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Certainty and Uncertainty in Education - a Contemporary Challenge for Teachers

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Abstract: *This study is a reflection on educational reality based on certainty and uncertainty coordinates. Exploring the significance of the binomial reality, generated by the different degrees of certainty, perceived by the actors involved in teaching, the article proposes a few acting options, in order to develop an appropriate orientation of the teacher training process, in a contemporary society marked by the "certainty of uncertainty". Embracing the unknown, coping with unfamiliar situations, reflecting constructively on one's own mistakes, as part of a teacher daily activity, are generated by a genuine positioning towards uncertainty in education, raising it from the status of a problem to the hypostasis of an opportunity. Mapping uncertainty through resilience, building confidence in experiencing doubt, reshaping learning by daring to approach dilemmas and stepping out of inaction can be viewed as valid alternatives in developing a professional self in a changing environment. That claims a rethinking of teacher training in terms of developing abilities for sustaining appropriate responses and a proper understanding of the relationship between certainty and uncertainty in education, having the intention of building quality learning experiences. The concepts of choice and change are about to conquer the ideas of standards and stability in educational context as proofs of a renewed approach in order to delineate core drivers of human development in contemporaneity. That is why rethinking teacher training needs to focus on articulating the reflective practicing with experiencing a constant change, integrating the multiplicity of opportunities in a supportive learning environment for developing a global competence, in order to respond effectively to the contemporary challenges.*

Keywords: *certainty and uncertainty in education, teacher training, resilience, reshaping learning*

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1. Introduction

A reflection on education based on certainty or uncertainty coordinates can be helpful for teachers in their approaches to a genuine positioning towards challenges of their activity and in their effort to manage own professional growth and to create a stimulating environment for learning and personality development.

The first steps in approaching a reality is naming it and then trying to define it. Circumscribing a reality in the context of a definition means giving more familiarity to the reality and minimizing the distance in the knowledge process? Then what means defining uncertainty? Being more certain about certain parts of uncertainty and diminishing its mystery? Or maybe it refers to extending the vision on it by expanding the possibilities of thinking and acting towards it?

2. Certainty and uncertainty - possible working definitions

Exploring the significance of certainty, as offered by the definitions found in dictionaries and encyclopedias representative for the eighteenth-century, allows D. Perinetti (2014) to identify a few distinctions: *objective certainty* (a property of a thing related to the impossibility of being otherwise), *subjective certainty* (related to the impossibility of knowing a thing to be different) and *formal certainty* (implying a firm adhesion to a specific meaning). Relating certainty to a specific modality of obtaining it, based on a literature review, the author delineates three forms of certainty: *metaphysical certainty* (obtained based on rational criteria and specific- domain related), *physical certainty* (as a result of empirical knowledge) and *moral certainty* (derived from the common beliefs on expectations related to human behavior in social structures).

Expressed in terms of perceived reality, referring to the properties of things revealed by the various possibilities of knowing them, the attitudinal-affective positioning towards this reality reflects different degrees of certainty, linking the external reality to its internal echoes (our state of mind) derived from the specificity of processing involved.

According to the Cambridge Dictionary (n.d.) certainty means something that cannot be doubted, also referring to the state of being confident or having no doubt about something and to the sure knowledge that something is true. We can affirm that the meaning of the term is constructed the same time referring to an external reality, that we perceive and interpret (something that cannot be doubted), but it also has internal implications relating to an attitude generated by our interest in approaching reality (the state of being confident). It reflects both the significance and our positioning towards objects, processes or phenomena of reality. Certainty is placed under some stable coordinates that anchor our efforts during the lifelong journey of knowledge. In order to be confident about the taken route and the destination of our journey, we are in permanent search of landmarks, anchored in social recognition and approval, and sustainable through a timeline perspective. It is interesting how these fixed coordinates help us to move forward, give us a meaning for our journey and always help us to find the way back home: to the foundation and to the core meanings of things. The same dictionary offers some definitions to uncertainty: a situation in which something is not known, or something that is not known for certain, the same time referring to the feeling of not being sure of what will happen in the future. Our positioning aside from the knowledge (our personal knowledge or an existing one), put in correspondence with the results of our efforts of reflecting on it, based on hypothesis that still need to be confirmed, or on observations that still need to be done, configures the context of uncertainty, according to the offered dictionary meanings. It also implies some attitudinal markers, stimulating various feelings and guiding our future actions through this way added value. If a certainty is a like a solid rock you can build your actions on, uncertainty is more similar to quicksand that is to be avoided because it doesn't offer comfortable feelings, sometimes implying fatal risks.

In a dialogue about the meaning of truth and the given possibilities of knowing it, Heinz von Foerster affirms, in front of B. Poerkesen, that the knowledge is tied to the knower, and the result of it is a constructed reality, as it appears to the observer and being presented in his descriptions, differing from the *independent existing reality*, taking in account the linguistic

particularities (Poerksen, 2004). In our opinion it is a vision on a perceived truth constrained by the proper use of terminology and by the ability of *the knower* to code a certain message for potential beneficiaries who can access only the message, or both: the described reality and the proposed message. There are also more variables that we can take in account as referring to the person receiving the message: the availability of decoding it, the intention of giving a significance, his linguistic competence, the cultural context of decoding the given message. Therefore, it's possible to add new coordinates to the initial perceived reality or to extract the needed form of it, after such a knowing experience. That puts us in some kind of impossible state of knowing something for sure, but maybe here intervenes the attitude related to knowing: I may have some certain facts to rely on, but if my attitude is a hesitant one, based on previous feedbacks on my actions, the given facts may receive a doubt of uncertainty, as referring to me, trying to associate some significances and defining my positioning towards it.

We affirm the certainty the moment we feel it and we truly believe in it, even if it is in correspondence with some scientifical confirmed facts or is related to some personal observations, or even it is built on personal expectancies, but sustains the emotional balance and comfort, and we associate uncertainty with a lack of knowledge, with the existence of doubts, or with some uncomfortable feelings regarding both the present state of facts and the future possibilities of evolution.

Heinz von Foerster (Poerksen, 2004) recognizes the existence of a *connectedness* between the knower and the reality of interest. According this opinion the reality is valued in so far as it is the object of interest for someone. Certainty and uncertainty have no significance aside of the knower. The indifferent has to evolve in something noticed, then in something needed to be interpreted, based on reliable resources and then placed under the sign of interesting, or challenging, only then associated with certainty or uncertainty. The curiosity is the driving force and our exploring efforts and actions are calibrated according to it.

Not only personal thoughts and actions derived from our intentions of interpreting the world are relevant in placing objects, processes and phenomena under the certainty/ uncertainty umbrella. Interactional

approach is an important dimension which helps the individual build an attitude towards something or someone. The idea of similarity and consistence that makes reality become "communality and community", according Heinz von Foerster (Poerksen, 2004) and the importance of sharing meanings is a source of validation, helping us to understand and live the given reality.

We cannot interpret the distinction between the known and the unknown using the distinction between certain and uncertain, because certainty and uncertainty relates to different degrees of valuing an area of knowledge (at a microstructural and macrostructural levels of approaching), and direct proportionality is not a rule of action: we can have more doubts about a well-known fact, or we can have the impression of certainty related to a partial truth (it is difficult to appreciate the extension of knowledge, related to the possibilities of knowing it, and the more we know can generate a bigger degree of uncertainty, related to the general extent of the personal acquired knowledge).

Certainty, truth and the claim for objectivity are related and represent coordinates of our epistemological concerns. Even if observation plays an important role in placing assumptions in the context of an expressed truth, it represents only a limited perspective on the reality, a personal one, that is distant more or less from some coordinates of an absolute truth, considering that there is one, even if there are sufficient doubts related to the possibility of attaining it (Poerksen, 2004).

In this study we are interested to explore the relationship between certainty and uncertainty in attitudinal terms: as different degrees of perceived certainty. We believe perceived certainty to be a result of the affective valuation of cognitive processing, placing higher or lower, on an attitudinal scale, our emotional comfort, further determining our actions. The cognitive processing of external reality is also mediated by interpersonal relations and its specificity can influence the degree of certainty as regarding the consistence of social adhesion to certain meanings, as a part of our social identity. This is sustained by the need of familiarity and recognition at the community level and confirms the crave for certainty as an important dimension of our existence. Knowledge is a result of reflection placing our

inquiry efforts under the sign of different assumptions of certainty, allowing our actions to develop differently in the context of the processing sliding on the axis of higher-lower perceived certainty.

3. Certainty and uncertainty in education

How can we interpret educational reality through the grid of different perceived levels of certainty? Is certainty in education something to search for? What ways do we have at our disposal to deal with uncertainty? Shouldn't we consider that a certain degree of uncertainty is favorable for further exploration of things?

We would like to think that the meaning of education could be considered a certainty: from centuries, humanity is interested in assuring its future, focusing on transferring the cultural inheritance to descendants, progressively focusing on the individuals' personalities development, for their successful integration into society and designates education as the process responsible for it. It is a general statement that makes the barriers crossing possible as referring to generations and nations. A systemic approach needs consistence in terms of certainty, but at the level of its subsystem components functioning, the degree of certainty is changing because of the involved probabilities. The planet spins on its axis and travels around the sun but the same time hosts multiple choice movements, respecting the diversity of rhythms of its inhabitants. These various types of movements, developed at different scales, do not exclude one another, but use a diversity of supporting pillars that allow an independent and, at the same time, an interdependent functioning, defined on specific coordinates.

The evolution of the humanity is a certainty but we have no certainty that our expectancies will turn to reality, even if we can talk about an evolution at all, because this territory is exposed to multiple influences and we have no certainty that we have identified all of them, without even thinking about some sort of intended degree of control. More than that, we are aware that change is a defining attribute for living. Its exploration, at the level of individual and collective existence, reveals unsuspected prospects and challenges us with the need of developing new abilities in order to cope with it, in a lifelong approach. Definitely we can associate this with a matter

of thinking and acting: "Think globally and act locally!". Certainty is associated thus with an orientation and the specific means and ways of action remain flexible and make room for creative interventions, in order to give additional certainty to the multiplicity of projected options. We are certain that we strive for stimulating the potential of an individual development at its maximum, but, in a continuous approach, we are uncertain that this actually happened, referring to a specific moment of life.

The four components of the curriculum (educational finalities, contents, methodology and assessment) analyzed in terms of certainty and uncertainty are subordinated to the same principle: in general terms, the educational action is placed on a certainty trace in accordance with some specific axiological coordinates but, descending at the microsystemic level, the degree of uncertainty increases, because the diversity of the instructional situations that claim a particular approach. The freedom to construct this particular approach is associated to some sort of uncertainty because the expected results can be only judged in probabilistic terms, until the educational reality validates the taken actions (even if we decided to put in action a specific combinatorics between the finalities, the instructional content, the methodology and the assessment). The possibilities of monitoring and controlling the components of the educational environment are limited by a flexible approach of the human development process: a student centered one, giving the learner the freedom to choose but, the same time, making him aware of the responsibility for his decisions.

The relationship between certainty and uncertainty in education can be viewed in a pluralistic approach, given the multifaceted aspects of the educational reality, derived from the complexity of its structural components and their functioning, the two possible levels of analysis (microstructural and macrostructural) and the variety of aspects involving the systemic and the processual perspective on education. These arguments justify the possibility of taking in consideration *certainties* and *uncertainties*, as referring to educational actions. The didactic logic of constructing the instructional situations, its dynamic functioning also sustains the plural vision on the perceived certainty. The scientific logic extends this meaning regarding the multitude of truths as distinct hypostases of various stages of knowing reality

using scientific instruments. The diversity of educational actors involved (in terms of initiators and beneficiaries of the instruction) also emphasizes the variety of perceptions regarding the formative mission of educational institutions and that's why we face different ways of planning, organizing, implementing and assessing sequences representing didactic process. The human resource also places the identified certainties or uncertainties under the dynamic of objective-subjective coordinates.

Logically, we place in opposition certainty and uncertainty, but taking in consideration the attitudinal construction involved in considering something to be certain or uncertain and referring to degrees of certainty delineating multiple certainties, in education we can consider a continuum build on an axis marked by various degrees of certainty. Placing in opposition certainty with uncertainty is maybe useful for highlighting the significance of each other in an intuitive manner, sustaining a first step in understanding, but the dynamics of educational phenomenon claims a vision for continuity not a gap between two extremes. We manage to differentiate a new binomial reality: the relationship between certainty and uncertainty in education. The educational process imprints all components, coming in contact with it, the dimension of growth, of a staged transformation, of a transition from one state to another: from a present state marked by a lack of something to the desired one in which the expectations are met, the needs are satisfied. In education we witness a multitude of transformations sliding in the context of evolving from one extremity of the axis to another: the continuity between concrete and abstract, between simplicity and complexity, between dependency and independency. But the affective domain involved in perceiving something as uncertain sometimes eludes the continuity axis: a shadow of uncertainty can turn upside down coordinates marked by a previous perceived certainty. It's like an assumed duality, considered in a black and white version, without any degrees of colored grays. According this perspective we can have an axis describing different degrees of certainty placed between a higher and a lower level, but is the extreme low-level equivalent to the uncertainty level or uncertainty is marked by the total lack of certainty?

These reflections on education, overlaid with a binomial perspective on certainty and uncertainty that mark the human formation process, can influence the vision on teacher training. We need certainties as coordinates of a framework for future teachers training in order to make them be better prepared in managing uncertainties they will face. We need to relate risks, gaps, and unpredictable events with some sort of resources bringing an instant added value to the instructional process.

4. Certainties and uncertaities in the teacher training process

Professional certainty is a dimension of interest for teachers because the specificity of their work leads to a degree of uncertainty and to the need to cope with it, using resources acquired during the process of personal and professional development (Munthe, 2003).

E. Munthe (2003) affirms that coping with uncertainty means, in fact, dealing with it and its results can be observed in the particularity of actions and taken decisions. The author chooses a three-dimensional scale in order to study teachers' professional certainty: *didactic certainty*, *practical certainty* and *relational certainty* and relates these levels with a few aspects specific for the teachers' work: *collaboration, job satisfaction and role ambiguity*. The results of the research showed variations of the perceived professional certainty at the individual level not at the school level.

The discourses of the education policy makers oscillate between standardizing and flexibility approaches (Reid, 2018), opening a plurality of perspectives for the future of education. The author affirms that there is no need to propose universal solutions and pleads *for a culture of research and inquiry* on which we can develop strategies for the teacher training.

Schuck and Buchanan (2012) discuss the presence of standards as a fundamental dimension in the teaching profession - defining standards means establishing a correspondence with certain competencies that need to be developed. Based on a literature review they point out that, for some authors, the presence of standards marks, in an opposite manner, the presence of uncertainty that need to be avoided, but, for other authors, the presence of standards is related to some axiological coordinates that should define teachers' personality. The authors wonder if defining competencies

expected to be developed during teacher training programs will not possibly lead to some limitations of approaching the variety and complexity of instructional situations. Beyond proposing a specific way of acting, the presence of standards leaves any room for doubt?

Both observations of educational reality and the efforts of its systematic research indicate that even if for novice teachers uncertainty is "troubling", generally speaking - "uncertainty is important to teachers' thoughts and feelings" (Floden & Clark, 1987). Therefore the authors plead for a *preparation for uncertainty*: considering that is very important to develop skills in order to position oneself on an "appropriate state for uncertainty", activating certain dispositions, reflecting three general dimensions: *teachers' abilities* related with the *primary functions of teaching*, *teachers' psychological health and their intellectual honesty* (implying the recognition of uncertainties, opposing to the ignoration of it). As ways of action marking the state of *preparedness*, Floden and Clark (1987) suggest: taking the *"best bet" actions, seeking greater certainty* (constantly pushing the limits of the certainty degrees), *anchoring in the peer support, reflecting honestly on the given situations* (avoiding to ignore uncertainty). Authors affirm that teacher training programs must focus on "educating teachers for uncertainty without throwing them into inappropriate and unnecessary states of discouragement and despair." Preparing teachers for uncertainty implies giving new meanings to the unexpected and to the unknown. Phelan (2005) relates the state of being prepared to uncertainty with the state of *learning to be practically wise*. This approach means a deliberate intention of changing personal balance, with a readiness to lose certainty, dealing with overwhelming feelings and embracing uncertainty as a result of engagement in a prospective flow of thoughts and experiences emerging from the variety of potential approaches. Preparedness for uncertainty also means "practicing appropriate responses to uncertainty": implying adaptation of tasks in a virtual manner of *seeing* and *dealing* with uncertainty (Floden & Clark, 1987). Being prepared for uncertainty does not guarantee always making the best decision but implies assuming all the taken decisions and a permanent questioning about the value of completed actions. The state of preparedness for uncertainty is not always related to the quantity and to the quality of actions but to the courage

of acting in spite of the number of doubts. It is like an effort to clear a path not by eliminating components but by striving to give a meaning and to rearrange the given resources, according to the new identified possibilities of action.

A possible approach in understanding the relationship between certainty and uncertainty in education can be related with the intention of circumscribing the hypostases of change in education. Usually changes cause uncertainty but in the educational area we can view the change not only as a contextual variable, but also as an aim: instead of being afraid of it, we should be, in fact, searching for it. As a contextual variable, the change in education shouldn't be associated with a risky perspective but, on the contrary, with an opportunity to explore the new activated resources.

A literature review allows Helsing (2007) to highlight the uncertain nature of teaching due to "a little consensus about the goal or methods of good teaching" and to the multiplicity of expected roles to be played by a teacher. Often teachers face dilemmas in their efforts to balance individual needs of students with the collective expectancies, to act like a stimulator of learning, the same time trying to assess the learners' performances, to search for academic progress, the same time nurturing students' personal development.

Schuck and Buchanan (2012) draw attention on the value of doubt in didactic context, placing it on an axiological axis. They affirm that teacher training programs often fail due to their inefficiency in preparing future teachers to deal with the complexity of the instructional situations, uncertainty being generated by a difficulty to integrate theoretical knowledge into the educational practice and by the lack of a grid for analysis teachers' own educational practices with an improvement intention. The authors also affirm that the western world often uses questionnaires measuring the teachers' degree of confidence towards the teaching profession, as an indicator of success in education. Schuck and Buchanan (2012) consider it to be a false indicator, pointing out that the self-efficacy is not a good predictor of success and suggest that we should consider the presence of some degree of the doubt as a mark of success, being more appropriate for the educational reality approach.

White and Williams (2017) consider that it's important to teach a constructive way of approaching uncertainty, with the intention to reduce anxiety and burnout. The presence of uncertainty in education has to be treated in a familiar way and an appropriate way of dealing with it is exploring its potential and not eluding its presence. The teacher training programs should consider this as a principle of their development. Exploring the traits of contemporaneity, Lloyd (2008) sustains that "uncertainty is our only certainty". As the educational reality replicates at a microsystemic level the functioning of social structures, we can extend that vison on the individuals' developing and formation process. Assuming that educational policies shape the vision of a future education, in order to deal with the unknown and with the fear of it, attempts to "bring certainty to uncertainty" (Llyod, 2008). Educational policy makers are articulating their decisions to preferred visions of future education, using the legal provided certainties in order to deal with situational uncertainties.

Schuck and Buchanan (2012), discussing the need for doubt in education, express that they "feel compelled to doubt the value of the doubt as well". That means not only teaching future teachers how to manage uncertainties but also considering doubt as a teaching resource and inserting it into the teacher training programs with the intention to increase the future teachers' resilience, making them able to cope with uncertainty, making them aware of the fact that perfection is an ideal we aim for, but we are never able to attain it, only managing to approach more or less to its significance. That is why an imperfect action can be valuated as a starting point for the improvement of exploiting available resources in a different context or in a different manner. If the previous efforts in teacher education were focused on "minimising or avoiding uncertainty", the authors encourage us to dare mapping uncertainty by "stepping outside of it" and looking at it in a more friendly way, giving up a "threatening standpoint". Being aware of a territory populated by uncertainties means not only delineating the known area from the unknown one, and building actions in the familiar space, but it also means acting accordingly, daring to explore parts declared non-existent by an ignorant: "doubt could be seen as the unknown intruder, or the child who not only declares the emperor naked, but then dares to stare" (Schuck &

Buchanan, 2012, p. 3). Being able to stand without fear on a territory marked by uncertainty and intending to move forward and beyond it means to activate the coping potential and the same time to evolve professionally, by discovering new resources to use in the new opened areas.

5. Conclusions

Contemporaneity is defining itself as a mixed reality (the reality of objects, processes, phenomena; the reality of persons and social structures; the internal and the external reality, the known and the unknown, the perceptible and the imperceptible parts; the past, present and the future reality; the reality above and beyond) involving both opportunities and threats, but we are allowed to delineate their actual significances according to our readiness to know, to value and to share meanings. Our awareness of some parts of the reality, our need to define and to internalize, echoes to the deepest layers of our existence, activating the affective-attitudinal domain and positioning us towards doubts or certainties. Expanding interrogations and enlightening territories where the uncertainties are metamorphosed in certainties, is the only way to deal with something partially known or explored. There are various possibilities in approaching a new, unexplored territory, gaining slowly different degrees of certainty or, taking the decision to restart the entire process, as a result of a slight shadow of uncertainty. The distinction between the certain and the uncertain territory is not similar with the distinction between action and the lack of action (even if the uninitiated ones, taken by surprise of uncertainty, paralyze sometimes in their actions), but reveals itself in forms of differentiating actions meaning no runaways but daring to recognize, to accept and to deal with uncertainties.

Educational reality is very generous in terms of uncertainty and the actors of this field have to be opened to multiple approaches, to innovative ways of seeing and doing things in the light of the personality development and formation. Beyond the acceptance of doubt, and the will to construct certainties in the middle of an uncertain territory, teaching builds itself as a combination of science and art, offering both: answers to specific questions and formulating questions, with no intention to find answers, but with the desire to clarify the potential options.

Preparing for teaching profession consists not only in developing the scientific competencies related to a specific domain of study and developing psycho-pedagogical competencies that allow managing a class of students and to propose a variety of instructional situations, but also to develop the state of mind of future teachers reflected in a preparedness for stepping into a uncertain territory that needs to be mapped, explored and extended, with no fear but with a great excitement.

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