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## The 3PT & li model - of the teacher-student relationship

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### Abstract

*The research is conceptual, introducing a synthetic picture of the teacher-student relationship with the environment in which they develop throughout their lives. Starting from the conception of cognitive and social constructivism (Piaget, 1952; Vîgotsky, 1978) and the alternative Reggio Emilia pedagogy (Hewitt, 2001; Moss, 2019), we use the TPACK model (Mishra & Koehler, 2006). On their foundation, we build a new integrative model in which the development of the professor, the student, and the environment support and influence each other. The model enables understanding of the role of the means and the prioritization of the unity of interests and ideals of the people who relate. The TPACK model serves as a relevant example to illustrate the benefits of technology and its relationship with pedagogy. The 3PT&li model situates technology as both a source of teaching tools and a mediator of relationships with other established discoveries in human and societal development. 3PT&li eliminates the error of an obsessive demand for schools to solely adapt to new technologies, arguing instead that humanity constantly refines and adapts means according to evolving needs and expectations. Technology and its tools have consistently played integral roles and meanings. The model emphasizes that humans produce everything, including innovative technologies, with decisions resting within individuals, communities, and society. The 3PT&li model is explanatory and illustrative, providing a framework for understanding individual, group, and societal development. Definitions of communication often oversimplify the relationship between Sender - Channel - Receiver and Feedback; digitization allows for dynamic imagery, and we aim to present the model accordingly. Explanations of the 3PT&li model are rooted in the T-time axis and directed towards the educational ideal represented by I.*

**Keywords:** integrative model; professor-student relationship; constructivism; Reggio Emilia; educational ideal; interests.

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## 1.Introduction

In the past few decades, rapid advancements in technology have significantly transformed various sectors, including education (Koehler, Mishra, & Cain, 2017; Willermark, 2018; Ertmer et al., 2020). Missing, however, are firm emphases on the specifics of education (Burnett et al., 2019; Pink, 2022; Stan, 2022). "The engineering of learning" has advanced faster than the updating of explanations of the motivation of education, the importance of professor-student relationships in the formation of personality" (Postman, 1992). "The idea that the environment contains objects is wrong. It contains relationships" (Clear, 2019, p. 84), and these are always in demand to be studied in any context. The continuity of pedagogical principles requires to be supported by arguments specific to each period of civilization development. The emergence of new means of mediation and the facilitation of knowledge, as well as new meanings, meanings and content, are all new. Despite the growing use of educational technologies, there remains a significant gap in understanding their effectiveness in enhancing professor-student relationship. This is where the contribution of the 3PT&li model comes in. It provides a comprehensive picture of the processes of decantation and anchoring of knowledge both at the level of each generation and on the coordinate T, unlimited time.

The aim of the model is to emphasize the responsibility, unlimited in time, of each individual for the relationships that are established between professors - students - environment, regardless of their stage of development.

The article presents the premises of the proposed model, drawn from the TPACK model and the pedagogical ideas of the Reggio Emilia alternative. Through TPACK we recognize the potential of technology to provide teaching tools as well as content, through the Reggio Emilia alternative we emphasize the student- professor-media interdependence. The model foregrounds interdependencies on the T-coordinate of unlimited time - neither upstream nor downstream - as a perspective of intergenerational development.

The discussion part follows the chapter on the applicability of 3PT&li for professors, students and any person aware of his/her psycho-socio-cultural evolution in an environment equipped with new technologies.

The history of communication media—as participants in the growth of generations of children, young people, and adults—shows that the transition from one era or galaxy (Luhan, 1975; Tofler, 1973; Prenski, 2001) to another has been shortened, but they have not affected the direction of human evolution, only the pace. The tendency to prioritize tools in children's development has been favored by new digital technology "in which the functional and the quantitative are paramount" (Bell, 1976), as well as the Covid-19 pandemic. The surprise of the events, the need to quickly ensure the functioning of the school have allowed the careless use of the language of education - with implications for the behavior of decision-makers, professors, students, parents. Our concern is to offer coherent explanations in the face of

media centrism - capable of generating unfavorable perceptions and confusion between the roles of actors and technology. The complexity of the means and content of learning does not ignore the laws of human evolution, so much so that it is necessary to respect them in explaining the context and conditions of the process of person's development.

## 2.Premises of the new model

Among the explanatory models of how new "intellectual technologies" influence development, TPACK (Technological Pedagogical Content Knowledge) as conceptualized by Mishra and Koehler (2006), along with subsequent iterations (Koehler & Mishra, 2009; Mishra, Koehler, & Henriksen, 2011; Koehler et al., 2014), enjoys high praise. The most recent review by Koehler, Mishra, and Cain (2017) focuses primarily on applications in education. We make use of the TPACK image on interactions with digital technologies, the constructivist paradigm with the acceptance of the together growth (Şoitu, 2019) and the Reggio Emilia alternative. In our acceptance, the maximum importance of the TPACK model is its applicability to any period in history - past, present, for which it is built, but also future.

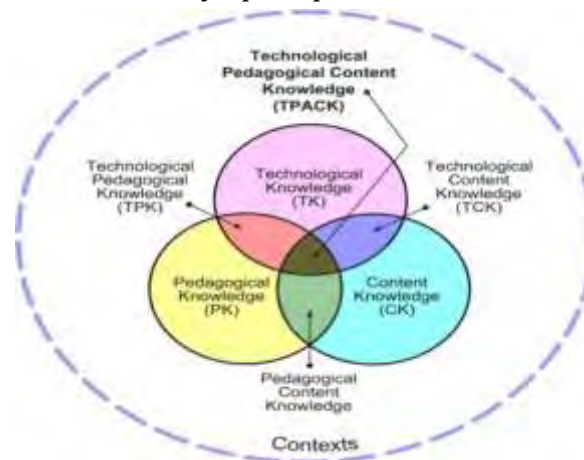


Figure 1. TPACK model, variant Mishra, P., & Koehler, M. J. (2006), p. 3.

An analysis of the image situated in the most diverse contexts highlights:

- TPK - Technological Pedagogical Knowledge - situated at the intersection of TK (Technological Knowledge) and PK (Pedagogical Knowledge) describe the pedagogical virtues of technological tools. In an explanation, which we consider much more appropriate, TPK would mean "pedagogical technological knowledge". In fact, it is the ability to produce and use pedagogical tools in favor of the achievement of the objectives by referring appropriately to students, professors and the training environment.

- PCK - Pedagogical Content Knowledge - situated at the intersection of PK (Pedagogical Knowledge) and CK (Content Knowledge) - expresses interactions between pedagogical practices and content for learning. By PCK we mean pedagogical content knowledge, in other words, knowledge of the virtues conferred on content by new technologies.

TCK (Technological Content Knowledge), situated at the intersection of TK (Technological Knowledge) and CK (Content Knowledge), describes the relationship between technologies and learning objectives. When used as means in the didactic process, technologies become carriers and mediators of messages (Luhan, 1975), imbuing significant meaning (Șoitu, 2001; Neacșu, 2020). The professor selects tools capable of faithfully conveying the message that "has the audacity to offer something that no one asks him" (Serres, 2012). At this juncture, technologies enable both the professor and the student to exceed expected boundaries.

Most reviews of the TPACK model focus on empirical studies and their implications for educational practice (Chai, Koh, & Tsai, 2019), the model's implementation in teacher education programs (Phillips & Harris, 2018; Janssen & Lazonder, 2019; Hsu & Yang, 2021; Mouza & Cavalier, 2020), its exclusive influence on instructional technologies and learning (Ertmer et al., 2020; Dong, Xu, & Zhang, 2022), and trends in model-based research (Willermark, 2018). We note that the TPACK model prioritizes technology, endowing it with pedagogical virtues. The discussion is lengthy, if we consider that every piece of wood fitted together was a horse-riding training, every carpet became a vehicle for supersonic flight. That potential does not belong to the objects themselves, but to the person who endows them with powers through imagination. Now we are witnessing the ennoblement of technology with the power of the professor, of real friends, of the socio-cultural universe populated by augmented reality of virtual reality sometimes designed for the metaverse. Projections will multiply and renew. The sine qua non condition is the existence of the creative human being who is responsible for himself, for all that is and is to come.

The second premise, the Reggio Emilia pedagogical alternative, holds importance due to its early emphasis on the interaction between space and the educational process (Ceppi & Zini, 1998; Vecchi, 1998; Hewitt, 2001; Moss, 2019), as well as through broader approaches offered by seminal works (Hall & Rudkin, 2011; Edwards, Gandini, & Forman, 2012). Such an approach makes it possible for schools to increase the school's interest so that students can discover the joy of success together, of growing together and continuously. The presentation of the roles assigned by Reggio Emilia to all the actors and the graphical representation are in the description of the proposed model.

### **3.Presentation of the 3PT&li Model**

If PCK - Pedagogical Content Knowledge - and TCK - Technological Content Knowledge - are content of learning, then what should be known about the technology used? First, it will be important to understand and use it only as a means, never more. We will look at the picture made up of the three components, as having only a quantitative growth, the quality being given by the elements in the area of common intersection. For these reasons, the importance of the TPACK model is given by the size of the common area, but that will always be dependent on its users. The picture is that of Venn circles / Venn diagrams, in which the

common areas are of interest, either as a result of encounters or as a potential for increasing the common intersection area. This is because, in education, a single point of the tenge of meaningful encounters between professor and student can become an ever-expanding territory (Şoitu, 2019). A simple idea, astonishment, reaction of the professor or colleague turns into a field of research and affirmation for one or more. The circles themselves can have different dimensions, or they can be denser, richer or more rarefied. Their role is revealed when users emerge who are willing to use them for their own growth, the growth of others and the growth of the learning environment.

Two other pairs of two circles move vertically along the development of each individual and groups, making it possible to increase the level of CK, PK and TK over time. We observe that the various forms of knowledge become dependent on their intense, continuous, effective use by each person, each actor in the educational process: professor and student. The image offered by the TPACK model we have fixed on the axis of time, as one of the elements on which the student's development will be shaped. Before deciphering the higher meanings of other dimensions, the student will make use of the means, the tools at his disposal. Now he will learn that he is never alone; he grows together with his professors in an environment that also does not remain unchanged" (Rytivaara et al., 2019).

Thus, we constructed the 3P&T model by which we represent the simultaneous becoming of the S-student, P-professor, E-environment placed on the T - time vertical. S-student, P- professor, E-environment are supported by specific forces - resulting from their intersection/relationship, from their congruence/incongruence, at any moment of the evolution of the individual, group and/or society. This living spring/mechanism made up of S-P-E has a simultaneous, continuous, multidimensional and complex dynamic - often impossible to grasp in its ever-changing wholeness.

The P-E-P and S-E-S relationships are important because they lead back to the (re)established relationships between S-P-S, to what is to be improved by each. The improvements will be for both of them and for the self - in order to continue the (professor-student) relationship. Consistent with the idea of the professor's responsibility for the student's good development, in the review, first of all, we named the student - to whom the development projects through the school are subordinated. Essentially, we are talking about a simultaneous unfolding of P-S-E, S-P-E, P-E-S, where each occupies a central place, but with the aim of joint development. The student and the professor become either the main elements, or those concerned with developing together an improved environment, adapted to the interests of their generation, but also transgenerational.

Separate analysis of the P-S-E, P-E-S, S-P-E interdependence has integrated the perspective offered by the Reggio Emilia pedagogical alternative (Hewitt, 2001; Moss, 2019). In Reggio Emilia, both the professor and the student engage with the environment as a facilitative element for growth and mutual interaction. Thus, the environment becomes the

"third educator" (Strong-Wilson & Ellis, 2007), influencing each student and professor continuously across different stages. The environment, viewed as a partner and educational resource, supports ongoing learning and maintains a stable equilibrium for educators. Recent literature underscores the environment's pivotal role as the "third educator" in contemporary educational contexts (Strong-Wilson & Ellis, 2018; Malaguzzi, 2018), particularly emphasizing its significance in early education (Turner & Wilson, 2019; Gandini, 2019; Rinaldi & Moss, 2019; Nimmo & Park, 2021).

P1 - the student, who is his own professor - takes from everyone in his own way only what he understands, feels and can use;

P2 - the professor is the student-professor, but also himself, aware of the influence of the student and the environment on himself, but also vice versa, of himself on all. The professor's action is the only one charged with responsibility for the becoming of the student, the environment and himself (Nimmo & Park, 2021). It provides continuity between the past (the roots of growth), the present with its imperatives and the desirable future.

P3 - the environment, is the one that everyone is obliged to take into account because it encompasses time and space with the bio-psycho-socio-cultural of all the stages traveled. In the environment the professor and the students will discover favorable and unfavorable influences, the causes and the desired or unfavorable variants for the proper development of the instructional and educational process (Hall & Rudkin, 2020, Vecchi & Giudici, 2020).

If we look at this relationship in the announced sequence, then we notice that we start from the now axiomatic situation of mutual influences between P-S and S-P. It is a relationship not fully contested by anyone and never, because, in the end, it is the common goals and compatibility between the participants in the process that matter (Härkki et al., 2021).

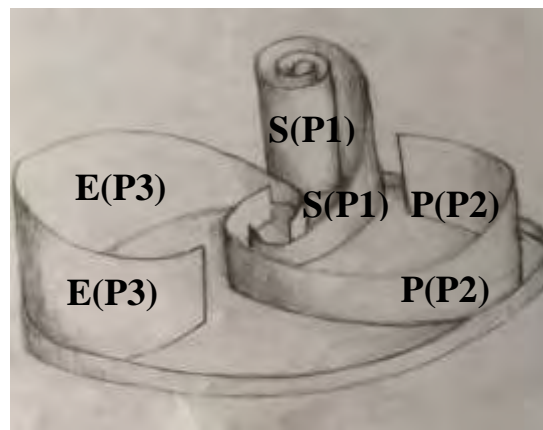


Figure.2. 3P&T Model. Student growth at the intersection of professor and environment.

The 3Ps are seated on an imaginary surface, but not necessarily on the same level, which is pushed from the bottom up through time. Each P and each S is loaded with different



background elements and interests, possibilities. In the context of each stage of development the student, the environment and the professor intersect simultaneously with the particularities of that particular moment of their own development. Each comes with a larger or smaller, broader or narrower base than the other expects, with the roots of person's development. At any moment of the meetings, compatible elements are selected, which will define the person of each one in his growth.

The meeting place of the 3P, located at the center of the T-platform, is equally everyone's and everyone's. Each relies on and counts on the specificity and potential of the other, but also has its own freedom of movement and motivation - including the environment through its tendency to conserve. Motivation, interests, some contrary, become forces, which give speed, dynamics to the movement of all the 3P on the vertical of time - T. The message is one of assuming the role for one's own growth projected permanently between a multitude of factors, if not determining, always influential. Everyone will take all into account in order to learn from everyone and everything (Kipling, Learn from all). The professor and the student are accountable for the results, first and foremost for themselves, then for those entrusted to them and for the state of the environment, which is reserved for other generations.

The relational competence between P and S energizes that which unites them - their interests, in the end, the educational ideal, making the most of the skills and K-knowledge acquired, supporting the V-values and particularities of each in favor of their mutual growth. The dynamism of growth is given by the continuous approach and distance between the participants in the process, always carried out in specific environmental conditions. Unity and diversity, the specificity of the participants and of the environment generate the same motivations for continuous growth, both together and on their own.

From this balance of interests, sometimes contrary, is born the common motivation, which guarantees the permanence of the process and growth based on the subjective and objective elements involved.

A complete representation of this permanent relational process becomes much more difficult because the intersection of Environment - Knowledge - Values applied to each of the 2P, but also to T becomes a new platform, a new spring, which makes possible the intersection with the space occupied by P-S-E and rests on what will always be the necessary means and resource, on TPACK. We get a much more complex picture, set in a "time tunnel", since each element of the professor-student relationship goes through the durations accompanied by a common set of supporting components, but also by different expectations. For these reasons, the surface on which the 3P are placed does not keep them at the same level, allowing each to leapfrog the others or fall behind. They can remain at the TPACK level - making an effort to accommodate, because "the ultimate realizations of learning are new states of the person" (Hirst, 1971, p. 12). What will encompass and accompany their upward

movement will be the environment, the knowledge (the contents of learning), the values oriented towards the height of the Ideal.

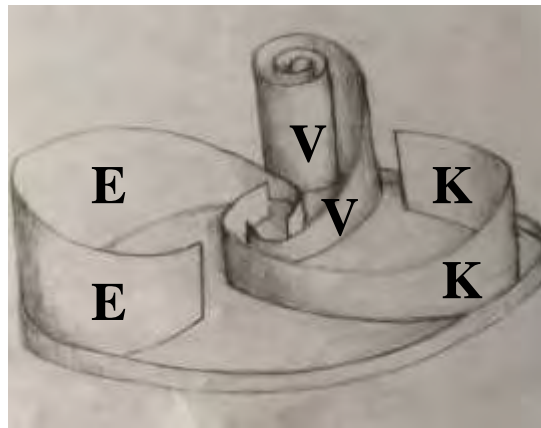


Figure 3. Environment-Knowledge-Values on the T-axis

We imagine the classic spiral, on which P and S climb up with - side, front and back - common and specific elements. They will be concerned that these do not remain unused in order to become themselves and to improve the environment necessary to cultivate the skills, behaviors and values of strong characters.

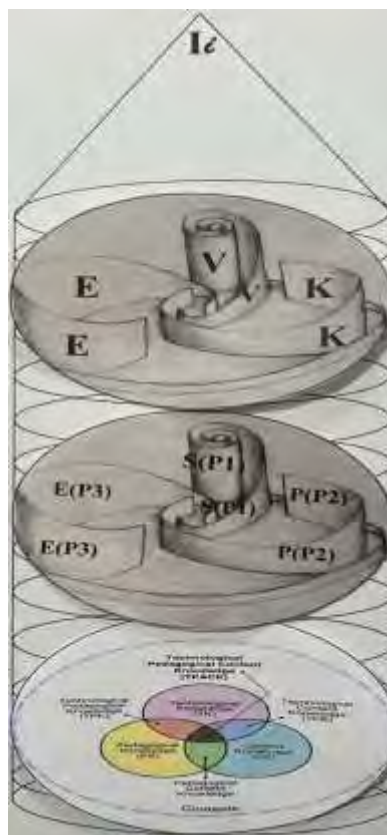


Figure 4. 3PT&Ii Model



The real picture is a different one, of a permanent anticipation of the elements in the process, because in it there are agglomerations and rarefication - of common and different elements. There are speeds, rarely equal, milestones marked unitarily, but with particular meanings, rare satisfactions - enough or too little - coordination accepted and postponed (Illeris, 2014). What will unite them, what they build together becomes the central axis on the basis of which other generations will continue their ascent.

The central axis - made up of the common intersections of the two ascending platforms, P-S-E and E-K-V joins with TPACK giving the imprint of the educational system's capacity. The harmonization of all the elements involved in the process and the pursuit of the Ideal transcend epochs and weigh the interests of individuals, groups, epochs. The E-environment itself, which is a constant element, entering into the composition of both platforms (with multiple intersections), will influence the axis - in dimension and quality. Of course, we will not ignore the importance of the means, the tools offered by TPACK, they are taken as from a device (warehouse) with an increasingly adequate equipment. On the other hand, we can imagine the ascension traces as a helical channel marked by crises, deviations and, quite rarely, uniform rhythms. It is like the trunk of a tree, in the section of which specialists can also decipher the climatic values of its growing years. This time, the development is not only based on minerals, water, light, temperature, it adds the professor's and student's own connection with the Ideal and higher interests.

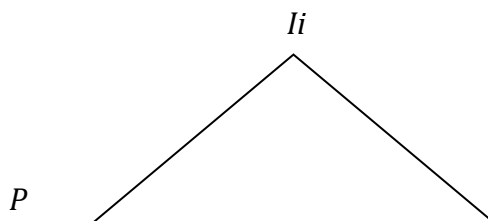


Figure 5 . Stone at the Head of the Angle created by P and S growing together

The Stone at the Head of the Angle will be the Common Ideal and the part of it taken by each as a model through interests. *I*- the Ideal and *i*- interest, *Ii* is established as the central element of attraction motivating the search for the good use of knowledge and environment - as present and past. Finally, there remain P and S accompanied by K - new knowledge and V - perennial values oriented towards *Ii*. *I* - the Ideal is the guarantee of transcendence, of continuity, *i* will ensure the moment, the stage. The advantages provided by the continuity of the team, learning continuously and together, reflect and develop the assumed goals (Pratt, 2014; Rytivaara, A. & al, 2019).

#### 4.Applicability of the model in school practice.

a. The model provides a dynamic picture of all the constituent elements of the learning and development environment of the individual, communities and society. It is useful at all school

ages and throughout life. The simple observation of the three platforms integrated in a space of the flow of time creates an image of intersections both horizontally and vertically. It is an opening towards "infinite games" through which all actions have meaning, are guaranteed that nothing is lost. At the same time, it also reveals the meaning of the interest-supported actions of each stage of the development of the person, society and technology, makes it possible to eliminate the simplistic understanding of any dependencies.

b. It favors the understanding of the coexistence of older and new knowledge, emphasizing the role of each element and their hierarchy - given by the meaning, direction and motivation of development.

c. Explains the inseparable presence of the ideal and interests for any stage of evolution of human society and the individual. Encourages and motivates people throughout their lives, emphasizing that the journey, not the goal, which will remain the responsibility of all generations, is of paramount importance.

d. In the context of the impressive development of the means offered by Artificial Intelligence, the 3PT&I model shows that technology can be excluded from the relationship with the social environment. But society is governed by contextual interests and values of the educational ideal.

e. The multiple interdependencies, placed on the coordinate of time, emphasize how elements in deep layers become current in future stages. The past influences the present and any future, and the technologies develop to become useful to all the 3Ps - professors inseparable in their evolution.

The 3PT&I model has strong symbolic value. P1 - the student learns from an early age - through family and early education - that he/she is responsible for his/her development in terms of pace, direction, quality, finality. He learns from the picture that his professors are not only his professors. There is another permanent one, the environment, which seemed inert, passive. P2, the professor himself also changes his self-perception. He is no longer alone, there are two others with the same name, but with separate roles, which do not cancel or diminish his own. Neither P2 nor P1 addresses a person without an awareness of their value and roles. The environment itself, which has been understood as a repository of diverse products (knowledge, means, values, interests) is perceived as the equal of the two. It is equal in terms of its influence, its capacity for limited acceptance of interventions, but the responsibility for preserving, molding belongs to the professor (P2) and the student (P1). The full significance of the model is realized when symbolic power is attributed to each of the three P's - even if it will not be equal. The hierarchies will be episodic, the process increases in dynamism, the rules become firmer and assumed by P1 and P2 for the favorable and permanent evolution of all.

The 3PT&I model, by emphasizing the role of the interests of the individual and those of the group, then the motivation to approach the educational ideal, underlines the

importance of effort. The desire to perform, to move from the mere use of technological tools to the ability to be a partner in the relationship with the professor and the environment, requires maximum and permanent involvement. The confirmation acquired in the 3P stage will generate the understanding of the need to continue the approach to values through new knowledge and meanings given to the environment and to oneself in the ascent towards the I - ideal, the model of the perfect personality.

The 3PT&I model based on the pedagogical content of technology demonstrates that digitization does not offer any break steps for the professor, the student or the specialists. TPACK is a stage that requires more knowledge and much more rigorous criteria for extracting pedagogical content from everything.

## 5. Discussion

The proposed integrative model is like a section in the long history of the growth of generations, which have made their way through dense layers, chasing that "I" = the Ideal. The human ideal is the benchmark towards which generations will continue to strive. We also felt it necessary to say that not everyone is committed to climbing the steps, but that some will stand in front of them. By the time that one has decided, another will have turned his back, and the others will rarely be on the same step of time - historically and generationally.

The means of communication will constantly and sometimes unpredictably evolve, but the relationships between professor, student and environment have the same meaning and significance. The motivation for the effort to preserve the relationship is its continuity - subordinated to the educational ideal common to all generations of professors, students and graduates. Discontinuity is given by the interests of the stage of historical development and/or of the individual, but the T-coordinate of duration preserves the meaning oriented towards higher, perennial values. This is how the 3PT&I relationship model has taken shape, through which it is possible to analyze longitudinally and transversally the relationship between the educational ideal and the actors in the process, their relationship with the environment and technologies.

To a possible question whether the image of the model could look different, we will answer: maybe. But the shape given is to suggest that we are in a 'time tunnel', through which the three plates ascend. Each element on them can go forward or fall behind. The important thing is what reaches the last plateau, the top one. There we have C (viable knowledge, content that has endured), V (enduring values), and M (environment) still favorable or better than previous stages. Finally, it is important if people have not forgotten their (human) Ideal, even if besides that big "I" (The Ideal) there is also the small "i", interests. All these are concentrated in the "Stone at the Head of the Angle", in which they are all found, both the

cornerstone and the stone to be reached, coveted, desired. It is so valuable that it is hard to achieve alone, by oneself, in one generation or only in a few. The unanimous conclusion is that, in education, it is more important to have traveled a meaningful path than to have reached the target!

### Acknowledgment

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The graphic representation of the model is realized by prof. D. D. Ionescu, member of the Romanian Union of Fine Artists, professor at the Students' Club in Iași.

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