



A Systemic View on Emotion and Reflection in Language Teacher Education Research

Uma visão sistêmica sobre emoção e reflexão na pesquisa sobre formação de professores de línguas

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ABSTRACT: This article aims at looking into the inter-relationship among emotions and language in reflective processes fostered by qualitative research in language teacher education. My goal is to advance our understanding of this phenomenon with an assemblage of conceptual tools such as languaging, emotioning, conversation, reflection and orthogonal interactions. Based on Maturana and Davilla's (2009) Matrix of Human Existence, I put together a conceptual model that may help researchers further understand and foster structured reflective spaces about emotions in language education. I discuss some challenges of our post-modern bio-cultural age and offer the practice of liberating conversation as a means to move forward. I then discuss some studies from the literature of emotions in language teacher education in light of the conceptual framework presented based on Maturana (2001, 2004) and Maturana and Davila (2009). Finally, I draw some implications and highlight the importance of this theme for the present moment.

KEYWORDS: emotions; reflection; biology of knowing; language teacher education

RESUMO: Este artigo visa analisar a inter-relação entre emoções e linguagem em processos reflexivos promovidos pela pesquisa qualitativa na formação de professores de línguas. Meu objetivo é avançar nossa compreensão deste fenômeno com um conjunto de ferramentas conceituais como linguagem, emoção, conversação, reflexão e interações ortogonais. Com base na Matriz da Existência Humana de Maturana e Davilla (2009), articulo um modelo conceitual que pode ajudar os pesquisadores a compreender ainda melhor e fomentar espaços estruturados de reflexão sobre as emoções no ensino de línguas. Discuto alguns desafios de nossa era biocultural pós-moderna e ofereço a prática da conversação liberadora como um meio de avançar. Em seguida, discuto alguns estudos da literatura sobre emoções na educação de professores de línguas à luz da estrutura conceitual apresentada com base em Maturana (2001, 2004) e Maturana e Davila (2009). Por fim traço algumas implicações e destaco a importância dessa temática para o momento atual.

PALAVRA-CHAVE: emoções; reflexão; biologia do conhecer; formação de professores de línguas

1 Introduction

Emotion and language belong together. These phenomena are both the heart and mind of beliefs and reflection processes. Indeed, emotion lies at the centre of language and our actions. Although in the past emotions did not use to be a hot topic in Applied Linguistics, as mentioned by some authors (BARCELOS, 2015, 2020a/b), nowadays we have observed an increase in research (BARCELOS; RUOHOTIE-LYHTY, 2018; OLIVEIRA, 2021; ZEMBYLAS, 2014). In Brazil, although studies that address the role of emotion in language learning and teaching in Applied Linguistics still remain few and recent, we have observed a growing interest with an increase in research (see REZENDE, 2020; OLIVEIRA, 2021). This seems to accompany a growth of studies in several parts of the world (BARCELOS; RUOHOTIE-LYHTY, 2018).

In the state-of-the-art review on emotions in language teacher education in Brazil, Barcelos and Aragão (2018) identify an increase of studies in three main theoretical perspectives: 1) post-structuralist, 2) biology of knowing, and 3) sociocultural. The authors conclude that emotions tend to be negatively experienced by language students, student-teachers and teachers alike. The most recurrent negatively experienced emotions reported by student-teachers and teachers are anxiety, shame, loneliness, fear, insecurity and frustration. These negatively experienced emotions tend to be related to the structural and hierarchical aspects of schools in Brazil and to the low status of the profession (BARCELOS; ARAGÃO, 2018; RUOHOTIE-LYHTY, M.; ARAGÃO, R. C.; PITKÄNEN-HUHTA, A., 2021). In addition, teachers' sadness and frustration with students are related to the low status of English within Brazilian society and to working conditions in schools (BARCELOS; ARAGÃO, 2018). Moreover, the authors above argue that results from several studies have indicated that a teacher education model that considers the promotion of reflection based on the cognition-language-emotions relationship can lead to positive transformations and help teachers deal with these negative emotions that they experience (BARCELOS; ARAGÃO, 2018, p. 519).

Zembylas (2014, p. 2010-212) argues that, although reflective practices have been used in teacher professional development worldwide in order to improve the quality of teaching practice, there have been a few recent criticisms that reflection has been mainly researched as an unemotional process. According to the author, even major theoretical frameworks of reflexivity in the social sciences have primarily focused on cognition and rationality, while avoiding a

discussion of the emotional aspects of reflexivity. However, a few have argued that emotions are central to reflexive processes (see HOLMES, 2010). Zembylas (2014) goes on to affirm that, by recognizing the emotional elements of reflection, emergent is the understanding of the mechanisms with which teacher reflection really occurs and may become a subversive strategy to resist against the various forms of attack and oppression towards the teaching profession.

Brazilian studies that have been based on the cognition-language-emotions relationship such as Aragão (2007, 2011, 2019), Coelho (2011), Rezende (2014), Martins (2017), Silva (2020) and Souza (2017) reveal that the active process of listening to one's emotions helps to give meaning to emotional experiences as well as their relationship to beliefs and their effect on practices. Through these processes, feelings of self-worth, confidence and self-reliance emerge. When these emotions take place, pre-service and in-service language teachers can deepen their reflective practice, question beliefs, problematize discourses as well as understand the consequences of certain conscious emotions and beliefs in their practices. In addition, as I will argue here, they can become responsible for the consequences of knowing about their emotions, their wants, preferences, desires, beliefs and interests. Likewise, the importance of a supportive, emotionally safe environment where teachers can find strength to deal with difficult emotions and limiting beliefs has been suggested by a few authors (ARAGÃO, 2011, 2019; PAPP ET. AL., 2017).

Barcelos and Ruohotie-Lyhty (2018) review studies of emotions and beliefs in second language teaching highlighting their main characteristics, theoretical framework and major results. They overview ways in which emotions and beliefs are interconnected and how this understanding can be used to support language teacher education. They suggest three major implications for research on teachers' beliefs and emotions in language teacher education. First, language teacher education needs to recognize the importance of the role played by beliefs and emotions in the trajectory of language teachers' identities and in their decision-making process. Second, it is necessary to consider emotionally and cognitively rich environments for teachers and student-teachers to reflect on the emotions they evaluate as negative in a particular situation and help them turn these experiences into opportunities to increase understanding. The authors indicate that more research is needed in developing practical models for teacher educators and student teachers to recognize and reflect on emotions. The last implication is related to the second. Teacher education needs to increase the development of structured spaces for reflection about emotions and to support teachers' vulnerability.

It is fundamental to continue finding more ways of creating safe and welcoming conversational spaces so that teachers and student-teachers are able to address difficult emotions, such as uncertainty, fear, frustration or irritation. Barcelos and Ruohotie-Lyhty (2018, p. 12) relate this implication to the argument that “further research is needed in developing practical models for teacher educators and student teachers to recognize and reflect on emotional expressions.” This paper aims at attending this call made by Barcelos and Ruohotie-Lyhty (2018), and also by Zembylas (2014) and Barcelos and Aragão (2018), to expand our understanding of structured reflective spaces where student-teachers and teachers may be able to better deal with their emotions and beliefs and how these phenomena affect practices.

In this article, I aim at demonstrating how emotions and language ground reflective processes according to the biology of knowing theoretical framework (MATURANA, 2001, 2004). I had used this framework (ARAGÃO, 2011), but here I have a goal of advancing the understanding of this inter-braiding of phenomena with a new assemblage of conceptual tools. Particularly, I argue that, in mutual care during research that fosters reflection on emotions, one is able to move to domains of responsibility about one’s self-awareness on the role emotions play on one’s language education experiences. In addition, some researchers have made an effort in combining different qualitative research procedures to study the role of emotions in language learning and teaching that have strengthened language teacher education (ARAGÃO, 2019; BARCELOS; ARAGÃO, 2018; RUOHOTIE-LYHTY, M.; ARAGÃO, R. C.; PITKÄNEN-HUHTA, A., 2021).

Just as Barcelos and Aragão (2018) show in their review, these research experiences have led to prospective transformations. In this line, it is important to continue developing explanatory mechanisms to deepen our understanding of what happens in research experiences that impact positively in learning and teaching a language (ARAGÃO, 2011; 2019; COELHO, 2011; REZENDE, 2014, 2020; FERREIRA, 2017; MARTINS, 2017; SOUZA, 2017; SILVA, 2020; SOUZA, 2021). I first situate the theoretical framework within cognitive sciences and systemic thinking. Second, I introduce some concepts from Humberto Maturana’s biology of knowing, such as languaging, emotioning, culture, conversation, recursion, reflection and orthogonal interactions. By doing so, I lay the grounds to present part of Maturana and Davilla’s (2009) Matrix of Human Existence. Particularly, I put together a few ideas with which qualitative researchers may strengthen the understanding of structured reflective spaces about emotions in language teacher education. I discuss some challenges of our

post-modern emotional and cultural dynamics and offer the concept of liberating conversation as a means to move forward. I then discuss some studies from the literature of emotions in language teacher education that have been based on the cognition¹-language-emotions relationship in light of the conceptual assemblage that I put forward in this article. Finally, I highlight the importance of this matter for the language teaching profession in current times.

2 Situating the epistemological framework

The understanding of reflection has been traditionally associated with the study of cognition (ZEMBYLAS, 2014). Researching the phenomena associated with cognition has been a long lasting challenge in philosophy and science. The relationship between learning processes and both language and what we refer to as cognition has attracted the efforts of a wide spectrum of thinkers, from classical Greek philosophers to neurobiologists and electronic engineers (GARDNER, 1995). In the middle of the last century, this intellectual enterprise, traditionally reserved to philosophers, was taken over by Cybernetics. This term was adopted at the time for a transdisciplinary intellectual endeavour that focused on the issue of knowledge with the general goal of developing a global science of mind or a cognitive science² (DUPUY, 1996, p. 9).

In the 1960s, Humberto Maturana and Francisco Varela, Chilean neurobiologists, developed an explanatory mechanism to understand the differences between machines and living beings³ (MATURANA; VARELA, 1997).

¹ To Maturana (1990, p. 13-15; 2001, p.126-128), cognition has to do with certain relations and actions when we accept them as adequate because they satisfy a particular criterion of acceptability in a specified question by an observer (a person in language). An action may take the form of distinctions, behaviours, or reflections in languaging. Knowing is constituted by an observer as an operational capacity of accepting one's actions as adequate in some operational domain specified in that attribution (see Aragão, 2005). The concepts of language and emotions will be discussed in detail further on.

² Cognitive sciences and cybernetics started intellectual endeavours that aimed at understanding complex systems such as cognition, communication and learning. They dealt with domains of dynamical systems and how their behaviour can be modified by feedback and circular loops. The term Cybernetics was initially defined by Wiener as "the scientific study of control and communication in the animal and the machine" (WIENER, 1948). Cybernetics originated areas such as artificial intelligence, complexity science, chaos theory and robotics and influenced many others. It is connected to systems thinking.

³ Maturana's initial work in cellular biology and neurophysiology of vision with Francisco Varela

Humberto Maturana's *Biology of Knowing* (1998, 2004) has grounded studies of the inter-related role of language, beliefs and emotions in recursive reflective activity embedded in experiences of language teacher education (ARAGÃO, 2011). Innovative researchers at their time, together they developed the theory of autopoiesis, a branch of Cybernetics and systemic thinking. For two decades now, part of my research has delved into the study of cognitive science and its relations to models of language learning and teaching (ARAGÃO, 2007, 2011; 2017).

In recent years, my research has focused on how more recent developments of Maturana's work in dialogue with post-structuralism can help us understand and create alternatives to deal with the various crises in language teacher education (ARAGÃO, 2019). What has always captivated my attention in Maturana's work is how language plays a key role in cognitive processes and how these are associated with traditionally marginalized phenomena such as emotions. In the 1970's, the first development of the biology of knowing framework already made relevant the importance of emotion to the study of language, cognition and scientific activity. Some central ideas from the biology of knowing are: (a) the use of words and aphorisms created to research cognition, language and associated phenomena outside the tradition of Western thought; (b) a scientific attitude that moves itself from being to doing and the use of verbs instead of nouns that impute the procedural dynamics of emotioning/linguaging/knowing; (c) a sense of obviousness with some themes - characteristic of pragmatist thinking; d) the idea of the biological as a reference to the historical dynamics of a living being in its inter-related network of relations; e) the intertwining of emotion-cognition-language (reflective circularity of the individual and the collective within biological and cultural spaces and the consequences of these inter-relations in everyday life); f) the circular⁴ nature of living and knowing about knowing, which moves into the possibility of diverse accountabilities about non-rational

resulted in the theory of Autopoiesis, on the non-representational understanding of the nervous system and to the idea of the observer. Maturana's more recent work on the origins of humanness and the biology of loving was being developed with Ximena Davilla in the Matriztic Institute in Chile.

⁴ Circularity originally refers to cellular self-creation, or *autopoiesis*, within a mutual adaptive relationship of organism with its niche, known as *structural coupling*. Living beings occur as circular dynamic molecular entities that operate as totalities in a relational space, and they are realized as different kinds of organisms through the conservation of different organism-niche relations in diverse manners of living. Circularities are important because they initiate and maintain generative processes in living.

premises and emotional dynamics (preferences, desires, interests, ideologies); g) systems thinking that characterizes models of cybernetics.

Systemic thinking is observed when the understanding of the results of the operation of the components of a given network under observation takes place in the relationship that constitutes the system as such. Likewise, to the extent that none of the components determines the development of the system by itself, even though their participation is central. We know that intertwined systemic elements form connections that, by changing some aspect of the system - one element can change all the others. Therefore, the systemic view is based on the observation and understanding of the processual dynamics of interrelated elements, on the different ways of being in the system in relation to ourselves and to other elements. A systemic perspective makes use of previous histories of recurring interactions that tend to generate action patterns that can be observed in coexistence (ARAGÃO, 2011). These recurrent interactions, stabilized in the developmental history of an element in the system (for example, a person immersed in collective human agencies), include the phenomenon of language and emotion, and the understanding of the bio-culture as a relational space.

Second-order cybernetics, a movement that Maturana and Varela helped to develop, shifts its focus to understanding complex dynamic systems in which continuous change is one of its main characteristics. These systems are governed by self-organizing mechanisms in environments of phenomena that are interdependent in their constitution and development. Moreover, from this perspective, the observer (a person in language) is part of the system she/he observes. The observer arises with her or his reflexive distinction of her or his own languaging operations in observing. One can notice here the emergence of notions about self-reference, since the one who describes observations is inserted in the observation itself. In addition, second-order cybernetics problematized cognition as something from “reality” that arises independently of the one who knows it or of language as a representation of an external and equally independent reality.

3 Languaging, emotioning and conversation

Second-order cybernetics, or cybernetics of cybernetics, refers to a process self-referenced by an observer that, in observing a system, is part of this same system. This understanding is central to chaos/complexity theories, as well as to the theory of autopoiesis and the biology of knowing. As mentioned before, Maturana tends to use verbs instead of nouns in order to impute the active and

self-generating dynamics of these phenomena. Thus, the word *languageing* is used to refer to the process of distinguishing elements in language - our basic act of knowing - and to coordinate actions with others in attentive interactions of mutual orientation - our language activity. The act of knowing, a cognitive action, arises in unison with the possibility of coordinating actions in language, using what is distinguished in this new experience where words obscure the first experience in which the objects in language arose. Our agency is fundamentally our embodied immersion in *languageing* and its interrelation with *emotioning*.

As Maturana (2001, p. 17) argues, humans “happen in language and emotions,” that is, the features of our existence “pertain to our relational domains”. From this perspective, *languageing* does not take place in the body, but depends on it for its realization as a space of consensual coordination of actions that take place in recurring bodily encounters. No specific action, gesture, vocalization or body posture is “only” an element of language, but it is part of it, because it participates in a recursive flow of consensual coordination of actions. In this sense, Maturana (1997, p. 168) indicates that words in *languageing* (gestures, sounds, actions or body postures) are modes of consensual coordination of actions and they connote relations of consensual coordination of actions in which an observer sees such gestures, sounds, actions or body postures participating and guiding the mutual interactions of coordinated actions.

In experiences of *languageing*, *emotioning* accompanies us. *Emotioning* refers to the flow from one emotion to another together with changes in the possible domains of relational actions in situated contexts. Emotions as bodily dispositions for action tend to specify what living beings are capable of doing at any given time (MATURANA, 1998). To Maturana (2001, p. 45-46), when looking at an emotion, we look at the domains of actions in which people are. For example, if someone at your job wants to see the boss to ask her for a pay raise and says to you, “Look, I’m going to ask the boss for a raise today.” You reply: “Not at all! She’s very angry today and won’t raise your pay under those circumstances.” What are you saying? You are saying that the boss is in a domain where the action of giving you a raise is not possible because she is angry or in a bad mood. Emotions refer to different domains where only certain relational actions are possible. In this process, language and emotions are continuously interrelated. Every rational system is based on emotional premises that are accepted a priori. These premises constitute the coherences of a certain rational system. Everything that is accepted a priori is accepted in a space of preferences, wants, desires, ideologies as a non-rational space, an emotional domain. Even if we are not aware of it, the flow of our emotions (our

desires, preferences, beliefs, aversions, aspirations, intentions) tend to guide our actions in the changing circumstances of our lives (MATURANA, 2004, p. 43 -44).

Here, culture is related to the embedded and meshed relationship of languaging and emotioning. Maturana (2004) argues that the concept of conversation refers to our being with others in languaging and emotioning. In addition, a conversation network is what he calls culture, and influences our daily experiences. Therefore, in languaging, words are nodes of coordination of actions. The networks of conversations in which they participate have meaning or significance in the behaviours and emotions they coordinate in language, so that different words coordinate different actions and emotions. If one wants to know a word, one must look at the behaviours, circumstances and the emotions that they coordinate in a given culture, or a network of conversations.

4 Reflection, recursion and orthogonal interaction

Languaging also enables the activity of reflection, of self-imaging, to be inseparable from one's own identity practices. In the complex web of language interactions in which we live daily, we create a permanent descriptive recursion that we may call the self. That enables us to preserve our linguistic operational coherence in the domain of language. As we enter a space of actions in which we, as self-conscious observers in language, distinguish objects and relations between objects and go on creating a recursion, in this same space of actions, distinguishing objects from other objects and relations from other relations, we construct what we can connote as self-consciousness. Therefore, what we refer to as self emerges in languaging as soon as an observer distinguishes his or her observer from himself or herself, and becomes a distinction in itself, which is experienced in language as another object in relation to other objects and relations. We then become observers and descriptors of ourselves. Maturana calls self-observation or self-awareness this process of distinguishing one's own observation that creates a new object, the self in relation to its interactional surroundings. According to Maturana and Varela (2001, p. 29-31), reflection is a process of knowing how we know, an act of coming back to ourselves. To them, this is the opportunity we have to uncover our blindness and recognize that beliefs and knowledge of others are, respectively, as afflicting and as tenuous as our own. This circular operation of reflection is elusive to our Western culture, centred on action rather than reflection. Knowing about how we come to know our experiences should be our most intimate relationship.

They then argue that “there are many scandals in the world, but this ignorance is one of the worst” (MATURANA; VARELA, 2001, p. 30).

When we reflect, the explanation of an experience generates a reformulation of the experience itself from an operation in languaging that gives rise to that experience that may be accepted by those who live the experience. In this process, the explanation is in the observation of the experience, not in the experience itself. As Maturana (2001) points out, the explanation of an experience is always a proposition that reformulates the experience based on certain validation criteria shared by a community that accepts the explanation as such. In other words, an explanation constitutes the reformulation of an experience according to a certain criterion of acceptability. This process can foster change, since the opportunity to explore the experience by oneself or with the support of a language teacher researcher creates the possibility to investigate events related to the reflected experience that can, in turn, have implications for any other understanding of the experience. This may put oneself in the possibility to review evaluations of the analysed experience that may trigger change. Observe that reviewing evaluations are tied to emotions as these phenomena colour how one sees something. These processes are fundamental in qualitative research practices based on the cognition-emotion-reflection model within language teacher education.

Reflective processes are based on recursion, in which opportunities are created to generate new experiences based on previous ones. At each turn of recursion, one does not return to the same experience, but moves in a continuous dynamic structural flow and there arises a new observation, another relational dimension (which can be about oneself and one’s surroundings). Reflection processes are based on emotional flows or emotioning. Living is a continuous process of change, and human beings, intimately immersed in languaging and emotioning, experience repetition and recursion, and, in the latter, new domains of phenomena emerge in their flow. It is here that we have the possibility of understanding ourselves as self-aware languaging and emotioning systems.

In this line of thinking, when in recursion, we have the possibility of making distinctions on distinctions already made, by operating with elements of experience with another element of experience that concatenates a new phenomenon as its result. In this case, something secondary is distinguished over something previously distinguished. This operation, based on the distinction of distinction or on experience over experience, sits on the results of a previous operation. This generates new elements such as the distinction itself of being who makes these different distinctions in what way, for what reason, and with what

meaning. In these latter operations, in which distinctions of self, identity and self-consciousness emerge, we always have the opportunity to change our language and emotion, our conversation, and thereby experience alterations in our bio-cultural relational domains of existence. In this sense here, actions may be altered by virtue of their own descriptions.

If a researcher fosters some kind of reflection and does not integrate her or himself into the system to a certain extent, she or he will not be able to listen appropriately. In a reflective process, attentive listening is fundamental. However, at the same time, the researcher-teacher must maintain a certain reflective distance to remain in a position to see the context of what is happening and keep the freedom of reflection from the system in observation. As I said before, a system can usually be specified as a network of relations. If people act in the network of relations that constitutes the system, they have chosen a form of interaction to which Maturana (2004, p. 118-120) refers as agonal interactions: they act in harmony with what is established, with the traditional forms of behaviour of the system.

An orthogonal interaction, however, may take place when people behave in ways that do not keep the system as it is, but change its structural dynamics. The interaction is positioned, as it was, at a right angle to the dimensions that participate in creating and maintaining the system. The approach to an orthogonal encounter with the system must be discovered through observation. This particular interaction may change the course of the previous actions. In any case, the emotional basis of the interaction must be love. The path to healing is to discover self-respect, self-acceptance and self-love (MATURANA, 2004; ARAGÃO, 2011). It is common to notice the possibility of an orthogonal interaction through a positive appreciation of the other that may be immersed in a self-depreciating negative talk.

5 Systems, change and spaces for liberating conversation

Members of a classroom create their own organization, their own system, and interactions will be interpreted by the system members from the pattern of their own organization. The only way to provoke change is to change the members' dynamics within the organization. An organization as a closed system tends to be conservative. A classroom organization is conservative so any interaction coming from outside has to be one that does not conform to the current patterns of the system. You have to get involved with the system, be part of its conservation, and work on it to modify the recurring patterns that characterize the system.

A language educational researcher, for example, inserts her or himself into the system and participates in the structural drift of the system. Once involved, the researcher who aims at creating a space of reflection on emotions and language learning and teaching tries to disturb, disrupt or disintegrate the organizational relations in the observed system. By doing so, the members can constitute a new system through different emotions and actions. To achieve this, the researcher needs to interact with the system members individually and as a group in order to spark new languaging and emotioning, i.e., new conversational dynamics that can be the basis of a reorganization that may be more acceptable to all. The issue in this process is to find the proper points of intersection within the system that do not confirm the present organization of the system. Orthogonal interaction is key to change. Note that, when a mechanic changes a part of a car, the whole system of how the car works is altered. Orthogonal interaction is perpendicular to what usually happens in the system. After the change of a car part, the whole functioning of the car can be altered. Researchers of emotional domains can put themselves in the position of interacting orthogonally with members of systems/organizations: they provide opportunities to operate outside the rules already established by the system. A researcher does not belong to the same organization/system as the student and the teacher.

In his most recent work in collaboration with Ximena Davilla, Maturana was working on what they called the Biological-Cultural Matrix of Human Existence. This work has been developed at the Matristic Institute (MATURANA; DAVILLA, 2009) in Chile. It is about this more recent set of ideas that we turn to now. The Biological-Cultural Matrix of Human Existence refers to the “recursive systemic dynamics of living together that gives rise to our human living” (MATURANA; DÁVILA, 2009, p. 17). This approach conceives cultural diversity as different orientations of daily living guided by emotions that ground actions that constitute a certain way of living. Maturana and Davila (2009, p. 15-23) present the notion of bio-cultural ages of humanity in the sense of the history of human emotions throughout our existence. Under this approach, there is the possibility of understanding an evolutionary drift. Human beings retain different emotional dynamics based on the way of living in each bio-cultural age which constitute a certain Biological-Cultural Matrix of human existence.

The authors propose six bio-cultural ages and explicit their respective emotions and actions, as well as their processes of development, extinction or transformation. Here, we will focus on our most current emotional dynamics: the Modern and Post-Modern bio-cultural ages which have sustained our

sociocultural practices. The modern bio-cultural age is characterized by the expansion of technology, emphasizing scientific rationality and objectivity. Cultural dynamics of this age are centred on values such as success, financial power, and the acquisition of material goods. In the Post-Modern bio-cultural age, the dynamic of the modern age is augmented by the confidence in scientific rationality, generating the cultural domination of science and technology. An age in which one wants to do everything that can be done. In disregard to whatever the consequences, hegemony emerges through the appropriation of a single truth, as in fanaticism, in ideological alienations that justify innovation in the name of something called progress. This age is also based on manipulation, dishonesty and on sheer irresponsibility with ourselves and our surroundings. These in turn generate pain and suffering (MATURANA; DÁVILA, 2009, p. 43-44).

In this bio-cultural age, respect for oneself and for others weakens. Relationships are governed by power relations, hierarchy, obedience, competition. As a consequence of these relationships, pain and suffering are inevitable. A culture based on the possession and submission of another living being, human or otherwise, grounds a way of life that values war, competition, authority, appropriation, and the rational justification of the domination of others through the appropriation of truth (MATURANA, 2004). A bio-cultural age based in mistrust and in relationships of domination, control, and submission. Control subdues and submission demands obedience. Obedience works on the basis of fear, anxiety and insecurity, and here arises the lack of respect for oneself and for the systemic environment based on a network of conversations that privilege control and submission through fear.

On the other hand, we may also notice an open space for the emergence of conscious ethical reflection and action. For Maturana and Dávila (2009, p. 45), “the great opportunity to choose a way of living and coexisting that do not deny the autonomy of reflection and action proper to our being, loving beings, which is the biological and biological and bio-cultural foundation of our being ethical human beings”. Once one realizes the bio-cultural age one is living in, it is possible to choose whether one wants to continue living its emotional dynamics, or if one wants to live in another way. This may be done through certain reflective processes that the authors call liberating conversations. For Maturana and Dávila (2009), a liberating conversation is a conversational flow that happens in a reflexive act that opens the possibility to make conscious the emotions that a person has and to understand that these are related to the lack of love and self-respect. As I mentioned before, humans live in conversation, in the interweaving of languaging

and emotioning. In addition, human beings live networks of conversation that constitute cultures made of bio-cultural, spiritual, emotional and mental dimensions. (MATURANA, 1997, p. 121)

A liberating conversation is a reflective process that can reveal how a person has created and maintained, even if unconsciously, a certain emotional pattern and its inter-relations within her or his sociocultural contexts. Maturana and Davilla (2009) argue how a liberating conversation can be detonated and how transformative processes may be fostered through the use of certain operations. These operations are related to the dynamics of the conversations that may trigger processes of self-transformation. Here, one must change the texture and particularly the emotioning of the conversation in order to facilitate a change in one's way of doing, being, feeling and knowing. As I mentioned before, one must act towards establishing orthogonal interactions in order to promote change.

The first of these is the *orientation of attention*. Here, the idea is to guide the attention of the listening so that it is done without judgments or expectations. The second one is oriented to *listen*: to listen to oneself and to listen to ourselves in togetherness. This form of *attentive listening* is connected to a process of listening to our own body by stripping ourselves of what we know, of what we believe to be true, of one's own vision of reality, and thus making room for another to emerge as a unique human being, whose story is also unique. This implies listening and trying to wonder from which domain/context the other says what she/he says, from what emotional basis this saying comes from, since the other always says what she/he says from a domain that is valid for her/him in the context of her/his own living. The third operation is based on the *encounter with the other*. It is an attitude of being with the other that is grounded on some emotional dynamics that may help us overcome aversions, dislikes, hostilities, fears, resentments. It is an attitude where one is willing to listen, to listen to oneself, and to be listened to. This procedure is related to overcoming judgments, pre-conceptions towards understanding the other in one's own legitimacy. In doing so, the one who is immersed in this recursive joint reflective process is moving towards taking responsibility for one's own way of living and for what one has created with this living. The fourth operation is to *let go of certainties and beliefs*, so that it is possible to listen to the other and to oneself. To do this, it is necessary to become aware of beliefs and resize them, overcoming the emotional attachments one may have to them and the patterns of thinking, feeling, and doing that they generate.

Maturana and Davilla (2009) suggest that these operations may form the grounds for experiential encounters where people feel encouraged to address

difficult emotions and to deal with emotional vulnerabilities. That could enable the emergence of an environment that may precede self-generating transformations together with others. In other words, these processes may reveal historical drifts of operational dynamics that can bring about structural changes within the systems from the recursive actions that take place in coexistence, with oneself and with the others. From this point of view, structural changes may take place only when the person establishes a mutual dynamic interaction with the environment (in this case, the actions that trigger self-knowledge and self-transformation) that allows it to operate recurrently. This recurrent operation may foster the sustaining of changes in the structures of the systems, - with the other, with itself and with the environment.

In this perspective, the individual and the social are mutually generative. Individual developmental processes are socioculturally interdependent and mutually constituted by languaging and emotioning. It is important to note that, for the transformation to take place, the system needs energy (in this case altered emotional dynamics), so that the new dynamics are established to incorporate what is new because, otherwise, it returns to its initial state. The mutual and recurrent interactions with the environment and with the other are operations that sustain changes. This, in turn, is sustained by conversations, where people are together in a history of recurrent interactions, which need to be welcoming, in mutual legitimacy. The conduct of interactions that accepts the other in coexistence is characterized by interactions that denote respect, acceptance of oneself and the others in their space of existence, in dignity and full legitimacy (MATURANA, 2001). These practices can be developed through interactional flows sustained by experiences based on the acceptance of the others, on mutual respect in the suspension of judgment, in the acceptance of difference, in the presence without demands, in the partnership of reorganizing oneself, in a flow where observation and recursive reflection can trigger changes and self-acceptance and self-love.

These reflexive operations constitute an experiential practice in which, together in languaging and emotioning, we are strengthened by the presence of one another. Here, people can connect with their capacity to reorganize and overcome limiting beliefs. This implies the development of a capacity to intervene in a certain way of living and through empowering ways of being that support experiences of well-being and mutual respectful coexistence with oneself and with others. They may also allow for the development of empathy and care, by fostering domains of action in which participants involved in research based on reflection can express and understand their emotions in coexistence and mutual respect. These practices bring forth coexistent, safe encounters that may

sustain the sharing of conversational spaces, with attentive listening practices of interaction. These practices can be thought of as spaces of coexistence that, in togetherness, are strengthened by the presence of the others, which in turn will transform and be transformed. These movements are supported by the practice of observation, self-observation and recursive reflection, which emerge and may foster the development of new ways of doing, feeling and knowing. This reflection is done from a systemic-recursive approach that takes into account the different dimensions of one's biological-cultural living.

6 Reflection and emotioning in language teacher education research

Aragão (2007) investigated the role of emotions and reflection on the English language learning experiences of seven pre-service teachers during a semester's course based on the biology of knowing. Through diverse qualitative research procedures⁵ that fostered reflection, participants became aware of how previous experiences, beliefs and emotions influenced the way they acted in the classroom. Major results were related to the role played by emotions and beliefs in oral skills development in class, to conflicts among different learning beliefs and teaching styles and to awareness of these phenomena in language learning during their pre-service education. All of the participants in this study indicated that it was unusual to learn how their emotions, beliefs, and previous experiences influenced their actions in the classroom. Research conducted by Miccoli (1997, 2000, 2003) and Mattos (2002), for example, had similar results and also revealed that their research participants had never engaged in any reflection on their language learning and teaching experiences. In Aragón's (2007) study, it was evident how reflection plays an important role on language teacher education. Aragón's (2007) study reinforces and brings contributions to previous research that have demonstrated the positive impact of reflection about emotional issues on language learning and teaching (MATTOS, 2002; MICCOLI, 1997, 2000, 2003).

Recent research that used Aragón's (2007) similar methodological protocol and theoretical framework had the same result as to the novelty of reflecting

⁵ a) written language learning narratives; b) videotaped scenes from the classes that supported conversations with participants; c) language learning journals; d) semi-structured interviews; e) informal conversations; f) participant observation in the classroom; g) visual representations of students' emotional dynamics; h) a questionnaire evaluating the participation in the research project and the impact of reflection about emotion.

about one's emotions in teacher education experiences, both pre-service and in-service (CAJAZEIRA, 2015; LEMOS, 2017; MARTINS, 2017; SOUZA, 2017; ARAGÃO, 2017; ARAGÃO; DIAS, 2018; OLIVEIRA, 2000; SOUZA, 2021). All of the participants in these studies indicated that reflecting on their emotions and beliefs during their participation in the research process brought changes to their views on their learning of the language and on their own teacher education processes. Souza (2007, p. 97), who investigated student-teachers in their first experiences in the English language teaching practicum, states that "reflection is not something completely unknown to research participants. However, the practice of reflection for understanding the role played by emotions and the (re)signification of actions is something unknown that still needs to be stimulated." Oliveira (2020, p. 92), who did a longitudinal ethnographic study of pre-service teachers of Spanish, highlights that "participants demonstrated that the reflections proposed by the research contributed to changes in self-perception and in their teaching identity under construction." She also adds that "reflection about emotions and actions in teacher education still needs to be an incorporated practice in the experiences of undergraduates" (OLIVEIRA, 2020, p. 93). These research results tend to reinforce the argument that the circular operation of reflection is elusive to our Western culture, centred on action rather than reflection (MATURANA, 1997; ARAGÃO, 2011; 2019).

After accepting the invitation to reflect with a researcher, research participants began a mutual partnership, driven by the common interest and curiosity to understand their experiences of teaching and learning a language. This is the first movement towards becoming self-aware of the role of emotions in their language learning and teaching. As researchers, we tend to move in enthusiasm and passion to explain what occurs in language learning and teaching - a way of talking about emotion that presides over the investigative work of the scientist (MATURANA, 2001, p 162-163). Reflecting about relations (with oneself and with others) is where one can find the meaning of emotions. In this process, the one who reflects feels valued and worthy. In reflection about the emotional domain in language teaching and learning, feelings of self-acceptance, self-worth and self-respect emerge (ARAGÃO, 2011, 2019; ARAGÃO; DIAS, 2018, COELHO, 2011; REZENDE, 2014). In the attentive listening process and in reflection about emotions, those who take part in reflective research activities feel valued and recognized (ARAGÃO, 2011, 2019; ARAGÃO; DIAS, 2018; COELHO, 2011; FERREIRA, 2017; MARTINS, 2017; REZENDE, 2014; SOUZA, 2017, SILVA, 2020, SOUZA, 2021). In these studies, when participants are asked about

how it feels to participate in the research activities, the feeling that prevails is of self-worth and also of growth, partnership and mutual respect-support. Many mention how this process is visionary and transformative, expanding their senses with no expectations, demands, or judgments.

As I have been arguing, during reflective processes of emotions in qualitative research procedures, we look for intersections in the system where we can foster a rupture with a common conversational pattern that generates negative evaluations of oneself, pain and suffering in relation to teaching and learning a language. It is with this flow that we seek conversations that can detonate a process that restores self-love and a combination of languaging and emotioning that are able to create an orthogonal interaction through a positive appreciation of the other (or one another). Studies have demonstrated that this is extremely beneficial in situations of self-denial, negative feelings, self-depreciative talk and disillusionment with the language learning and teaching process. Maturana and Block (1996) suggest adopting what they call narcissistic conversations to move our emotioning away from the sad and frustrated domains of action. These conversations, held together or in individual soliloquy, aim at changing our recurring bio-cultural dynamics that may maintain one in sadness, as in the repetition of expressions such as “I am a failure,” or “I won’t succeed.” Narcissistic conversations may re-orient our emotioning toward what is beautiful about ourselves.

Aragão (2011) found that, during an emotional dynamics of self-worth, self-respect and self-reliance, research-participants are able to enter into a movement in which they have the possibility of assuming responsibility for their own educational trajectories. As I had pointed out, by reflecting on emotioning, and supported by recursive languaging resources, participants can move themselves according to their preferences, desires, ideologies, beliefs and interests in a responsible way. As Maturana (1997) argues, responsibility and freedom emerge from reflection on one’s emotional domain. Responsibility is found with knowledge of wanting or not the consequences of one’s actions. Freedom, on the other hand, is in the reflection about actions with knowledge of wanting or not wanting its consequences.

In Araújo’s (2007) study, out of seven participants, only Júlia was able to move herself towards responsibility and freedom in the words of Maturana (1997). She described her learning of English as a struggle. She was taking again the same course with the same teacher at the time the research was conducted. The image she had of herself in class was that of a student walking on eggshells, being cautious of what she would say. Through the research process, Júlia improved

her relationship with herself, her classmates and with the teacher, who had been her teacher the previous term. Her self-reliance increased along with changes in her domains of action. Júlia decided to overcome her intense fear of speaking in English and told me she would master the ‘seven-headed monster’, as she referred to her process of learning English. She often expressed herself in a self-deprecating manner. However, through research activities, particularly interview sessions based on her visual representations of her learning experiences and the video taping of her actions in class, she entered another line of conversation in which she could reflect to rescue what was positive, rewarding and beautiful about herself (ARAGÃO, 2011, 2014). From this moment onwards, Júlia decided she needed to change her behaviour in order to move as she wished for. She started to take conversational turns in class and represented herself in a visual collage as “big” and “self-assured”, differently from the image in the beginning that semester, in which she is discouraged, small and sad. Her beliefs about herself had been transformed as had her emotions, her relationship with the context and her situated context. She became responsible for her conscious emotions about her learning processes and decided to be accountable for what needed to be done. Other studies with in-service language teachers found similar results (REZENDE, 2014; COELHO, 2011; CAJAZEIRA, 2015; MARTINS, 2017).

Based on a self-study, Rezende (2014) researched her own emotions as a beginner English teacher in a public school in Brazil. The results of the study revealed two major emotional phases during her research. The first phase, she experienced emotions of sadness, frustration and indignation in relation to her own practice due to aggression from students, co-workers, educational policies, which in turn generated pain and suffering for her. During the study, Rezende (2014) used an emotion diary and exchanged messages and letters with a critical friend. She often felt alone, sad, isolated and became demotivated. Through the writing and analysing of her own diary, she became self-aware that, in order to not abandon her teaching career, she needed to change her emotions. She decided to be “the teacher without complaining” and to be happy and fulfilled with her profession (REZENDE, 2014, p. 76-77). She then engaged and committed herself to the consequences of the self-awareness about these emotions in practice and started changing her actions in relation to herself and to her students. After doing that, she realized that she started caring more for herself and her students and felt more responsible for what needed to be done in order to reach her desires and goals.

Coelho (2011) conducted a longitudinal study on the role of emotions of in-service teachers during the Continuing Education Project for English Teachers.

As the study of Rezende (2014), results from Coelho's (2011) study revealed two major emotional phases. In the first two years of the project, emotions such as frustration, sadness, dissatisfaction, anger and humiliation tended to be the most common, particularly due to the undervalued status of the profession in Brazil and to the teaching of English in particular. The participants of the study also referred to the frustration of not having travelled abroad to an English speaking country or not having had classes at a private language school. They often referred to this to justify their inability to speak in English (COELHO, 2011, p. 69). As I had interpreted in Aragão (2019), Coelho's (2011) research participants were immersed in self-depreciating conversational patterns that even tended to dehumanize them, as in the excerpt "we are machines without emotions" (COELHO, 2011, p. 63), or here: "the teachers came to PECPLI with emotionally charged experiences of rejection, self-denial, and denial of the other (COELHO, 2011, p. 91)".

A continuous emotioning of self-denial may turn into a systemic depreciation of everything surrounding them (ARAGÃO, 2019). They tended to depreciate the students, their colleagues at work as well as their working place. The longer they had been immersed in this self-denial process, the more conservative their system was. Moreover, the desire to speak the language remained generating negatively evaluated emotions in self-depreciating conversations that may be exemplified through the excerpt: "when I started participating in the project I was afraid and deadly shameful to say who I was. Yes, very ashamed! I was an English teacher, but I didn't speak English. I was a failure" (COELHO, 2011, p. 66). As a result of increasing levels of stress and having to deal with various negative feelings and the constant bio-cultural malaise of self-depreciating emotioning that lead to suffering, sickness and giving up on what one wants to do, one of the teachers even affirmed: "I think I'll give up. I'm trying for another profession." (COELHO, p. 64) "(...) I now take 40 milligrams of a tranquilizer a day to cope with this situation of pure sadness and anguish (COELHO, p. 65)."

In the following two years, in the second phase of the project, after a great number of meetings where they were able to deal with their negative emotions, the teachers started feeling more confident with a more playful and joyful atmosphere at the project's meetings. During this period, Coelho (2011) reports that the teachers started experiencing feelings of self-acceptance, self-reliance and a sense of deep connection and increased intimacy with each other. Coelho (2011) reports that, in order to not be paralysed in certain negative emotions of the group, the coordinator planned to have a conversation to "attack" the teachers' paralysis and

resistance. Together with the group, new networks of conversations started to happen. From the emotion of acceptance of themselves as well as the beginning of new conversations within the projects structural system, feelings of responsibility for the decisions in their practices began to emerge.

Similar to Aragão (2007) study with pre-service teachers, and to Aragão (2017) with in-service teachers as well as to Rezende's (2014) and Coelho's (2011), the inter-relationship of reflection, emotion and responsibility for oneself is reinforced. Based on emotions of self-acceptance, self-reliance and welcoming new emotions that make their reflective experiences even more open, the participants of Coelho's (2011) study were able to language new experiences and new projects. One interesting result that is similar to the study of Cajazeira (2015), Martins (2017) and Aragão and Dias (2018) is that the in-service teachers flowing with these emotions start to desire the continuation of their academic education as well as the engagement with actions that would eventually be able to change their negative emotional patterns. In the case of Coelho's (2011) study, there emerged the willingness to work on writing a book about the experiences, emotions and transformations lived by the project's members (with the participation of all members), released in 2010⁶ (COELHO, 2011, p. 136).

Results from these studies show that transformations are possible when new emotions are established with new actions and when pre-service or in-service teachers become increasingly responsible for committing to their wanting the consequences of the emotions of which they have become self-aware. Through these reflective processes fostered by similar qualitative research procedures, researchers and participants become self-aware of the relational dynamics that constitutes each specific emotion as an operation in a particular relational domain. When emotions are altered to a dynamics of self-reliant domains of action, new desires towards the present and the future emerge. The system is reenergized and is able to project itself ahead in new desired domains of practice.

Here another interesting strategy is the projection of other possible identities. In work with narrative research with the use of images, researchers can generate views of what the students desire to achieve or wish to become (BARCELOS, 2020a; RUOHOTIE-LYHTY, M.; ARAGÃO, R. C.; PITKÄNEN-HUHTA, A., 2021). In this process, other desired identities are created as well as the strategies to achieve them. Languageing other identities also

⁶ BARCELOS, A. M. F.; COELHO, H. S. H. (Org.) Emoções, reflexões e (trans)form(ações) de alunos, professores e formadores de professores de línguas. Campinas: Pontes, 2010.

tends to bring forth other emotions. Research has shown interesting results with the use of images or narratives that project identities that are appraised positively, which may help in rupturing with self-depreciative emotioning and languaging patterns (ARAGÃO, 2019).

Pain and suffering are part of the learning and teaching of languages in Brazil (BARCELOS; ARAGÃO, 2019), particularly English. These emotions are culturally constituted as they arise from the life we live together in schools and universities. They are developed in daily routines characterized by conversations permeated by denial, mistrust, hierarchies, judgment, underappreciating conversations, control, and competition. Dealing with culturally constructed pain and suffering may also demand a conversational flow that may deconstruct, destabilize or dissolve the network of conversations that gave rise to the pain and suffering. Such conversations, as I have been discussing, are characterized by its liberating nature (MATURANA; DÁVILA, 2009, p. 225).

Through liberating conversations based in mutual care, one can observe and find an intersection in the system and through an orthogonal interaction one may provoke the rupture of self-depreciating conversational dynamics. It is with this interactive flow that activities based on the cognition-emotion-reflection relationship may aim at bringing forth conversations that can set off processes that restores self-confidence, self-love, and perhaps the nostalgia for a loving, trusting childhood in our human origins. For example, we can see how Júlia, the research participant in Aragão's (2007) study, has committed herself to the consequences of wanting to change and has taken a number of actions that have led to responsible and conscious actions in her relationship with the language and the process of becoming an English teacher. As her actions changed, there were also changes in her emotions and vice versa. As well as her increased responsibility for the transformation of her desires into actions and the consequences of these, in this transformative process, Júlia became responsible for her wants and by doing so she liberated herself from pain and suffering. From a systemic perspective, one can notice how emotions, actions and language mutually interact.

Another procedure that generates highly positive results is self-viewing sessions. In these sessions, one can see or hear one's own recording in video or audio, both in learning and/or language teaching activities. The results of studies with viewing sessions tell us that we can work on the emotions that emerge and problematize how participants see themselves describe how they have behaved in specific educational situations. This is where reflection becomes a procedure to question certainties about what participants refer to in their individual

conversations (I cannot speak, I cannot teach, I am a failure). Research suggests that, in viewing sessions, participants tend to review positively what they previously imagined as negative about themselves (MATTOS, 2002; MICCOLI, 2000, 2003; ARAGÃO, 2011, 2019). In the processes of such liberating conversations, it is also possible to question idealized models, such as the native speaker as the ideal language speaker model. The preference for the native reference is based on an emotional domain (desires, preferences, beliefs, interests, attachments).

From my discussion until here, I may argue, in line with Zembylas (2014), that we are still in demand for a language teacher education culture that is more centred in reflexivity on emotions. Without reflection, particularly reflection based on recursive operations on languaging and emotioning, one may be unable to become aware of how we do what we do. Without it, it may be impossible to reach further operations based on responsibility of the consequences of our emotioning and languaging in our contexts of situated practices. Also, in accordance with Zembylas (2014), reflexivity based on emotions and discourses is fundamental to move to new actions. Reflection is liberating and may give space to transgression and ruptures against hierarchical relations that are so entrenched in our post-modern bio-cultural age. Therefore, the transformative power of creating structured spaces for reflection on our emotions in pre-service and in-service teacher education is undeniable, but these still need to be used more often.

The beginning of in-service teacher education needs more research and care, as suggested by Rezende (2014). Moreover, it is important to continue investing in long-term projects and in developing more longitudinal studies, particularly based on ethnographies as has been indicated by Barcelos and Aragão's (2019) review. Research indicates that, in the case of in-service teachers, they tend to need more emotional support both in the beginning and during long-term experiences in the profession (REZENDE, 2014, 2020; OLIVEIRA, 2021). From Coelho's (2011) study, the only longitudinal research on emotions with in-service teachers we have had so far in Brazil, we can acknowledge that very short-term continuing education projects as well as shortened ethnographical work are of limited value when we consider the time needed for experienced teachers to flow in different phases of reflecting on emotioning in their professional lives. Dealing with vulnerabilities and difficult emotions tends to need time to flow and change in these re-signifying and self-acceptance processes.

7 Final remarks

Relationships are constitutive and founding. In this continuous process of becoming, language and emotions are one's most intimate space of coexistence. Becoming human with other humans emerges from creating worlds together in living together, in language and in emotions. Every human was cared by another human. This relationship of sheer trust in mutual care is biological of our species and was the basis for our evolutionary drift (MATURANA, 1998, 2004). In this biological and cultural relationship, humans emerge in spaces where they are constitutively accepted as a legitimate other in mutual care dynamics. We feel legitimate as ourselves with those who care for us, just as those who care for us feel legitimate by caring for us as well. As Maturana (2004) argues, in this dynamic of caring, the legitimacy of the one who cares also emerges. In a dyad of reciprocity, the well-being of the cared for is also related to the well-being of the caring.

It is important to engage with the emotion that other worlds are possible (KRENAK, 2019) and to assume full responsibility for all forms of living in this planet (MATURANA, 2004). This is an opportunity to consider our future with sheer responsibility (MASLIN; LEWIS, 2018). We need to keep on maximizing the attentive listening processes of teachers and students. From the argument I have followed here, it is important to consider how an attitude of openness and liberating conversations may mutually trigger a feeling of appreciation and growth in the one who listens and speaks (ARAGÃO, 2011, 2019; COELHO, 2011; LEMOS, 2017; MARTINS, 2017; REZENDE, 2014, 2020; SILVA, 2021, SOUZA, 2017; SOUZA, 2020). It is in this context that we are demanded to deal even more with practices of solidarity, empathy, affection, concern, nurturance, safety, security, and deep emotional connection in an ethics of care (BOFF, 1999). Liberating conversations in welcoming and caring spaces can strengthen the development of practical models for teacher educators and student teachers to recognize and reflect on emotional experiences and support student-teachers' and teachers' vulnerabilities. Dealing with painful emotions may bring strong feelings of the importance of belonging together. Emotions of solidarity in turn may create access into more painful emotions and, here, create stronger emotions of solidarity in circular operation.

It is fundamental that we rescue the emotions of welcoming and mutual care. A considerable part of our challenge is biological-cultural. As mentioned before, this has to do with the networks of conversations that are preserved, problematized, or discontinued. Conversations are made of languaging and

emotioning. To face the challenges ahead of us, strengthening human relationships through attention to the other and mutual care can broaden our actions on the basis of trust, mutual respect and with the mind's eyes towards hope. We must expand our affective availability to listen to ourselves and to others. With this, it is also possible to look at the emotion of trust in the sense of collective belonging.

We observe an increase in teacher malaise and suffering in Brazil, with a dramatic expansion of cases of emotional exhaustion, different sorts of working illnesses, and violence (IGO; ZUIN, 2019; OLIVEIRA, 2019; PENTEADO; SOUZA-NETO, 2019; SANCHES; GAMA, 2016). Those who are not heard and seen, who have no presence or legitimacy where they live and work, experience rejection and denial, hidden or not, in a most painful way. In Applied Linguistics we see very recent research on emotions in language teacher education demonstrating similar results (OLIVEIRA, 2021; REZENDE, 2020). Higher levels of engagement with the profession generates higher emotional load that, in turn, increases exhaustion and illness (OLIVEIRA, 2021). Language teachers that are more committed to the profession and to the implications of their emotions tend to need even more structured spaces where they can feel safe to reflect over their difficulties, struggles, and to develop strategies to resist and fight back. An increase in the development of supportive and nurturing environments where teachers can find strength to deal with emotions, challenges and workloads is fundamental.

As emotioning and languaging beings that are aware of their bio-cultural dynamics in language reflection, knowing about the consequences of the world we create with others and the way in which preferences, desires, and beliefs set us to constitute that world in one way or another is not trivial. Knowing about knowing and knowing what knowing brings as a consequence always puts us in face with the responsibility of knowing that what we do together is a result of wanting or not wanting what we do. As Maturana (2004) argues, the only emotion not limiting but enlarging one's reflection is: love. Based on this emotion, I reiterate here that we need to rescue the biological phenomenon expressed in being together for the pleasure of being together in mutual self-acceptance, which is the biology of loving. I agree with Barcelos (2020b) that love is rarely researched in Applied Linguistics. I am also in accordance with her argument that "researching love is necessary because it can help rehumanize education, create more caring relationships in schools, help in our well-being and create social change". It is important to continue developing research to understand and foster this emotion (BARCELOS, COELHO, 2016; BARCELOS, 2020). In accordance with Barcelos and Aragão (2018), I would like to suggest more studies investigating and

developing ways in which research practices that focus on emotional awareness be part of language teacher education curricula. We need to keep on looking for ways to incorporate what we have come to know in research in our teaching and learning practices.

As Barcelos and Aragão (2018, p. 519) have suggested, it is fundamental to increase our awareness of power structures that may prevent teachers and students from expressing themselves or doing what they feel engaged in doing (REZENDE, 2020; OLIVEIRA, 2021; ZEMBYLAS, 2014). It is important to consider critical ways in which teachers and students engage in actions that are more aligned with their ideologies, preferences and wants. This can in turn influence teaching and learning in a way that can bring desired changes.

Taking back a way of living that is centred in mutual care is fundamental for transformative processes. A way of living together in which the feminine represents mystical presence, systemic coherence, and welcoming to the environment in which every living being is legitimate in each one's difference and beauty (MATURANA, 2004; GIMBUTAS, 1991; KRENAK, 2019). This is a way of living that can exist outside of the post-modern bio-cultural age which is based on authoritarianism, submission, oppression and the centrality of hierarchical value. The work of Maturana is an invitation to live other relations where each living being is fundamental. We know how relationships of hierarchy, control and submission demands obedience. Obedience works on the basis of fear and insecurity, and here arises the lack of respect for oneself and for the systemic environment of which we are a part. With the increased desire to be together in the physical presence and in our bodies, let us return to this way of living in an attempt to go from fear to hope.

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