FROM THE INDUSTRIAL REVOLUTION TO THE DIGITAL AGE: CONTRIBUTIONS OF LIFE PROJECTS FROM INTEGRATIVE AND TRANSVERSAL PERSPECTIVES

DA REVOLUÇÃO INDUSTRIAL À DIGITAL: CONTRIBUIÇÕES DO PROJETO DE VIDA NAS PERSPECTIVAS INTEGRATIVA E TRANSVERSAL

DE LA REVOLUCIÓN INDUSTRIAL A LA ERA DIGITAL: APORTACIONES DE LOS PROYECTOS LIFE DESDE PERSPECTIVAS INTEGRADORAS Y TRANSVERSALES

Judite Inês Schreiner Gauer[1], Elisabete Cerutti[2]

ABSTRACT

The Industrial Revolution was one of the most significant and transformative events in human history, and its importance lies in the fact that it fundamentally altered the way societies produce, live, organize themselves, and relate to the world. The Digital Revolution, on the other hand, is a driving force in 21st-century society, which includes the emergence of disruptive technologies. While the former mechanized the production of goods, the latter is automating and digitizing information, communication, and knowledge, which profoundly impacts the lives of students seeking their place in a constantly transforming job market. It is in this context that this study, based on a literature review, seeks to observe how the changes that have occurred from the Industrial Revolution to the Digital Revolution can be addressed in the Life Project from an integrative and transversal perspective, based on the construction of three reflective axes: (i) observing the paths taken from the Industrial Revolution to digital disruption; (ii) reflecting on how the Life Project can contribute to the subjectivity of students in light of an integrative and transversal approach; (iii) To work, using frameworks, on the theme of Industrial Revolutions, technological innovations and their impacts on society and education. Authors such as Bauman (2001), Delors (2003), Luger (2013), Santaella (2003), among others, discuss the proposed themes from different perspectives. It is concluded that the Life Project is the ideal space to address concepts involving the students' professional future, helping them to identify their natural aptitudes and passions, which are the basis for lasting and satisfying professional choices.

Keywords: Industrial Revolution. Digital Revolution. Disruptive Technologies. Life Project.

RESUMO

A Revolução Industrial foi um dos eventos mais significativos e transformadores da história da humanidade e, a sua importância, reside no fato de ter alterado fundamentalmente a maneira como as sociedades produzem, vivem, se organizam e se relacionam com o mundo. Já a Revolução Digital, é uma força que impulsiona a sociedade do século XXI, o que inclui a emergência das tecnologias disruptivas. Enquanto a primeira mecanizou a produção de bens, a segunda está automatizando e digitalizando a informação, a comunicação e o

---

[1] Doctoral student in the Graduate Program in Education. Universidade Regional Integrada do Alto Uruguai e das Missões (URI). E-mail: judite.schreiner@hotmail.com

[2] Dr. in Education. Universidade Regional Integrada do Alto Uruguai e das Missões (URI). E-mail: beticerutti@uri.edu.br

conhecimento, o que impacta profundamente a vida dos estudantes que buscam o seu espaço num mercado de trabalho em constante transformação. É nesse viés que, este estudo, pautado em revisão de literatura, busca observar como as mudanças ocorridas desde a Revolução Industrial até a Revolução Digital podem ser abordadas no Projeto de Vida a partir das perspectiva integrativa e transversal, tendo como base a construção de três eixos reflexivos: (i) observar quais foram os caminhos percorridos desde a Revolução Industrial até a disrupção digital; (ii) refletir sobre como o Projeto de Vida pode contribuir com a subjetividade dos estudantes à luz de uma abordagem integrativa e transversal; (iii) trabalhar, a partir de frameworks, a temática sobre as Revoluções Industriais, inovações tecnológicas e seus impactos na sociedade e na educação. Autores como Bauman (2001), Delors (2003), Luger (2013), Santaella (2003), dentre outros, dialogam a partir de diferentes perspectivas sobre os temas propostos. Conclui-se que, o Projeto de Vida é o espaço ideal para abordar conceitos que envolvem o futuro profissional dos estudantes, auxiliando-os a identificar suas aptidões naturais e paixões, que são a base para escolhas profissionais duradouras e satisfatórias.

Palavras-chave: Revolução Industrial. Revolução Digital. Tecnologias Disruptivas. Projeto de Vida.

RESUMEN
La Revolución Industrial fue uno de los eventos más significativos y transformadores de la historia de la humanidad, y su importancia radica en que alteró fundamentalmente la forma en que las sociedades producen, viven, se organizan y se relacionan con el mundo. La Revolución Digital, por otro lado, es una fuerza impulsora en la sociedad del siglo XXI, que incluye el surgimiento de tecnologías disruptivas. Mientras que la primera mecanizó la producción de bienes, la segunda está automatizando y digitalizando la información, la comunicación y el conocimiento, lo que impacta profundamente la vida de los estudiantes que buscan su lugar en un mercado laboral en constante transformación. Es en este contexto que este estudio, basado en una revisión bibliográfica, busca observar cómo los cambios ocurridos desde la Revolución Industrial hasta la Revolución Digital pueden abordarse en el Proyecto de Vida desde una perspectiva integradora y transversal, a partir de la construcción de tres ejes reflexivos: (i) observar los caminos recorridos desde la Revolución Industrial hasta la disrupción digital; (ii) reflexionar sobre cómo el Proyecto de Vida puede contribuir a la subjetividad de los estudiantes a la luz de un enfoque integrador y transversal; (iii) Trabajar, mediante marcos de referencia, sobre el tema de las revoluciones industriales, las innovaciones tecnológicas y su impacto en la sociedad y la educación. Autores como Bauman (2001), Delors (2003), Luger (2013), Santaella (2003), entre otros, abordan los temas propuestos desde diferentes perspectivas. Se concluye que el Proyecto de Vida es el espacio ideal para abordar conceptos relacionados con el futuro profesional de los estudiantes, ayudándolos a identificar sus aptitudes y pasiones naturales, que son la base de decisiones profesionales duraderas y satisfactorias.

Palabras clave: Revolución Industrial. Revolución Digital. Tecnologías Disruptivas. Proyecto de Vida.

1 INTRODUCTION

The Industrial Revolution was a period of great technological and social transformations that began in England, from the second half of the eighteenth century (around 1760). It marked the transition from artisanal and agricultural production processes to large-scale industrial production, through the introduction of machinery and the use of new energy sources. The Digital Revolution, on the other hand, is the term used to describe the profound and accelerated change in society, economy, and culture caused by the proliferation and adoption of digital technologies.

The connection between the Industrial Revolution and the Digital Revolution is seen as a continuation and intensification of the transformations initiated by the former. Both represent waves of deep socioeconomic movements driven by technology. Both the Industrial and Digital Revolutions share transformative characteristics, such as: increased productivity, new sources of power, structural change, reduction of barriers, among other specificities.

The Life Project, whether in a disciplinary way or a cross-cutting theme, has as its main focus to support and guide students in the construction of a plan for their future, addressing the dimensions that range from self-knowledge and self-esteem to the social and professional relationship with the world. Therefore, the contexts in which they followed during the Industrial and Digital Revolutions become fertile ground when addressed, especially when they can be contextualized and connected with the reality of each student.

It is under this dynamic that this study seeks to observe how the changes that have occurred since the Industrial Revolution to the Digital Revolution can be approached in the Life Project from the integrative and transversal perspective, based on the construction of three reflective axes: (i) to observe what were the paths taken from the Industrial Revolution to the digital disruption; (ii) reflect on how the Life Project can contribute to the subjectivity of students in the light of an integrative and transversal approach; (iii) to work, from *frameworks*, on the theme of Industrial Revolutions, technological innovations and their impacts on society and education.

We point out that this research is of a basic nature, as it "aims to generate new knowledge useful for the advancement of science without foreseen practical application", exploratory, since "its purpose is to provide more information on the subject that we are going to investigate, enabling its definition and design"; as a procedure, it presents the literature review, because it is being "elaborated from material already published" such as books, scientific journals, websites, etc. (Prodanov; Freitas, 2013, p. 51-54).

Authors such as Bauman (2001), Delors (2003), Luger (2013), Santaella (2003), among others, help us to build a theoretical basis that dialogues between the many concepts addressed. In addition, this article also proposes a reflection on the evolution of technologies in the Industrial Revolutions over the years, understanding that the Digital Revolution in this first decade of the year 2025, had an impact on the constitution of people's subjectivity, when we consider a biopsychosocial human in the center of a whirlwind of events and information, which is largely due to the speed of simultaneous and civilizational changes, such as the fifth revolution, which is now digital.

We perceive humanity displaced in the face of the speed of innovations, and what draws our attention is the movement that seeks to find itself in the midst of the multiplicity of transformations: how to find security and answers to questions in the various fields of life? And work? And the future? How to find time for the various temporary demands? How to assimilate and accommodate the events in the society of change while maintaining mental health?

In this sense, we understand that the school will be able to collaborate with the approach to the impact on emotional health, as well as in the constitution of students' subjectivity in the face of disruptive processes, whose scenario requires rapid adaptations in the face of the evolutions of digital technologies and, consequently, of AI, with developments that also encompass the world scenario.

Our text is structured in three moments: the first reflects on the path taken by technological innovations from the Industrial Revolution to what we call today as digital disruption; the second observes the contributions of the Life Project from an integrative and transversal approach; the third, which proposes *frameworks* based on the themes discussed, promoting dialogue and reflection in connection with the students' future perspectives.

2 INDUSTRIAL REVOLUTION AND TECHNOLOGICAL INNOVATIONS: PATHS TO DIGITAL DISRUPTION

The Industrial Revolution was not just a series of technological innovations, but rather a radical and multifaceted historical process that marked the transition from an agrarian and artisanal economic system to a modern industrial and capitalist model, permanently altering life, work, and the organization of human society. In the words of Oliveira (2004), the "idea (sic) of the new, of progress, was spreading throughout Europe, which sought to put into

practice new inventions that would adapt to the rhythm of the hallucinating daily life imposed by the new order of work" (Oliveira, 2004, p. 84).

Pioneered in England in the second half of the eighteenth century, it is defined by: substitution of motive power, that is, the exchange of human, animal, hydro or wind energy for mechanical energy generated by new sources, such as mineral coal and, mainly, the steam engine; work migrates from domestic workshops (manufacturing) to factories (machine-making), where the worker becomes subordinated to the rhythm and discipline of the machine; Mechanization and the division of labor allow for the large-scale production of goods at lower costs, ushering in the era of mass production. In the factories, for example, "workers were forced to follow the rhythm of the steam engine, which provided a great boost to the textile sector", within a context in which "time became even more valuable for those who wanted to earn money, so that every minute should be thoroughly used" (Oliveira, 2004, p. 84-85).

In addition to these transformations, we have the consolidation of industrial capitalism through the separation between capital and labor and profound socioeconomic impacts such as, for example, the rural exodus, the intense exploitation of labor, and the redefinition between the relationship of the human being with production, society and the environment. As a result, there was the "intensity of the exploitation of labor (sic), time began to be controlled by industrialists and no longer by artisans" (Oliveira, 2004, p. 86).

The Industrial Revolution (the first, in the eighteenth century), was the indirect and fundamental driving force for the emergence of current digital technologies, including Artificial Intelligence. The connection was not immediate, but a relationship of historical and technological cause and consequence that developed in phases, such as: the establishment of the machine paradigm; the creation of the knowledge base and infrastructure; the technical-scientific revolution (understood as the Third Industrial Revolution); automation on an increasing scale. In other words, "since the First Industrial Revolution, significant technological advances have been altering the economic, political and social organization of societies around the globe" (Oliveira; Vendramini, 2018, p. 41).

The Industrial Revolution was the time when humanity mechanized production, introducing the concept that work could be performed by machines and not just humans or animals. With this, the steam engine and the power loom proved that technology could radically increase productivity and human capacity. Such a mindset established the foundation of continuous technological progress and the belief in engineering's ability to

overcome limits. For Oliveira (2004), the "transition from the artisanal production system to the factory system, in turn, was marked by technical innovations in which the mechanization of work began in the field of textile production" (Oliveira, 2004, p. 85).

The subsequent stages of industrialization have built the necessary foundation for the digital age, as electricity has been introduced as a source of energy, which is essential for all electronic devices and computers. The link between science and industry was also strengthened, leading to the development of advanced physics and chemistry that would be crucial for electronics. The emergence of the latter (transistors, microchips), information technology and telecommunications (*internet*) is the direct step towards digital technology. This phase would not have been possible without the industrial and scientific infrastructure inherited from previous revolutions. It is worth mentioning that microchips, developed in 1971 by Intel, "are present in computers to this day" and were the basis for the development and expansion of personal computing (Godoy, 2025, p. 14).

We can conclude, therefore, that the Industrial Revolutions are, in fact, great historical examples of technological disruptions on a massive scale, since each of these was triggered by a set of innovations that not only improved what existed, but created a radical rupture with the current productive and social model, redefining the world. Lima and Leitão (2021) understand that "disruption has been present in society for thousands of years" whose phenomenon has already been possible to be observed "when man extracted from nature only what was essential for his subsistence", something that was later abandoned, as he started to create and cultivate his own food (Lima; Leitão, 2021, p. 21).

The concept of disruption fits to describe what happened in each phase, as the steam engine and the mechanization of production broke with artisanal production and manufacturing. The factory system and steam power transformed agrarian society into an industrial one and caused profound changes in transportation (railways) and in the organization of labor. In other words, "there was an expansion of the substitution of human and animal energy for inanimate energy, with multiplied efficiency", because "there was an acceleration of the exchange of human capacity for mechanical instruments", as well as "the discovery and/or improvement of methods for obtaining and elaborating raw materials" (Dathein, 2003, p. 1).

Electricity, mass production, and the internal combustion engine introduced the assembly line and large-scale production, which also allowed factories to run continuously, with the automobile redefining personal transportation. Dathein (2003) clarifies that the

Second Industrial Revolution was based on "electricity and steel, with important developments occurring in chemistry, communications" and the use of petroleum (Dathein, 2003, p. 5).

Electronics, Information Technology (IT) and the *internet* have promoted the automation of production processes (robotics) and digitalization, with this, the personal computer and the *internet* have created a new paradigm for communication and data management. As an example, we can cite the "algorithms that control the use of Facebook (sic) and Google (sic)" which "are creating new patterns of behavior and relationships", or even the "use of advanced psychometrics" that "allows the identification of psychological profiles with the ability to predict decisions and behaviors with a high degree of accuracy", while the "use of this technology for commercial and political purposes raises ethical problems that are not being discussed by society" (Magalhães; Vendramini, 2018, p. 42).

Finally, we can say that AI, [3]the *Internet* of Things (IoT), *Big Data*[4] and *Cloud Computing*[5] are promoting hyperconnectivity and autonomous decision-making in production systems, whose objective is the total integration between the physical and digital worlds (cyber-physical systems), generating more personalized and efficient products and services. The *Internet* of Things or IoT, for example, is a "network of physical objects incorporated into sensors, software (sic) and other technologies with the objective of connecting and exchanging data with other devices and systems over the internet (sic)" and such "devices range from common household objects to sophisticated industrial tools" (ORACLE, 2025, *online*).

The Life Project (PV) discipline presents itself as a key curricular component to assist in understanding the complex and disruptive world we live in, acting in an integrative, transversal way and focused on the subjectivation of education. In other words, such discipline not only prepares the individual for the complex and disruptive world, but enables him to understand his position, his values, and his potential for action in it, making disruption become an opportunity for construction and not just a source of anxiety. It is this subject, therefore, that we will deal with next.

---

[3] Succinctly, we can say that Artificial Intelligence (AI) is a branch of computer science focused on creating machines and *software* that simulate human intelligence. AI has a growing importance and impacts several areas of our daily lives, often without us realizing it, ranging from process improvement to personalized experiences (Luger, 2013).

[4] *Big Data* is the term used to describe extremely large and complex data sets that cannot be processed or analyzed effectively with traditional data processing tools (Morais et al., 2018).

[5] *Cloud Computing* is the delivery of on-demand computing resources (such as processing power, data storage, databases, networks, and *software*) over the *internet*, in a pay-as-you-go model (Kolbe Júnior, 2020).

3 THE LIFE PROJECT AND ITS CONTRIBUTIONS IN THE LIGHT OF AN INTEGRATIVE AND TRANSVERSAL APPROACH

The inclusion of PV as a curricular component or cross-cutting theme in Brazilian Basic Education is directly linked to the enactment of the National Common Curricular Base (BNCC, 2017) and, later, to the Secondary Education Reform (Law No. 13,415 of February 16, 2017).

Thus, PV emerges in Basic Education as a response to the need to promote a comprehensive education of students, aligned with the demands of twenty-first century society and having as pillars socio-emotional skills (self-care, self-knowledge, determination, perseverance and ability to make responsible choices), and the skills of planning and protagonism.

The ways of approaching PV can occur in two ways: through the creation of an exclusive curricular component (Life Project), with designated classes and teachers, especially in High School, or, as a transversal theme, where the content is incorporated and worked on in an interdisciplinary way, encompassing all disciplines and involving the faculty in a broader perspective.

PV as a discipline seeks to promote youth protagonism and the development of socio-emotional skills, encouraging students to: reflect on themselves; set objectives; making conscious choices; and tracing paths, acting as a compass that guides the student in building an intentional future aligned with their purposes.

As established by the BNCC (2017), the school "by orienting itself towards the construction of the life project" welcomes young people and assumes the "commitment to the integral formation of students, since it promotes their personal and social development, through the consolidation and construction of knowledge, representations and values", which "will affect their decision-making processes throughout life" (Brasil, 2017, p. 472).

In this sense, the BNCC (2017), by presenting the life project as one of the ten general competencies, becomes a "guiding document for school curricula", which seeks, "through this competence, to reiterate the focus on the student, on student protagonism and on their life project" (Santos; Gontijo, 2020, p. 20).

The main ways in which PV contributes, in the light of an integrative and transversal approach and subjectivation in educational disruption, are aligned with: reconnection of knowledge; expanded worldview; contemporary themes; working with uncertainty; critical and ethical thinking; protagonism and social engagement; self-knowledge as a basis; socio-emotional development; reconnection and meaning. We can say, therefore, that, nowadays,

we perceive that the speed of transformations reverberates in society, which makes it necessary to introject or slide over such "ephemeral" and "liquid" realities (Baumann, 2001).

In view of this, PV acts as an axis that connects and contextualizes the contents and the different areas of knowledge (transversality), which are often taught in isolation in the traditional curricular structure, helping the student to "reconnect" this information, which is essential to deal with the multifaceted and interconnected nature of the problems of the complex world.

According to Araújo and Rufo (2023), the proposition and implementation of "didactic-pedagogical strategies that meet the importance of the life project in school is both necessary and indispensable" as long as it is in the context of "a continuous perspective of integral, critical, reflective, autonomous and diversified education of young people in Elementary and High School" (Araújo; Rufo, 2023, p. 7).

By mobilizing reflection on the personal, social and professional dimensions, as suggested by the pillars of UNESCO (Delors, 2003) - learning to be, to live together, to know and to do - PV transcends the purely intellectual dimension, which allows the student to build a more holistic view of reality, where social, environmental, technological and economic challenges are not seen as isolated disciplinary problems.

The PV can integrate and deepen the discussion on Contemporary Cross-Cutting Themes (TCT), such as Environment, Technology, Globalization and Human Rights, connecting them directly to the student's choices and future. It is important to highlight that these themes seek to "make explicit the connection between the different curricular components in an integrated way" establishing a "connection with situations experienced by students in their realities, contributing to bring context and contemporaneity to the objects of knowledge described" in the BNCC (Brasil, 2019, p. 6).

The complex and disruptive world is marked by uncertainty, ambiguity and non-linearity, so PV stimulates the development of the ability to plan in scenarios of uncertainty, to recognize the need for disruption and transformation (essence of disruption), without clinging to a single and rigid path. And, "the school space, as an institution inserted in the socio-historical-cultural context in which young people are present, must enable reflection on the values, choices and identity of each young student" (Santos; Gontijo, 2020, p. 25).

By providing reflection on one's own choices, values, and impacts on society, PV promotes the formation of critical and autonomous subjects, which is essential to analyze the speed of changes (especially technological/disruptive ones) and make ethical and

responsible decisions in the face of global challenges. Because the "revolutions progress towards new knowledge, skills, and administrative skills" and, in addition, the "ruptures and daily advances make evident the fragility of the most sophisticated instruments of planning, policymaking, and work organization" (Motta, 2022, p. 201).

The complex world requires actions, and, in view of this, PV helps students to perceive themselves as an agent of transformation in their community, stimulating protagonism and engagement in the search for solutions to real problems. For Costa Júnior et al. (2023), "education is faced with new challenges arising from social, cultural, and technological transformations" and, as a result, "contemporary society requires a broader and more diversified education, which goes beyond technical knowledge and provides skills to deal with the complexity of today's world" (Costa Júnior et al., 2023, p. 125).

Disruption in education requires learning to be personalized, so PV puts the individual at the center of the process, encouraging self-knowledge, since it is in the subjectivation of their own stories, skills, and desires that the student finds the purpose to navigate and adapt to constant changes. This characteristic makes us think about the importance of the teacher-student relationship, which "can be reduced to the pedagogical aspect and be characterized by a distant attitude", or, "emphasize almost exclusively the affective or emotional dimension". Therefore, the "choice that the teacher will make between these two modes" will have "an important influence on the student's learning process and on his behavior" (Boutin, 2017, p. 345).

The crisis of purpose and the wear and tear of the traditional school are symptoms of the disruptive world. In view of this, the PV actively works on socio-emotional skills (resilience, empathy, cooperation, autonomy), which are crucial for survival and well-being in an environment of constant instability and pressure. Marino (2018), understands that the crisis established in the school environment "has caused a multiplication of conflicts within it, leading to an increase in the number of students and teachers unhappy with their daily practices", while the origin of these conflicts "lies in the antiquated disciplinary rules and procedures and in their incompatibility in relation to young people in the twenty-first century", with this, the author argues that "schools need to be refounded" where students are transformed into "integral subjects and co-responsible for the learning processes" (Marino, 2018, p. 21-28).

In an era of fragmentation and rapid obsolescence, PV helps students to give meaning to what they learn and their future, transforming the educational experience into something

relevant and applicable to their personal and professional life. In this sense, associating life projects with the world of work "is the result of the profound transformations in today's world, especially in relation to the productive structure, technological development and the intensification of capitalism from the 1980s onwards" (Araújo; Rufo, 2023, p. 9).

We can conclude, therefore, that PV, being articulated in the form of a discipline or cross-cutting theme, not only prepares the individual for the complex and disruptive world, but also enables him to understand his position, his values and his potential for action in it, making disruption become an opportunity for construction and not just a source of anxiety.

In the context of Industrial Revolutions, a *framework* is a logical framework that we can use to analyze, compare, or implement these historical transformations, expanding reflections through the integrality and transversality of PV. This is what we will deal with in the next subtitle.

4 INDUSTRIAL REVOLUTIONS THROUGH *FRAMEWORKS*: INNOVATIONS AND EVENTS THAT IMPACTED SOCIETY AND EDUCATION

Characterized as an agile methodology, since it integrates "a set of practices aimed at enabling fast, non-bureaucratic delivery," a *framework* is a predefined framework, a "skeleton," or a set of tools and guidelines that serves as a basis for developing projects or managing processes more efficiently. In other words, it is "a model or framework that brings together a series of practices", with the following main objectives: to simplify, streamline and standardize the work on complex projects (Vieira; Rodrigues; Villanova, 2024, *e-book*).

An example of a common use of *a framework* is in *software* development, because it is typically composed of ready-made and reusable code; suggestions and rules on how the project architecture should be organized; and resources to assist in development, such as testing and debugging code. We can say, therefore, that *frameworks* provide a solid foundation that allows development teams to build robust and high-quality applications in a much faster and more organized way. According to Netto et al. (2007), with "the development of the *framework* achieves great flexibility", in particular, "from the obtaining of a generic structure of classes that can be instantiated for various realities in a given domain of application" (Netto et al., 2007, p. 16, emphasis in original).

In addition to building *software*, *frameworks* are important instruments for the study and comparison of concepts in the PV discipline, for example, working as structured models and methodologies to organize objectives, develop self-knowledge and outline an action plan

for the future. In the case of the study of Industrial Revolutions, these can transform the discipline (or cross-cutting theme), focusing not only on the past of the industry, but on the future of the individual in the world of work.

The image below (Figure 1) represents, through a *framework*, the timeline of the Industrial Revolutions, from the emergence of Industry 1.0, whose milestones revolved around the steam engine, to Industry 5.0, which is focused on the fusion of physical, digital and biological technologies.

Figure 1

Framework on Industrial Revolutions and their innovations
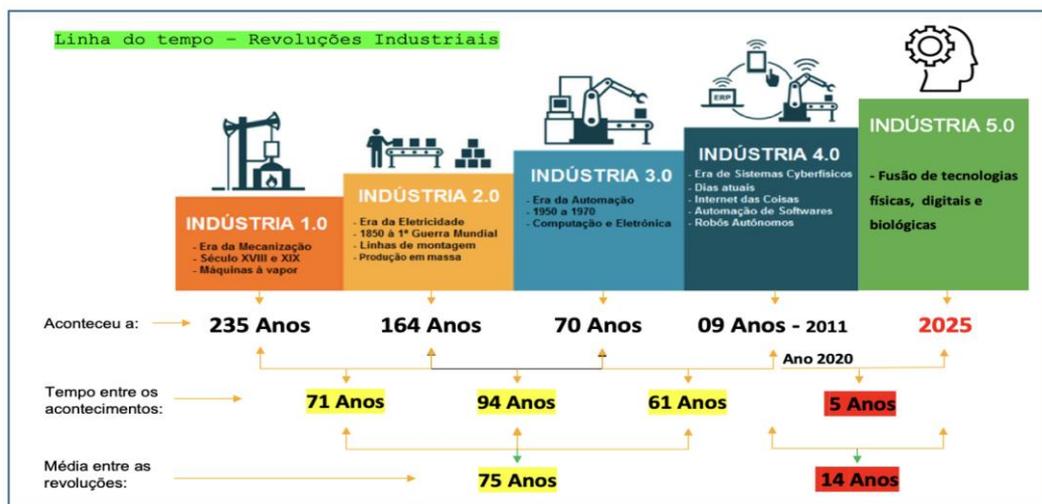
Source: Linkedin, 2025.

However, how can this *framework* stimulate reflective thinking, making the student connect their worldview, experiences, and future perspectives in the context of PV? What are the nuances and connections with contemporary transformations that are outlined in this figure?

We can conclude, therefore, that the Industrial Revolutions demonstrate important points in the evolution of society, characterized by a human-historical-technological-cultural-social development. In addition, we can observe that, in the beginning, there is an absence of digital technology, whose world was not yet globalized, was based on more spaced intervals between transitions or technological advances, but which, over time, has evolved, moving from a social and family model to the generation of new technologies through the fusion of physical technologies, digital and biological aspects.

The Industrial Revolution, in its various phases, from this *framework*, becomes a central theme, especially in the axis of the World of Work, as its transformations profoundly shaped society and the labor market we know today. In view of this, the approach is made through a perspective that connects the past, the present and the future, focusing on the development of the skills and abilities necessary for the contemporary world of work.

Thus, it is possible to discuss the change in the mode of production (artisanal, manufacturing and machine-crafting) and how this altered the role of the worker, who ceased to be the owner of the means of production to become the seller of his labor power. From a life project perspective, it is valid to reflect on the importance of autonomy and a sense of belonging at work, generating questions such as: what did the worker lose and gain with this change? How can today's young people seek autonomy and meaning in modern careers?

Therefore, the key piece of this movement is to use history as a mirror for the present, encouraging students to prepare not only for the next career, but for an ever-changing future.

The next image (Figure 2) presents a second *framework* with the function of demonstrating a cut of the Digital Revolution between the years 2019 and 2025, whose focus is on the simultaneous events that affected the various segments of society, such as health, the economy and education, as a result of Covid-19, which emerged in late 2019 and early 2020.

Figure 2

The Digital Revolution between the years 2019 and 2025

Source: The authors, 2025.

The Covid 19 pandemic was not a simple "turning of the key", but an abrupt, overwhelming change, with moments of mismatched information, which stopped the world, work and affected many families, which resulted in a chaos that was established "overnight". In addition, from the restrictions imposed by the pandemic context, such as physical contact, social isolation, the growth of work through the consecration of digital technologies, which, in the period, were widely used, had as their main objective to help society in its relations with the world, especially in the world of work, so that we could continue producing, whether *online*, *offline* or hybrid, synchronous or asynchronous, which led to the emergence *of the home-office*, online classes and meetings, both in educational institutions and in corporations of all sizes.

On the other hand, when we observe the "context of teaching work, the consequences of the pandemic [...] were significant, requiring adaptations on the part of "teachers" to continue teaching, especially when considering the differences between the public and private education networks" (Silva Filho; Andrade; Porto, 2025, p. 26).

We perceive, therefore, that, nowadays, society continues to accelerate to keep up with changes while seeking strategies to perform in the face of demands that arise very quickly, which, for Santaella (2010) means that the "accelerated pace of technological changes" causes "psychic, cultural, scientific and educational impacts" (Santaella, 2010, p. 18).

From the pandemic, there was an intense adherence to digital tools, which generated an exponential advance in solutions and business. A great example of this evolution is Artificial Intelligence (AI), which is a growing reality and generates opportunities in the professional sector, science, education, research, automating processes, such as a large database that allows, in addition to optimization, the consultation of information through the management of complex systems in all areas of knowledge and performance.

Suave (2024), understands that AI is "a field of computer science dedicated to developing systems capable of performing tasks that would normally require human discernment", which "encompasses a wide range of capabilities, which include learning, reasoning, understanding human language, and even creating art" (Suave, 2024, p. 12).

The impact of the Covid-19 pandemic on students' life projects was profound and multifaceted, acting as an accelerator of trends and an agent of crisis in several dimensions. An example was that the global scenario of instability (economic, health, and social) generated a great lack of perspective and uncertainty about the future, which is directly linked to anxiety and pessimism in relation to long-term projects. Many young people felt part of a "*lockdown generation*", with the future on hold. In other words, "our daily life, mentally organized" was modified and, "in this new scenario, uncertainties and insecurities were triggered or intensified" such as "fear and distrust"; "the fear of being contaminated, of getting sick and dying", or even of seeing our income reduced or eliminated (Moretti; Guedes-Neta; Batista, 2020, p. 34).

Social isolation interrupted face-to-face interaction, crucial for social and emotional development in adolescence, which affected the support network and the construction of identity. On the other hand, the lack of access to technologies and *quality internet* (digital inequality) has widened educational disparities, leading to a more pronounced learning loss among low-income youth. Trezzi (2020) understands that the pandemic demonstrated a "generalized technological gap in Brazilian schools", which only worsened "Brazil's situation in relation to other countries" (Trezzi, 2020, p. 7).

The difficulty in keeping up with remote learning, added to the need to supplement family income (due to the economic crisis), led many young people to think about leaving school or giving up the entrance exam/ENEM, who also suffered from job loss and reduced income, exposing them to the fragility of labor relations, impacting younger and less educated workers more deeply. Maia (2023) points out that, even with the "hybrid classes adopted in most schools in Brazil", the latter did not have "adequate support" and "families had many difficulties in adapting" which contributed "to the increase in dropout rates" (Maia, 2023, p. 4).

The health and social crisis scenario has led many to reevaluate what "success" is, prioritizing careers that offer purpose and quality of life instead of just high salaries. We can observe, therefore, that Covid-19 was an experience that proved that the life project is a living and dynamic document, which needs to be constantly reviewed in the light of global and personal changes.

We argue, therefore, that PV has a fundamental and transformative role in preparing Brazilian students for the future, going beyond traditional academic content, as it can encourage students to reflect on their values, interests, abilities and limitations, and to define their dreams and aspirations clearly and consciously. In addition, it promotes youth protagonism, placing the student as the main agent in the construction of their own path, encouraging them to make decisions and take responsibility for them. Finally, by integrating PV into the curriculum, the school contributes to forming not only good professionals, but more aware citizens, prepared and motivated to build a future that makes sense for them and for Brazilian society.

5 FINAL CONSIDERATIONS

Our article was born from some questions, such as: what are the relations between the Industrial Revolution and the Digital Revolution? How, from this relationship, do we arrive at disruptive technologies? How do these interconnections interfere with the PV of our students and how can they be addressed?

The Industrial Revolution and the Digital Revolution are connected in a historical sequence of technological transformations that fundamentally redefine production, the economy, and society. While the first was focused on mechanization (steam engine, water) and then on mass production, electricity and assembly lines, the second is characterized by the invention and dissemination of computers, the development of the *internet* and

telecommunications, that is, it uses the advances of previous revolutions (such as electricity) and adds the layer of information technology.

The link between the Digital Revolution and disruptive technologies is direct and fundamental, since the Digital Revolution is the driving force and the environment that generates, enhances and massifies disruptive technologies. Thus, essentially, the Digital Revolution is the historical-social process of transformation of society based on information technology, and disruptive technologies are the specific innovative elements that cause this transformation.

The Industrial Revolution, the Digital Revolution and disruptive technologies create a scenario of uncertainty and, at the same time, of unprecedented opportunities, forcing students to completely rethink their PV and their educational and professional choices. While the legacy of the Industrial Revolution was specialization and repetition of tasks, the Digital Revolution, driven by disruptive technologies, inverts this logic.

With this, a new mentality emerges: that students need to abandon the idea of a "career for life" and adopt the concept of "Lifelong Learning", whose PV must include the ability to requalify and adapt to each technological cycle. And how to provoke this reflection through an innovative approach? This is how the idea of applicability of *frameworks* came about, as it is an organized and standardized way to work with different knowledge.

The importance of PV in contemporary youth is critical and multifaceted, being the main instrument for young people to navigate the complexity, speed and uncertainty of the twenty-first century. With this, it is no longer just a dream or goal and becomes an essential structure for identity, protagonism, and resilience in a highly volatile world.

The digital society offers an avalanche of information, careers and paths, so the PV works as a compass for young people when fighting paralysis of choice, since in the face of so many options, they can feel overwhelmed; it offers motivation and engagement, because by having a clear vision of the future, the young person attributes meaning to studies and present effort; It provides opportunities to define priorities, which helps to translate abstract dreams into concrete short, medium and long-term goals, directing where to invest time, energy and resources.

Youth is the phase of intense identity construction and, in view of this, PV actively assists in this process, either through self-knowledge as a way of elaborating the project, which requires deep reflection on values, talents, limitations and passions, or through the encouragement of protagonism, because when planning their own future, the young person

becomes the main agent of their history, and not just a passive spectator of the circumstances or expectations of others (family, social), or through the exercise of resilience, because by finding a greater purpose (the "vital project"), the young person develops a greater capacity to deal with frustrations and crises.

PV becomes vital in the face of some adaptations, such as the integral vision (personal, social and professional) of life, the development of non-cognitive skills (critical thinking, planning, ethics, collaboration and emotional intelligence) and social responsibility, which includes the desire to contribute to something that transcends self-interest, aligned with the individual ambitions of the young person with the exercise of citizenship and the search for a common good.

Research involving the theme of PV is important for several reasons, and offers both practical and immediate benefits to the individual and significant contributions to the educational and social area. In addition to the Industrial and Digital Revolutions, other approaches are effective for consolidating learning and broadening our worldview, which makes this subject a fertile ground for our future research.

REFERENCES

Bauman, Z. (2001). Modernidade líquida. Zahar.

Boutin, G. (2017). A relação entre professor-aluno no centro do processo educativo. Currículo sem Fronteiras, 17(2), 343–358.

Brasil. (2017). Lei nº 13.415, de 16 de fevereiro de 2017. Altera as Leis nº 9.394, de 20 de dezembro de 1996, que estabelece as diretrizes e bases da educação nacional, e dá outras providências. Diário Oficial da União, seção 1.

Brasil. Ministério da Educação. (2017). Base nacional comum curricular. MEC/SEB/CONSED/UNDIME.

Brasil. Ministério da Educação. Secretaria da Educação Básica. (2019). Temas contemporâneos transversais na BNCC: Proposta de práticas de implementação. MEC/SEB.

Costa Júnior, J. F., & et al. (2023). Os novos papéis do professor na educação contemporânea. REBENA – Revista Brasileira de Ensino e Aprendizagem, 6, 124–149.

Dathein, R. (2003). Inovação e revoluções industriais: Uma apresentação das mudanças tecnológicas determinantes nos séculos XVIII e XIX. DECON/UFRGS.

Delors, J. (2003). Educação: Um tesouro a descobrir. Cortez; MEC; UNESCO.

Godoy, V. (2025). Mundo digital. IESDE.

Kolbe Júnior, A. (2020). Computação em nuvem. Contentus.

Lima, S. A. A., & Leião, A. S. (2021). O impacto das tecnologias disruptivas no mercado de trabalho e o dever do Estado. Revista de Direito, Governança e Novas Tecnologias, 7(2), 19–34.

LinkedIn. (s. d.). Linha do tempo: Revoluções industriais/empresariais. https://www.linkedin.com/pulse/linha-do-tempo-revolu%C3%A7%C3%B5es-industriaisempresariais-gefferson-vivan/

Luger, G. F. (2013). Inteligência artificial (6ª ed.). Pearson Education do Brasil.

Magalhães, R., & Vendramini, A. (2018). Os impactos da Quarta Revolução Industrial. GV Executivo, 17(1), 40–43.

Maia, I. L. C. (2023). Evasão escolar durante a pandemia da Covid-19: Desafios do processo de ensino e aprendizagem [Artigo científico, Pedagogia, Universidade Estadual de Goiás].

Morais, I. S. de, & et al. (2018). Introdução a big data e internet das coisas (IoT). SAGAH.

Moretti, S. de A., Guedes-Neta, M. de L., & Batista, E. C. (2020). Nossas vidas em meio à pandemia da Covid-19: Incertezas e medos sociais. Revista Enfermagem e Saúde Coletiva, 4(2), 32–41.

Motta, P. R. (2022). A era da instantaneidade e a gestão contemporânea. Revista da Escola Superior de Guerra, 37(80), 200–209.

Oliveira, E. M. (2004). Transformações no mundo do trabalho, da Revolução Industrial aos nossos dias. Caminhos de Geografia, 6(11), 84–96.

Oracle. (s. d.). O que é IoT? https://www.oracle.com/br/internet-of-things/

Prodanov, C. C., & Freitas, E. C. (2013). Metodologia do trabalho científico: Métodos e técnicas da pesquisa e do trabalho acadêmico. Feevale.

Santaella, L. (2003). Culturas e artes do pós-humano: Da cultura das mídias à cibercultura. Paulus.

Santos, K. S., & Gontijo, S. B. F. (2020). Ensino médio e projeto de vida: Possibilidades e desafios. Revista Nova Paideia – Revista Interdisciplinar de Educação e Pesquisa, 2(1), 19–34.

Silva Filho, J. N. da, Andrade, C. B., & Porto, F. (2025). O impacto da pandemia de Covid-19 nas condições de trabalho na categoria docente da educação básica no Brasil,

através de uma revisão de escopo: Precarização, trabalho feminino e saúde. Physis: Revista de Saúde Coletiva, 35(1), Article e350103.

Suave, A. A. (2024). Inteligência artificial. Freitas Bastos.

Trezzi, C. (2021). A educação pós-pandemia: Uma análise a partir da desigualdade educacional. Dialogia, (37), Article e-18268.

Vieira, W., Rodrigues, M., & Villanova, G. (2024). Frameworks e metodologias ágeis. In A. Muniz et al. (Orgs.), Jornada de inovação: Aplicação de conceitos, frameworks, ferramentas e experiências para potencializar a inovação e a transformação digital em empresas e startups. Brasport.