



## From passive to viomatic or experience within: The evolution of education paradigms

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### Abstract

This paper, in dealing with the education paradigms, has the purpose of substantiating a new evolution scheme. The approach taken is based on two sources: On one hand, the examination of the presently accepted paradigm evolution scheme whose finding outlined a set of shortcomings that need to be overcome. On the other hand, the proposed paradigm evolution scheme suggests and substantiates the consideration of the following: first, competences constitutes a fundamental component in determining the educational process of a paradigm; second, educational entropy or the degree of disorder, uncertainty, or inefficiency impedes the effective paradigm development of information (e.g., construction/knowledge, application/skills and awareness /psychosocial factors); third, there is an educational triangle whose purpose is to provide students with the combined effect of the information development and its changes as the education paradigms shift; fourth, in today's world, the sheer pace of change demands an experiential orientation, requiring a "viomatic", or experience withing (accumulated), in order to achieve the goals of modern education; fifth, prioritizing experience means viewing the curriculum not as information mechanism to access educational contents, but as capacity to develop knowledge, skills, and awareness. Based on these, it is the unambiguous and categorical position of this paper that the scientific approach towards a new education paradigm evolution should be the increase of the information development and the decrease of the education system entropy.

### Keywords:

*Education paradigms  
Educational system entropy  
Educational triangle  
Experiential nature of paradigms  
Information development  
Paradigm evolution  
Role of competence in paradigms.*

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## 1. Introduction

Upon what the educational paradigm changes are based on? This question is still asked in the educational community. In theoretical terms, there is not a universally accepted answer (e.g., Dewey's: Experience as the Core of Education changes vs Piaget's: Constructing Knowledge Through Experience shifts), which shows that there are many suggested mechanisms leading to many debates around this notion among the educational community, which, however fundamentally outline certain factors' role and impact on education. The question then is: why do we need another education paradigm shift (EPS) mechanism description? A perfunctory

answer could have been that the presently accepted paradigm cannot satisfactorily support today’s teaching and learning conditions. However, the basic argument of this paper is that some fundamental factors as to how such shifts are considered and achieved are the result of a constant sequential process of the changes in the perceptions and beliefs of society that have an impact and are impacted by technology that in turn affects directly these changes, which are constrained by the way information/competence (knowledge, skills, and awareness) is developed and by the educational system’s entropy. That is, the aim of the paper is to show that this need is well justified. In order to make this seemingly complicated position clear and understandable, this paper will first present the existing EPS that determine each time the educational approach and the issues associated with such evolution, and then outline and substantiate the proposed new sequence of education paradigm shifts that have been taking place, which justifies the actual role, importance and impact of specific factors in the proposed paradigm such as the information development and the system’s entropy, among others, on that process.

## 2. Existing Conditions

### 2.1. Primary Shifts Determining Factors

The basic position of this paper is that a set of factors affecting the constant rolling changes or evolution of education paradigm shifts (EPS) have been practically ignored as the determining force in shaping them, and therefore there is a need to be examined. It is suggested that the state of the education paradigm, at any given moment, is the result of a set of primary changes in the underlying assumptions, values, and practices that define how societies in an amphidromous interrelationship with technology understand and organize the world. That is, the way a paradigm is formed is determined by the societal conditions that prevail at any given time, which however influence and are influenced by the advancements (changes) of technology which can be differentiated in the pre-AI period and AI era, which is of interest in this paper. The major shifts in these fundamental components and the issues related to them are examined next (Figure 1):

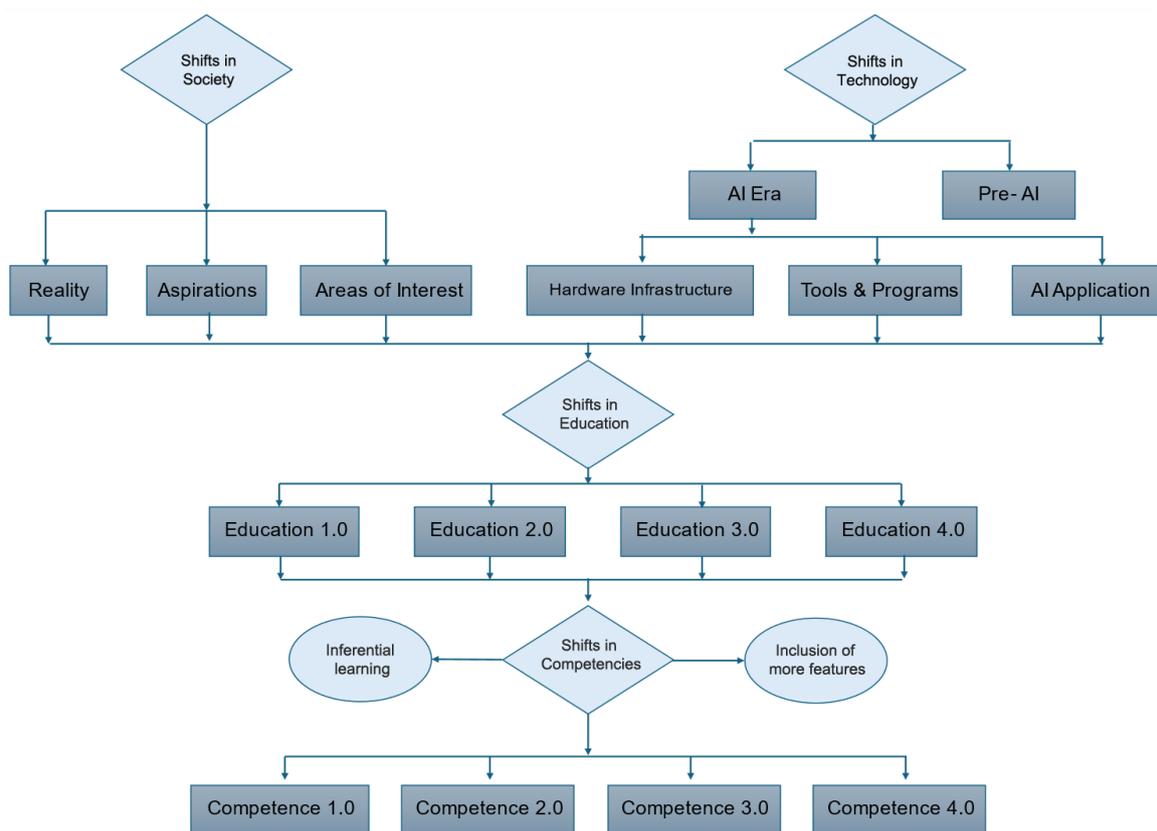


Figure 1. Factors effecting existing paradigm evolution.

#### 2.1.1. Society Shifts

The way education has been applied in and outside the classroom has changed considerably. More specifically, society expressing its citizens as well as planners and decision makers for many years, and unfortunately in some cases even in recent years, had Ignored Education focusing on the Reality of improving the living conditions (e.g., infrastructures). That is, education was not an important societal concern. Later on, society and its major centres of power realized and accepted that education should cover needed competences to fulfil societal Aspirations (e.g., the United Nations SDG’s), which require basic human dexterities to support

activities (e.g., economic development or individuals' well-being) and as a result education was positioned at the Centre of Societal Concerns in order to go beyond just improving the living conditions of its citizens. Nowadays, society's response to education has further shifted into a Holistic Approach, which accepts that teaching and learning should be in a dialectical harmony with all the components that determined education. That is, nowadays education has to be treated as a concept, which represents certain subjects that a student has to be taught in order to be able to perform, within a specific domain, to fulfil societal and individual expectations or their Areas of Interest. These areas go beyond just facing reality needs and aspiration wishes and respond to all the educational components, with the constraint those students have to choose from the broad area of study and the context(s) they like or fit(s) them. Therefore, these aspects should be taken into consideration.

### *2.1.2. AI Technology Shifts*

Given that for several years we are in the AI era, in terms of AI technology shifts there is an important peculiarity, namely there are three areas of paradigm shifts: first, Shifts in Hardware and Infrastructure Technology (changes from personal computers, to the internet, to mobile devices, to internet of things, and finally to artificial intelligence); second, Evolution of AI Tools and Programs (from expert systems, to statistical machine learning, to big data and early neural nets, to deep learning, and to generative AI and LLMs); and third, Evolution of AI Applications (from office productivity software, to web search engines, to mobile apps and ecosystems, and to generative AI). Therefore, all these changes should be considered in formulating a new sequence of paradigm shifts.

### *2.2. Shifts in Education*

This evolution is often conceptualized as a shift from Education 1.0 to Education 4.0, paralleling the evolutions associated with the changing roles of students and educators, as well as the rest of the educational stakeholders whose acts determine the purposes of schooling (Popov et al., 2020; Huk, 2023). In short, Education 1.0 is expressing the traditional pedagogical approach, which is based on a hierarchical teacher-centered instruction; Education 2.0 represents the advent of digital ICT technologies and the internet, indicating an important extension of the previous traditional model; Education 3.0 signifies a real and substantive shift toward learner-centered and network-based education approach; and Education 4.0 is the most recent and represent the need to align educational outcomes with extremely fast changes in labor markets, digital infrastructures, and human-machine interaction. However, this paradigm shifts evolution brings forward the need for a systemic rethinking of how education contributes to individual and collective well-being. In other words, of a new paradigm that expands the purpose of education beyond the traditional AI experience (e.g., competences) to include experience within or a "viomatic" (from the Greek word *vioma*) paradigm, leading to a deep personal development of meaning and direction.

### *2.3. Shifts in Competences*

New technologies and programs especially of AI are reshaping previous educational paradigms, and consequently as technology and societal paradigms evolved so have the paradigms of what students and teachers must be able to do. As Koutsopoulos and Kotsanis (2025) have shown there are changes in competences, forming a continuum (from competence 1.0 to 4.0). More specifically these changes are: Competence 1.0, which is characterized by the assumption that the longer students are exposed to specific curriculum areas (domains) and contexts, or the time spent in school (ExcelinEd, 2019) the more they will develop their competencies; Competence 2.0 is characterized by digital technology in the form of digital literacy, which is emerging as a key component in competence development, marked by the move of students beyond passive learning to active participation and requiring students to participate in an information-based society by making and sharing their own content; Competence 3.0 whose focus is moving towards applying information rather than just acquiring it or as Chronaki (2000) suggested "the implementation and use of interactive technology tools introduce new habits and roles in didactic practice"; and Competence 4.0, which is the latest and most advanced competence paradigm, expressing the participation of competences in the AI era, forcing teaching and learning toward human-AI collaboration, emphasizing the complementarity between human judgment and machine capabilities and mainly supporting students' autonomy and well-being. However, this traditional evolution of competences is characterized by its inability to address issues such as bias, transparency, and accountability and mainly experiential learning providing information processing and entropy.

## **3. Factors Supporting a New Scheme of Education Paradigm Shifts**

Before the proposed sequence of educational shifts is presented. It is considered prudent to present and explain the following factors that greatly affect the proposed EPS evolution.

### *3.1. Information (Knowledge, Skills, and Awareness) Development*

In education, knowledge is considered as organized information that students acquire, interpret, and internalize; skills refer to their ability to apply this information/knowledge effectively in diverse contexts (Anderson & Krathwohl, 2001) and awareness is associated with social, and emotional Learning. That is, information in education encompassing these three information factors constitute a fundamental component in determining the educational process and environment. As a result, information enables students not only to understand disciplinary content (knowledge), to engage in problem-solving, critical thinking, or lifelong learning (skills), but also an awareness framework (e.g., self-awareness, self-management, social awareness, etc.) responsible for individual decision-making.

In theoretical terms, information does not function simply as a static body of facts transmitted from teacher to students, but it is developed as it faces various contents, prior gained experiences, and existed social issues (Paget, 1972; Vygotsky, 1978). As a result, knowledge acquisition is connected to a set of processes (e.g., comprehension, analysis, synthesis, and evaluation), skills development reflects the students' capacity to transfer knowledge into practice, reinforcing the interdependence between knowing what and knowing how, and awareness by utilizing digital competences to recognize individually helpful psychosocial factors (Gimbert, Miller, Herman, Breedlove, & Molina, 2023).

Finally, educational stakeholders consider that the present stage of the educational paradigm, based on the use of AI, the role of information, which has expanded to include advanced content mastery and higher-order skills such as digital literacy, collaboration, and metacognition (OECD, 2019b) is the final stage of information development. Indeed, the latest educational process by emphasizing the accumulation of such knowledge and the ability to critically evaluate, adapt, apply and be aware of them are nowadays essential for students to navigate complex and rapidly changing social and technological issues. However, it is suggested that information development should go a further step to expand towards the needed information beyond the AI experience, mentioned previously, to include experience within, or a "biomatic" information, related to socio-cultural issues, economic systems, political structures, etc.

### *3.2. Entropy*

Entropy, originally a concept from thermodynamics, refers to the tendency of systems to move toward disorder, randomness, or energy dissipation (Clausius, 1865). Although education is not a physical system, it can be understood as a social system, making the utilization of entropy both meaningful and analytically productive. That is, educational entropy can be defined as the degree of disorder, uncertainty, or inefficiency within an educational system that impedes the effective construction of information (knowledge), its application (skills) and the individuals' response to psychosocial issues (awareness). As a result, entropy in education does exist, not as a physical quantity, but as informational property describing not only the degree of disorder or uncertainty, but mainly the inefficiency of not including information beyond the traditional one within the educational processes. Educational entropy is manifested when the education systems lose alignment with required needs, leading to reduced effectiveness and increased unpredictability of the educational outcomes. For example, if you have an education paradigm that includes most of the needed knowledge, skills and awareness required by the present social and technology conditions, it has low entropy. But a paradigm that is misaligned with learners' cognitive capacities (Davis & Sumara, 2006) such information is missing, indicating an increase in entropy.

We suggest that educational systems can counteract entropy phenomena by means that restore inclusiveness or the application of a new paradigm. That should include, in addition to known approaches of clear learning objectives (e.g., formative assessment, feedback-rich environments, professional learning communities), and ethically grounded uses of AI, mainly the elimination of entropy in order for education to incorporate information that manages experience within.

### *3.3. Experiential Learning*

In education, prioritizing experience means embracing methods that are helping students and teachers, to be active, collaborative, and contextual. It means viewing the curriculum not as information to cover contents, but as capacity to develop competences. The implications are profound: classrooms become workshops and studios; teachers become facilitators, mentors, and designers of learning; assessment looks more like portfolios, projects, and performances. Basically, the concept of experience substantiates the fact that the term "vioma" (accumulated experience) is both the means and the end of education. We educate through experience, and the educated person is one who can learn from experience. As a result, education is increasingly seen not as the transmission of what is known, but as the cultivation of the ability to navigate the unknown, which can achieve only through experience.

It is suggested that in today's world, the pace of educational change demands an experiential orientation. Content memorized today may be obsolete tomorrow, but the ability to learn from experience (e.g., tackle new problems, collaborate with others, adapt based on feedback, etc.) must be a timeless competency. This is why education stakeholders emphasize the principle of "learning to learn", but mainly explains the growing interest in experiential learning. Such experiences often become the formative "vioma" that shape students' identities, interests, and careers and where classroom theory meets practice. That recognition offers both opportunities

and impetus to double-down on experiential learning, focusing more on what truly fosters educational potential and engagement with the real world. That is, reaffirming the centrality of experiential learning, which becomes critical. It is our position that the educational systems should produce students who have not only information, the experience gained by applying competences (knowledges, skills and awareness), but judgment in reflecting on outcomes achieved through their own learning experiences. In the end, we believe that the measure of a good education is the breadth and depth of experiences, based on the simple truth that experience is the fertile ground where learning takes root, and tending it carefully should be the paradigm of education.

### *3.4. The Difference Between Passive Experience and “Viomatic” or Experience within*

In the Greek language there are two terms that have an educational imprint: “Vioma and empiria which unfortunately corresponds to what English labels broadly as “experience.” Of course, other languages (e.g., German, or Spanish) distinguish between “vioma” (lived experience) and empiria (Accumulated or experience within). These distinctions are not mere semantics, but they carry significant pedagogical implications.

The literature and application of many years have made lived or passive experience universally accepted. On the other hand, educational theorists have long debated the role of experience within or “viomatic” learning. For example, Dewey (1938) suggested that “learners are not passive vessels, but constructors of meaning who (build) onto prior experiences, preconceptions, and knowledge”. That is, actually he called for intelligent experiences within. In addition, the Swiss psychologist Paget (1972) suggested that “cognitive development posits that children are not passive recipients of information, rather, they are active meaning-makers who construct rather than receive knowledge”.

Given that in today’s world, the sheer pace of change demands an experiential orientation, content memorized today (passive knowledge) may be obsolete tomorrow, but the ability to learn from experience within (e.g., tackle new problems, collaborate with others, or adapt based on feedback) is a timeless competency. This is why education stakeholders worldwide emphasize issues like “learning to learn” and explains the growing interest in experiential learning beyond traditional classroom approaches (e.g., internships and study abroad programs, volunteer service, etc.) Such experiences often become the formative approach that shape students’ identities, interests, and careers. In sum, all these underscores a common point: experiential or experience within is central to achieving the goals of modern education. Whether it can explain the paradigm shift of education or the changing of the shape of the educational triangle, the consensus is that actively engaging students in “viomatic” experiences is the most effective educational strategy.

### *3.5. Interplay of Education, Competence and Technology*

The literature, McClelland (1973); Boyatzis (1982); Weinert (2001) and Chronaki (2000) clearly show that the competence changes observed have been propelled by concurrent societal and technological shifts. For example, the transition from competence 1.0 to 2.0 coincided with the PC-Internet revolution as well as appearance of expert systems enabling collaborative projects and online research in classrooms. Similarly, the rise of mobile and cloud computing in the 2010’s fostered competence 3.0 offering ubiquitous, learner-driven environments. Today’s competence 4.0 depends on AI, high-speed networks, and rich media. As a study by (Ramraj, Praveen, Gaurav, Ilsun, & Giovanni, 2021) outlined that 5G in particular “provides very high speed, low latency, and highly scalable connectivity between multiple devices and IoT worldwide,” as well as allowing real-time personalized feedback and simulation-based learning, thus expanding where and how learning can occur. In turn, the demands of new pedagogies influence technology deployment (e.g., education platforms leveraging AI or VR hardware).

In addition, over the last four decades technology has leapt from simple PCs and analog phones to cloud, broadband, and AI, while education has shifted from rigid, factory-model schooling to dynamic, tech-integrated learning tailored to 21st-century competencies. As Koutsopoulos and Kotsanis (2025) have observed, that learning competencies have resulted in a continuum evolution of “competence 1.0 through 4.0” that parallels, but also outpaces the strictly distinct educational competences 1.0 to 4.0. This suggests that we are at the threshold of a new paradigm shift including changes in education and competences, which will be presented later.

### *3.6. The Education Triangle: Competences-Digital Abilities-System Entropy*

In addition, to the proposed major components of education paradigm evolution, an instrument describing their role and influence is also proposed, termed in this paper as the triangle of education. An educational triangle naturally consisting of vertices, sides, and angles, which are the fundamental components that define the information available to students at any given time. The vertices, express the competences, whose purpose is to successfully prepare students for the future by providing them with the appropriate knowledge and skills as well as enhancing their social and psychological awareness. As Fullan and Langworthy (2013) insisted we cannot at any time educate them in ways that address education needs of the past or not provide them with all the information expressing each time. The sides of the triangle express the students’ ability with applying the information received through technology changes (e.g., tools and programs utilized) in order to resolve

desirable societal needs and thus are mechanisms of how they are considered and achieved as the result of a constant sequential changes in society and technology. That is, the sides of the educational triangle expressed by their length, are not simply a measure of the vertices' relationship, but mainly show the combined effect of the information (competence) development. As for the angles, they express the entropy of the educational system. That is, as a result, entropy in education is also an informational property describing not only the degree of disorder or uncertainty, but mainly the inefficiency of not including information beyond the traditional one within the educational processes and manifesting when the education systems lose alignment with required needs and lead to reduced effectiveness and increased unpredictability of the educational outcomes.

In considering the educational triangle we cannot rely exclusively on the educational environment determining what students, in order to develop competences, have been taught, or on the way they have been taught, following the existing at any time paradigm, but mainly to consider them as an approach, which should be considered as an evolving concept determined by societal needs the necessary technology tools and programs and the system's entropy. For example, the utilization of AI is not only a structured helping instrument that in essence determines the development of competences, but rather an ontological framework, which expresses a new, integrated, but different than the previous educational information handling and the system's entropy processes.

The evolution of, competences, the digital abilities and the system's entropy underscore the need for a new educational approach. For example, the traditional curricula and assessment practices focused on content mastery are increasingly misaligned with the demands of AI-rich environments. Instead, education systems must support the development of adaptive, reflective, and ethically informed competences that enable learners to navigate uncertainty and collaborate with digital (intelligent) systems across their lifespan. In this context, competences in relation to educational environment are no longer static endpoints, but dynamic developmental processes. AI in education thus acts as both a driver and a catalyst for redefining how education can create competent students in the contemporary society, reinforcing the importance of learning as human agency in an increasingly automated world. Finally, it should be noted that AI amplify and transform experience within learning. That is, AI technologies, rather than replacing human teachers, can augment the learning experience, making it more personalized, interactive, and immersive, but most important illustrate their potential to enrich experiential learning:

However, this educational conceptualization raises questions on several important critical issues, namely brings forward the need for a systemic rethinking of how education contributes to individual and collective well-being by providing the appropriate competences utilizing a specific (e.g., IA in education) approach in creating a specific environment. In other words, a new paradigm is required that expands the purpose of education beyond the traditional passive experience to include experience within or a "viomatic" approach, leading to a deep personal development of meaning and direction. The task of the next section is to propose such a new educational evolution based, in addition to the existing paradigm evolution approaches on information development and the direction and degree of the educational entropy.

During the paradigm shifts of education in the last few years two additional changes are taking place: first, the shape of the educational triangle is differentiated as the educational paradigm shift from scaled triangle to equilateral triangle expressing the minimum of entropy as well as the maximum of the development and application of educational information; and second, as [Martinsen et al. \(2025\)](#) argues that we are moving from a "broadcast" model (where information is passively transferred) to the condition where ideas originate in a "networked" model, and the knowledge involves searching, curating, and collaborating across tools and teams. In other words, it is suggested that AI with the use of its tools and programs can be a "coach" rather than a "crutch", but only if it builds utilization internal skill or experience within.

### *3.7 The Need for a New Paradigm Evolution*

It is suggested that the integration of AI in education operating in and outside the classroom not only allows its use by all stakeholders, but mainly constitutes the source of our present educational "myths" not only in terms of the way education is regarded, but also with respect to the methods used in teaching and learning and in particular in utilizing AI. However, this inevitably leads to two basic propositions: first, that the lived, or experience within, approaches the whole truth, while the extracted, or passive experience, is the partial truth ([Charatsis, 2014](#)) and therefore the education evolution should move from the later to the prior; second, the existence of educational entropy or the degree of disorder or inefficiency within an educational system leads the educational shifts towards decreasing it, in order to achieve effective construction of needed competences.

This position is simple in its explanation, but radical when considered in terms of the current consideration of the evolution of education. That is, all the known educational processes (e.g., openness, sharing, discourse, etc.) cannot be addressed by the changing EPS presently accepted. In other words, these processes cannot be dealt with unless we accept the fact that information development, entropy, form of experience, and "viomatic" information all substantiate the need towards a new sequential process of changes in education. That is, it represents a different manifestation of the paradigm scheme evolution, which is the

dialectic entity of not only societal needs and technological changes, but experience and its complementary entropy, providing a thrust not only towards students, but also towards the whole education system (Lave & Wenger, 1991).

#### 4. The Proposed Eps: From Passive Experience to Experience Within

Although the basic principle that education evolves in direct relation to the societies it serves and the technological changes that are taking place is accepted, it is our suggestion that economic systems, political structures, cultural values, summative testing, etc. also impact the purposes, forms, and practices of education. As a result, the whole set of these factors should be considered and understood as the determining factors of EPS. That is, it is strongly believed that the later factors redefined them, demonstrating that education is not merely reactive, but structurally embedded in educational information processes, an experiential approach and the system's entropy conditions. Based on these it is suggested that the EPS have been five and range from passive experience to the experience within or "viomatic" paradigm, which are examined next (Figure 2).

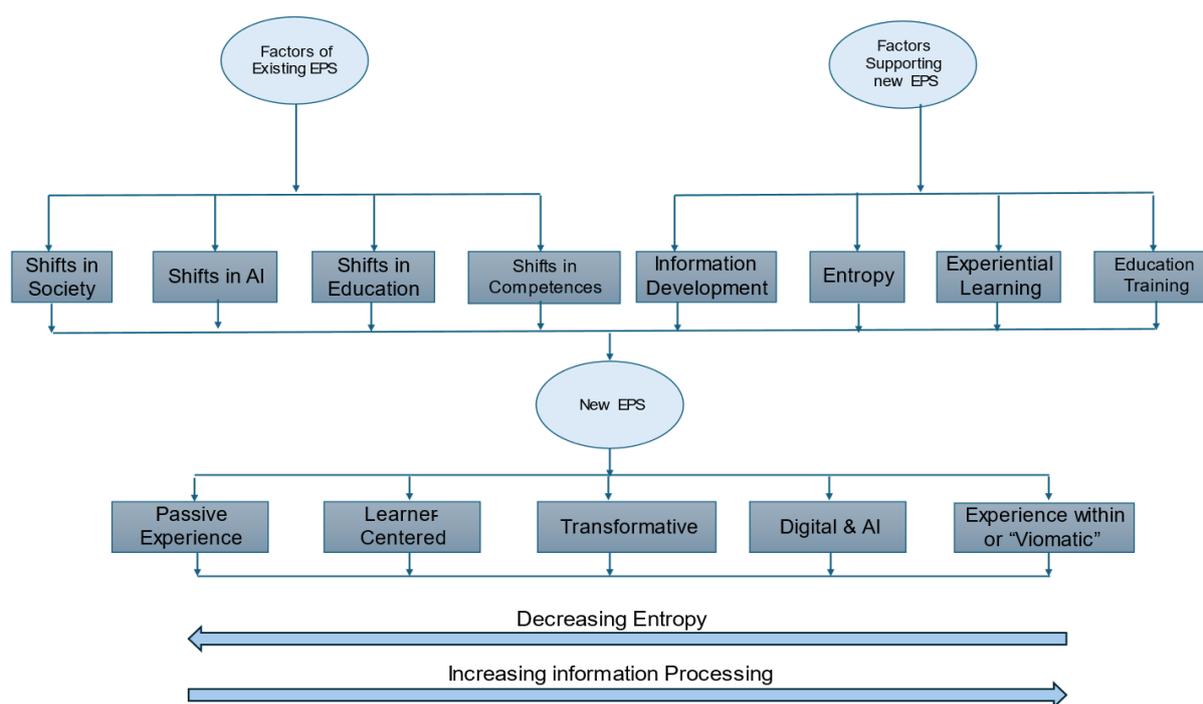


Figure 2. The experiential process of education paradigm shifts (EPS).

##### 4.1. Passive Experience Paradigm

The first educational paradigm has its beginning in the industrial revolution that transformed the education systems giving rise to: mass compulsory schooling; standardized curricula; fixed schedules; and formal assessment practices that mirrored models of teachers' efficiency and control (Tyack & Cuban, 1995). As a result, this educational paradigm emphasized in addition to the traditional issues (e.g., discipline, conformity, etc.), two important processes: first, the passive experience or the transmission of fragmented information by the teachers who functioned as authoritative transmitters of content, while learners were positioned as passive recipients; and second, a very high degree of entropy resulting in disorder, uncertainty, or inefficiency impeding an effective educational system. That is, the first paradigm reinforced social inequalities and prioritized passive experience over creativity and critical thinking. From a critical perspective, education during this period functioned largely to reproduce teachers' dominance and existing power structures (Bowles & Gintis, 2002). In terms of the educational triangle, it was expressed by sides having large differences in length indicating a small information processing capability, and the angles of the vertices of the educational approach present larger differences than what is considered acceptable, indicating the existence of a larger than expected entropy.

##### 4.2. Student-Center Paradigm

Although the passive experience paradigm in very few cases is still in operation, nevertheless as early as the first decades of the twentieth centuries it was questioned, suggesting less authoritarianism and a more progressive educational paradigm. For example, Dewey (1938) argued that education should be grounded in overcoming passive experience, and on more inquiry and reflection. Indeed, the second educational paradigm titled learner-centered is viewed as a process of student participation rather than mere passive accumulation of

experience transmitted by teachers. That is, students were positioned as active constructors of meaning, and teachers as facilitators of learning (e.g., the incorporation of relatively simple interactive technologies, utilization of online capabilities, participate in dialogues, and mainly activities which are beyond simple memorization). However, this form of education often coexisted with previous schooling structures rather than replacing them entirely, resulting in persistent tensions between passive experience and student-centered practices. These of course influence information processing and entropy. That is, in terms of the educational triangle, it was expressed by sides having not too large differences in their length indicating improved information processing capabilities, and the angles of the vertices of the educational approach exhibit clearly smaller differences than the previous paradigm indicating improvement of the new paradigms' entropy.

#### *4.3. Transformative Paradigm*

This paradigm is associated with several transformative processes (e.g., fast changes in labor markets, digital infrastructures, human-machine interaction, and mainly restructuring of educational logic itself). That is, this paradigm provided students personalized and adaptive learning environments (considerably removed from passive experience), which not only offered them capabilities to be active, and have their own autonomous roles in their learning processes, but mainly to address curricular design in order to develop competencies essential to face an uncertain future.

This paradigm by been associated with globalization, media expansion, and postmodern thought, which have led to emphasizing critical pedagogy, multiculturalism, and the beginning of social construction of knowledge (experience within). As [Giroux \(1988\)](#) suggested authority over knowledge started processes of decentralization, and curricula expansion to include marginalized perspectives. These of course influence information processing and entropy. That is, in terms of the educational triangle, it was expressed by sides having small length differences, indicating improved information processing capabilities, and the angles' sizes of the vertices of the educational approach are conversing to the expected size, indicating improvement of the paradigms' entropy.

#### *4.4. Digital and AI Era Paradigm*

It is universally accepted that AI has changed the way we live, work and spend our time [Holmes, Bialik, and Fadel \(2019\)](#) and [Williamson and Eynon \(2020\)](#). As a result, is not surprising that AI is also increasingly shaping the landscape of modern education, establishing a new educational paradigm. Indeed, AI-powered platforms can analyze vast datasets on student performance and to tailor educational content, ensuring that learners receive support suited to their individual needs and learning styles. This personalization promotes engagement, reduces learning gaps, and enables educators to focus on higher-order teaching tasks such as mentorship and critical thinking development. Furthermore, AI facilitates automation in assessment and administrative processes, optimizing time and resources for institutions. That is, this EPS puts emphasis from content mastery to adaptability, critical thinking, and personal engagement. Teachers are repositioned as designers and facilitators of learning environments, while students are expected to engage in inhibited reception of knowledge and skill development. As a result this paradigm is simultaneously pedagogical (e.g., new role of teachers), technological (e.g., use of AI tools and programs), administrative (e.g., new role of school administrators), social (e.g., a different disposition of parents towards AI classroom use), political (e.g., a different approach of government to AI in education) and cultural (e.g., new role of students), in dialectic harmony and respecting all aspects of teaching and learning an integral part of which are all educational stakeholders. In other words, in the AI paradigm the aim is not to simply narrow the existing division between education and AI, but to shift the education process in ways that alter the approaches we catalyse learning and innovation as well as the ways which complement and enrich the individual's personal learning space. This becomes clear in terms of the educational triangle, which is expressed as an isosceles triangle (two equal sides and angles) indicating improved information processing capabilities, and decreased entropy.

#### *4.5. Experience withing or "Viomatic" Paradigm*

The last and most important proposed education paradigm should constitute the appropriate way to face teaching and learning, because the proposed approach is a lot more and well beyond a constructivist approach to learning. That is, as [Jonassen, Tessmer, and Hannum \(1998\)](#) suggested "learners actively participate in the learning environment (educational process) in ways that are intended to help them construct their own knowledge, rather than having the teacher interpret the world for them. Moreover, [Dewey \(1938\)](#) insisted that "If students only passively perceive a problem and do not experience the consequences in a meaningful, emotional, and reflective way, then they are unlikely to adapt and revise their habits or construct new habits". These position, can easily be explained by the synergy between AI and experiential learning, since AI can create more opportunities for experience and enhance the learning drawn from each experience. In sum, the new paradigm stresses that experience within or the "viomatic" is a prerequisite for meaningful education. It substantiates the idea that experience within is needed for a successful information development for students to acquire knowledge and enhance their skills, as well as improve the educational environment by decreasing

its entropy. That is, the paradigm offers mechanisms that restore order and coherence. These include clear learning objectives, formative assessment, feedback-rich environments, professional learning communities, and ethically grounded uses of AI. Rather than eliminating entropy entirely, effective education manages it within productive bounds, balancing structure with flexibility. This can easily be grasped by the educational triangle, which is expressed as an equilateral triangle (equal length sides and angles) indicating a greatly improved information processing capabilities, and substantial decreased entropy.

But the most important contribution of this paradigm is that the latest and very popular activity of copy pasting from AI sources (e.g., chat GTP) is extremely difficult to be applied, because it cannot efficiently express the students “viomatic” experience, which should be the major’ evaluation standard.

## **5. The Future of Experiential AI**

The rapid advancement of LLM's has led some AI experts to believe that AI will soon replace traditional education, particularly at the university and the social and humanistic sciences, with the justification that knowledge directly from work can be more useful. We are completely opposed to the notion that students benefiting more just by practice. Learning through practice is invaluable, but it performs better when students have a clear picture created on their own, consider what jobs and skills might be in demand in the future and can adapt to them. Geoffrey Hinton known as the grandfather of AI strongly believed that the progress in AI, including educational approaches or new EPS, is like a course in the fog: you see what's right in front of you, but not what's next. Therefore, the solution is not to prepare students to operate in foggy conditions, but to make them as adaptable as possible.

The introduction in this paper of the concept of experiential educational approach in the AI era represents a new shift from practice-oriented educational systems toward systems capable of been adaptive or based on experience within. That is, educational experiential educational systems based on AI do not simply aim to create systems that respond to curriculum content just algorithmically, but engage students in meaningful, content-aware experiences (Dautenhahn, 2023; Fong, Nourbakhsh, & Dautenhahn, 2003). As a result, experiential educational approaches utilizing AI can transform learning by integrating immersive simulations and context-sensitive processes that aligns with the students’ engagement levels (Luckin, Holmes, Griffiths, & Forcier, 2016).

Based on these suggestions the question that arise is what will be the future direction of EPS? It is proposed that such a future should hinges on the following technological and theoretical trajectories within the AI experiential paradigm.

- Multimodal experiential modeling: Move beyond text and speech to incorporate visual, spatial etc. areas for richer context detection (Baltrusaitis, Ahuja, & Morency, 2019).
- Decision-making and Ethical EPS Integration: Move towards systems capable of accountable ethical reasoning as well as providing users insight into AI decision processes (Gunning & Aha, 2019).
- Continuous Learning: Given the rapid advancements of AI, by necessity all educational approaches and stakeholders will become lifelong learners, to accommodate the AI-education interaction and social norms (Parisi, Kemker, Part, Kanan, & Wermter, 2019).
- Augmented Intelligence: This form of AI intelligence will become the future of experiential EPS that favors a model of symbiotic cooperation and is defined as increasing an individual's ability to approach complex problematic situations, gain understanding that suits their needs, and derive solutions.

In closing, we strongly believe that the future of experiential AI will not only provide adaptive, and ethically aware systems, but will continue to integrate the technical potency of machine intelligence with the qualitative depth of human experience.

## **6. Conclusions**

This paper presents a fully documented new educational paradigm evolution scheme based on the following two source areas.

### *6.1. Presently Accepted Paradigm Evolution*

The examination of the presently accepted paradigm evolution scheme provided the following set of shortcomings that outline the reasons for not accepting and replacing it:

- There is a basic principle resulting in education to evolve in direct relation to the societies it serves and the technologies changes that are taking place, but their implications alone cannot address present day issues.
- Societal concerns have evolved from reality to aspirations and to areas of learners’ interest, and as a result the paradigm evolution scheme has to follow them, which is not evident in the presently accepted scheme.
- In the AI era, there are three paradigm shifts of AI technology (e.g., Shifts in Hardware and Infrastructure Technology; Evolution of AI Tools and Programs; and Evolution of AI Applications) which should be, but are not considered in formulating a new sequence of paradigm shifts.

- Any paradigm evolution scheme by necessity has to expand beyond the simple passive experience, which indeed is the beginning and of the present EPS, yet their evolution does not lead to reaching that important goal of a differentiated experience.
- The traditional evolution of competences is characterized by its inability to address the issue of experiential learning, which can provide information processing and entropy.

### *6.2. Proposed Factors in Establishing a New Paradigm Evolution*

This paper proposed the following series of mechanisms and approaches in order to formulate a new educational paradigm evolution scheme, which represents and its contribution.

- Information processing, which encompasses knowledge, skills and awareness constitutes a fundamental component in determining the educational process, is incorporated into the proposed EPS.
- Educational entropy or the degree of disorder, uncertainty, or inefficiency is included in the proposed EPS as impeding their effective construction of competence (Knowledge), its application (Skills), and influence of psychosocial elements (Awareness).
- Two fundamental concepts to EPS were outlined: first, the concept of information that plays a fundamental role in determining the educational process and environment; and second, the mechanism of entropy that impedes the effective, construction of information.
- The educational triangle was introduced, whose purpose is to provide students with the schematic representation of the combined effect of the information development (Competences), and the system's entropy (Disorder, uncertainty, or inefficiency), which affect the changes of the EPS.
- In today's world, the sheer pace of change demands an experiential orientation, requiring a "viomatic" or experience withing in achieving the goals of modern education.
- Any paradigm evolution scheme by necessity has to expand beyond the simple passive experience in order to reach students' experience within.
- Prioritizing experience means viewing the curriculum not as information to cover contents, but as capacity to develop needed competences.

In conclusion, the most important contributions of this paper are: first, that an educational paradigm should be experiential and strive to increase information development and decrease its entropy; and second, that the new scheme of EPS evolution will certainly force the educational community to realign the education and competence shifts to follow the proposed and substantiated new EPF evolution scheme.

### **References**

- Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching and assessing: A revision of bloom's taxonomy of educational objectives*. Longma: Complete Edition.
- Baltrusaitis, T., Ahuja, C., & Morency, L. P. (2019). Multimodal machine learning: A survey and taxonomy. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 41(2), 423-443. <https://doi.org/10.1109/TPAMI.2018.2798607>
- Bowles, S., & Gintis, H. (2002). Schooling in capitalist America revisited. *Sociology of Education*, 75(1), 1-18. <https://doi.org/10.2307/3090251>
- Boyatzis, R. E. (1982). *The competent manager: A model for effective performance*. New York: John Wiley & Sons.
- Charatsis, A. (2014). *The difference between vioma and experience*. *Schooltime.gr*. Retrieved from <https://www.schooltime.gr>
- Chronaki, A. (2000). *Computers in classrooms: Learners and teachers in new roles*. In B. Moon, M. Ben-Peretz, & S. Brown (Eds.), *Routledge international companion to education* (pp. 412-424). London, UK: Routledge.
- Clausius, R. (1865). *The mechanical theory of heat: With its applications to the steam engine and to the physical properties of bodies*. London, UK: John van Voorst.
- Dautenhahn, K. (2023). Experiential AI: From social robotics to embodied cognition. *AI and Society*, 38(9), 97-115.
- Davis, B., & Sumara, D. (2006). *Complexity and education: Inquiries into learning, teaching, and research*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Dewey, J. (1938). *Experience and education*. New York: Macmillan.
- ExcelinEd. (2019). *Debunking the myth of seat-time: A national analysis of seat-time requirements for credit*. Tallahassee, FL: ExcelinEd.
- Fong, T., Nourbakhsh, I., & Dautenhahn, K. (2003). A survey of socially interactive robots. *Robotics and Autonomous Systems*, 42(3-4), 143-166.
- Fullan, M., & Langworthy, M. (2013). *Towards a new end: New pedagogies for deep learning. Collaborative Impact*. Retrieved from <https://www.michaelfullan.ca/wp-content/uploads/2013/08/New-Pedagogies-for-Deep-Learning-An-Invitation-to-Partner-2013-6-201.pdf>
- Gimbert, B. G., Miller, D., Herman, E., Breedlove, M., & Molina, C. E. (2023). Social emotional learning in schools: The importance of educator competence. *Journal of Research on Leadership Education*, 18(1), 3-39.
- Giroux, H. A. (1988). Postmodernism and the discourse of educational criticism. *Journal of Education*, 170(3), 5-30.
- Gunning, D., & Aha, D. (2019). DARPA's explainable artificial intelligence (XAI) program. *AI Magazine*, 40(2), 44-58. <https://doi.org/10.1609/aimag.v40i2.2850>
- Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Boston, MA, USA: Center for Curriculum Redesign.

- Jonassen, D. H., Tessmer, M., & Hannum, W. H. (1998). *Task analysis methods for instructional design*. London, UK: Routledge.
- Koutsopoulos, K. C., & Kotsanis, Y. (2025). From competence 1.0 to competence 4.0: An open, unifying and global education framework. *International Journal of Educational Technology and Learning, 18*(2), 54-68. <https://doi.org/10.55217/101.v18i2.927>
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.
- Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. London, UK: Pearson.
- Martinsen, A. E., Børte, S., Spildrejorde, M., Brumpton, B. M., Heuch, I., Zwart, J.-A., & Winsvold, B. S. (2025). Insights into chronic low back pain etiology: Population-based genome-wide association study identifies 18 risk loci. *Spine, 50*(13), 881-889.
- McClelland, D. C. (1973). Testing for competence rather than for intelligence. *American Psychologist, 28*(1), 1-14. <https://doi.org/10.1037/h0034092>
- OECD. (2019b). *OECD learning compass 2030*. Paris, France: OECD Publishing.
- Paget, J. (1972). *The psychology of the child*. New York, NY, USA: Basic Books.
- Parisi, G. I., Kemker, R., Part, J. L., Kanan, C., & Wermter, S. (2019). Continual lifelong learning with neural networks: A review. *Neural networks, 113*, 54-71. <https://doi.org/10.1016/j.neunet.2019.01.012>
- Ramraj, R., Praveen, L., Gaurav, C., Ilun, Y., & Giovanni, P. (2021). Study and investigation on 5G technology: A systematic review. *Sensors (Basel), 22*(1), 26-27.
- Tyack, D., & Cuban, L. (1995). *Tinkering towards utopia: A century of public school reform*. Cambridge, MA, USA: Harvard University Press.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA, USA: Harvard University Press.
- Weinert, F. E. (2001). Concept of competence: A conceptual clarification. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies*. In (pp. 45-65). Göttingen, Germany: Hogrefe & Huber Publishers.
- Williamson, B., & Eynon, R. (2020). AI in education: Challenges and opportunities for equity and inclusion. *Learning, Media and Technology, 45*(3), 211-225.