivism and particularly of participatory sense-making.

Chapter three will mainly focus on the place of language and culture in participatory sense-making. I will present empirical studies here that will serve as the basis of my analysis of participatory sense-making. I will determine how differences affect the process of sense-making and the participants in actual interaction? What element of the coupled system is affected and how can we reconcile these differences?

The final chapter will synthesize the whole research project. I will go back to the basic principles of this paradigm and present the contribution of my research. I will also present the possible implications of my research to education and psychology. I also intend to make some recommendations in this chapter on how we can improve participatory sense-making despite the linguistic and cultural differences.

Finally, I'm confident that my project will fill the gap in current scholarship and provide a new angle using enactive cognition as a frame. It is true that this problem has been raised several times not only in philosophy and cognitive science but also in education. But unlike other theories, enactivism believes that we cannot fully understand the cognitive process if we separate organism from its environment. Under this paradigm, cognitive beings are considered as a coupled system and not as independent interactors. As mentioned earlier, many disciplines failed to consider this essential aspect and I want this aspect to take into account.

Chapter 1 Enactivism

1.1 Introduction

This introductory chapter will focus on enactive cognition in general. It will pay particular attention to the important details of this paradigm, namely its core principles and historical development. I will trace the advancement of this paradigm from Francisco Varela, Evan Thompson, and Eleonor Rosch (1992) up to now with the prevailing ideas of Ezequiel Di Paolo and Hanne De Jaegher. (De Jaegher & Di Paolo, Participatory sense-making: An enactive approach to social cognition, 2007) I will also discuss the difference of enactivism to other types of cognitive paradigms and explain why enactivism, among others, fits in into my thesis. Also, I will elaborate how enactivism gives me more opportunity to explore the role of language and culture in social cognition as compared to other paradigms. This chapter will also explain why it is important to analyze language and culture together and the difficulty if we will do it without the other.

1.2 Meaning of Enactivism

This cognitive theory believes that change happens through the continuous looping of human to the environment. As a biologically inspired paradigm, it gives importance to interaction as a vital source of change in an organism and more so, to the individual. Enactive cognition moves away from the traditional approach of computational theories, like the input-output view on cognition. It does not subscribe to the idea of manipulation of inner states. Enactivism tries to provide empirical evidence, from biology, dynamical systems theory and phenomenology. It also gives an alternative to the representational approach of cognition that considers it as the internal manipulation of representations. Cognitivism or the 'representationalist view on cognition' believes that ideas in the mind can be studied independently from the world.

By contrast, enactivism explores the relationship of mind, body and the environment throughout the cognitive process and believes that cognition is relational. Contrary to the cognitivist view, enactivism considers cognitive processes not just to be simple brain events, but rather it is developed from the processes across the brain-body and environment. Meaning and intentionality, in this paradigm, are not pre-given or predefined. It is structured and created within the whole cognitive system. It is not acquired through a simple replication of objects that pre-exists in the world. This paradigm is different from the classical view of

cognitivism that focuses on internal mechanisms. Enactivism considers the intersubjective, extended and socially situated nature of cognitive processes. It also stresses the coordination across the brain, body and the world. More importantly, enactivism aims to ground more and higher cognitive functions not only in sensorimotor coordination but also in affective and automatic aspects of our whole body. Deliberation, reflection, and other higher cognitive functions are usually coupled with situated and embodied actions. (Gallagher & Lindgren, 2015)

Enactivism is just one of the prevailing theories of cognition today, along with embodied, embedded and extended cognition or they are also known as 4E. Although this 4E cognition agree at some point and are "all held to reject or at least radically reconfigure traditional cognitivism" (Menary, 2010, p. 459) on the other hand, they differ with regards to how meaning is generated. For instance, the, Di Paolo considered artefacts as part of the cognitive system in enactive cognition, but for him, their role is not as significant as in extended cognition. For him, "artefacts can make a causal contribution to intelligent problem-solving." (Kiverstein & Clark, 2009, p. 4)While in extended cognition, external processes, where artefacts are included and form part of the cognitive processing and couldn't possibly take place in the head of a single individual. (Kiverstein & Clark, 2009, p. 5) Contrary to enactivism which considers that life plays an essential role in cognition, extended cognition does not consider biological aspect as part of the cognitive process. Kim Sterelny, on the other hand, thinks cognition to be highly embodied and embedded. Using niche construction framework, he argues that the construction of cognitive tools and artefacts scaffolds and supports human cognition. Compare to extended cognition this framework explains a wider range of human capacity. (Menary, 2010, p. 461) These strands and traditions are too many to discuss here, and due to the limitation and for this research, I will focus on autopoietic enactivism that is mostly relevant to the goal of this thesis.

1.2.1 Enactivism's historical development

Lev Vygotsky, (1978) although not directly connected with the known proponents of enactivism, has a similar notion to enactivism. He emphasizes the role of interaction in cognitive development. For him, cognition is fundamentally social, and we extend our mind into the world by using language for cultural transmission, communication, and reflection. In short, language mediates our thoughts. Indeed, Vygotsky has some fundamental principle that is similar to enactivism. On the other hand, Varela, Thompson and Rosch's book, *The Embodied Mind* was published in 1991. This work paved the way to a new view of cognition

which is enactivism. It also illustrates the relationship of cognition to phenomenology, science, and Buddhist practices, and this is something that the cognitivist failed to do. "Cognitivist struggle to model or explain the flexible context-sensitive and domain-general intelligence that is characteristic of human cognition." (Ward, Silverman, & Villalobos, 2017, p. 366) This problem prompted Varela, Thompson, and Rosch to develop an alternative that will answer what is lacking in cognitivism.

There are other prevailing theories at the early stages of development of enactivism, and one of these is *the connectionist neural network.* It claims that "adaptive behaviour can emerge out of the activity of a densely interconnected web of interacting units" (Ward, Silverman, & Villalobos, 2017, p. 366) its capacity to self-organize is highly connected to the dynamical system theory when it comes to cognitive organization. Self-organization is the ability to transform from one state to another, and this can apparently be seen in enactivism. As a cognitive theory that follows how living organisms' work and change, "the living cell serves as a paradigm of an autonomous system. Its chemical constituents self-organize into a metabolic network that produces its semipermeable membrane through which matter and energy can be exchanged to repair and rebuild the parts of the cell. This form of autonomy is known as autopoiesis." (Thompson, 2007, p. 92) Another popular theory is *ecological psychology* that reacts to the principle of cognitivism. Following James Gibson's (1979) *ecological psychology*, it says "visual perception of the environment is direct in that it should not be understood in terms of representational or computational states that reconstruct environmental information that is lost in memory transduction." (Ward, Silverman, & Villalobos, 2017, p. 366) This theory believes in the capacity of our sensory and considered it is sufficient to guide us within our environment even without the aid of complicated internal processes.

Lastly, *situated robotics* became another popular innovation during that time. The goal of robotics or AI is "designed to flexibly produce a range of simple adaptive behaviours in interaction with its environment… using the world as its own model." (Ward, Silverman, & Villalobos, 2017, p. 367) However, AI had some limitations, Michael Anderson calls them as the problem of "*dynamics and relevance"*[1] (Anderson, 2003, p. 97) which impedes its

[1] The problem of *dynamics* implies that since the world changes rapidly we need to keep on reprogramming AIs. On the other hand, the problem of *relevance* is implicit to "dynamics" which means that since AI is programmed to a specific task, it will not be able to complete other tasks.

progress. Martin Heidegger's *Dasein*, which considers man as being-in-the-world and Merleau-Ponty's phenomenology which "criticizes cognitivism and introduce a new account of the relation of perception and action." (Dreyfus, 1996, p. 1) These are prominent philosophies that time which also influenced this new theory of enactivism.

The theories mentioned above helped the development of enactivism wherein the environment and the person becomes a primary component of the cognitive process. The proponents of this paradigm argue that cognitive transformation can only be achieved through lived human experience in the society. The book *The Embodied Mind* (TEM) became very influential to the notion of social cognition of Ezequiel Di Paolo, Hanne De Jaegher and Shaun Gallagher who are known figures of enactivism today. They centered their philosophy on the type of social cognition called, participatory sense-making and analyzed how meaning is acquired in an interaction between individuals. They explored the essential elements of it in making sense and develop the structure and elements of its process.

In Ezequiel Di Paolo and Tom Froese's article, *The enactive approach: Theoretical sketches from cell to society* they carefully illustrate how the biological account of enactivism can be applied to social cognition. They centered their comparison to the core ideas of enactivism such as "autonomy, sense-making, emergence, embodiment, and experience." (Froese & Di Paolo, 2011) Autonomy plays an essential role in enactivism. In *TEM,* they described autonomy or autopoiesis as "organizational closure" that;

1. The processes are related to a network, so that they recursively depend on each other in the generation and realization of the processes themselves, and
2. They constitute the system as a unity recognizable in the space (domain) in which the processes exist (Varela, Thompson, & Rosch, 1992, p. 55)

This capacity can be observed among living systems, especially in a social system. Say, for instance, the relationship of mother and her child, wherein each essence depends on performing their role and obligation to each other. This network or system shows how the given relationship mutually depends on each other. And without autonomy of either of the interactors, the organizational system will break down. Everyone is becoming aware of his or her identity because of autonomy that eventually gives way to an interaction. The interaction serves as an avenue to generate meaning which in an enactive sense of cognition is known as

sense-making. As we can see here, meaning is not dependent on the individuals but flows within them as well as the environment they are situated. De Jaeger and Di Paolo gave a more critical analysis of the process of sense-making and the elements involve on it. This will be the primary focus of the next chapter. But as we can see here, the biological system serves as an important reference in studying how enactive cognition works in a larger system such as social interactions.

1.2.2 Varieties of enactivism

Today there are many varieties of enactivism, including *autopoietic, sensorimotor* and *radical enactivism*. Each of them has their way of explaining how they relate to social cognition and sense-making. Now, how do biology or autopoiesis relate to cognition, specifically in sense-making? Autopoiesis is defined as the capacity of an organism to self-produce or bring about their identity by interacting with the environment. Aside from this, Weber and Varela (2002) consider autopoiesis as the natural link with intrinsic teleology and sense-making. Going back to the example of mother-child relationship I used earlier, the mother achieves her intrinsic teleology or purpose because of her ability to regulate environmental or social interaction. We are autopoietic as the enactivists would say it. The goal of social or environmental interaction is to generate meaning for the system. Hence, the mother and the child produce meaning from their coupled system.

In Ezequiel Di Paolo's article, he emphasized the difference of Weber and Varela's concept of autopoiesis with others. Autopoiesis system for them is capable of self-organization. It is, "what is by definition a process of material self-production must be a result generate a self-distinguishing concrete unity and not simply a physical pattern. The unity is self-distinguishing because it is constructed and sustained by its own activity in spite of the equalizing physical tendencies." (Di Paolo E. A., Autopoiesis, adaptivity, teleology, agency, 2005, p. 433) This statement makes their view on autopoiesis sophisticated. There is an affirmation of life, and in this case, sense-making naturally flow from this concept. It also follows the idea of agency and autonomy, which are important aspects in sense-making. Di Paolo summarized Weber and Varela's concept of autopoiesis, which actually adopted the idea of Hans Jonas argument on the continuity of life and mind. For them;

A. Self-production is a process that defines a unity and a norm: to keep the unity going and distinct

B. Encounters with external world are “evaluated” by machinery (through autopoietic machinery) as contributing or not to the maintenance of autopoiesis; consequently
C. Autopoiesis implies sense-making, an intrinsic perspective of value on the world. (Di Paolo E. A., Autopoiesis, adaptivity, teleology, agency, 2005, p. 434)

This then gives us an idea on how we derived the idea of sense-making in a social context from the biological point of view. One common example that most enactivists use is the concept of bacteria, living organisms that bring about their identity by interacting using their distinct biological characters with others. Say, for instance, bacteria and sucrose can create a significant change to each other. The bacteria allow themselves to regulate its relationship with the glucose, consume and metabolize it to create energy. Hence this creates some sort of unity. This is also true in social interaction when individuals try to regulate the coupled system and make sense out of it. This concept in enactivism is known as unity, an important feature in social cognition which eventually becomes its basis and as we know, it is a lot more complicated since, when we are dealing with cognition, we are talking about the intersubjective and linguistic environment. But, we can see the fundamental characteristics of living organisms’ interaction with others that can be applied to social cognition. This parallelism justifies the necessity of studying the dynamics of autopoiesis because this will help us quickly understand how enactive social cognition works.

Aside from autopoiesis, another variety of enactivism is sensorimotor enactivism. This is a utilization of perception by observing the environment instead of creating concepts internally. However, it does not correspond with some basic of ideas of enactivism such as the production of a new organism in its interaction with the environment that serves as proof of the continuity of life and mind. One distinct characteristic of sensorimotor enactivism is that they "propose to account for the content and character of perception by appealing to sensorimotor contingencies: patterns of dependence obtaining between perception and exploratory activity." (Ward, Silverman, & Villalobos, 2017, p. 372) One good example of this is our ability to determine what an object is when we perceive it even though we only see one side of it. Despite our limited perspective, other factors help us to know what the object is. For instance, a picture is hidden in a jigsaw puzzle. Here we don't need to see the whole picture before solving the puzzle. Few pieces of the puzzle will give us an idea of whatever object is behind those pieces of puzzles. However, in this variety of enactivism, the limits of visual sensitivity would also entail boundaries of sensorimotor skills.

Lastly Radical Enactive Cognition (REC) is another brand of enactivism that aims to unify most of the anti-representationalist approaches to cognition. Hutto and Myin (2013) presented in their book the general project of enactivism which "takes up the general enactivist project of rejecting cognitivism for analyzing minds in terms of dynamic patterns of adaptive environmental interactions." (Ward, Silverman, & Villalobos, 2017, p. 372) These models include language, complex socio-cultural context, and histories that enrich social interaction and are important factors in sense-making. The two previous varieties of enactivism discussed above didn't focus much on these factors. Aside from the sharp critique against cognitivism, REC aims to analyze cognition in line with the "richer socioculturally scaffolded capacities characteristic of mature human cognition." (Ward, Silverman, & Villalobos, 2017, p. 373) Undeniably, REC is a development of enactive cognition that is an upshot of autopoietic and sensorimotor enactivism. This then urges us to reconsider other factors of cognition that may seriously affect the process of sense-making.

Given that enactive cognition is considered as a biologically inspired paradigm and developed through its ongoing interaction with its environment. It is important to discuss factors that affect human sociality. Language and culture play an important role in cognition. But how they are being considered in enactivism? What is the enactivist view on language and culture? This will be the focus in the next section.

1.3 Role of language and culture in enactivism

This section will be dealing with the enactivist view of language and culture and how they are being considered in this paradigm. Language and culture play important roles in cognitive processes. However, other theories of cognition consider them as independent from each other. I will disprove this view in this section. I will present arguments about the importance and advantages of dealing with them together in discussing cognition. I will also do an initial discussion on how they affect cognitive processes and their role specifically in the participatory sense-making.

1.3.1 Enactive view on language

It is important to go back to the basic principle of enactivism in understanding what particular role that language plays in this paradigm. As mentioned earlier, enactivists argue that cognition is not just the internal manipulation of representations, rather it is an activity that flows from our brain to the body and environment. With this, we can say that language

should not be considered as an external part or just an add-on to the system. Language brings interaction into a higher level of cognition. In Didier Bottineau‘s article, he provides an analysis on how we should consider language from an enactive point of view. For him language modifies both individual and environment in terms of sensorimotor interaction. It has the capacity to develop child into an adult or a tribe into full-fledged civilization through social intercourse. This idea shows the dynamicity of language that also affects those who uses it. Language it not just a tool to achieve an end, but rather it works as an enabling factor that creates change in every interaction. (Bottineau, 2010) As mentioned earlier, one of the popular varieties of enactivism is autopoiesis, an organism's capacity to change via interaction. It proves that in this process, language is an important factor among individuals, especially under enactive social cognition.

As pointed by Bottineau, language serves as an element that modifies the characters in this dynamical process. This capacity of language is something that is consistent in both sensorimotor and autopoietic enactivism. And again, language should not be considered as something that is external, “it is not an object; it cannot be acquired. The forming of personal languaging is part of the parcel of forming of the person, just as walking, jumping or flying.” (Bottineau, 2010, p. 295) It is developed through time and co-evolved with the community and its users. The meaning then of language depends on the users. Aside from this, language enables humans to “organize knowledge and control action” (Bottineau, 2010, p. 298) that is important in preserving socio-cultural practices that contribute a lot in sense-making. Borrowing Ludwig Wittgenstein’s view on language, he said in his later philosophy that, “to imagine a language means to imagine a form of life” (Wittgenstein, 1958, p. 8e) The next section will focus on culture which is equally important as language in the enactive paradigm. Di Paolo considered culture as an element that lies at the core of this paradigm. I will discuss this further in the next section.

1.3.2 Enactive view on culture

In enactivism, we cannot separate cognition from the environment. Organism and environment constitute a larger system, and meaning is generated out of this interaction. “Cognition can never be separated from embodiment of the system. This embodiment is simultaneously understood in terms of physical body of biology and terms of the ‘lived,' experiential and expressive body that was particularly thematized by phenomenology.” (Baerveldt & Verheggen, 1999, p. 189). It also considered as “a *conditio sine qua non* for all

knowledge, including the complex patterns of cultural knowledge." (Varela, Thompson, & Rosch, 1992, p. 173) This embodied system of the cognizer and the world in which he lives produces meaning. This makes enactivism different from other paradigms because they consider interaction not as a processor of information but rather production of meaning. Besides;

> "As a theory of meaning, enactivism rests on what—with an allusion to thermodynamics—could be called 'the law of conservation of identity'. The full consequences of this position become clear when we transform a formal claim into a phenomenological one. Autopoietic systems are then considered as systems that live in a world of their own experience. It is because of this 'experiential closure' that they can operate as meaning producers." (Baerveldt & Verheggen, 1999, p. 195)

Interaction of autonomous systems happens once coordinated through embodied practices of socially patterned phenomena. These patterned phenomena is what we call culture wherein meaning of actions are intrinsically linked. This is why enactivists suggest that if we want to study actions, feelings and especially thinking we need to trace it from the social form that serves as their experiential basis. That is also a valid reason to argue that "the study of culture is essential to the study of human-made meaningful order." (Baerveldt & Verheggen, 1999, p. 185) Culture is part not only of the cognitive development of every individual but the whole aspect of our development. It helps us to make sense on our experiences and refine our worldview. "The acquisition of culture is then essentially seen as an 'in-struction' process, that is, it is assumed that the human mind becomes structured by virtue of socio-cultural formations that have their existence outside the realm of our own experience, but that nevertheless become part of our interior world." (Baerveldt & Verheggen, 1999, p. 187) Not only that it is part of our structure it also an important factor in sense-making in our every interaction. Enactivists are "committed to the idea that natural ways of acting both foster and come to be shaped and developed by customs, practices, and institutions." (Hutto, 2013, p. 281) This statement supports the idea on our embeddedness in the environment where we live.

Di Paolo and Froese elaborate the notion of enculturated cognition based on an enactive approach. They believe that culture makes arbitrary actions of human beings

meaningful. A ritual of an ethnic group may be meaningless for other people outside of the group. But they cannot question the fullness of meaning seen by that community. Gestures, symbols, sounds and other phenomena may appear nonsense to other individual but not to the people who attribute meaning to it. Socio-cultural background guide's behavior and help us to complete an action successfully. Responding to gestures, for example, is, "our natural way of making sense of the situation, and this sense-making is implicitly achieved in terms of a pre-established socio-cultural practice." (Froese & Di Paolo, The enactive approach: Theoritical sketches from cell to society, 2011, p. 26) Aside from what we acquired through these socio-cultural interactions, we also learned different historical values like culture, norms, and practices through the process of enculturation. Lastly, they point out the negative and positive effect of culture to cognition. "A cognitive agent's entrance into a cultural domain is both enabling and constraining. It is constraining because taking part in shared practices requires the alignment of individual's agency with the pre-established normativity." (Froese & Di Paolo, The enactive approach: Theoritical sketches from cell to society, 2011, p. 28) This then gives us more reason to deeply examine the effect of cultural diversity and determine what element of interaction is affected in sense-making and how we can address this problem.

The next section will discuss the importance of studying language and culture together under enactive cognition. This will highlight reasons that are still consistent with the principle of this paradigm.

1.3.3 Importance of studying language and culture together

After establishing the importance of language and culture in enactive cognition, it is equally important to prove the inseparability of these two factors. Many existing studies focused on their relationship, but for my thesis, I will elaborate how important it is to study language and culture together under enactive paradigm.

Yamaguchi, Tay and Blount criticized the view of language as a purely social phenomenon. They believed that considering language as independent denies its relationship to other cognitive factors including culture. Although they agree that it is fundamentally social, they also believe that social activity cannot occur in the absence of a coordinated nervous system. Language explains how social and cultural phenomena are processed and integrated into the brain. (Yamaguchi, Tay, & Blount, 2014) This gives us an idea that

language is connected with culture. Primarily, language mediates the socio-cultural sphere and the mind. But like what I've mentioned earlier, enactivist do not consider language as an external artefact but rather as part of the parcel that develops along with the human being. This is contrary to Andy Clark's view on language as the ultimate artefact. (Clark, 1997)

Ronald W. Langacker (2014) is one of many researchers who rejected the idea that considers language and culture as independent from each other. Instead, he believes that there should be active collaboration between linguists and anthropologists in studying human cognition. He views cognition as "culturally embedded" and "universally embodied," because of this lexicon and grammar creates a meaningful continuum structure. This perspective then is a valid reason for an active collaboration between cognitive linguistics and linguistic anthropologists. He also argued "linguists need anthropology to accurately assess and characterize the cultural basis of linguistic meanings. On the other hand, linguistic analysis… reveals the details of the mental constructions constitutive of culture" (Langacker, 2014, p. 47) Indeed, this proves that language and culture are not only related but more, dependent on each other.

Lastly, 'languaculture' is another concept that argues about the strong relationship between language and culture. It was developed by Michael Agar in 1994 "to define the essential tie between language and culture." (Norris & Tsedendamba, 2015, p. 205) This theory shows that studying language should not only focus on vocabulary or grammar but also history, tradition, beliefs, behavior and even their habits. This perspective is a holistic approach to study language. It also highlights the importance of culture in language formation. Hence, based on the literature discussed above, we can say that we have a good reason to study how linguistic and cultural diversity implicates participatory sense-making according to the enactive cognition paradigm.

Today, enactivism has become one of the most influential paradigms of cognition in different disciplines, not to mention in education and psychology. For instance, the constructivist approach in education is becoming widely popular approach. A student-centered type of education considers the linguistic and cultural background. Considering these factors gives us ideas of more viable ways of developing young learners and making them ready for cross-cultural interaction. Further discussion about this will be discussed in the concluding chapter.

1.4 Conclusion

The chapter gave the important aspects of enactive cognition. I tried to establish how cognition is related to language and culture according to the enactive paradigm. This chapter also gave us an overview on the important elements of this cognition and how they work as one system to produce meaning. The analysis then will provide us a good background for the next chapter, which is about participatory sense-making, Di Paolo and De Jaegher's concept of social cognition under enactive paradigm.

Chapter 2 Participatory sense-making, language and culture

2.1 Introduction

This second chapter will be a close analysis of participatory sense-making, particularly how principles and elements of this social cognition works. I will explain how individuals generate meaning within social interaction and how practices, context, and different cultural networks contribute to the process. Lastly, on what level of the process do language and culture come into play? This chapter will also answer some of the criticisms of this cognitive process to refine our notion of participatory sense-making, which will be the basis of my analysis in the following sections.

2.2 De Jaegher and Di Paolo's participatory sense-making

Ezequiel Di Paolo and Hanne De Jaegher believe that it is important to have an enactive account of social cognition. And so, they develop participatory sense-making. Even though there were theories of social cognition proposed like theory-theory, simulation theory and the likes, Di Paolo and De Jaegher find them inadequate and even if "these theories do proper justice to the situatedness and embodiment of the social subject, they often remain themselves methodologically individualistic." (De Jaegher & Di Paolo, 2007, p. 486) Now, Di Paolo and De Jaegher put interaction at the center of their theory. To capture the real essence of the process, they limited their view to a dyadic model, which means a face-to-face interaction no matter how low or high the effect of the interaction on the participants.

In enactive cognition, there are five core ideas that define this paradigm. These are the mutually supporting concepts of autonomy, sense-making, embodiment, emergence, and experience. Autonomy is the capacity of an organism to sustain and to self-organize in order to regulate its interaction with the environment, while embodiment means that cognition will depend on the body. It happens between the interactors in social cognition. Moreover, enactive cognition does not view the cognizer as passive but rather as the center of the cognitive process and actively responds to sensorimotor skills, thereby making cognition dynamic. Emergence is a much-debated concept, but so far, we understand it as an automatic formation of essential properties of cognition during the given interaction. Center among these core ideas is sense-making, which facilitates initial steps in enactive social cognition. As mentioned earlier, the goal of Di Paolo and De Jaegher is to bring this sense-making into social cognition and see how it works in this in dyadic interaction. We experience the world

because we are immersed in it. Without this, we won't be able to provide data that serve as the subject of different interrelated disciplines such as philosophy, psychology, and cognitive science. The next sub-section will give us background on the essential elements of enactive social cognition. It will also help us analyze how they work in participatory sense-making of Di Paolo and De Jaegher, and how we generate meaning out of interaction.

2.2.1 From sense-making to social cognition

Sense-making happens once the individual regulates its relationship with the world. Not all interaction produces meaning, this is possible when an agent was not able to sustain his interaction with the environment or other individuals or if any of the elements mentioned above is not present. Having an autonomy means that the organism or cognitive beings adapt to their environment to form a coupled system. It helps us to make sense of the potential coupled system. This simple illustration is how enactive cognition works. If the above elements are present, it completes the process of sense-making. It lets the cogniser create a meaningful interaction with the world. "Exchanges with the world are inherently significant for the cognizer and this is a definitional property of a cognitive system: the creation and appreciation of meaning or sense-making in short." (De Jaegher & Di Paolo, 2007, p. 488) Now how does it work in participatory sense-making?

Di Paolo and De Jaegher give particular attention to interaction. They argue that this can bring individuals into a much higher level of cognition. There can be no other means of acquiring meaning in social cognition but through interaction that elevates our level of connectedness with the world and we cannot attain this through other forms of cognition. For Di Paolo and De Jaegher "interaction often has an affective dimension in the sense that we can feel varying degrees of connectedness with the other." (De Jaegher & Di Paolo, 2007, p. 490)

In another article, Di Paolo and De Jaegher provided a definition of interaction, emphasizing the role of autonomy and its importance as a source of meaning. In doing so they provide a precise definition of social interaction and they consider it as;

> "The regulated coupling between at least two autonomous agents, where the regulation is aimed at aspects of the coupling itself so that it constitutes an emergent autonomous organization in the domain of relational dynamics, without destroying in the process

> the autonomy of the agents involved (though the latter's scope can be augmented or reduced)." (De Jaegher & Di Paolo, 2007, p. 493)

Now, by analyzing the given definition, it will help us classify what components support the completion of interaction and how we produce meaning in this process. Di Paolo and De Jaegher consider autonomy as the capability to sustain itself under different circumstances. This autonomy doesn't only apply to the individuals in the interaction but also to the dynamicity of interaction *per se*. Also, they clarified the different ways in which autonomy can be experienced, hence, "autonomy can happen on different levels (metabolic, neural, cognitive and social) and different timescales, and autonomous agents can interact at various levels." (De Jaegher, Di Paolo, & Gallagher, Can social interaction constitute a social cognition?, 2010, p. 43) Lastly, interaction doesn't need to be sophisticated to produce meaning out of it. It can happen anywhere as long as essential elements of this coupled system are present.

Another idea we can infer from the given definition above is that it requires both agents in sense-making to sustain the interaction. It is a coupled system. If either of the agents were not able to maintain the joint sense-making, it would destroy the intersubjective system. Hence, it will destroy the sense-making. Interaction then requires cooperation between the individuals. Lastly, Di Paolo and De Jaegher warn that if the interactors are unable to sustain their autonomy "the process would reduce to the cognitive engagement of the remaining agent with his non-social world. The 'other' would simply become a tool, an object, or a problem for his individual cognition." (De Jaegher & Di Paolo, 2007, p. 492) As we can see here, the success of sense-making in the social domain depends on the cooperation of individuals as key players of interaction.

Di Paolo, De Jaegher, and Gallagher presented in their article the three critical roles of social interactions namely *contextual, enabling* and *constitutive*. They identify these three to stress the critical role of interaction in enactive social cognition. They consider *contextual* as the environmental factors that cause the occurrence of particular phenomena. *Enabling* on the other hand, are the elements necessary for the phenomena to occur. Lastly, the constitutive element is part of the phenomena that occur. To understand this further, let's see how these factors work in real social situations by using an example. Say, a researcher who is nervous and suddenly stutters while presenting his paper before a large audience at a conference. The

large audience gives this feeling to the presenter hence, makes it the contextual factor. We can consider the conference *per se* as the enabling condition because it is the reason why the researcher is in front of a large audience although it is not part of the phenomena. The constitutive factor is the tension inside the presenter, which is part of the phenomena making him stutter. On the other hand, the presenter creates an impact to the audience as well. For instance, since there is an ongoing presentation, the event will demand the audience to pay attention to the researcher. This can be considered as the contextual factor. Secondly, listening to the presentation will trigger a feeling of excitement or curiosity to the audience and this can be considered as the constitutive factor. Lastly, the conference is the enabling factor as mentioned earlier. Although there can be other factors that can affect and take part in this phenomenon, we can see here how social interaction play different roles and eventually affects the social cognition. Hence, the formal definition given in the article is that;

> "A contextual factor is simply something that has an effect on X and can be determined by observing how X is changed when the factor is changed. An enabling condition not only influences the phenomenon (therefore also being contextual), but is also necessary (either contemporaneously or historically) for X to occur. A constitutive element is part of the phenomenon (it must be present in the same time frame as the phenomenon). The set of all the constitutive elements is the phenomenon itself. The presence of these elements is necessary, and therefore also enabling." (De Jaegher, Di Paolo, & Gallagher, Can social interaction constitute a social cognition?, 2010, p. 443)

Again, De Jaegher, Di Paolo, & Gallagher clarified that each role can still depend on how one will observe the phenomena. There is no singular way of explaining different occurrences. It is the important reason why one should be careful in describing an event. But at this point, we understand that social interaction plays significant roles that complete the social cognition.

Going back to the given definition of social interaction, we can see the dynamicity of the coupled system between the audience and the presenter. Apparently, attention provided by the audience to the presenter vice-versa creates feeling to the public that eventually affects him. The participants are maintained by the dynamicity of the interaction which completes the process of sense-making. We can infer that this interaction mutually affects the audience and the presenter. From here, we can see how sense-making works between interactors in

social interaction. Social cognition constitutes autonomy, adaptivity and sense-making. The next subsection will discuss how we derive meaning from participatory sense-making which is the primary purpose of social interaction.

2.2.2 Generation of meaning

One important question addressed in participatory sense-making is how we generate and transform meaning through social interaction. This process was the focus in the second part of Di Paolo and De Jaegher's preliminary work on participatory sense-making. They believe that we can achieve meaning through coordination. Since sense-making activity is intentional and expressive, we can easily say that it is embodied action. Movements and changes within an interaction can affect our actions. If this is the case it means that coordination of intention is necessary for the process and this happens when the agents regulate the interaction. (De Jaegher & Di Paolo, 2007)

> "Social actors can coordinate their sense- making in social encounters. This means that the sense-making of interactors acquires a coherence through their interaction and not just in their physical manifestation, but also in their significance. This is what we call participatory sense-making: the coordination of intentional activity in interaction, whereby individual sense-making processes are affected and new domains of social sense-making can be generated that were not available to each individual on her own." (De Jaegher & Di Paolo, 2007, p. 297)

Once interactors maintain coordination in that coupled system, it will be easy for them to relate their actions with each other, thereby leading to a generation of a unified meaning. Given this idea, in what other ways can coordination affect the process of sense-making? Di Paolo and De Jaegher identify some effects of coordination in sense-making. They believe that *patterns of coordination* significantly affect the generation of meaning. A stable and well-coordinated pattern will give way to a cohesive generation of meaning in both participants. For instance, Student A comes across student B in a corridor. A sees that B is using the right side of the corridor and so student A moves to the left side to give way to student B and avoid bumping into each other. This is an example of a well-coordinated pattern of sense making between interactors. On the other hand, if the pattern breaks down it will affect the sense-making and thereby create confusion between interactors on what message they want to relay to each other. Let's imagine a couple trying to make conversation in a bar with a loud music

under dim light. What would likely happen as they try to interact with each other? Aside from the fact that they won't understand each other, it will tend to a sudden change of meaning each time because of external factors just mentioned. They will try to adjust each to other's intention and attempt to make a unified meaning within the interaction.

Difficulty in trying to understand what each other mean in sense-making is not the only result once the pattern of coordination breaks down but also misinterpretation which is a common problem in sense-making. "Misinterpretations about the intentions of others often provoke responses that are themselves misinterpreted, leading the interaction into a spiraling dynamics likely to engender a general breakdown." (De Jaegher & Di Paolo, 2007, p. 498) When an American soldier named William Grayson misinterpreted the intention of some Filipino soldiers in 1899, Grayson fired his gun killing one of the soldiers because he thought they would attack him. The encounter started when the Filipino soldiers asked permission from Grayson if they could pass on the road that the later was guarding. But because of the language barrier, they had difficulty in understanding each other. And so, the Filipino soldiers attempted to come closer to Grayson to clarify things up, which he then misinterpreted. This misinterpretation led to the Filipino-American war that killed thousands of lives in that period. This is a classic example of misunderstanding that leads to the breakdown of coordination.

Another way that coordination can affect sense-making is when one of the interactors want to emphasize something to another. Daniel Stern, in one of his experiments, calls this as "*increase discrepancy from the expected*." (Stern, 2002, p. 114) Here, "Calling attention to what is salient to one of the interactors and not yet the other is achieved by the purposeful modulation of the sense-making of one interactor (who, for instance, is visually scanning in search of a lost object) by the other (who grabs his attention and points to it)." (De Jaegher & Di Paolo, 2007, p. 498) This kind of interaction is rather common. There are coupled systems wherein individuals' participation or attention are not on the same level, causing a discrepancy in sense-making. One example that Stern used here is the interaction between mother and her infant wherein the mother almost controls the whole process most of the time. This is due to the infant's lack of cognitive mechanisms and the mother's strong desire for her intention. Since the infant's cognitive capacity is not yet developed, it means that he cannot fully engage in the interaction, the infant's tendency is to depend most of the time to his mother. The mother on the other hand, with her predisposition that it is her job to guide her child, controls the interaction.

A perfect coordination lies between the "direct orientation and regulatory orientation." (De Jaegher & Di Paolo, 2007, p. 499) It requires less uttering and gesturing. Individuals in this kind of interaction can establish a well-coordinated attachment with each other.

> "It is through the process of coordination and modulation of sense-making activities that the orientee is directly affected by the orienter's intentions and sense-making and therefore he does not need to figure out what these intentions are in order to respond accordingly. A coordinated response already embodies a practical understanding… In order to be oriented, the orientee cannot be totally passive. He is a sense-maker himself. In her turn, the orienteer must not only grasp the other's sense-making but must skillfully act so that the right modulation comes about." (De Jaegher & Di Paolo, 2007, p. 500)

We can assume then that both participants in this kind of sense-making give the equal amount of participation and intention. This is an ideal coupled system where neither orientee nor orienteer needs to give up his or her sense-making. They compromise and try to be on the same level of participation in order not to overpower each other in the generation of meaning.

The highest level of participation comes when interactors move beyond coordination. It is a joint process of sense-making. "Here meaning is created and transformed through patterns of coordination and breakdowns. The phases of action and perception typically used to describe individual sense-making now acquire collective aspects and sense is created through the stabilization of patterns of joint activity." (De Jaegher & Di Paolo, 2007, p. 500) Since this high level of participation happens everywhere, it is almost hard to notice when it occurs. Simple collaboration and orientation are examples of these wherein the meaning is generated by both parties. Once oriented and integrated into everyday sense-making, we come to develop common meaning and here, language and culture come into play. "A certain reference may develop over time… Such an intimately shared referent comes about precisely through what we conjecture on in the highest realms of participation in sense-making." (De Jaegher & Di Paolo, 2007, p. 500) This previous discussion gives us an idea that linguistic and cultural differences can be a major factor in participatory sense-making. But where exactly is language and culture in this process? This will be the focus of the next section.

2.3 Place of language and culture in participatory sense-making

For enactivists, language is not just as a manner of living as what Humberto Maturana stated (Maturana, 1978), but more, as an adaptive sense of social sense-making. (Cuffari, Di Paolo, & De Jaegher, 2015) Contrary to what Paul Grice (1969) and Robert Stalnaker (1998) proposed, it is not just for mental representation for developed human being but also children are capable of using it. In enactivism, "Communication is not about making inferences about representations; what it is all about is something that children of young ages can do as well." (Di Paolo & Thompson, 2014, p. 73) The enactive view of languaging or using language in making sense, considers activities such as monitoring, evaluating, regulating and organizing their existence as avenues where human can use language. Since we want to stay connected with the world, we use language as means towards sense-making and to regulate our coupling with others. This is why Di Paolo, De Jaegher and Cuffari defined languaging as "a form of social agency involving a double a regulation of self and interaction that regulates the tensions inherent in a dialogical organization and participation genres." (2015, p. 1092) Once we establish the proper social relation with others, it will be easy for us as interactors to generate meaning out of that coupled system.

Di Paolo and Thompson used two models in answering what role language plays in sense-making. The first model is *dialectical and conceptual*. In this model, they illustrated how everyday social encounters "generate culturally shared horizons of normativity." (Di Paolo & Thompson, 2014, p. 1096) And here, languaging is considered as a "special kind of social agency,"

> "A particular solution to a certain progression of conceptual problems about recurrent tensions between individual and interactive levels of sense-making and between codified/constrained and spontaneous style of sense-making." (Di Paolo & Thompson, 2014, p. 1096)

Under dialectical and conceptual model, languaging belongs to the higher type of sense-making and through this, we can negotiate our actions with others. It helps us direct our actions with others and invoke our autonomy by manifesting higher cognitive skills like reasoning, abstraction, and imagination. Thus, the first model gives us an idea of possible conditions where language can mediate our actions in our lived everyday situations.

The second method is *developmental,* which traces how an individual incorporate himself into the society using language or how he comes into intersubjective relationships. Enactivism emphasized our autonomy and adaptivity in interaction. This gives us the capacity to understand sensitivities that are inherently part of the world. When we talk about sensitivities here, these refer to our ability to respond to both visible and invisible aspects of reality such as superficial beliefs that become part of the community. Now, part of human development is language. We adapt and incorporate the meaning of language, formed through socio-cultural and interpersonal relationship, as we grow old. Thus, this is the reason why Di Paolo and colleague considered linguistic sensitivities as "entirely embodied and completely enculturated." (Cuffari, Di Paolo, & De Jaegher, 2015) More often than not, we rely on our linguistic sensitivities to keep the agency in our interactions. From a developmental perspective, we can explain how language becomes the means in progressively integrating ourselves to the society.

It is not only language which has an essential role in the participatory sense- making, but also culture. I'm not limiting the meaning of culture to the social behaviour, ideas, and customs of a community but also to the patterned practices that are shaped by material conditions, social dynamics, and normative orders. For Hutto, Wittgenstein and many enactivists are "committed to the idea that natural ways of acting both foster and come to be shaped and developed by customs, practices, and institutions." (Hutto, 2013, p. 281) This supports the idea that we are situated in the world and connected to the environment that developed our cognitive structures. Also, Di Paolo and colleague believed that "individuals act and make sense following the acquired culture, norms and practices. These norms according to enaction, relates to the continuity of various forms of autonomous identity, or forms of life converging in the embodied." (Cuffari, Di Paolo, & De Jaegher, 2015, p. 1100) This then creates tensions between individuals who are accustomed to different practices. The interaction breaks down, but will eventually give way to participatory sense-making.

When individuals realized a tension in social interaction, they tend to adjust and coordinate their actions with others. In Di Paolo and colleagues' term, this is what they call *social agency. "*A particular kind of participatory sense-making whereby the agents not only regulate their couplings and in doing so influence other agents, but they also jointly control mutual coupling." (Cuffari, Di Paolo, & De Jaegher, 2015, p. 1101) This is a mutual coupling wherein because of different intentions and levels of autonomy, individuals and their

embodied norms lead to different types of coordination. And again, coordination arises because of the autonomy.

Pierre Steiner and John Stewart reiterated the essential role of culture in social cognition. Being in a social interaction is not only being part of this domain but also accepting structures that can affect interactors' way of sense-making. But as a sort of clarification, although culture has a regulative and constitutive function in social cognition, it is not superior to the interactors in a way that some other people treat religion.

> "It is important to understand that social structures are not "above" the interactions; they are not "emergent" phenomena at a higher level of organization that might result from inter-individual interactions. The constraining nature of the social exists in relations between individuals, not above them; it is because of this inherence that it can determine some configuration or order in these activities." (Steiner & Stewart, 2009, p. 538)

Therefore, social structure is part of human cognition. Our autonomy and adaptivity allow us to integrate ourselves into the practices and customs or other interactors. Now, with this capacity, can culture and language still constrain sense-making in interaction? We will further analyze this using an example of actual interactions in the next chapter. But before going into that, I will answer some of the important criticisms of participatory sense-making to help us develop a refined version of it that can be useful in the remaining chapters of this thesis.

2.4 Addressing some criticisms

Before presenting a refined version of participatory sense-making, I believe that it is necessary to answer some of the criticisms of enactive social cognition. The first criticism says that "enabling" and "constitutive" were not distinguished by Di Paolo and De Jaegher as different roles of interaction, thereby putting it in danger of committing coupling-constitution fallacy. (Herschbach, 2012, p. 467) The second criticism is on how interaction relates to our neural mechanism. This criticism challenges the notion of enactivism on the embeddedness of the brain and the concept of on-going processes of sense-making in the whole process of cognition.

In Mitchell Herschbach's article, he questioned what seems to be an ambiguous nature of constitution of social interaction. He said that "in various passages, De Jaeger et al., treat the constitutive element as a part of the whole phenomenon such that, 'the set of all constitutive elements is the phenomenon itself.' And in the same article, they define constitutive element as 'part of the processes that produce the same phenomenon'." (Herschbach, 2012, p. 473) For Herschbach, this created so much confusion, "Does this mean that their definition of constitutive element covers not just those internal parts that compose or constitute the whole phenomenon but also elements spatially external to the phenomenon which help produce it?" (Herschbach, 2012, p. 473) This eventually leads to the coupling-constitution fallacy caused by enactivists "apparent treatment of spatially external enabling factors as constituents of cognitive system." (Herschbach, 2012, p. 478) As a solution, he offered a mechanistic framework that clarifies this ambiguity by classifying different levels of social interaction.

> "Enactivist describes the environmental input as partly constituting the social behavior of the individual agent. But mechanists make a distinction between the internal mechanism that constitutes the phenomenon interest and environmental influences on mechanism and its part." (Herschbach, 2012, p. 483)

With his proposal, we can see the role of internal and external elements that comes into play in an interaction. Now it is the autonomous system that can determine the internal parts that constitute the system and the external elements that affects the mechanism. And following this approach we can properly label, which is the constitutive, that is internal, and enabling which is part of the environment. Herschbach suggests to the enactivists to drop some of their radical views to avoid coupling-constitution fallacy.

In addition, it is always important to go back to back to the original definition of the role or social cognition from De Jaegher and Di Paolo. As stated in their work, (i) F is a contextual factor if variations in F produce variations in X, (ii) C is an enabling condition if the absence of C prevents X from occurring and (iii) P is a constitutive element if P is part of the processes that produce X (De Jaegher, Di Paolo, & Gallagher, 2010, p. 443) Here it is clear that Di Jaegher and Di Paolo considers that a social interaction is constitutive if it is part of certain organization which is bigger than itself but forms part and necessary for a phenomena to occur. On the other hand, using analytical analysis in this given definition, Di

Jaegher and Di Paolo pertain to enabling as "condition". When we use this term, it means a situation of phenomena. A state which is outside of phenomena, or here, it is whatever is outside of the phenomenon.

The second criticism is on how social interaction relates to social cognition. Many would question enactivism for its lack of our brains' role in social cognition. To answer this, De Jaegher and Di Paolo introduced the *Interactive Brain Hypothesis* (IBH). First, they clarify that even though they claim that neural processes do not solely determine cognition, this doesn't mean that enactivism means externalism or a paradigm that doesn't consider the brain as part of cognitive processes and gives more importance to what is happening outside. They still agree that the neural processes which happen in the brain are embedded in the body, and the body is of course embedded in this world. To simplify IBH, interaction with the world is not just an input process but rather means to shape our neural mechanisms. We can eventually use these mechanisms in our future interactions.

> "The function of the neural mechanisms involved in social understanding is derivative of the functions of neural mechanisms used in skilful social interaction. It is derivative in the sense that the practice of social interaction has forged social understanding mechanisms during development, allowing them to acquire functions that they would otherwise not have, and also in the sense of those mechanisms are in fact a specialization of brain mechanisms used during special interaction." (Di Paolo & De Jaegher, 2012)

As mentioned in the first chapter, enactivism believes that neural mechanisms are not pre-given nor pre-defined and the world is not just data content to be grasped by the cognizer. Interactions shape the mind and help the neural mechanisms developed. With this proposal, Di Paolo and De Jaegher insisted that neuroscience should seriously focus social interaction.

2.5 Refining participatory sense-making

Before concluding this chapter, I find it necessary to point out the important aspects of participatory sense-making. First, autonomy and adaptivity play the key roles in the completion of the process, especially in keeping the coupled system through the process of sense-making. When I say, complete participatory sense-making, it means that both interactors arrived at a unified meaning through their interaction. I believe that if either of

them is absent, it will lead to the failure of the whole process. Going back to my central question, it seems that although language and culture highlight our individual differences, autonomy and adaptivity help us to overcome this. Secondly, I tend to agree with Herschbach criticism that Di Paolo and De Jaegher failed to emphasize the differences between the three roles of interactions. Mechanistic perspective helps us accurately categorize the conceptual, enabling and constitutive factors. Using this approach gives us a good perspective on how these three roles differ from each other.

Lastly, IBH gives in clarity about the role of the brain based on the enactive process of cognition. Although it is not very clear whether enactivists consider it as the locus of cognition, the neural mechanisms that we developed through interaction, vis a vis, enculturation, says a lot in sense-making. The brain after all is not left alone in the process. Again, our brain's neural mechanism is not the center of our cognitive process.

2.5 Conclusion

In this chapter, I outlined the elements of participatory sense-making. I focused on different roles of interaction, factors that affect participatory sense-making, generation of meaning and factors that can affect sense-making. I also discussed in this chapter how language and culture can influence the process and in what level they can come into this interplay. By doing so, this can put us in the proper position to determine whether cultural and linguistic differences within dyadic interaction can affect the participatory sense-making. The next two chapters will do the critical analysis of language and culture.

Chapter 3 Language and culture in enactive social cognition

3.1 Introduction

This chapter will focus on linguistic and cultural analysis of social cognition within the enactive account. Using existing empirical studies, I will analyse how one's linguistic background affects social cognition. I will start my analysis by presenting studies that look into how language and culture contribute to the process of social interaction. I choose different studies conducted in various settings such as educational, social and at work. In my analysis, I will concentrate on the three essential factors of social interaction according to the enactive account namely autonomy, adaptivity and sense-making. With these, I will analyse the problem brought about by intercultural/interlingual communication in the elements just mentioned along with the cognitive process.

3.2 Linguistic and cultural differences in actual social interaction

A. *The ecology of intercultural interaction: timescales, temporal ranges and identity dynamics.*

The article introduces an ecological approach in studying cross-cultural interaction. The authors consider an ecological approach as a more appropriate way of looking at this kind of phenomena. This method also gives an opportunity those who study language to capture relevant empirical data since it introduces an ecological model of timescales. The ecological model is considered as a principled method that determines "what do cultures do to us, to our relationships and to the world that we inhabit?" (Uryu, Steffensen, & Kramsch, 2014, p. 41). They applied this method in an actual conversation that happened during a Thanksgiving dinner between a German, Russian and two Japanese interlocutors. The interlocutors center their discussion on the spread of the Ottoman Empire, the role of Germany, Japan and America during World War II, and the election of Joseph Ratzinger as the Pope.

The ecological approach involves a full spectrum analysis, including the cultural, societal and emotional complexity of cross-cultural encounters and not only participants' perspective. Excerpts of conversation in the said event was used to illustrate how to use this methodology.

[Excerpt 1]

169 Olga: One is, Ottoman Empire had a prosperous time

170 Bianka: Yes. In old time.

171 Olga: Yeah. They, you know, took a lot of part of Russia,

172 [a lot of countries,

172 Michiko: [Oh:::

173 Kayo: So the country went up north

174 Olga: Yeah, yeah.=

175 Olga: =Then, Russia, sent them back ((laugh))

176 Michiko: OK, I see:::

177 Kayo: Huge continent, [connected ((Chuckle))

178 Olga: [Yeah, yeah.

179 Michiko: Huh

180 Olga: So, why, I think it's (…) because of, because Ottoman Empire. (Uryu, Steffensen, & Kramsch, 2014, p. 48)

[Excerpt 2]

181 Bianka: O, o, Ottoman Empire, very seldom interfered. (1.0)

182 Michiko: inter-?

183 Bianka: they did not, ah, convert people.

184 Michiko: Uh-huh?

185 Bianka: they say, ''You live but have to pay taxes."

186 Michiko: Oh, [OK.

187 Kayo: [Ah, I see.

188 Bianka: So, they left them but for taxes.

189 Michiko: [Uh-huh.

190 Kayo: [That's wise ((Chuckle))

191 Bianka: [It is. ((Chuckle))

192 Kayo: [Clever. ((Chuckle)) (XXXX) but they want money ((Chuckle))

193 Bianka: Yes. ((Chuckle))

194 Olga: So, when they go, (0.5) so far (away), but they had money

195 Bianka: Even after Jews were expelled from Spain

196 [the Ottomans welcomed them even though they were Jews

197 Kayo: [Uh-huh?

198 Bianka: They went to Turkey.

199 Michiko: Yeah?

200 Bianka: So that does Muslims ((= that's what Muslims do))

201 Michiko: Because they can't keep their religion?

202 Bianka: Yes.

203 Olga: Uh-huh. (Uryu, Steffensen, & Kramsch, 2014, p. 50)

[Excerpt 3]

205 Bianka: And the Pope is now, I think, although a little, a little difficult

206 with Turkish government, the Pope is trying to reach the Orthodox

207 (0.5)Pope in Turkey now in November.

208 Michiko: [Yeah?

209 Kayo: [Huh?

210 Michiko: Really? The Pope is the German Pope,

211 and he wanna meet the Orthodox Pope?

212 Bianka: Yes. The Pope of Rome.

213 Olga: Oh, this is so (). He is, so, German, yeah.

214 Bianka: Yes, yes, yes, yes ((excited)) [((Chuckle))

215 Kayo: That's right

216 Michiko: [((Chuckle)) ye::s, that's right, yes.

217 Olga: ((Chuckle))

218 Kayo: That's right. ((laugh))

219 Bianka: For me, it's always [()

220 Olga: [Yeah, yeah, yeah ((Chuckle))

221 Kayo: ((Chuckle)) (Uryu, Steffensen, & Kramsch, 2014, p. 52)

[Excerpt 4]

221 Michiko: Isn't that a big thing for German people?

222 Bianka: Yes.

223 Michiko: [Yeah?

224 Bianka: [We have a paper

225 Michiko: Yeah?

226 Bianka: Bild means picture newspaper. It's a very cheap tabloid

227 Michiko: [Uh-huh?

228 Bianka: [This paper said, ''We are the Pope''.

229 Michiko: Ah? Really?

230 Kayo: ((Chuckle))

231 Bianka: Yeah.

232 Michiko: (Chuckle)) Yeah? But isn't that politically incorrect? ((Chuckle))

233 Bianka: ((distraught))Yes. . . Yes. . . (Uryu, Steffensen, & Kramsch, 2014, p. 52)

[Excerpt 5]

234 Bianka: But when he became the Pope, there was a problem . . .

235 Bianka: because ... he was ... ah=

236 Michiko: =He was, uh, Nazi?

237 Bianka: ((distraught)) [Nazi . . .

238 Kayo: [Oh, really?

239 Michiko: Yeah. But you know, that was, uh, they had to.

240 Kayo: [()

241 Bianka: [But at that time, everybody had to

242 Bianka: ((to Kayo)) Sorry. [I was interrupting

243 Michiko: [I know, I know (Uryu, Steffensen, & Kramsch, 2014, p. 53)

In the first excerpt, we can see how Olga as a Russian considers how Ottoman empire negatively impacted her country. She has a negative feeling towards this period, and this is in line 171. The authors pointed out that the reason for this is "first, because of marginalization of Eastern Europe by Western Europe caused by cold war and its persistent sequel in the minds of European. Secondly is because of the role America has played in bringing about this marginalization." (Uryu, Steffensen, & Kramsch, 2014, p. 49) In the given interaction, Olga tries to acquaint the Japanese interactors by giving them a history based on a Russian perspective. As described by the authors, "Olga tries to compress the intricacies of the cultural timescales into the timescales within a temporal range of a dialogical system. This interplay between the cultural and the dialogical surfaces as an emergence of Olga's Russian identity." (Uryu, Steffensen, & Kramsch, 2014, p. 49) Because of this, Kayo was also prompted to think about her identity as Japanese and determine whether she should use territory, language or physical criteria to define it.

In Excerpt 2, we can see in line 195 that Bianka is being critical, as Russian interlocutor, about European colonialism, favoring the Ottoman Empire. The authors understand that this feeling and their communicative style is the result of WWII and post-war history. She blames German's tainted identity to other European countries. (Uryu, Steffensen, & Kramsch, 2014) As we can see here, Olga and Bianka are both coming from almost the same autobiographical memory that influenced their behavior. (Olga towards the Ottoman Empire and Bianka towards some European countries.) As their interaction unfolds with Asian interlocutors, their national identity emerges which affects their communicative

practices, thereby affecting other interlocutors as well. Europeans way of thinking, which is manifested through their communication, made the Asians think what they should use as in determining their identity.

Another focus of the conversation in excerpt 4 is the elected German Pope. Bianka, who is German, was excited about the topic since she is a German but was later left distraught because of the "Nazi" comments of the other interlocutors about the Pope. Because of Michiko's willingness to engage and display her knowledge about European history, she unintentionally and insensitively applied the term that the Americans are using as general stigmatization in German. The term "Nazi" is an offensive word for the Germans because of its historical connection that continuously haunts them. This gave a feeling of disorientation and helplessness to Bianka. She was not able to explain that this practice is compulsory for every 14 years old in Germany during 1941. One of those who served in the 'Hitler Youth' was the Pope (Joseph Ratzinger) even though it was against his will. Based on the post-analysis of this interaction, the intercultural interaction was highly influenced by history. In Bianka's case, when the word 'Nazi' was applied to the Pope during the conversation, it makes her helpless because of the unfamiliarity of other interlocutors with its condensed meaning and history. This means that the use of a common language is not a guarantee that the speakers' words have the same value nor that the contexts evoked by these words are the same. (Uryu, Steffensen, & Kramsch, 2014) This statement echoes the hypothesis of this research about the effect of culture and language in participatory sense-making. Following the enactive paradigm, I'll analyse how the difference affects our sense-making in section 3.3.

B. Achieving Understanding in intercultural interaction

The second study I'll analyse is by Andrea Tyler (1995) and that involves a native Korean tutor and an American-English student. Like the first study, their interaction shows how autonomy, adaptivity, and sense-making in cross-cultural encounters are interwoven. This is how the actual conversation proceeded;

1 S: We have to write a program that scores bowling right?

2 T: mhn

3 S: the game of bowling And he want us to be able to put in like how many pins well do you know how to score the game?

4 T: Yeah approximately

5 S: OK Cause he has a little thing that tells you how See I don't know how to score (Shows pages on

handout) See I don’t know how to score

6 T: Oh you don't know how to score the bowling game?

7 S: unhuh I'm like just I've played Like I've scored a couple times but I'm not too good on it

(Then the student asks the tutor to read the assignment to himself. The transcript begins just as he finishes reading.)

8 T: uhmm Open, spare, strike

9 S: OK that has to do with the bowling game

10 T: Can you guess the amount you have to figure out?

11 S: That's what I need to know OK We're going to start from the beginning

12 T: OK

13 S: I'm going to tell you what I think the inputs are OK and you tell me whatever I need

14 T: mhn

15 S: OK First thing I need to input in the computer is like the number of pins? That gets knocked down by the ball?

16 T: mhn

17 S: OK Is that correct?

18 T: mhn

19 S: OK Next I need to input I guess I get 2 balls per game

20 T: 2 balls balls per frame

21 S: OK let me write these frame OK let me write these down

(Student writes. Then the students maintains maintains that there are always two balls per frame; the tutor explains the rules differently. The interaction continues as below)

35 S: OK Let me ask you a question Let's say you and I are playing right?

36 T: mhn

37 S: and I rolled a strike

38 T: mhn

39 S: On the first ball

40 T: right

41 S: First ball I rolled 1 get them all down

42 T: mhn

43 S: Would I go again or would you go?

44 T: doesn't matter In in in this in this a program

45 S: No but I just need to know that

46 T: I don't know exactly how how real play is played I think the

47 S: Oh ok then don't worry about it

48 T: Real pi aa real bowling game is played like this You have 10 frames OK? 10 frames and in each frame you are entitled 2 shots

49 S: right

50 T: OK 2 shots And if you knock down all the pins in first shot

51 S: mhn

52 T: you don't have to use the second shot

53 S: OK

54 T: OK So you move

55 S: OK

56 T: If you knock down all the all the pins you have to move on to next frame

(The tutor continues to explain the scoring in detail, including that there are three possibilities in each frame.

70 S: Is this for this? Do I need to know this? OK Do I input data (Student hits assignment sheet which is in front of the TA with pencil) inside of here. (Tyler, 1995, p. 149; Spencer-Oatey & Franklin, 2009, p. 83)

In line 4, we can see the tutor's response to the student's inquiry on the level of his knowledge on scoring bowling. His answer, "Yeah approximately," created an initial confusion because the English-American student understands that his level of knowledge is less then what is expected of a tutor. But in the playback session the tutor revealed that he is a good bowling player and he often plays it. But since he didn't elaborate his answer, it seems that he fails to acknowledge his expertise thus it prevents the student to infer necessary information within the ongoing interaction.

We can notice in the excerpt that the student adjusts to the conversation to accommodate her tutor who is a non-native speaker. Linguistic accommodation or adjustment to the non-native speaker is extremely important for achieving understanding. But Spencer-Oatey and Franklin warn that over-accommodation or under-accommodation could become problematic. Some accommodations that the student did are rephrasing and repeating her statement, say, in line 39 and 41 knowing that the teacher has limited vocabulary. Another is structuring and highlighting the information and commenting on what she is doing, and we can find that in line 11, 13 and 35. She also used discourse markers and often asked clarification. And so, the non-native speaker was able to adjust in the interaction. Here, we can see that at the linguistic level of interaction the student can readily adjust because she can read the situation by looking at the hand gestures or facial expression of the tutor. However, if we add culture into the picture, these communicative styles will not suffice.

C. Impoliteness in cross-cultural encounters

Another interesting study that focus on meaning in interaction, culture, and language is Juliane House's *Communicative style in English and German*. House focused on the concept of politeness because it is "one of the basic socio-psychological guidelines for human behavior and thus an integral part of human behavior." (House, 2006, p. 260) Here, she elaborated why Germans are often misunderstood as being impolite because of the way they speak. Apparently, for her, this is a misconception. We need to have a closer look into their culture to understand the way they communicate. She further explained that being polite in German involves directness, focusing only on self and anything related to the content, and linking utterances with the substance of the statement. If we know the different communicative style of both German and English, it will help us to avoid stereotyping and pre-judging. (House, 2006)

Here are some of the excerpts of the conversation from House's earlier work. The interaction is between a German professor and his Spanish student during an advising session. Here, the professor discusses and evaluates the work of the student. This interaction will give us an idea how Germans manifest this basic social behavior and politeness during conversation.

The transcription conventions are as follows: CAPITALS indicate emphatic stress; [ ] indicate overlap; ? Indicates rising pitch; (.) very brief pause; (x s) breaks of stated length in seconds; latching; (…) descriptive comment; @ indicates laughter, P Professor; S Student.

Data extract 2: Rejecting a request

S: So it would be better if I had some erm feedback from some of the professors I was thinking but

P: Erm so you mean that it should be helpful to have a letter?

S: Yaah

P: From me?

S: (3s)

P: No it's not usual to do so

S: okay so =

P: those students are search searching by themselves (House, (Im)politeness in cross-cultural encounters, 2012, p. 292)

Data extract 3: Disagreeing

S: So it is better to use this one because it is a basic medium and then you supplement it with glucose?

P: This medium was?

S: It is the same the same medium just different erm descriptions

P: NOOH

S: (5s) Okay (House, (Im)politeness in cross-cultural encounters, 2012, p. 293)

Data extract 4: Objecting

P: So what's this here it says (2s) bacteria strain medium and at the end suddenly comes erm (looks at paper)

S: 4s) I think the same one

P: NO you say here this base base in medium it's not complex

S: Medium okay okay then I fix this (House, (Im)politeness in cross-cultural encounters, 2012, p. 293)

Data extract 8: Interruption, aggressive repetition, sarcasm

P: So we are discussing your paper which is the summary of the results of the PhD work

S: Which I

P: Which WHAT?

S: Which I did for my PhD which I will hopefully erm publish soon

P: Yeah (dismissively) IF IF it will be accepted for publication

S: Hopefully it will be

P: (sarcastically) YEAH?

S: Hopefully yes (House, (Im)politeness in cross-cultural encounters, 2012, p. 294)

House encouraged everyone to also look into the history, philosophy, educational, political and legal system of not only German but also different cultures that affect individuals' behavior during interaction. Because different cultures may vary in concepts of politeness it results to various communicative styles. We can say then that culture is an integral part of language. Language serves as evidence on the diversity of our culture in every interlingual interaction. In the same article, House presented a model on how the idea of politeness emerges out of individual and collective processes. From biological to cultural and up to linguistic level. This concept is also consistent with the enactivist paradigm that traces how an organism evolves from its very biological foundation up to societal level.

3.3 Effect on autonomy

At this point we can now apply the discussion in the preliminary chapters and analyse how linguistic and cultural diversity affects the processes of autonomy, adaptivity, and participatory sense-making. I'll start with autonomy, which I think is the most important element in enactive social cognition, particularly in participatory sense-making because without it other elements will not be present.

Our goal at this point is to analyse the capacity of the individual in keeping his autonomy in an interaction with others having a different background. The studies presented above give us an idea of how diversities affect autonomy in actual interaction. Under the enactive paradigm, it is the capacity of the organism to regulate its environmental coupling, and in the level of social cognition, it is considered as the ability of an individual to regulate his interaction with other individuals. It is important to realize how it works within individual level and also in basic forms of life to understand how autonomy works in social cognition. As the enactivists would say it, "the enactive approach takes as its point of departure the organizational properties of living organisms that make them paradigmatic cases of cognizers." (De Jaegher & Di Paolo, 2007, p. 487) Looking at this given idea, we can see the importance of autonomy in a joint sense-making.

An autonomous system is said to have the following laws developed through its continuous interaction with the environment. In the process, it establishes its identity that is distinct from everyone else. We say that it can sustain its identity if it is operationally close. A system is operationally closed if for any process in the system (say P) we can find among its enabling conditions other processes that make up the system, and we can find other processes in the system that depend on P. This means that both systems sustain each other thereby creating a kind of unity. (Di Paolo, Rohde, & De Jaegher, 2010) An autonomous individual does not remain passive while there is an ongoing interchange of internal and external information, but rather, he actively organizes this flow while there is an ongoing process. Hence, "as cognitive systems, they do not only respond to the traditional perturbations in the traditional sense of producing the appropriate action for the given situation, they do in fact actively and asymmetrically regulate the conditions of their exchange with the environment, and in doing so, enact the world or cognitive domain." (Di Paolo, Rohde, & De Jaegher, 2010, p. 38) As an autonomous being, any individual can

choose, decide and even construct what rules and laws he will apply to himself to preserve his condition.

Regarding social cognition, De Jaegher and Di Paolo also believe that the process of interaction can take on a form of autonomy. They believe that interaction is not as simple as two individuals who are at the same time and place (intentionally or unintentionally). For them, if both interactors can manage the two avenues of influence, namely patterns of coordination and their continuing disposition, then we can say that they can move their autonomy to social interaction. When this happens, "individuals co-emerge as interactors with the interaction. It brings us to the further requirement for calling an interaction properly social." (De Jaegher & Di Paolo, 2007, p. 492) As mentioned in the preliminary chapters, the presence of both interactors should be on equal level and not overpowering each other. An autonomous system is capable of sustaining itself, even in precarious situations. Di Paolo and De Jaegher emphasize the role of *operational closure* in maintaining the autonomy. It is by finding another process in the system to help sustain the autonomous system. Inability to find organization or network within the system would cause its breakdown.

In the first study, Olga struggled while attempting to acquaint other interactors about their lack of historical and cultural knowledge about the Ottoman Empire. The authors believe that what she is doing, which is compressing historical facts into a very limited time is indeed problematic. But Olga's attempt prompted other interactors to reflect on their own identity using history as the basis of identity. The second study shows how the vague response of the Korean tutor in line 4 influences the rest of the conversation. But despite that, the student still tried to accommodate the teacher by using different communicative strategies throughout the conversation.

So how does it affect the autonomy both in individual level and social level? It is possible to keep one's autonomy in cross-cultural interaction, for instance, in a dyadic interaction one does not just lose his autonomy even if another interactor is coming from a different background. We can prove this claim using the cases above. Say, in the first study, the Asian interactors interpret the unfolding of the interaction based on their cultural background and reflect what basis they should use in determining their identity. Reflection is, of course, a conscious and autonomous action. The second study shows how the Korean tutor believes that his student understands him. Although there is a misunderstanding at the social

level, this doesn't mean his sense of autonomy is affected. We can see in the given cases that it is possible. But going back to Di Paolo and De Jaegher's participatory sense-making, they also consider operational closure as an essential factor in sustaining one's autonomy. It also serves as a loop to continuously maintain the interaction. This capacity is difficult to maintain in cases of intercultural interaction no matter how close two cultures are, there will still be a factor that can affect the individual's autonomy that will eventually cause its breakdown. How can one actively organize the exchange of information between external in internal processes of a person if he is unfamiliar with the ways things are said and done? This unfamiliarity then causes a breakdown of one's autonomy.

Regarding the autonomy of the coupled system, it is essential for the enactivists that interactors can control both patterns of coordination and their continuing disposition. Patterns of coordination pertain to gestures, intonation, nodding, facial expressions and others that are also present in the actual interaction. We learn these patterns of coordination from the community where we were raised. Dispositions are culturally inherited qualities of both mind and character that also affects the way people view the unfolding of events. These are also considered as particular ways of acting and considering things in a given society. Now, in the cases above, we can see how interactors struggle in balancing these two influences.

The first case shows that the interactors are acknowledging markers in the ongoing interaction. Say, for instance, when they saw the excitement of Bianka when they talk about the Pope. In the playback session of the interaction, one of the Japanese interlocutors, Michiko, said that upon seeing Bianka's excitement (Line 204) when they talked about Pope's visit in Istanbul, he immediately shared his knowledge to build rapport. Although they are aware that her excitement is not really about the visit but rather it is because the Pope is also a German like her. (Uryu, Steffensen, & Kramsch, 2014) This is an indicator that interactors were able to read Bianka's mind through her facial expression and probably the excitement in her voice when the topic about the Pope was brought up. We can say then that the first requirement was present in this case. They were able to follow the patterns of coordination, which helps in sustaining the interaction. We can also see this approach in the encounter of the American student with his Korean tutor, who used different communication strategies. Some of these, as mentioned earlier, is rephrasing and repeating her statement, structuring and highlighting the information, commenting on what she is doing, using discourse markers and clarifying things. In the last study, despite the straightforward way of

communication of the professor, the student tries to hold on the interaction as it progresses by pausing from time to time. He probably uses this pause to remind himself that his professor's way of communication is normal in German culture, hence, a way of his adjusting to the ongoing interaction.

But another important aspect is that the interaction per se should influence the interactors in return. In the given interactions, differences in cultural background limit the interaction in affecting the individuals. We can see this problem in the first and second study. In the second case, it is not very clear to the student what the level of expertise of the tutor is in playing bowling. In the first study, we see that Bianka felt helpless and disoriented after she heard the "Nazi" comment about the Pope. She realized how difficult it is to let the other interlocutors understand Germany's difficult situation in that short period. This problem is similar to their conversation about the Ottoman Empire wherein Olga tried to compress the richness of that history, but she still failed to connect to the Asian interactors.

At this point, we can see cross-cultural and cross-linguistic interaction effect autonomy in both individual and social level. Despite linguistic differences interactors can adjust and regulate the ongoing interaction that helps them to avoid the breakdown of the coupled system. However, keeping the autonomy in both levels (individual and social) requires that interaction also influence the interactors as well. In other words, interactors are expected that they understand the aspects of the interaction as it unfolds, and one aspect of this is interactors' background (both cultural and historical).

Following this line of thought, if interactors can sustain their autonomy despite the differences, will they be able to adapt to the potential coupled system for sense-making? I will discuss this question in the next section.

3.4 Level of Adaptivity

Adaptivity is another element of participatory sense-making. Before analysing how it works in intercultural communication, it is important to clarify first how it differs from autonomy. The simple explanation is that "if autopoiesis (or autonomy) suffices for generating a 'natural purpose' (Kant, 1790), adaptivity reflects the organism's capability – necessary for sense-making - or evaluating the needs towards that purpose." (Froese & Di Paolo, The enactive approach: Theoritical sketches from cell to society, 2011, p. 9) Both

autonomy and adaptivity are essential for sense-making. The term 'autopoiesis' means actively self-produced. Applying it to social cognition, we expect that an interaction will produce meaning shared by the interactors. It is adaptivity that serves as the bridge from individual autonomy to sense-making, which is the ultimate goal of the whole process.

Now, Froese and Di Paolo give two criteria on how an autopoietic system can move towards sense-making.

> "For an autopoietic system to improve its current situation, it must (i) be capable of determining how the ongoing structural changes are shaping its trajectory within the viability set, and (ii) have the capacity to regulate the conditions of this trajectory appropriately." (Froese & Di Paolo, The enactive approach: Theoritical sketches from cell to society, 2011, p. 8)

In short, adaptivity does not only knowing the direction of interaction but also actualizing it. In social cognition, we say that an individual is adaptive if he is capable of maintaining being coupled with another. One can do this by internal reorganization of constructive processes and by regulating an extended interactive cycling or sensorimotor adjustment.

As mentioned above, an autonomous system is considered to be adaptive when it is capable of controlling its environmental coupling. Adaptive autonomous systems are again, necessarily active rather than passive, "in that their inner workings have their endogenous dynamics and these systems actively regulate their interactions with the environment, rather than passively reacting to stimuli." (Herschbach, 2012, p. 470) Using the idea of autonomy, Di Paolo and De Jaegher applied this to the interaction of two or more individuals. In cases when interactors can maintain their autonomy, and the patterns of interactions remain autonomous, we can consider this as a social interaction. In this kind of interaction, it also involves different bodily coordination like walking rhythms, keeping the distance from the others, adjusting oneself in an ongoing conversation, and more. Since this coordination is also open for the possibility of breakdown, it paves an opportunity to be shared by interactors because as I mentioned earlier, part of sense-making is regulating the interaction of the individual with others. This regulation aimed towards establishing a coupled system without destroying the emergent interactors while keeping the relational dynamics of the system. In

enactive social cognition, this is what we call participatory sense-making. (De Jaegher & Di Paolo, 2007)

It is easy to coordinate and maintain a coupled system with an individual from similar background. However, the problem lies in the difficulty of possible coupling between people coming from different background. In Di Paolo's article, he defined it as "a system's capacity to regulate its states and its relation to the environment." (Di Paolo E. A., Autopoiesis, adaptivity, teleology, agency, 2005, p. 438) In this definition, we can see how coordination is necessary in maintaining high level of adaptivity. On the social level, we understand coordination as "the non-accidental correlation between the behaviors of two or more systems that are in sustained coupling, or have been coupled in the past, or have coupled to another, common, system." (De Jaegher & Di Paolo, 2007, p. 490) Now, how do linguistic differences impact or limit a adaptivity of individuals during social interaction?

Enactivists emphasize the importance of the environment in forming our cognitive structure. Now, part of our environment is of course language and culture. Firstly, enactivists are "committed to the idea that natural ways of acting both foster and come to be shaped and developed by customs, practices, and institutions." (Hutto, 2013, p. 281) This statement supports the idea of our embeddedness in the environment where we live. Also, Di Paolo and colleagues think that "individuals act and make sense following the acquired culture, norms and practices." (Cuffari, Di Paolo, & De Jaegher, 2015, p. 1100) Secondly, enactivists argue that language belongs to a "form of life" (Wittgenstein, 1958), which means that we cannot isolate language from its users since it is ultimately bounded to the people's activities and practices. We bring ourselves including our culturally inherited norms and practices into interaction through our language. Our way of communication not only tells a lot about us but also about the society in which we live. Hence, this supports the enactivists claim that cognitive beings and their environment are unified systems. If this is the case, this can be a problem in interlingual and intercultural interaction. Let us take a look at the examples given above to see how adaptivity is affected by these differences.

We can see in the first study how Olga and Bianka tried to compress the long cultural and historical time scale into simple temporal ranges to help the Asian interactors understand the context from which they are coming. She cannot simplify the history and implication of the Ottoman Empire and the conflicts of the Nazi period in a short temporal range. Although

we see that Asian interactors tried to accommodate and respond to this unfolding interaction, it is not enough. As we observe, the interaction fell apart eventually. The second study also shows the inability of both interactors to move from individual sense-making to joint sense-making. The American student tried using communication strategies to maintain his connection with her tutor. But since the latter is so embedded into his culture and not acculturated into Americans custom, he still thinks based on the context of his culture even he speaks English. Apparently, both interactors failed to control the direction of interaction. For the third case, House, in her earlier article comments about German's interactional behavior which is often equated to 'unfriendliness' as being impolite. She said that their interaction with non-Germans often leads to clashes because of misinterpretation. Based on the interviews she gathered, "many of the reported incidents of clashes along the dimension direct-indirect relate to indirect speech act that was responded to by the German speakers in a way that was expected by Anglophone speakers." (House, 2006, p. 225) We can infer here that this can be one of the reasons why German's interaction with others breakdown. Being unaware of German's communicative styles hinders the possibility of a coupled system. But aside from their linguistic form, it is more important to look in their culture since this will be an essential source in developing our communicative styles.

In the given studies, we can say that at some point they failed to move from individual sense-making to a joint sense-making. For this to happen, the interaction must be shared, especially when the participants are trying to infer meaning out of it. How strong is the effect of diversity in the actual sense-making? I will address this problem in the next subsection.

3.5 Differences in sense-making

There are many theories which consider interlingual communication as simple as pairing of words from one language to another. One of these is the code-model of communication. According to its proponents, using code-model communication can address the gap between two languages. They consider it as "a basic model of communication and expresses the idea that communication is the transmission and reception of information between a human source (encoder) and receiver (decoder) using a signaling system." (Blackburn, 2007, p. 233) Hence, if we can pair messages and signals from two different languages, then there should be no problem in communication. This is contrary to the pragmatic view of language. They believed that in human communication, not everything could be coded using language. Many aspects of it are left to be worked out by interactors

especially in intercultural communication. Participants focus on different clues when inferring meanings, and they may infer different meanings from the same clues. (Spencer-Oatey & Franklin, 2009) It only proves that meaning does not solely depend on words and terms used in an interaction. Cowley supports this idea who views language as symbiotic, where meaning is generated when "agent-environment dynamics arise as linguistic embodiment is managed under verbal constraints." (Cowley, 2014, p. 1) When we use language, it activates our cognitive ability and allows us to "permeate the scales of experience that bind people into a living meshwork that connects verbal pattern, social resources and acting in ways that change the natural world." (Cowley, 2014, p. 3) With this idea, we can say then that language is not limited to the words we hear or read and its meaning surpasses texts. There is a deeper meaning in language that is deeply connected to the people's culture, practices and norms that cannot simply be relayed in ordinary conversation.

Di Paolo and Froese consider the socio-cultural background of an individual as an important factor in understanding one's behavior. Socio-cultural practices are embedded in us, and we bring that to every interaction we make. It is here that socio-cultural background, in which the interaction and the unfolding interaction process are embedded, come into play. (Froese & Di Paolo, 2011) In the given example above, the Germans act the way they do because for them, that is the natural way of making sense of the situation and this way of sense-making is their pre-established socio-cultural practice. Another good example here is the differences between the way Chinese and British people responds to compliments. A study suggests that English people accept compliments every time they receive it. By comparison, Chinese people often reject or deny praise. (Spencer-Oatey, Ng, & Dong, 2000) Now how participatory sense-making can constitute or transform cultural differences?

Autonomy and adaptivity are necessary for participatory sense-making. But these are not enough to complete the process. Di Paolo reiterated the importance of coordination of regulation of mutual interaction, and the success of this regulation depends upon the mutual interaction. My argument is that interactors may maintain their autonomy despite the cultural and linguistic differences and able to somehow adapt to the interaction as it unfolds since each of them are capable of adjusting to the actual conversation using different communicative styles. But communicative styles can only reach the surface of consciousness of each interactor and cannot go deeper into the core where culture is embedded.

Culture influence human our behaviour. Thus, what language can do during interaction is to give way for an initial contact between interactors. In House's article, she stated what particular function language can do. For her linguistic forms are used to assess other interactors. These forms are attached to a context of a culture in which they occur. Every culture produces forms of frames that will manifest to interlocutor's way of expression. They can sometimes give us an idea about others' real intention. (House, 2006) In House's model, language is at the last stage where socio-cultural practices are applied to real world situation. The biological and philosophical level can be traced back to the early stages of development. Being a biologically inspired paradigm, I believe enactivists will be more interested at this stage of development because this is where an individual learns to practice his autonomy and adaptivity. In the third level, we come to acquire some culture-specific properties that become embedded in our behavior. Of course, there is already interaction at this level, but an individual here is more of passive than active responding to communication. If we ask at what level in social interaction we use our full faculty, I can say that it happens in linguistic level of development.

The idea is supported by Cowley's concept about the development of language. He argues that the verbal pattern comes out of cultural selection, and it replicates our local customs. This is the reason why individuals from the same community develop a unique way of communication, using language that sometimes has specific meaning. "Culturally selected words and biomechanics permit adults to enact norms used by agents with inbuilt biobehavioural powers. Thus, parents develop non-verbal means of, for example, calming children, urging them and promoting social events." (Cowley, 2007, p. 118) Going back to the studies above, we can say that even if the interactors adjust and use communication strategies, there we cannot avoid misunderstanding in sense-making between two interactors coming from different cultures with a different mother-tongue. We developed different communication styles from our culture, and when we bring them in intercultural communication the dynamics of interaction will help the participants to cope up in sense-making.

In the second example given above the reason why Spencer-Oatey and Franklin believe that the cause of disagreement is the different communication styles of both interactors, whereas the student is using a direct style of communication, the tutor is using an indirect style of communication. (Spencer-Oatey & Franklin, 2009) The tutor is hesitant to

use a direct way of communication because in Korean culture, he can be tagged as an arrogant person. Besides, the student's inability to understand in the context where the teacher is coming made the whole conversation problematic. “When people are used to a low-context, direct style of communication, they tend to have difficulty working out the intended meaning of other people’s indirect message, either because they are not aware of the possible need to do so or because they do not know how to interpret them.” (Spencer-Oatey & Franklin, 2009, p. 90) In the definition of participatory sense-making, Di Paolo and De Jaegher requires, "the coordination of intentional activity in interaction, whereby individual sense-making processes are affected and new domains of social sense-making can be generated that were not available to each individual on her own.” (De Jaegher & Di Paolo, 2007, p. 497) In the examples we used in this chapter, we can see how difficult it is for the interactors coming from different cultural and linguistic background to coordinate their intentions to each other.

The last study perfectly illustrates how culturally specific practice can cause misunderstanding in sense-making. German’s intonation and their direct and sometimes sarcastic way of answering questions, as shown above, often leads to the breakdown of coordination which affects sense-making. “It becomes clear that much of our sense-making in interaction relies on continuously appropriate coordination, since breakdown of such coordination can alter the meaning and progression of interaction.” (De Jaegher & Di Paolo, 2007, p. 498) This idea explains why others often misinterpret Germans. Even though their behavior may well be interpreted as impolite ‘from the outside,' ‘from inside' they may well be interpreted as behaving in a non-marked and ‘normal’ way in a German cultural context. This is almost similar to the first study discussed above. Lack of knowledge of the Asian interactors with some historical facts of European culture became the gap for generating a unified meaning.

Going back to the given Filipino-American war case discussed in the first chapter, we can see how differences can change alter meaning in a given situation. We can use essential elements of PSM to add fresh perspective into this. First, at the individual level, autonomy seems to be at lost since both of the interactors are unable to unable to understand each other. Again, autonomy refers to the self -constitution of a system through its internal and interactive activity. The misunderstanding caused by differences made the participants unable to give a proper response to each other. Internal processes seem to be incompatible to the to external input thereby results in the breakdown of autonomy of both interactors. This is an

attempt to form a social interaction but since the conditions are not met namely, (i) there should be co-regulations at the level of interaction dynamics that takes on an autonomous organization; and (ii) the autonomy of the individuals participating in the interaction is not destroyed in the process (De Jaegher & Di Paolo, 2007, p. 493), the interaction results to an ultimate breakdown. Both participants are anxious that destroys the dynamicity of exchange between them. There was not even a proper initial dialogue between the interactors. In any interaction, tension and vulnerability are always part of it, and it is up to the interactors to control it. Not being able to do so will automatically lead to break down of interaction. Inability to respond to each other whether its verbal or through other ways is a treat to both participants and the interaction. Following De Jaegher's et al.'s example,

> Imagine a couple dance: one cannot lead unless the other assumes the role of follower, and if one participant does not contribute to the moves, it would be like carrying a doll across the dance floor. Thus, not only the interaction process is autonomous in terms of its internal organization, it also depends crucially, on the autonomy of the individuals participating in it. In this way, for enaction, interactional organization requires both interactional and individual autonomy. (De Jaegher, Peräkylä, & Stevanovic, 2016, p. 6)

We can infer that the reason for breakdown is due the unfamiliarity of both interactors to each other's way of communication. The ability to balance the demand of personal and social interaction is the key in a successful sense-making. "Balancing interactional and individual autonomy and vulnerability or precariousness, is therefore a matter of co-regulating the interaction, and of regulating one's participation in interaction." (De Jaegher, Peräkylä, & Stevanovic, 2016, p. 7) Breakdown of interaction is not always bad. In some occasions, it serves as a wake-up call for both participants to focus more on the ongoing interaction as it progress. In this case, we can say that linguistic and cultural background highly influence them thereby which leads to the failure of interaction. To address this concern, enactivists suggests the importance of enhancing comprehension such as fine-tuning their expectations about the phonetic and syntactic features a language has in different context. (De Jaegher, Peräkylä, & Stevanovic, 2016, p. 6) This shows that enculturation should always be part of educating young minds. It is important in intercultural and interlinguistic communication. Without this, interactions like this will tend to fail. Indeed, social cognition is not only a brain event that interplay of individuals bringing their

backgrounds within the interaction. This is something that the individualist-internalist-cognitivists should understand and take into consideration.

Now, how do the three critical roles of social interactions namely *contextual, enabling and constitutive* pair in the given cases above? How do language and culture affect these critical roles of social interactions? It is important it is important to note that De Jaegher and Di Paolo presented these roles to show that cognition does not only happen in the individual cognitive mechanisms but rather it is participatory. First, by considering intercultural interaction as contextual, we can see that language and culture can cause misunderstanding between two interactors. Cognition in this context might be a challenge since unity of meaning is difficult to achieve. In this coupled system, coordination and attention are much more required to make this social cognition work. Secondly, constitutive elements are the interactors gathered together. Now each interactor contributes to form this social system Since they have different cultural background each participant should pay more attention to the ongoing exchange of ideas to avoid misunderstanding. Differences in culture then, enable more the participants to exert extra effort in sense-making in this kind of interaction. Lastly, by looking into this kind of interaction as enabling, the success or failure will depend on how much effort interactors will exert. This kind of social interaction might be a significant challenge to both cognizer, but when successful coordination is achieved it will lead to greater and new understanding.

With these, I can say that the reason is not solely coming from the linguistic level since this is just the surface of the whole problem here. It is not also because one is not so much adept into the language being used but rather one or both of the interactors don't have enough knowledge of the culture of each other. Interactors can adjust and use some communication strategies in an ongoing interaction because they can see and hear others as they talk. But one cannot easily capture the norms, practices, and customs that is part of language of an individual. This then, points us to another important question in interlingual and intercultural participatory sense-making. Is there a possibility for a unified meaning in an intercultural communication? I will be discussing this in the next chapter.

3.5 Conclusion

Language and culture are undeniably essential elements of sense-making, although, at times it causes misunderstanding. In addressing issues of interlingual and intercultural sense-making, I propose that we trace back the process of human development and see when does culture become an integral part of every individual. As presented above, culture comes at the early stages of our development. It comes along with practices, customs, and different norms that were introduced to us until they become integrated to us. Language comes in the later part of our development. As mentioned earlier, although our language connects us to culture, it can only capture limited aspects of a phenomena and will overlook the essential aspects of sense-making.

In cross-cultural communication, we need to look at the other factors of interaction. Meaning does not only being communicated through verbal or written language. We need to keep our eyes open to different metalinguistic messages that equally contains essential meaning in that can contribute a lot in the process of participatory sense-making.

Chapter 4 Back to enactive social cognition and its implication

4.1 Introduction

This final chapter will be a short review of the enactive paradigm, participatory sense-making, and will draw out the implications of intercultural and interlingual interaction for enactivism. How will my study contribute to the enactive account of social cognition? And what are the implications of my research for other related disciplines? The first section will discuss how we should now consider participatory sense-making, given that we cannot avoid intercultural communication. As discussed in the previous chapter, the problem starts at the linguistic level. If this is the case, then what detour can we make to achieve unity in sense-making? Looking forward, what can be the possible implications of this study to other related fields? I'll address these remaining questions, in this final chapter.

4.2 Drawing interlingual and intercultural participatory sense-making

Illustrating participatory sense-making between two interactors from a similar background is easy. Once the autonomy of both interactors is present, and their adaptivity to the coupled system is maintained up until to the generation of meaning, we can readily imagine how the process of participatory sense-making works. If these elements are present, we can easily attain coordination. Once proper coordination is maintained, it will give way to sense-making of both interactors. But this isn't the case in interlingual and intercultural participatory sense-making. Individual's autonomy may be there, but as the interaction unfolds differences affect adaptivity and eventually sense-making.

Steiner and Stewart find participatory sense-making problematic due to its lack of sociality. Tom Froese and Steve Torrance discuss and address this problem in one of their works on enactive cognition. As they presented, Steiner and Stewart find participatory sense-making as radically flawed and much more limited in the extent of its application than its proponents are claiming. First, participatory sense-making fails to consider social norms that set the context in everyday interaction and is in the very fabric of social environment. (Froese & Torrance, 2011) Aside from that, for Steiner and Stewart, norms "give rise to regularities that seem natural to those following them. When they are made explicit, norms may take the form of prescriptive/proscriptive/permissive statements; but most of the time they are implicit." (Steiner & Stewart, 2009, p. 536) Their second concern moves away from the role of autonomy in interaction. Rather it focuses on its heteronomy. These factors bring different

constraints to the interaction between individuals. Heteronomy is defined here as "the relations between cognitive individuals and the normative order of significance instituted in their social *Umwelt*." (Steiner & Stewart, 2009, p. 531) And, if we go back to the discussion on how participatory sense-making works, these similar constraints causes breakdown of a coupled system that eventually gives way to coordination in sense-making.

Froese and Torrance believe that we can reconcile the disparities between Di Paolo and De Jaegher's participatory sense-making and Steiner and Stewart's idea of social normative order. They used the example of the situation where two people are walking towards each other along a confined passageway.

> "The PSM account will refer to this situation as involving an independent dynamic of interaction, which has its own autonomy, which in turn constrains the activities of the individual participants in the case. Clearly, to the extent to which the individual participants in such a corridor scene are subject to his dynamic, they are heteronomous with respect to the dynamic itself." (Froese & Torrance, 2011, p. 43)

Heteronomy is a feature of participatory sense-making, although its proponents only focus on autonomy. In an interaction there are factors that shape and give direction as it unfolds. But concerning the interactors, there is also a certain degree of autonomy. On the other hand, we can equally consider pre-existing normative orders (interaction is heteronomous because of this, according to Steiner and Stewart) as autonomous, given that it can provide context and meaning in the interaction. In short, social interaction can be viewed as autonomous or heteronomous, relatively. Froese and Torrance reiterated that supra-individual structure in social normative order could be considered as autonomous since it enables individuals' actions and it is capable of having its own life. "Conversely, individuals are heteronomous concerning the overarching structure, because of the constitutive, enabling role each structure has on their activity." (Froese & Torrance, 2011, p. 43) This structure is again pertaining customs, practices, and institutions. Steiner and Stewart's critique on participatory sense-making is reasonable, given that Di Paolo and De Jaegher were not very explicit on the uniqueness of interactors in any given encounter. Although like what Froese and Torrance did, we can infer that Di Paolo and De Jaegher implicitly acknowledge social norms of people coming together in participatory sense-making.

Based on intercultural studies and social normative order, we can say that there is a need to consider interactors' differences (or in social normative order's term, their heteronomous character) when they are subject to different studies. If we won't be able to do it we will also fail to capture the essential elements and richness of a given phenomenon. Social normativity, including culture, practices or any belief system are equally important as the autonomous agents in any sense-making. This research neither argue to refocus nor change the center of interaction, but rather to include language and culture that continuously shape our cognitive mechanisms. As living cognitive beings, we should not be studied apart from these two factors since they are part of our environment. The principle of enactivism shows how the relationship between organisms and their environment creates change to each other. Going back to autonomy, adaptivity, and sense-making, how does this ongoing discussion implicate them under the enactive account of social cognition?

Autonomy, as mentioned earlier, can be of two types, it can be of the agents, or of the coupled system which is capable of taking a life of its own. A coupled-system is composed of autonomous systems that is why it can be considered as heteronomous from a different perspective while not contradicting other's claim. Autonomy of an individual can quickly move to the autonomy of the coupled system, given that there are a few differences. But it is not the case in intercultural communication. As mentioned in the previous chapter, to maintain one's autonomy, it will require another interactor to have at least similar system and that both are equally dependent on each other to sustain themselves. This requirement is a challenge in cross-cultural communication. The language that we use that is embedded into a different culture intensifies the heteronomous character of a coupled system, since it determines the meaning of behavior or ways of communication. Steiner and Stewart clarify that heteronomy because of norms, customs and practices are not impositions from above but exist together with interactors.

> "Heteronomy is not being subject to natural laws or the object of external causation but, in a non-deterministic fashion, abiding by norms that define the meaning of what we do and that regulate our behaviours. Heteronomy is not being the object of some determination or command. It is relying on structures that are both constraints and resources for new behaviours." (Steiner & Stewart, 2009, p. 523)

When autonomy is threatened because of cultural of linguistic differences, our adaptive capacity automatically comes into our aid to sustain it. However, as I've mentioned in the previous chapter, it can be inferred from the studies we used that adaptivity using communication strategies can only help us at the linguistic level of communication, and cannot easily penetrate the core of the individual where inherited cultural characteristics lie. We use different frameworks in interpreting actions. However, awareness of one's cultural background does not happen instantaneously. It requires a lot of time and actual interaction with the people where that culture belongs. "This framework is not, and could not be, invented by the individuals on the spur of the moment: it is a social resource, and as such is inherited." (Steiner & Stewart, 2009, p. 454) This is a real challenge in intercultural communication.

With this, we expect that generating meaning in cross-cultural communication can be a bit complicated. It is not because there is no way of bridging it, but rather these differences will tend us to interpret the unfolding of events in a unique way. As the enactivists would say it, communication happens when proper coordination is achieved between interactors.

> "There is "communication" if, but only if, the combined effects of the conditions that trigger the emission of signals, and the precise nature of the corresponding modulation of behaviour, leads to a coordination of the behaviours that significantly contributes to the viability of the interacting organisms, i.e., to the maintenance of their autopoiesis. Merely epiphenomenal "coordination" (for example, synchronization of behaviours) that has no impact on viability does not count as "communication" under this definition." (Steiner & Stewart, 2009, p. 541)

Using the concept of autopoiesis as the basis in the enactive paradigm, it gives us an idea whether communication will be successful or not. Interaction doesn't always connote communication. Exchange of words does not guarantee a successful sense-making. Intercultural and inter-linguistic communication requires more than that. "It is the acceptance of the constraints of social structures that enable individuals to enter new realms of common meaningfulness." (Steiner & Stewart, 2009, p. 547) The first step towards this success is to realize how heterogeneous our every interaction is, and from there, our tendency is to look for possible means to keep our autonomy.

4.3 Possibility of unity in sense-making

After presenting the possible problems in cross-cultural and cross-linguistic interaction, we can now discuss whether there is any possibility of a unified sense-making. What else can we do to enhance the sense-making for diverse participants? Di Paolo and Froese suggest that it is through enculturation that we can incorporate cultural heteronomy to address the problems in this kind of interaction. (Froese & Di Paolo, 2011, p. 25) However, to learn a culture will take much of our time. And, in this fast pacing world, we cannot avoid interacting with people with different cultural backgrounds in our everyday lived situation. The world is getting smaller because of multi-cultural and cross-cultural interaction. We need a communication style that we can use instantaneously in any given situation.

Perhaps going back to enactivists' principles can give us idea on how we can bridge these culturally diverse interactors. Returning to the underlying mechanisms of organisms will serve as the as the model on how cognitive beings can maintain autonomy despite unfamiliarity. Maybe we should shift our focus to other elements of communication instead aside from our written and verbal language.

As cognitive beings, we can trace the beginning of our development from the society where we belong. It is not only verbal language that we inherit from it. We also learn non-verbal ways of communication that when applied to actual interaction brings more meaning to sense-making. Stewart calls these "metalinguistic messages". (Stewart, 2010, p. 16) We learn these at the very start of our development before our language, and we can say that this is something much closer to our culture because we tend to use this non-verbal communication even when we use another language. Following the idea of Maturana and Varela, (Maturana & Varela, 1980) language is just a "second order metacommunication, *a coordination of coordinations of actions* which has an effect of taking a distance from the action itself." (Stewart, 2010, p. 16) Now, it gives us more reason to make a detour to resolve the gap between interlingual communication. By doing so, this can probably bring us closer to a unified meaning in any inter-linguistic communication. Stewart considers metalinguistic messages as more important than our ordinary language. For him, "these metalinguistic messages are absolutely vital for linguistic intercomprehension, on this account are often replaced by facial gestures and mimics: frown, a deliberate silence, a nod of the head, winking the eyes, and so on. They are not words but are actually at the core of what is

characteristically linguistic." (Stewart, 2010, p. 16) With this, what communication style can we use to maximize these metalinguistic messages that is much closer to culture?

John J. Gumperz (1992) asserts that in every language and culture there are linguistic forms that serve as contextualization cues which signal the listeners on how to integrate information into an ongoing discourse. Because of this, listeners expect a certain pattern that comes with a linguistic code and associate these patterns with pattern-specific or culture-specific conversationalised interpretations. If these cues such as intonation, stress, accent, pitch, tempo, pausing and the likes do not occur into in the conversation in an expected pattern, it will create confusion in either of the interactors or both. This idea is another reason why we should focus more on this these metalinguistic messages.

Going back to Spencer-Oatey & Franklin's article, they believe that managing rapport can resolve intercultural conflict in communication. Here rapport pertains to "people's subjective perceptions of (dis)harmony, smoothness–turbulence and warmth-antagonism in interpersonal relations, and we use the term 'rapport management' to refer to the ways in which this open (dis)harmony (mis)managed." (Spencer-Oatey & Franklin, 2009, p. 102) In doing so, participants can rely on different contextual variables, attentiveness like focusing on people's face, behaviour and goals. It is also important for a person to know how to regulate emotion in intercultural interaction which means not be overly (in)sensitive as interaction unfolds.

From an enactivist point of view, they call it as pre-existing order of shared practices and like what we discussed in the previous chapter, being into intercultural and interlingual communication can be both enabling and constraining. Enabling because "taking part in shared practices requires the alignment of an individual's autonomy with pre-established normativity." (Froese & Di Paolo, The enactive approach: Theoritical sketches from cell to society, 2011, p. 28) On the other hand, this kind of interaction opens a lot of possibilities to both interactors as they attempt to find creative ways in resolving different constraints.

In reality, we really cannot expect a fully unified sense-making between interactors with different linguistic and cultural background. The most we can do is to focus on elements other than the language being used in interaction. By doing this, we might come closer to the

culture embedded at the core of everyone that can give us a better understanding of what others mean and their intentions.

4.4 On psychology and education

This research topic paves way to new interesting questions, especially on education and psychology. Although many researchers in these fields have started using the enactive paradigm as a framework for their studies, (Sriraman & English, 2009, p. 42) (van de Gevel & Noussair, 2013, p. 21) there are still things that we can do to enhance our cognitive ability further. We can say that learner-centered style in education is one of those approaches that follow the enactive paradigm. There has been a significant development in the recent decade following the principle that the environment in which the learner is situated, is equally important in developing pedagogy. Constructivism, for example, is becoming a popular paradigm of education that started in Europe, and it's now becoming popular in the world because of its effectiveness. Proponents of this theory believe that it is through experience that we develop our knowledge. Based on this description, we can see how enactivism and constructivism are closely related. Constructivism describes both what knowledge is and how we learn. The theory considers knowledge not as truth to be transmitted but as emergent, developmental, nonobjective, viable constructed social communities of discourse.

> "Learning from this perspective is viewed as a self-regulatory process of struggling with the conflict between existing personal models of the world and discrepant new insights, constructing new representations and models of reality as a human meaning-making venture with culturally developed tools and symbols, and further negotiating such meaning through cooperative social activity, discourse, and debate in communities of practice." (Fosnot, 2005, p. i)

In sum, we can say that constructivism and enactivism are parallel because first, constructivism rejects that knowledge is transmitted and secondly, this theory proposes that it is through interaction with the environment and others that we generate meaning. Following these principles, how should we develop teaching pedagogies to further improve and nourish children's intellectual ability?

First, we should give more emphasis on interaction than following the traditional style of education. The traditional style of education focused on the teacher being the center of the

learning environment. The full responsibility of designing the content of the curriculum is the teacher. They regard the students as having 'holes in their brain' to be filled with knowledge. (Novac, 1998) In sum, the teacher is considered as the source of learning process. "Development, and therefore learning is essentially endogenously self-generating process; it is, therefore, unnecessary – and impossible – to 'instruct' it from the outside." (Stewart, 2010, p. 9) This traditional style of teaching is said to be ineffective on many different levels. It fails to recognize the uniqueness of each learner or the homogenous character of every interaction. Education should not be a one-size-fits-all system. Hence, one of the principles of pedagogy should focus on nurturing the potential of every individual based on their unique skills and capacity. The traditional style of education may be useful for few learners but will never be for everyone. Also, not considering the environment where the students came from in developing pedagogy is a disrespect to their totality as a person. This points us to another implication of enactivism to education. Education should be contextualized. When I say contextualized education, it means teaching based on the knowledge that students previously acquired, and the curriculum should be tailored based on what they need. Enactivists would say that the environment can tell about the person, so why not use this in developing pedagogy as well. As mentioned in the previous chapter, language and culture form part of this environment. In sum, it is just right that the medium of instruction in educational settings should be the mother tongue of the learners, especially at their early stage of development. And, we should consider cultural background of learners in developing pedagogy. This doesn't mean that we should avoid children being exposed to other culture. Using this approach help early learners to be prepared in multicultural interaction. As discussed in the previous chapters, using our own language gives us sense of autonomy and therefore help us to adapt in an ongoing interaction. Once they understand abstract concepts such as the idea of vocabulary and grammar, they will be more ready to learn and adapt other to language and culture.

Jim Cummins believes in the importance of using one's mother tongue as medium of instruction in the classroom at the early stage of cognitive development. He argues that using this approach not only enhances learners' knowledge of the language but more, they also learn intellectual skills that are relevant to the majority of language. Students who come to school with a solid foundation in their mother tongue develop high literacies in school language. Moreover, Cummins argues that children's mother tongue is a strong predictor of their second language development. (Cummins, 2001) It follows then that if the mother tongue is not

developed, the second language cannot be mastered because the students lack cognitive skills required to learn other languages. By mastering our native language, we learn skills that can equally be helpful when we are learning or using other languages. Following this idea, this can be another way on how we can reduce the conflict of cross-cultural communication. Cuffari, Di Paolo and De Jaegher argue that when we learn how to make sense using language, we also learn how to adjust and adapt in the unfolding of interactions. "Languaging for them is a kind of social agency that emerges from the interplay of coordination and exploration; the outcome of this interplay is a practice that transcends the self-other boundary and enables agents to regulate self and other as well as interaction couplings while incorporating a community-wide normativity at the level of social acts." (2015, p. 1110) Here, we can see how enactivism supports the idea that our skills we acquired in our native language can also be transmitted in intercultural and interlingual communication.

This is challenge for the educational institutions. How they can appropriately design pedagogy that recognizes learners' embeddedness in their culture? As mentioned earlier, constructivism is a good example of a theory that is parallel to this approach this is also consistent with principles of enactive social cognition. This brings us to another important question; how can we extend constructivism as a pedagogical theory into inter-linguistic communication while constantly following enactive paradigm, especially now that the world becomes highly multicultural. Also, this opens a new research opportunity for interrelated disciples namely philosophy, cognitive science, psychology and education. As the enactive paradigm puts cognitive beings and their and experience at the center of cognitive development, this gives more opportunity to nurture the skills and abilities we acquired from our community.

4.5 Conclusion

In this final chapter, we can see one of the implications of the enactive account of social cognition or participatory sense-making to education. Given that any interaction especially intercultural communication has a heterogeneous character, it is an imperative that we should create means on how we could overcome this potential gap. The heteronomous nature of interaction could generate different meanings for interactors. What we could do best is to make it closer is to keep ourselves open to other essential elements such as metalinguistic that we acquired from our culture that gives sense to language as well. Indeed,

cooperation from different disciples is necessary to address critical issues in multicultural interactions.

Concluding Remarks

Language and culture play important roles in participatory sense-making. Interaction generates meaning because of them. Without these two essential factors, interaction is nothing but a mere sharing of time and space between minds within bodies. In participatory sense-making, they both enable and constrain the process of communication. This thesis mostly focused on how language and culture constrain the process within intercultural interaction and from there, provided appropriate ways on how we can bridge the gap of intercultural communication.

By focusing on three essential elements of participatory sense-making namely autonomy, adaptivity and sense-making, it provides a good perspective, showing how cognitive beings move from being an autonomous individual to a social interactor. With that, we can easily pinpoint the cause of the breakdown in intercultural interaction and determine how we can address the problem.

At the core of every individual, we can see that culture is deeply embedded during the process of development. Practices, norms, and traditions are instilled in us at the early stage of our development. It influences the way we interact with others, and thus, it becomes embedded to us. At this stage, we start to become acquainted with the meaning of actions like gestures and expressions being used within the community. At the age of 6, children present well-developed language skills wherein they possess basic vocabulary, virtually complete phonological production ability and correctly understand the use of basic grammar. Following this idea, we can infer that adjusting to one's cultural background is more challenging than one's language. There are a lot of communication styles that have been suggested, and so far, they can only aid to the gap brought about by language. The reason for this is not because of their insufficiency, but rather, we tend to forget that meaning is not in the written and spoken language but mainly taking its sense from our culture, practices, tradition, and norms where the interactors were raised. Our minds are deeply embedded into the environment, and so, we will use it as a reference during an interaction. If we attempt to make sense and only focus on language, then we lost essential elements that that serves as one of the important sources in participatory sense-making.

Enculturation is the best way to address this gap, but this doesn't happen instantaneously like moving data from one storage going to a computer. And as we know, cross-cultural interaction is inevitable since almost every country is multiculturally populated. Although language opens the initial contact between interactors, it can (sometimes) mislead us from the interactors real intention. This idea is not to disregard the importance of language, but using the lens of enactivism to cognition, we know that engagement and interaction that include material and social world (re)shape the functionality and structure of the brain. It means that it is necessary to use culture as a reference during an interaction, we can do this by focusing on metalinguistics that is present in intercultural interactions. By doing so, it will help the interactors to continuously loop their autonomy to each other, and thereby making for them quickly adapt to the ongoing interaction.

Sense-making is possible between interactors who do not sufficiently share cultural background. Although this type of interaction requires more than those interactions between individuals with the same background. If the interactors are able to are able to maintain their autonomy by using different communication styles or techniques, they can also keep the autonomy of the interaction.. An autonomous interaction means that both interactors help each other no matter how vulnerable this social interaction may be.

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