Pedagogical complexity and sociolinguistic resilience in Mesoamerican language learning: the *CPEW matrix* (reloaded)[a]

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Complexity Theory has been linked since the beginning to social sciences.[c] It is now more and more applied to linguistics and sociolinguistics, as shows the main topic of this workshop. Our purpose here is to link it to activities and productions of *communities of practice.*[d]

We aim to apply some basic assumptions of *Complexity Theory* to the underlying pedagogical patterns of co-participative educational workshops (hence, CPEW) hold in Mexico, from 2010 to date, on Mesoamerican languages (especially Oto-Manguean and Yuto-Nahua languages).

So, we need to define first…

MEXICAN CONTEXT:
11 languages families, at least 70 linguistic groups. Native speakers : approximately 7 millions.[g]

Familias

In the *CPEW workshops* (Co-Participative Educative Workshops), our focus is to stimulate *diamesic processes*,[h] making written and oral texts interact. The texts and didactic units in indigenous languages are worked out by native speakers of Mesoamerican languages during the CPEW sessions. Most of them are school teachers who support and get involved in training in formal components of bilingual education.

Based on modern and ancient narrative, the *CPEW* methodology offers, and continues to develop, the following activities trough a critical approach:

What is Complexity Theory?

Complexity Theory is not only a *holistic metaphor*, as has been applied by some social approaches in language planning, even if this metaphor is useful to understand that several variables converge in this kind of phenomena.[e]

Complexity Theory is not only *geometry*, as some fractal's fans wonder on the study of universal structures, inspired from Mandelbrot work's (1975 [1985]).[f]

Considering the myths and realities of "indigenous" educational policies in Mexico,[h] the *CPEW* team develop a methodology to study language and culture, improving, at the same time, native language learning and sociolinguistic resilience. Fabio Pettirino, one team member, describe this methodology as *complex to conceive, but simple to apply.*[i]

1. Foundation Myths, called "Sun & Moon"
2. Contemporary narratives, including: a) Invisible Communities; b) Dialogues of animals; and c) Description of animals using different person subject agreement and/or tense or aspect.
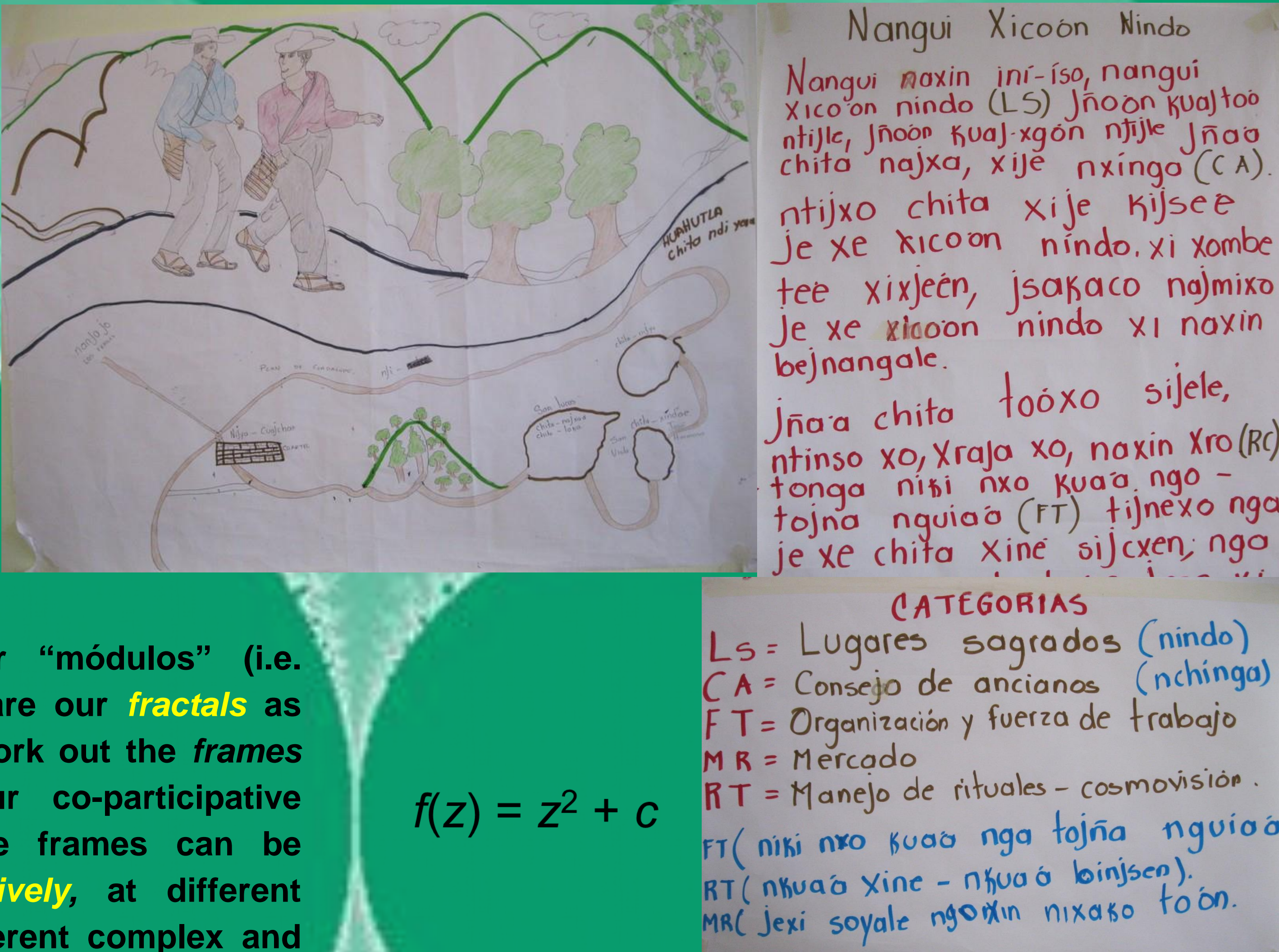3. "Easy" Grammar.

For example...

In some way heiress of fractals study, Complexity Theory is more than math's. Contrasting Euclid's geometry (lineal, static, and continuous in a well defined order), Mandelbrot's work proposes a *new philosophical and mathematical synthesis* (1975 [1985]: 2), where objects are dynamic, non-lineal, and irregular, giving a place to study uncertainty, chaos, scales and change. These components are also present in human relationships. They should be considered in natural language study, specially if it is based on fieldwork.

This new approach, as compared to Euclidian and lineal approaches, brings a series of intellectual tools which can prove strikingly useful in resolving bilingual educational problems faced by minoritized languages and linguistic communities endowed with a high dialectal diversity.

This "complex simplicity" characterizes *CPEW* methodology. It made possible for the IUF MAmP & EM2 Labex EFL team to realize 32 workshops since 2010, 17 of which are available on internet, thanks to the "Cross-mediated endangered language elicitation" (EM2) operation of the Labex-EFL (strand 7):[j]

axe7.labex-efl.org

Mazatlán Villa de Flores (2012)

1. Mazatec sacred mountains myth

2. Invisible communities workshops (here, in Nahuatl)

Taller Santa María Teopoxco (2011)

3. "Easy" Grammar (here, Mazatec, SM Soyaltepec)

Taller de gramática realizado del 23 al 24 de agosto del 2013, en la agencia de Corral de Piedra, Municipio de San Miguel Soyaltepec (Distrito de Tuxtepec), con la participación de profesores de la Red CMPIO Plan Piloto (Coalición de Maestros y Promotores Indígenas de Oaxaca).

This activities or "módulos" (i.e. *framing chunks*) are our *fractals* as they help us to work out the *frames of action*[k] of our co-participative workshops. These frames can be reproduced *iteratively*, at different levels, taking different complex and unexpected shapes…

$$f(z) = z^2 + c$$

These intricate patterns of *corpus elaboration* and *cultural revival* and *legitimation* through *CPEW* are linked, at least, by the following interconnected features: a) *Vicariance* and *iterative learning*, as a result of experience, particularly watching, listening, writing and reading participant's mother tongues, which is often unexpected on non-literary languages communities ; b) *Flexibility*, instead of deterministic rules of education linearly imposed ; c) *Self-organisation*, which implies the negotiation of educational contents in interaction, out of a simplex canvas.[h] Participants to the *CPEW* build together a particular and unique *participation framework,*[k] making visible their language and culture, but also developing a critical as well as an emancipatory pedagogy put into practice, *hic et nunc.*

In this way, the *CPEW* methodology promotes a *pedagogy of freedom.*[l] Finally, as has been suggested earlier in this poster, these workshops tend to *infinity*, as fractals and fractal models, because they can be applied to a non finite set of sociolinguistic contexts and ecological situations, being neither *universal* nor *static,* but rather *reflexive* and *self-organizing*, as they work as a *dynamic process* and a resilient creative system, resorting to both *learning systems* and *decision systems.* Even more, they contribute to understand sociolinguistic variation from a complex perspective.[m]