Essential axes of knowledge society and socioformation

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Kresearch

Tobón, S. (2017). Essential axes of knowledge society and socioformation. Mount Dora (USA): Kresearch.
142 p.

DOI: dx.doi.org/10.24944/isbn. 978-1-945721-19-9
Education

© 2017 Kresearch Corp.
www.kresearch.us
e-mail: kresearchcorp@gmail.com
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Administrative coordination:
Engr. Clara Eugenia Guzman

First edition: 2017
ISBN: 978-1-945721-19-9
DOI: dx.doi.org/10.24944/isbn. 978-1-945721-19-9

Address:
801 International Parkway • 5th Floor • Lake Mary FL 32746 • USA

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PRESENTATION

The knowledge society is the new type of society that has been sought to create around the world in order to overcome the current problems related to global warming, the emergence of new diseases, poverty, hunger, terrorism, violence racism, lack of inclusion and poor quality of life for a large percentage of people in the world.

The knowledge society is leading to the transformation of all professions, disciplines and areas, such as health, engineering, education, sociology, anthropology, basic sciences, architecture, among others. This new type of society demands a more interdisciplinary and transdisciplinary work, focused on contributing to improve living conditions with support in citizen culture, ethics and information technologies.

The construction of the knowledge society demands research processes that guide the development of new concepts and procedures in the different disciplines and sciences, as well as social changes, transformations in organizations and implementation of strategies that lead to the development of new skills in people , such as collaboration and entrepreneurship. To achieve the knowledge society, one of the alternatives is to develop human talent in people. On this, new approaches and educational models are being created with application in society, in organizations and also in educational institutions, such as connectivism, dialogic pedagogy, complex education and socio-education, among others.

The socioformation is an approach focused on the development of human talent in the community, organizations and training institutions, based on project management and collaborative work so that the different actors are entrepreneurs and contribute to improve living

conditions solving the problems of the environment with a global and systemic vision, with support of the communication and information technology.

From the socioformation, a series of concrete strategies are proposed to orient individuals and organizations in the process of transformation towards knowledge, which are characterized by metacognition, the application of the principles of complex thinking, work in community, resolution of problems and the co-construction of the knowledge to face the challenges of the environment.

The purpose of this book is to describe the different axes of the knowledge society and the socioformation in a synthetic way, so that they serve as a general guide to researchers and professionals in different areas for their application in the environment. It is important to complement the ideas presented with the bibliographic material suggested at the end.

CHAPTER 1

KNOWLEDGE SOCIETY AXES

CONTENT

INTRODUCTION

Society has had transformations throughout history and this involves changes in the sciences and disciplines. In the last decades, these transformations have been presented in a fast way, a result of the technology as well as the changes in the environment that have endangered the survival of man on the planet if new structures of society are not implemented.

It is in this context that the information society has developed and strengthened, which has made great contributions to human society, but this has not translated into improving living conditions within the framework of environmental sustainability. Today, for the first time in history, the existence of man and of the various species is in danger. Hence the need to create and consolidate a knowledge society worldwide, based on environmental sustainability and the quality of life based on coexistence and inclusion.

1.1 KNOWLEDGE SOCIETY CONCEPT

From a humanist standpoint, the knowledge society consists of people working collaboratively and carrying out projects to have optimal levels of quality of life within the framework of inclusion, peaceful coexistence, socioeconomic development and environmental sustainability, through search, processing, analysis, adaptation, creation, innovation and application of knowledge, considering different sources and applying the technology (Tobón, Guzmán, Hernández, & Cardona, 2015). It differs from the information society and the network society in that it does not have the purpose of technology but human development with environmental sustainability and inclusion.

The challenge is to move from the industrial and information-based society to the knowledge society so that people actively participate in solving the problems of the context with a global, flexible and systemic vision, assuming diversity as a key feature of human society. It requires appropriate and articulated implementation of different knowledges, such as know how to be, know how to do, know how to know and know how to live together.

The knowledge society is achieved in every group, organization, community or institution that begins to have an impact on the improvement of the living conditions of its members and in society in general through collaborative work, through the application of complex thinking and with support in information and communication technologies. It involves critical and creative analysis, as well as innovation in what is done.

1.1.1 INFORMATION SOCIETY

The information society consists of producing, systematizing and sharing large amounts of information through different means, such as the cellphone, television and internet, in order to meet certain needs and perform daily tasks.

The information society is characterized by:

1. Production of increasingly large volumes of information.
2. Transmission of information through multiple technological means.
3. All citizens share information according to their interests, without rigorously analyzing the sources.
4. It tends to value the information itself, regardless of its long-term goals or consequences.
5. Little use of information to improve living conditions, such as reducing poverty.
6. Communicating information with impact so that it reaches as many people as possible and influences decision making with a specific purpose.
7. Digital information is transmitted in large volumes from the development of new technologies such as the optimum fiber and the increase of the bandwidth.

In the information society, organizations have the purpose of processing, storing and transmitting information by different means to influence the decisions of the people according to certain purposes, without considering, in most cases, the improvement of the conditions of life through systemic analysis of problems, critical analysis and collaborative work. That is why this type of society must be transformed towards the knowledge society.

1.1.2 NETWORK SOCIETY

The network society refers to the hyperconnected society, where everything is intended to be carried out through the internet, such as medicine, government, democracy, social relations, business, work, etc.

The network society is characterized by:

1. It is assumed to be a community connected through the internet and other technologies.
2. It gives value to everything done by means of technological connectivity.

3. It promotes the internet of things, that is, that any activity is based on the network. Production of increasingly large volumes of information.
4. The connection to the internet is a service of first necessity and who does not have a connection is excluded.
5. All people must develop competence in managing information and communication technologies from an early age.
6. The value of organizations and people is given by the degree of use of connectivity in their daily activities.

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The connection to the internet is a service of first necessity and who does not have a connection is excluded. All people must develop competence in managing information and communication technologies from an early age. In the network society, organizations and people focus on having high levels of technological connectivity in order to interact, learn and train continuously throughout life. This leads to a strong development of artificial intelligence and robots as support in

this process. However, there is no such thing as an end to improving living conditions through collaboration and there is the danger of assuming connectivity as an end in itself, and not as a way to have a better quality of life with environmental sustainability and inclusion.

1.2 KNOWLEDGE SOCIETY AND TECHNOLOGY

The knowledge society is not aimed at technology, but is based on it to strengthen collaborative work, promote global citizenship within the framework of local identities and generate environmental sustainability. The challenge, therefore, is to generate technological developments such as artificial intelligence and robots that help humans in assuring survival without sacrificing the environment and without having to look for new planets or environments to achieve it. Hence the need to overcome information and communication technologies and generate socioformative technologies that support a new human culture.

1.2.2 SOCIOFORMATIVE TECHNOLOGY

The socioformative technology is a new category of technologies available to organizations, the community and individuals and consist of procedures based on equipment, networks and software in order to support in the identification, systematization, communication and resolution of environmental problems through online collaboration, from different parts. The socioformative technology differs from ICT in the following points:

1. They have as central axis the processes of collaboration. This means that by default, all technology of this nature helps to manage the necessary collaborative work with different tools.
2. They seek to determine the problems there are in a certain area in order to attract the attention of users and generate solutions quickly.
3. They keep a register and systematization of the problems, as well as the proposed solutions.
4. They allow the interaction in real time between the users to find solution to the problems.
5. They facilitate the evaluation and feedback of the analyzes and solutions proposed to the problems, seeking the continuous improvement.
6. They promote the critical analysis of situations through the search of knowledge in rigorous sources.

A technological application based on infrastructure, equipment, networks and software is not in itself socioformative. It requires that you be focused on helping people work collaboratively to solve problems.

1.3 KNOWLEDGE SOCIETY AND ORGANIZATIONS

Organizations must be transformed to be knowledge society scenarios in which they work collaboratively in the improvement of living conditions through the implementation of concrete actions that ensure environmental sustainability. To this end, a work culture for

team projects should be implemented, focusing on the resolution of priority problems and making it possible not only to achieve the goals of each organization, but also to have an impact on improving living conditions, based on technology.

1.3.1 ORGANIZATIONS TRANSFORMATION

According to the advances in the knowledge society and socioformative technologies, social, entrepreneurial, governmental, industrial, service and educational organizations must be transformed in order to focus on contributing to the improvement of the living conditions of its members and users, within the framework of inclusion and sustainable environmental development.

The transformation to the knowledge society of organizations requires work based on projects as an organizational culture, which means that this methodology must be implemented at all levels of work and positions, through collaboration and use of technological applications. In this line, care should be taken not to consider projects as a mere fulfillment of formats or tasks, but as a flexible way of working, focused on achieving relevant products that benefit the organization but also its members and the community.

The process of transformation of organizations must be associated with the development of talent in a continuous way in all members, through practical and continuous actions, where people develop and strengthen complex thinking. This involves moving from content transmission actions such as lectures or exhibitions to training activities through problem solving and case analysis in an interactive way. The evaluation of the performance of all the members of the organization must be continuous through products, which should be evaluated based on instruments that allow a comprehensive feedback on the achievements and aspects to be improved.

1.3.2 EDUCATIONAL INSTITUTIONS TRANSFORMATION

The educational system must be transformed into the knowledge society, and this implies actions throughout the system at the global

level of a country, state or city, as well as within each educational institution (schools, high schools, Normal Schools, and universities, etc.). To this end, a short, medium and long-term plan must be established that includes changes in management, as well as in the training of people, collaboration among members and continuous formative evaluation of what is done.

Essentially, to achieve the change of educational institutions towards the knowledge society, it is required:

1. Implement the methodology of management by projects in the managers (directors, advisors and supervisors).
2. Generate a continuous collaborative work culture, so that all problems are solved and there is the necessary support for improvement.
3. Focus on the identification, analysis, interpretation and resolution of priority problems for comprehensive training.
4. Continuously monitor the resolution of priority issues, with support in relevant instruments.
5. Implement various technological applications that help in working with projects and collaboration.
6. Develop complex thinking in the various members of institutions.

7. Promote the strengthening of the quality of life, inclusion and sustainable development.
8. To develop a culture of continuous improvement through the evaluation of activities and the achievement of goals in the integral formation.

1.4 SUSTAINABLE SOCIAL DEVELOPMENT

Sustainable social development refers to the process by which a community achieves ever-increasing levels of quality of life, economic production, coexistence, self-knowledge, science, inclusion, equity, anthropoetics, health, and psychological well-being , with parallel actions to care for the environment and protect biodiversity in all environments, through collaborative work among its members, technological innovation, change in modes of production, the use of clean energy, etc.

This concept is characterized by:

1. Searching of the social development as a key axis to achieve the economic productivity and the care of the environment.
2. Being based on the education of the citizens based on the implementation of projects.
3. Addressing the care of the environment as a transversal axis of all actions that are implemented in education, politics, economy, technology, transport, and so on.
4. Achieving through collaboration, team building, project management and the proper decisions made by the empowerment of the communities.
5. Aiming to achieve the coexistence and quality of life for everyone, and for which the economic development no is a goal in itself, but a way to achieve it.
6. The inclusion, seeking that all persons interact and collaborate with each other to improve in a continuous way the living conditions.
7. Relying on the socio-formative technologies to generate changes in the environment.
8. Training people in the culture of seeking better living conditions rather than accumulating wealth and goods.

9. Aiming to generate urgent chances in the economic modes of production, to implement clean energy in the industries and transports, boosting sustainable livestock and agriculture, etc.

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CHAPTER 2

THE STRUCTURE OF SOCIOFORMATION

CONTENT

INTRODUCTION

Within the framework of the challenge of creating and consolidating the knowledge society in communities, organizations and educational institutions, new approaches have been proposed to guide the formation of citizenship, such as connectivism, invisible learning, systemic pedagogy, among other alternatives , which seek to form within the framework of new social trends. They are characterized, in general terms, by the articulation of knowledge, flexibility and creativity.

In the case of Latin America, approaches and training models from other contexts have traditionally been followed, without making the necessary adaptations. The same is happening with new proposals such as connectivism, without critical analysis and without basic research. That is why socioformation is proposed, an alternative of Latin American origin that seeks to support the transformation of organizations and people by solving problems in a collaborative way, with an impact on the improvement of living conditions.

2.1 SOCIOFORMATION CONCEPT

It is a theoretical and methodological approach on the development of human talent that seeks to train people to live in the knowledge society with a solid ethical project of life, collaborative work, entrepreneurship and, in order to achieve quality of life, coexistence, inclusion and socio-economic development, based on the assurance of environmental sustainability

(Tobón, 2013; Tobón, Gonzalez, Nambo, & Vazquez Antonio, 2015).

The socio-formation is a proposal of Latin American origin that is applied in the organizational, governmental, community, scientific and educational field, to develop the talent through the identification, interpretation, argumentation and resolution of problems of the environment with a global and systemic vision.

It is addressed both in the management of the institutions as well as in the administrative management and in the concrete actions of training of the people, applying the continuous improvement through the self-evaluation and the co-evaluation, with support in instruments that allow to identify the level of dominion and front feed to the achievements and aspects to be improved, such as rubrics, matrices, case analysis due to context problems and observation records, among others.

The socio-formation focuses on the procedures that need to be implemented to achieve the knowledge society, while traditional approaches and models prioritize theoretical discourse. It offers a set of actions such as the following:

1. Guidelines for managing human talent in various organizations.
2. Methodology for structuring and applying educational models.
3. Strategies for managing organizations such as socio-educational projects.
4. Procedures for developing talent such as training projects, the constructive reflective workshop, conceptual cartography, socioformative UVE, synergistic collaborative work, sociodramas, the MADFA strategy, etc.

2.1.1 COMPLEX THINKING

Complex thinking within the MorIn school is a method through which the construction and management of knowledge in fabric is sought by relating the parts to each other and considering the changing nature of the processes (Morin, 1992, 2002).

From complex thinking, reality is neither simple nor complex, neither systemic nor systemic, neither ordered nor chaotic; reality is how we think it. If our way of thinking is simple, reality is going to be simple, linear and cause-and-effect; On the other hand, if our way of thinking is complex, through the interweaving of processes, then reality is going to be systemic and complex with processes of organization-disorganization-reorganization, order and chaos.

Complex thinking is the basic epistemology that guides the socio-formation around research and methodological development on the development of human talent and the transformation of organizations through the articulation of knowledge from transdisciplinarity, with flexibility, openness and critical analysis.

At the same time, in the socioformation it is sought that organizations and people develop complex thinking through five essential axes (Tobón, 2017a):

1. Resolution of the problems of the environment considering the different elements in relation that influence.
2. Conceptual analysis.
3. Critical analysis.
4. Systemic analysis of problems and processes.
5. Creativity to generate new solutions to problems.

It is necessary that the organizations and people develop the thought to be able to contribute to the knowledge society. For this, the most pertinent strategy is the work with projects and the conceptual cartography.

• Development of complex thinking

A key axis in the socioformation is the development of the complex thinking in the organizations and people, by approaching its five structural axes: problem solving, metacognition, critical analysis, systemic analysis and creativity. To do this, consider some of the following strategies(Tobón, 2017a):

1. Work based on projects that focus on solving problems in the context where people have different postures. Articulate in the knowledge projects of various disciplines, both in the interpretation, as in the argumentation and resolution. Propending because this articulation of knowledge is coherent and helps in addressing the problem, without complicating the process.
2. Addressing contextual challenges that require the formation and strengthening of values, such as responsibility, honesty, respect and equity.
3. Implement actions to contribute to improve the quality of life of people seeking the relevance of knowledge.
4. Analyze challenging cases with experiences of success and failure to determine the learning to take into account in new projects.
5. Evaluate processes and results based on instruments, such as rubrics, to identify achievements and aspects to improve, and then work among all in continuous improvement.

6. Management of scientific knowledge based on strategies of organization and systematization, as it is the case of the conceptual cartography and the semantic networks

- **Assessment of complex thinking**

The evaluation of the complex thinking in people must be made from the project management and the resolution of problems of the environment, based on the activities that are implemented and the products achieved, as well as the process of management and co-creation of knowledge , the collaborative work and the aims that are sought in the performance. For this, it is recommended to evaluate six dimensions both quantitatively and qualitatively, to determine achievements and aspects to improve

The six dimensions to consider in assessing the complex thinking of organizations and individuals are the following:

1. Dimension 1. Resolution of the problems of the environment considering the different elements in relation that influence.

2. Dimension 2. Critical analysis.

3. Dimension 3. Conceptual analysis.

4. Dimension 4. Systemic analysis of problems and processes.

5. Dimension 5. Creativity to generate new solutions to problems.

Each dimension has certain indicators that can be evaluated through a checklist or estimation scale, in addition to a qualitative analysis. To carry out the assessment it is indispensable to have as reference the action to a given problem, the activities implemented and the products generated.

2.1.2 ETHICAL PROJECT OF LIFE

It consists of seeking personal fulfillment, social development and environmental sustainability through concrete actions on the continuous improvement to achieve established goals and continuous improvement, applying universal values such as responsibility, respect, honesty, equity, humility , solidarity and the protection of life. It

involves enjoying what is done, assuming new challenges every day (Tobón, 2017b). There is a solid ethical project of life when living with quality of life, enjoying what is done and contributing to the quality of life, coexistence and economic development of the community with concrete actions of environmental sustainability.

The ethical project of life implies:

1. Seeking personal fulfillment.

2. Contribute to the quality of life and the socio-economic development of the community in a framework of environmental sustainability.

3. Act in the context of short, medium and long term goals.

4. Develop talent by solving environmental problems

5. Work diligently on projects.

6. To live following the universal values.

7. Continuously improve with creativity.

8. Apply self-care for health and have healthy behaviors.

The ethical project of life is not only a planning of life with goals, values and activities to perform; it also includes the execution of the planning in the framework of the commitment to the community and

the environment, as well as the continuous evaluation of the actions implemented and the goals achieved applying the universal values. The latter is the ethical component.

- ## Values

Values are general cognitive-affective processes characterized by being deep and enduring, that induce behaviors and the achievement of positively valued goals in society. They express themselves through attitudes and actions in everyday life.

In the socio-formation, values are concrete behaviors that lead people to growth, continuous improvement, personal fulfillment, quality of life, coexistence and socio-economic development of the community with environmental sustainability. They are evident in concrete facts and products.

For example, a person has the value of responsibility when he acts in daily life fulfilling his commitments, delivering in time and form the products that he committed to elaborate, etc.

The main values are:

- Responsibility
- Respect

- Honesty
- Equity
- Solidarity
- Humility
- Protection of life

• Responsibility

It involves fulfilling one's own personal agreements as well as agreements with others, facing the consequences of one's own actions, correcting mistakes and repairing all damages done as much as possible.

A person is responsible when:

1. He conveniently fulfills commitments to himself, to others and to the environment.
2. He follows social standards and laws, being aware of them and their benefits.
3. He takes responsibility of his actions in various situations in life.
4. He prevents any possible mistake or negative consequence of his own actions.
5. He acknowledges his mistakes and mending them as soon as possible.

• Respect

It consists in connecting with oneself, others, and the environment, keeping in mind the positive qualities and seeking wellbeing with tolerance and cordiality. It involves attention and consideration towards oneself, others and the environment.

A person is respectful when:

1. He takes on cultural differences as something typical in human society and he understands its value to the enrichment of culture itself.
2. He tolerates people's opinions, ideas and the way the are.

3. He considers others' ideas and proposals.
4. He is kind and courteous to others.
5. He values the environment and seeks to protect it.
6. He looks out for his own wellbeing, others' well being, and the environment's well being.

• Honesty

It consists in acting upon looking for the truth, communicating with frankness in various life situations and respecting others property.

A person is honest when:

1. He acts upon various situations adjusting to the facts, telling the truth. He does not lie.
2. He is cautious and prudent when getting involve with others. He protects others' reputation.
3. He is honest, which is to say, he respects others' belongings. He does not take what does not belong to him.
4. Everything he says goes along with what he does.

• Equity

It consists in every human being having the same rights and duties, regardless of their gender, race, beliefs, place of residence, and economic status.

A person has equity when:

1. He seeks that everyone has access to quality public services, such as: education, health, housing, communication and recreation.
2. He seeks for enterprises to look after all users without discrimination.
3. He takes on the notion that salary and promotions should be based on performance evaluation.
4. He seeks for him and others to have what they deserve based on their efforts and talent.

• Solidarity

It consists in helping other people and the environment when facing difficulties, crisis, or catastrophes, without expecting anything in return, acting with the greatest amount of commitment and aptitude as possible. It is to seek others' well being and feeling useful, with the only reward of seeing how others' living conditions have improved.

A person has solidarity when:

1. He is interested in others and helps them by taking specific actions when they are having difficulties.
2. He encourages others to help when needed.
3. He works with others to overcome difficulties or crisis in the environment.
4. He helps animals fulfill their needs and have wellbeing.
5. He supports others reach specific goals without expecting anything in return.

• Protecting life

It consists in protecting and having respect for life in all shapes and forms.

A person protects life when:

1. He tries to find a peaceful solution to conflicts by listening, talking and coming to agreements.
2. He does not take justice into his own hands, and seeks for social institutions in charge to handle this matter, such as the police and the justice system.
3. He tolerates others religious, social, political and economical ideas and beliefs.
4. He encourages team work in society in order to face problems together.

• Attitudes

They are internal and specific dispositions towards actions guided by values. They are in the basis competences.

It is made of three elements:

- Belief or knowing about something
- Wanting to do something
- Carrying out a clear action on the surroundings (driven by wanting and based on belief or knowledge).
- Fact and problem analysis are done through attitudes. Others are heard, projects are undertaken, and one works with others.

Examples of attitudes:

Courage: Responsibility

Attitudes:

- Arriving to class on time
- Turning assignments in on time to the teacher

2.1.3 ENTREPRENEURSHIP

It is to start and carry over innovating projects that solve problems in different contexts, by relevant results, considering a specific talent or interest area.

Entrepreneurship involves the following actions:

1. Planning projects in a creative manner to solve the context problems.
2. Implementing projects facing uncertainty and carrying through any changes necessary depending on the context's challenges.
3. Extending to everyone the benefits of carrying out the projects and obtained results.
4. Evaluating the quality of obtained results and implementing continuous improvement.
5. Creating products or services to solve the context's problems.
6. Generating innovation when carrying out projects and results.
7. Managing resources that are needed to implement projects.

2.1.4 COLLABORATIVE WORK

Collaborative work is the process by which people achieve a common goal by complementing and articulating their knowledge (skills, knowledge and attitudes), in order to have greater impact than a single person could achieve.

Collaborative work involves the following actions:

1. Agree on a goal to achieve with which all are identified. 2. Acting with an agreed plan of action among all in the fundamental.
2. Work with synergy, that is, complement the strengths of all members to achieve with high impact the common goal.
3. Acting with metacognition, making continuous improvements and correcting possible mistakes in collaborative work.
4. Interact with assertive communication, seeking that all members express themselves with kindness and respect.
5. Acting with personal responsibility, so that each member performs the activities agreed in the action plan.

2.1.5 METACOGNITION

Metacognition is another nucleus of the socioformation. It refers to the process of continuous improvement in the activities and products that a person or team has through the continuous practice of self-evaluation and co-evaluation, based on the application of the reflection and universal values of the ethical project of life.

In socioformation, unlike other approaches, metacognition does not refer to going beyond cognition, to the process of becoming aware of what is done, or to reflection itself; is to demonstrate concrete improvements through evidence in the performance, both personal and team, with support in criteria and indicators, and based on ethics.

From socioformation, metacognition has the following characteristics:

1. It focuses on improving processes, products and services to achieve excellence with reference to certain indicators or criteria agreed or based on rigorous sources.
2. It can be both individual and collaborative (team).
3. It addresses the integral action and does not refer only to the cognitive. In this sense, affective-motivational, psychological well-being, procedural and actions in the social and environmental context is also an object of improvement.
4. It does not focus on determining the basis of performance, by identifying the characteristics of the person, the task and the context, but focuses on the problem that is intended to solve and the action that is necessary to execute to achieve the established goals.
5. It is evaluated by the degree of contribution to the achievement of certain goals, based on the resolution of an environmental problem.
6. It relies on instruments with indicators and criteria based on rigorous or agreed sources, such as rubrics, matrices, estimation scales, etc.

2.2 LINKING ACTORS

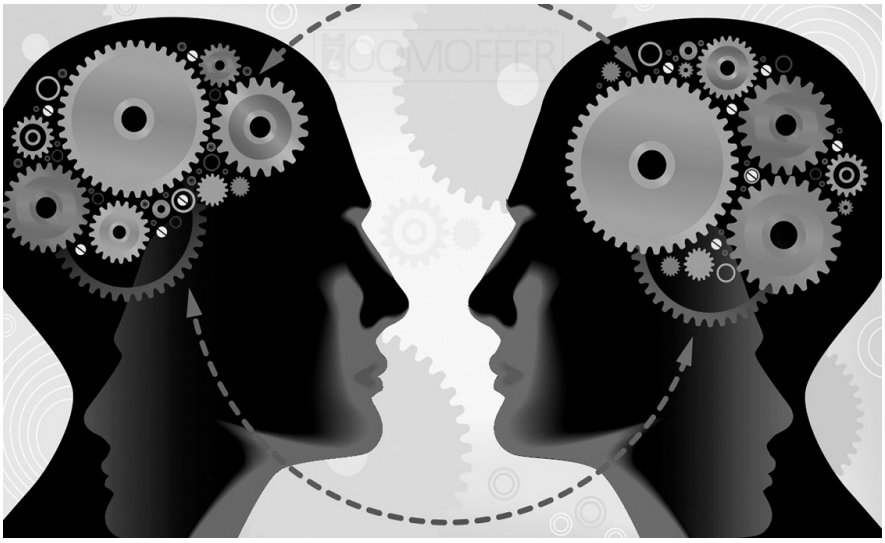
The socioformation is based on the articulated work of all the actors related to the change towards the society of the knowledge and the development of the talent in the diverse areas. This applies to all types of organizations: social, business, industrial, educational, scientific and community.

The actors are the people who must be empowered to contribute to the transformation through the collaborative work and the putting into action of concrete activities.

An actor is a person who can potentially make a contribution so that he, others, his team, the organization where he works or a community, implement actions to work collaboratively in the improvement of living conditions, with critical analysis and entrepreneurship, seeking coexistence, social development and sustainability.

- **Recommendations for the actors:**

1. Prioritize a problem and establish one or several common goals that guide the work of all.



2. Assume a determined to facilitate and support the collaborative work in an organized way. This role must be flexible and changed by another when necessary.
3. Identify the strengths with which you can contribute to solve the priority problem, taking into account the contributions of the other members of the organization around the problem identified.
4. Look for the necessary training to fulfill the role or roles assumed in the collaborative work. Also to carry out activities with suitability.
5. Self-evaluate work on a continuous basis and implement improvement actions based on feedback from others and their ongoing support.

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CHAPTER 3

HUMAN TALENT MANAGEMENT

CONTENT

INTRODUCTION

Organizations should have as their main focus the continuous development of talent in its operation and the people to face the challenges of change and innovation in the knowledge society. However, the concept of talent has been used in a reductionist way as "human resource", "training", "exceptional abilities", or "special skills", which makes it difficult to generate concrete actions in the community, institutions and companies that have an impact on the process. It has also tended to consider human talent in terms of achieving organizational goals, but little in terms of society, the people themselves and the environment.

A new concept of human talent, defined as collaborative work with other people to identify, interpret, argue and solve problems with critical analysis, systemic thinking, conceptual argumentation, creativity and metacognition (continuous improvement based on reflection), in order to contribute to sustainable social development, quality of life for all and personal fulfillment. All human beings can develop talent by virtue of their ethical life projects, the opportunities of the environment, training, counseling and continuous encouragement to work to improve living conditions.

Organizations must have as their main axis the development of talent in order to articulate the knowledge society and achieve permanence. To do this, they must implement continuous actions that strengthen collaboration, as well as the ethical project of life and complex thinking. For this purpose, it is necessary to work on team projects, stimulate innovation and promote critical analysis of processes. In this way, the current digital culture focused on information sharing through technology will be transcended, and instead, entrepreneurial processes will be established gradually to solve problems with empathy towards others and the environment.

3.1 HUMAN TALENT

Various approaches have been proposed to address the management of human talent, but most emphasize on the development of skills, knowledge and attitudes to perform the activities of a given organization and help achieve the established goals. This does not fit the challenges of the knowledge society, which demands to train people to build self-managing communities of their development, with equity, inclusion, solidarity and entrepreneurship.

The socioformation takes up this challenge and rethinks the concept of human talent as an aspect that can develop all people regardless of their physical, psychological, cognitive, social or economic conditions. Although it may have inherited elements, the most determining factor is having goals and working towards achieving them with discipline and perseverance, within a framework of collaboration and social support.

In this way, the human talent consists of working with others in the identification, interpretation, explanation and resolution of environmental problems, articulating different knowledge (attitudes, knowledge and skills) and managing the necessary resources, with complex thinking and action based on universal values, in order to improve living conditions, achieve personal fulfillment and contribute to environmental sustainability, within a framework of continuous improvement.

This means that the talent is not to have knowledge, nor to be able to perform tasks, as was the emphasis on industrial society. Talent requires addressing the challenges of the environment with creativity, critical thinking and systemic analysis. It requires people to flexibly take on processes and confront situations of uncertainty with various strategies, in a perspective of change.

Only in this way will the human being have a privileged space in front of the progressive rise of robots, digital culture, the internet of things and artificial intelligence systems.

3.1.1 COMPETENCIES

The competences, in the socioformative approach, are not a know-how in context, nor have abilities or skills, or perform tasks in a given area. Neither are they reduced to a mobilization of resources of cognitive, procedural and affective order to face challenges. In this approach, they are defined as integral actions to identify, interpret, argue and solve problems of the context (personal, family, social, professional, scientific, cultural, artistic, recreational and environmental), with ethics, suitability and continuous improvement, through the integration of know-to be, know- how to do, and know-how to know to achieve the knowledge of living together, which implies collaboration in the framework of social development and care for the environment.

From the socioformation, they are an essential axis of human talent and must enable self-realization and improvement of people's quality of life, building and strengthening the social fabric, socio-economic development and environmental balance and sustainability. The competences are actions in continuous change, and therefore must be assumed with flexibility, within the framework of a clear shared vision in the society, that in the socioformation is the sustainable social development.

• BASIC COMPETENCIES

They are the competencies that all people need for their personal development, as well as for being active and integrated citizens in society.

These competences must be developed in basic education and then continued to improve in secondary and higher education.

Examples:

- Resolution of life problems based on arithmetic.
- Resolution of life problems based on reading and writing.
- Resolution of problems of the daily life following the social norms and the values of coexistence.

Table 1. Examples of basic competencies

Field	Examples of competencies
Mathematics	Applying statistics in order to make decisions to solve problems based on the type of analysis required.
Communication	Using oral and written language to communicate clearly in varied social and cultural contexts by using different codes and tools within a framework of metacognitive processes.

Reference: Tobón (2014a)

• SPECIFIC COMPETENCIES

They are specific competences of a subject, area, field or discipline.

Table 2. Examples of specific competencies

Business administration	1. Performs financial analysis to make decisions and structure organizational and investment projects that aim to generate social, organizational and financial benefits, in accordance with the cash flow and market possibilities. 2. Coordinates the administrative processes of an organization to contribute to the achievement of organizational goals, with flexibility and following a shared vision.

Reference: Tobón (2014b)

• GENERIC COMPETENCIES

They are transversal and common competences to different areas, fields, occupations and professions that a country, a community, a company or a social organization define as essential. They complement the basic skills.

The greatest weight in the formation of generic competences is in secondary, middle and higher education, but they continue to develop throughout life.

In the socioformation eight key generic competences are proposed, which can be reduced according to the needs and challenges in the training.

1. Self-management training
2. Oral and written communication
3. Collaborative work and leadership
4. Knowledge management
5. Business
6. Oral and written communication in a second language
7. Research
8. Quality management

Reference: Tobón (2014a)

• GENERIC COMPETENCE OF TRAINING SELF-MANAGEMENT

Description:

Self-managements training himself throughout life, to achieve personal fulfillment and established goals, addressing the challenges of the context and considering the opportunities.

Explanation:

It is that each person leads their own education throughout life, seeking the most relevant resources for it through educational institutions, training centers, books, manuals, videos, audios, multimedia programs or other people who are experts in the subject.

Main problems to be solved:

1. How to face the continuous challenges of updating in technological, scientific and labor changes?

2. What strategies to implement to have relevant training facing changes in context?

Criterios esenciales

1. Plans its formation process in accordance with the challenges of the context and his ethical project of life.
2. Looks for the necessary resources for its formation, according to the possibilities of the context and his necessities.
3. Carries out the training processes with perseverance until reaching the goals.
4. Evaluates his training and performs improvement actions according to certain goals.

Key Evidence:

1. Document with a training plan.
2. Document with the planning of the ethical project of life.
3. Constants of the training processes carried out.

Reference: Tobón (2014a)

• GENERIC ORAL AND WRITTEN COMMUNICATION COMPETENCE

Description:

Uses oral and written language to communicate with understanding in varied social and cultural contexts, using different codes and tools, within the framework of a metacognitive process.

Explanation:

It consists of solving problems from different contexts by understanding and expressing different types of messages (written, oral or graphic), continuously improving through reflection.

Main problems to be solved:

1. How to communicate in different contexts using the appropriate codes?
2. What tools to apply to generate coexistence from communication?

Essential Criteria:

1. Identifies the key ideas in a text or oral speech, and infers conclusions from them.
2. Writes reports in which he analyzes the processes and situations of life, according to syntactic and semantic norms of the language.
3. Expresses ideas and concepts orally, making people understand the message he wants to transmit, and considering the communicative requirements of each situation.
4. Applies different communicative strategies, according to his interlocutors, the context in which he is and the objectives pursued.
5. Communicates with respect and cordiality with other people, considering the challenges of the diverse social situations.
6. Communicates assertively managing the different communicative situations that are presented, which implies a proactive approach to conflicts.

Key Evidence:

1. Written report on a context problem.
2. Registration of an exhibition in public.
3. Summary and analysis of a speech.
4. Registration of a sociodrama.

Reference: Tobón (2014a)

• GENERIC ORAL AND WRITTEN COMMUNICATION IN A FOREIGN LANGUAGE COMPETENCE

Description:

Uses a foreign language to communicate in an oral and written manner, and to have possibilities of interacting with other societies, considering the language's own criteria, ethical commitment, and the challenges of each situation and context.

Explanation:

It consists of solving problems from different contexts by understanding and expressing different types of messages (written, oral or graphic) in a foreign language, continuously improving through reflection.

Main problems to be solved:

1. Do social, research or economic projects with people who have other languages and cultures?
2. How to appropriate information and knowledge in the globalized world?

- Essential Criteria:

1. Identifies the key ideas in a text or oral speech in a second language, and infers conclusions from them.
2. Writes reports in a second language, in which he analyzes life processes and situations, in accordance with the syntactic and semantic norms of that language.
3. Expresses ideas and concepts orally in a second language, making people understand the message he wants to transmit, and considering the communicative requirements of each situation.
4. It applies different communication strategies in the context of a second language, depending on his interlocutors, the context in which he is and the objectives pursued.
5. Communicates in a second language with respect and cordiality

with other people, considering the challenges of the various social situations.

6. Communicates assertively in a second language, managing the different communicative situations that are presented, which implies a proactive approach to conflicts.

Key Evidence:

1. Written report on a context problem.
2. Registration of an exhibition in public.
3. Summary and analysis of an oral discourse.
4. Registration of a sociodrama.

Reference: Tobón (2014a)

• GENERIC COLLABORATIVE WORK AND LEADERSHIP COMPETENCE

Description:

Works collaboratively to achieve the goals of the projects, with agreed action plans, synergy, metacognition and assertive communication.

Explanation:

It is to solve problems by joining several people, looking for each one to contribute the best of himself to achieve a common goal and fulfill the responsibilities contracted, seeking the continuous improvement both in activities and in the achievement of products, with based on oral, written and bodily expression with respect and kindness.

Main problems to be solved:

1. How to achieve synergy in a team, within the framework of social and organizational demands?
2. What mechanisms to implement to solve conflicts that arise in a team and generate agreements?

Essential Criteria:

1. Conceptualizes what is the team work, its characteristics and responsibilities, taking into account the challenges of the context.
2. Understands the process of planning team activities, according to some methodology.
3. Participates in the accomplishment of joint activities in a determined team, with acceptance of the differences and assertive communication, according to certain objectives.
4. Contributes to the team having a shared vision and a clear work program, participating in the creative analysis and resolution of conflicts.
5. Has a sense of challenge for the team to achieve each time higher goals, in line with the shared vision of the team.
6. Coordinates processes of planning and execution of activities and projects, according to the contextual challenges and the ethical project of life.
7. Identifies difficulties in teamwork, and proposes clear and feasible solutions, assuming its responsibility to overcome these difficulties.
8. It has an ethical commitment in dealing with people, in accordance with universal values.
9. It relates to others through assertive communication.

Key Evidence:

1. Conceptual cartography of collaborative work.
2. Work plan developed in team.
3. Report of activities developed as a team.
4. Record of goals reached by the team.
5. Conflict resolution report.
6. Registration of a sociodrama.

Reference: Tobón (2014a)

• GENERIC KNOWLEDGE MANAGEMENT COMPETENCE

Description:

It manages knowledge to solve problems of the context by investigating in different sources and using the information and the communication technologies.

Explanation:

It consists of searching, processing, adapting and applying knowledge in problem solving, based on reliable sources.

Main problems to be solved:

1. What tools do you use to generate knowledge from information?
2. How to contextualize knowledge to solve local problems?

Criteria:

1. Identifies information and knowledge requirements in context, according to a specific goal.
2. Processes information and knowledge through the use of the computer at the user level.
3. Carries out collaborative activities through the use of the Internet (email, chat, video chat, web pages, etc.), and of fixed and mobile telephony.
4. Interprets information according to certain conceptual and contextual references.
5. Analyzes the contextual processes in a systemic way, and it has this in mind in the approach of the activities and problems.
6. Processes information based on a specific methodology, established goals, information and communication technologies, and ethical commitment.
7. Argues the way to approach the activities and problems of the context, considering certain knowledge.
8. Proposes systemic solutions to problems based on the analysis of information and certain knowledge.

Key Evidence:

Report of the processing, interpretation, argumentation and resolution of a problem of the context, applying the information and the communication technologies.

Reference: Tobón (2014a)

• GENERIC ENTREPRENEURSHIP COMPETENCE

Description:

Executes projects to solve problems of the context, with perseverance, until reaching the proposed goals, taking into account the established opportunities.

Explanation:

It consists of planning, executing and evaluating projects in different areas to achieve a specific product, managing the necessary knowledge and resources.

Main problems to be solved:

1. How can projects be maintained over time and strategically addressed?
2. How to turn difficulties and threats into opportunities for entrepreneurship projects?
3. How can entrepreneurship projects be based on the ethical project of life and addressing the challenges of the context?

Criteria:

1. Identifies problems in the context, and turns them into opportunities to establish new relevant social or economic projects.
2. Designs projects with creativity and innovation, in accordance with the requirements of the context.
3. Implements the actions of the projects taking into account the proposed goals, the defined administrative process and the conditions of the environment.

4. Pushes forward projects with perseverance and strategically facing difficulties.
5. Acts ethically in the entrepreneurial processes, considering the diverse challenges of the context.

Key Evidence:

1. Report with the planning of an entrepreneurship project.
2. Implementation report of an entrepreneurship project.
3. Registration of socialization of an entrepreneurship project.

Reference: Tobón (2014a)

• GENERIC RESEARCH COMPETENCE

Description:

Solves problems of the context through a determined research methodology, to generate knowledge and to act with greater impact in the reality, considering the accumulated knowledge, the collaborative work and the ethical commitment.

Explanation:

It consists of expanding, generating or improving knowledge around a problem following the scientific method, which is composed of elements such as: observation, hypothesis approach, experimentation and theorizing.

Main problems to be solved:

1. How to generate knowledge and / or new methodologies, to respond to disciplinary, professional, social, environmental, business or economic problems?
2. How to work collaboratively to impact research?

Criteria:

1. Argues the different components of the concept of investigation, accounting for the exemplification, notion, categorization, central

characteristics, differences, division, linkage, methodology, etc.

2. Plans a research project (or intervention with a research component), according to a particular problem and methodology of project presentation.
3. Executes a research project, approaching proactively and strategically the difficulties that are presented in the process, making appropriate adaptations, in accordance with the expected results.
4. Systematizes the information provided by the project under a certain method, in accordance with the objectives and methodology of the same project.
5. Socializes the results of the research through different strategies (presentations, videos, articles, books, etc.), giving an account of the problem, the methodology, the results and the conclusions reached.
6. Acts ethically in all stages of the investigative process, according to the nature of the project, the codes of research ethics and anthropoethics.

Key Evidence:

1. Report of the conceptual cartography of a research project.
2. Report of the complete planning of a research project.
3. Report on the execution of a research project.

• GENERIC QUALITY MANAGEMENT COMPETENCE

Description:

It manages the quality of the processes and products of a project to generate the highest degree of possible satisfaction and relevance at internal and external level, considering the highest standards in the context.

Explanation:

It consists of ensuring that the services and products meet certain standards or indicators previously identified and agreed in the area,

seeking the highest possible degree of user satisfaction.

Main problems to be solved:

How to generate a culture of quality and maintain it through collaborative actions, to achieve goals with high degree of relevance, equity, effectiveness and efficiency?

Criteria:

1. Determines the criteria to be taken into account in the management of the organizational quality, in accordance with the goals of the organization and the current norms.
2. Becomes automotive around the quality management, which allows it to carry out the activities with dedication, perseverance and the expected quality.
3. Plans quality management processes, considering the organizational context and the established criteria.
4. Executes concrete actions of improvement of the quality in a certain organizational process, making appropriate adaptations and considering the expected results.
5. Acts in accordance with the code of ethics in the field of quality management, based on metacognitive reflection.
6. Evaluates quality management based on certain criteria.

Key Evidence:

Quality assurance report on an activity or project, indicating compliance with criteria or standards and improvement actions implemented.

Reference: Tobón (2014a)

3.1.2 PERFORMANCE AREAS

They are the fields in which people act and put their competencies into action. They are equivalent to the domains of competence or global competencies.

When you have many competencies in an exit profile, sometimes it helps to group them into performance areas to facilitate their organization and training.

Table 3. Examples of proficiency domains

Career	Areas of Performance	Competencies
Medicine	1. Prevention and health promotion	1.1 Manages health promotion projects that contribute to raising personal and social quality of life with environmental sustainability, perseverance and application of systemic methodologies. 1.2. Applies information and communication technologies to prevent diseases and promote health, in accordance with existing technological resources in the community and the challenges of the context.
	2. Research	2.1 It executes research projects in the area of health to generate knowledge and contribute to the quality of life of the people, considering accumulated knowledge, collaborative work and ethical commitment. 2.2 Applies statistics to produce scientific knowledge in the area of health according to a particular problem and research methodology.

Reference: Tobón, S. (2013). Formación integral y competencias. Pensamiento complejo, currículo, didáctica y evaluación. [Integral formation and competencies. Complex thinking, curriculum, didactics, and assessment]. (4th ed.). Bogotá: ECOE.

3.1.3 RESULTS OF LEARNING OR KEY LEARNING

The results of learning or key learning are concrete goals that are expected in the integral formation and in the development of the talent, through the action to problems of the context, considering the

know to know, the know to do, the knowing to be and the knowing to coexist . They describe the concrete actions that are expected in people as a product of training processes mediated by others in meaningful environments.

From the socioformation, the learning outcomes are established considering the different processes of mediation and action, such as:

1. Awareness and goals
2. Conceptualization
3. Problem solving
4. Values and ethical project of life
5. Collaboration with others
6. Assertive communication
7. Creativity, personalization and innovation
8. Transversality and transfer
9. Resource management
10. Metacognitive evaluation

Table 4 describes examples of learning outcomes for each of these 10 processes of action and mediation in the socioformation. This should be taken as a flexible and open orientation to assist in didactic planning.

Table 4. Processes to determine training results (learning outcomes)

No.	Proccess	Description	Support verbs	General examples of learning outcomes
1	Sensitization and visualization	Understands and appropriates the goals to be achieved in solving problems, implementing specific actions to achieve them.	Attends, codifies, directs, enjoys, observes, orders, perceives, perseveres, prefers, processes, projects, wants, concentrates, interests, motivates, appropriates, sensitizes, ends, tolerates, visualizes	• It evaluates its previous knowledge against the approach of a goal or problem and implements continuous training actions. • I persevere in the culmination of a project until I solve the problem and achieve the established goals. • I execute strategies to self-evaluate the achievement of goals and implement improvement actions that lead me to achieve them. • Process the information of an activity for the decision making, following a certain methodology. • I finish a project and socialize it, according to certain goals. • I tolerate situations of uncertainty and I deal with activities. • I visualize the goals to be achieved and identify the products to be obtained in a given project.
2	Conceptualización	Manages and co-creates the knowledge from rigorous sources in order to understand, argue and establish the process to solve problems, with support in graphic organizers.	Searches (information), characterizes, categorizes, classifies, compares, co-creates (knowledge), conceptualizes, defines, determines, differentiates, exemplifies, retrieves, relates, subdivides, systematizes	• I seek information from rigorous sources and organize it to understand and explain a problem. • I co-create knowledge to achieve a goal or solve a given problem with support from rigorous sources. • I explain the essential concepts to perform an activity or solve a problem, with support from rigorous sources. • I exemplify a concept or theory based on a context situation or problem. • I organize knowledge about a phenomenon or problem following a particular methodology or categories of analysis in order to make a decision.

No.	Proccess	Description	Support verbs	General examples of learning outcomes
3	Resolution of problems	Identifies, interprets, argues and solves a context problem	Subprocess: identification, interpretation and argumentation of the problem Analyzes, explains, understands, contextualizes, deduces, demonstrates, diagnoses, explains, identifies, interprets, justifies, summarizes, synthesizes	• I identify a problem in the context according to certain goals or concepts. • I diagnose the environment and identify a problem based on a particular methodology. • I interpret a problem of the context based on concepts, theories or methodologies that have support in the academic or scientific literature. • I explain a problem considering the causes and consequences from concepts, theories or methodologies from rigorous sources. • I synthesize the analysis of a problem to make a certain decision regarding his approach.
			Subprocess: resolution of the problem. Applies, builds, controls, controls, develops, builds, builds, builds, builds, builds, builds, builds, builds, proposes, projects, collects, registers, represents (a situation or problem), resolves, uses, utilizes	• I build several options to solve a problem considering its components, causes and effects. • I propose several solutions to solve a problem considering at least the following components in each option: resources, human talent, time and complexity of the option. • I plan the resolution of a problem based on the analysis of the best option, with support in a schedule. • I solve a given problem considering the context, a flexible action plan and continuous improvement.

4	Values and ethical project of life	Works in the personal realization, the social development and the sustainability applying the universal values	Acts, assumes, corrects, cares, fulfills, honors, works, practices (values), protects, recognizes, repairs, protects, respects, responds, self-esteem, compromises	• I act in everyday life in situations and problems applying universal values. • I fulfill the commitments made, as well as the rules and laws of society. • I answer for my actions and their consequences, I prevent possible mistakes in my performance, I acknowledge my mistakes and I try to repair as far as possible the damages that I can cause in myself, others and the environment. • I work in my personal fulfillment contributing to social and economic development, as well as to environmental sustainability.
5	Colaboration	Works with others to achieve a common goal through an agreed plan of action and the complement of everyone's strengths.	Supports, advises, agrees, agrees, encourages, advises, helps, trains, collaborates, shares, complements, coordinates, dialogues, leads, interacts, motivates, negotiates, orients, participates, straightens, integrates, socializes, tolerates (others), guardianship	• I agree with other people a goal and an action plan to carry out to solve a problem, considering the challenges of the environment. • I encourage others in carrying out activities to achieve a goal with impact, based on self-assessment and co-evaluation. • I collaborate with other people in the achievement of a goal to solve a problem, articulating the own strengths with the ones of the others. • I build with others a shared vision to solve a particular problem or achieve goals, based on an agreed plan of action. • Interact with others to generate positive human relationships considering the goals of collaborative work.

No.	Proccess	Description	Some supporting verbs	General examples of learning outcomes
6	Assertive communication	Communicates with others in a clear, direct, friendly and respectful way, seeking to generate human relationships that help achieve goals and solve problems.	Announces, comments, communicates, talks, dialogues, says, speaks, discloses, writes, listens, expresses, reports, manifests, notifies, publishes, writes, gives feedback	• I dialogue with other people to resolve conflicts through listening and agreement on the fundamental, considering the assessment of each situation. • I listen to others to understand their position on a subject or problem, in order to reach an agreement. • I express a certain message with clarity, cordiality and respect for others, taking into account the challenges of the environment. • I give feedback to others regarding the processes, achievements and aspects to be improved with respect and cordiality, considering the contextual situation.
7	Creativity, personalization and innovation	Creates, customizes and innovates ideas, products or services	Accommodates, adapts, creates, generates, innovates, personalizes, reconstructs, recreates	• I adapt concepts, procedures, products and / or services to a specific context in order to solve a problem. • I create concepts, theories, approaches, procedures, products and / or services according to the challenges of the environment. • I innovate concepts, theories, procedures, products and / or services to address a particular process or problem considering the challenges of the environment. • I customize procedures, products and / or services to address a problem considering the challenges of the environment.

8	Transversality and transfer	Transversalizes the approach of a problem by articulating the knowledge of different disciplines, areas or fields. Transfers the learning about the approach of a problem in other contexts, considering different knowledge, disciplines, areas or fields.	harmonizes, articulates, teaches (to others), passes, relates, works (from the multi, inter or transdisciplinarity), transfers, transmits, transversalizes, transfers, links	• I articulate knowledge of various disciplines, sciences, areas or fields in the analysis and resolution of a given problem, considering rigorous sources. • I work interdisciplinarily in the analysis and resolution of a problem based on rigorous sources. • I work in a transdisciplinary way in the analysis and solution of a problem considering the challenges of the environment. • I transfer concepts, theories and / or procedures from one environment to another to approach a situation or problem, considering a certain goal.
9	Resource management	Manages the resources needed to solve a problem or achieve a goal.	Conditions, adapts (resources), adapts, shapes, searches (resources), squares, scans, scans, manages (resources), organizes (has) recursion	• I identify the resources needed to solve a problem, considering the environment. • I diagnose the resources necessary to achieve certain goals considering the resolution of a problem. • I look for the necessary resources to solve a certain problem, considering the possibilities of the environment. • I adapt resources to achieve certain goals, based on needs diagnosis. • I create resources to address a situation or solve a problem, considering the possibilities of the environment and the established needs.

No.	Proccess	Description	Some supporting verbs	General examples of learning outcomes
10	Metacognitive assessment	Implements the socioformative asessment to generate improvements and innovations in the resolution of problems	Self.-evaluates, auto-examines, auto-regulates, auto-values, checks, co- valuaes, evalutes, hetero-values, inter-values, improves, meta-evalutes, socio-values	• I self-evaluate my performance in tackling a situation or problem by considering certain goals. • I value the performance of others based on certain criteria, I give feedback on the achievements and aspects to improve, and I support them continuously in the improvement. • I improve my performance in a situation or problem based on continuous self-assessment to achieve a certain goal or meet the expected minimum level.

3.1.4 CONTEXT PROBLEM

A context problem is the challenge of transforming a given situation into an ideal or expected situation, in an environment that is meaningful to people and society, with critical analysis, articulation of knowledge and the obtaining of a product. In other words, they are needs that need to be understood, explained and / or resolved through complex thinking, with collaborative support. In training processes, problems must be articulated to the established goals.

The needs can be:

- Emptiness
- Difficulties
- Blocks
- Conflicts or contradictions
- Lack of something
- The challenge of improving, creating or innovating something

Context problems must have the following characteristics:

1. Address an environment with sense and meaning. This environment can be: real or fictitious; the present, the past or the future; local, regional or global.
2. Require analysis to be able to interpret, argue and / or solve the stated need.
3. Consider the transition from a given situation to an ideal or expected situation.
4. Take into account the collaboration at some point in the process.
5. Determine the possibility of several options to interpret, argue and solve the need.
6. Look for continuous improvement.
7. They are generally established by observing, recording, analyzing or studying a particular environment.

Context problems differ from:

- Exercises: mechanical activities that follow a defined procedure.
- Example: solving an equation in mathematics.
- Tasks: concrete actions to achieve a very specific objective; do not imply solving needs or applying analytical thinking. Example: identify the main idea of a paragraph.

- **Examples of everyday activities that are considered problems without being:**
  - Do operations with numbers without a goal and context.
  - Solve mathematical equations without a significant need or context.
  - Write a synthesis of a text.
  - Read a paragraph out loud.
  - Perform chemical analysis without a need or environment.
  - Run a chemical reaction in the laboratory to identify a chemical concept, without a basic contextual need.
  - Answer a conceptual question. For example: What is energy and what are the types of energy?

- **Examples of context problems:**

1. The lack of strategies to prevent natural disasters in residential and residential areas, which makes it difficult to act in case of emergency in case of emergencies.
2. Unbalanced nutrition that causes malnutrition and high rates of obesity in children and young people.
3. Lack of recreational and sports activities in adults, which generates health problems due to inactivity.
4. Conflicts in communities for the use of recreational and community spaces for various purposes, without basic agreements.
5. Intrafamily violence that generates low quality of life and emotional emotions in the members.

- **Example in the area of sciences:**

Environmental pollution is increasing and is producing changes in ecosystems that threaten the disappearance of a number of species. For example, there is a significant melting of the poles which is raising sea level. How to achieve environmental sustainability in school through collaborative work and metacognition?

- **Subjects that link to solve this problem:**

Civics and Ethics, Mathematics, Spanish, English, Chemistry, Physics, Social Sciences and Physical Education

Reference: Tobón, S. (2013). Formación integral y competencias. Pensamiento complejo, currículo, didáctica y evaluación. [Integral formation and competencies. Complex thinking, curriculum, didactics, and assessment]. (4th ed.). Bogotá: ECOE.

3.1.5 CONTEXT

Context is a fundamental concept in human talent and in socioformation. It is defined as the environment, area, field or situation or moment that surrounds and gives meaning to a problem.

Context types:

- Real or imaginary
- From the present, past or future
- Local, national, foreign or global
- Disciplinary, interdisciplinary and transdisciplinary
- Social, cultural, community, organizational, economic, political, environmental, industrial, sports, technological, recreational, health, educational, health, architectural, historical, etc.

A problem can have one or more contexts.

Table 5. Context examples

Problem	Context
Many industrial projects fail due to the lack of resource management and collaborative work. Goal: To generate an industrial project that is constant in confronting difficulties, with management of necessary resources and collaborative work.	Industry
Obesity in children, young people, and adults is growing in Mexico. Goal: How can a healthy diet be achieved through the application of Kant's philosophical contributions?	Healthy Diet

3.1.6 PRODUCTS (EVIDENCES)

Products, in socioformation, are flexible and broader than the traditional concept of evidence. They show the process and results obtained in the identification, interpretation, argumentation and resolution of a given context problem, and show specific aspects as well as the process followed to achieve them. They are of various types, such as documents, reports, records, observations, testimonies, case studies, exhibitions, practices, role plays, sociodramas, activities, etc. They are not necessarily objects or services.

Examples of products (evidences):

Table 6. Examples of products (evidences)

Learning outcome	Examples of products (Evidences)
Produces a digital graphic design to describe the resolution of a context problem.	• Banners with the announcement of a product or event • Videos about services or products • Services or products • Animated images on different themes • Digital portfolio of services of a company
Executes a project based on collaboration with other people.	• Registration of collaborative work • Registration of conflicts resolved in team • Registration of the support to the members • Registration of achievement of goals and impact of collaboration

3.1.7 INDICATORS OR CRITERIA

They are guidelines and parameters to guide the training and assessment of performance in a particular competition. They are set for one grade, one semester, or one academic term.

Standards are more globally defined criteria for grade groups, which are widely agreed and validated in a broad organizational, academic and / or professional community, in a broad regional, national or international context.

In the socioformative approach, criteria, learning outcomes, and achievement are synonyms.

Example of criterion in teamwork competition: "Respect the differences between the team members, as well as the opinions that arise, with tolerance and proactivity".

Reference:Tobón, S. (2013). Formación integral y competencias. Pensamiento complejo, currículo, didáctica y evaluación. [Integral formation and competencies. Complex thinking, curriculum, didactics, and assessment]. (4th ed.). Bogotá: ECOE.

3.2 HUMAN TALENT MANAGEMENT

The management of human talent refers to generating the necessary actions so that society, organizations and people work in the continuous development of talent and apply it in the achievement of certain organizational goals, the achievement of socioeconomic objectives, the improvement of the quality of life, the strengthening of coexistence, personal fulfillment and the assurance of environmental sustainability. Therefore, it is not only to train talent but also to work to apply it and to contribute to improving the environment in interaction with others.

The management of human talent seeks to develop potentialities (procedural, cognitive, affective, etc.) in communities, organizations, teams, programs and people, in order to solve problems in the local environment, with a regional and global vision , through collaborative and networked work. Consequently, it is a process that belongs to the whole society, not only to educational institutions or organizations, as it has been tackled in the last two decades. It involves actions both organizational and focused on people and work teams.

Social plan: it is indispensable that a clear vision of sustainable social development is built and strengthened every day through a broad agreement in politics, companies, social organizations, educational institutions and communities, with concrete and continuous actions that contribute to achieve this vision.

Organizations should focus on having a solid shared vision in which they focus on serving the community, as well as seeking the achievement of particular goals, working ethically and continuous improvement in all actions, both internally and in relation with other organizations and users. It is also up to them to manage the spaces, resources and processes that ensure the continuous development of people from the shared vision.

Teams: they must work in a collaborative way seeking a greater impact in the resolution of the problems that could be had in an individual way, with actions that include all the members for the accomplishment of common goals, with co-evaluation of the activities and continuous formation for facing the challenges that are emerging.

People: focus on solving environmental problems through the application of universal values, the management of knowledge in various sources and the articulation of knowledge, seeking continuous training, in order to contribute to the achievement of the shared vision society, organizations and work.

3.3 BASIC AXES OF HUMAN TALENT MANAGEMENT

The management of human talent, from the socioformation, includes the following basic axes:

1. Collaborative and networked work. It includes the appropriation of a shared vision in which all work in their achievement with concrete actions and continuous improvement, as well as work based on projects that articulate the activities of different members.
2. Recruitment, selection and induction of people. It refers to the process by which people are sought with a series of minimal characteristics depending on a certain challenges or problems, It is identified which ones comply with these characteristics and accompanies them in their integration to the collaborative work until they manage to articulate themselves to the actions and can begin to contribute to the achievement of the goals.
3. Continuous training. It consists of supporting people to be in an ongoing process of training, considering the problems and challenges of the team where they are.
4. Performance evaluation. It is to assess the achievements and needs of the improvement of people and work teams to assess progress and implement support actions.
5. Recognition and promotion. The achievements of the teams and people are valued, as well as new responsibilities are given to them.

These actions can be implemented in any community, organization or team to manage talent and be able to achieve impact in solving environmental problems through short, medium and long term goals. In this sense, they can be approached in a company, university, educational institution or work team.

3.4 INTEGRAL FORMATION

In the socioformation, the integral formation consists in the process by which the people develop and they continuously improve their action to contribute so much to the sustainable social development, the quality of life and the coexistence, as well as to the personal realization and the environmental sustainability, articulating skills, knowledge and attitudes based on universal values (responsibility, respect, honesty, equity, promotion of life, solidarity, etc.). In this sense, it is above all a social process that is carried out through collaboration and resolution of increasingly challenging problems, based on evaluation.

Integral formation, in the socio-formation, transcends the concept of learning, which has tended to conceptualize as a behavioral, cognitive or emotional change that people have from the interaction with the environment. Integral training implies changes in these aspects, but it transcends them because it focuses on people in their social environment to develop the dimensions necessary to improve living conditions and work on their own personal fulfillment considering the environment. In this sense, for example, there is no comprehensive training but rather work on helping others to be better and have greater well-being.

Integral training, in the socio-formation, is dealt with working from the community, the organizational, the teams and the people in solving problems such as poverty, violence, racism, discrimination, lack of prevention of natural disasters, lack of solidarity in the face of crises, unemployment, lack of decent housing, poor quality of public services such as water, electricity, garbage collection, etc. For this, the following axes are addressed: the ethical project of life, collaboration, complex thinking, knowledge management and metacognition.

The process of comprehensive training is guided by levels of mastery that address the process by which organizations, programs, teams and people are achieving the development of talent, within which are basic, generic and specific competencies. Five levels of dominance are considered: pre-formal, receptive, resolutive, autonomous and strategic, which were formulated from the development challenges of Latin America, having as reference the complex thinking. The ideal level to achieve is the strategic one, which implies working in an inter and transdisciplinary way, linking different knowledges and paths that lead the region towards sustainable development based on the strengthening of the social fabric.

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CHAPTER 4

SOCIOFORMATIVE TAXONOMY

CONTENT

INTRODUCTION

The taxonomy is the discipline or area that analyzes the methods, rules and references to carry out the classification of different processes establishing an order. In the educational field, it refers to the ordered and hierarchical classification of learning processes based on certain theoretical elements. It should be taken only as a flexible support for researchers, managers and teachers to plan, execute and address the training processes.

Taxonomies are essential to guide and order curricular processes, didactic planning, mediation of learning, resource management and evaluation. They make it possible to clarify and determine training goals in didactic planning and in the mediation process, as well as to guide the design of evaluation instruments, with emphasis on a series of fundamental dimensions.

Traditional taxonomies in the field of education, such as the taxonomy of Bloom, Gadné or Anderson, are essentially based on a linear and rigid conception of levels of education within the framework of industrial society. They do not address metacognitive processes, collaboration, linking or transversality. This does occur with the most recent taxonomies, such as Marzano's or the socioformative one. In this chapter we seek to achieve the following goals: 1) understand the characteristics of current learning taxonomies; 2) identify their differentiating elements from the different taxonomies; and 3) clarify the application of taxonomies in talent management, organizations and training programs.

4.1 THE IMPORTANCE OF TAXONOMIES IN THE HUMAN TALENT MANAGEMENT

The taxonomies of learning are relevant for the following reasons:

1. They provide rules or elements to classify learning processes according to a certain theory.
2. They allow to establish the learning results according to certain essential dimensions and guide on how to write these results.
3. Clarify the levels at which learning can occur, to support students in achieving increasingly high goals in their training. In this sense, they

help to guide expectations in the face of training and this promotes the development of talent.

4. They allow to have clarity on how to propose the didactic activities, in order that they approach the levels of learning expected in their different levels.
5. They make it possible to establish learning outcomes to guide the processes of training and evaluation, enabling a North and specific orientations for both teachers and students.
6. They help to build assessment instruments by establishing levels of domain or proficiency, such as rubrics and estimation scales.
7. They allow the development of indicators or criteria to evaluate training more pertinently.
8. They facilitate the organization of curricular spaces, subjects or modules, so that they have a logical order.
9. They make it easier to understand when a person is in education and where they can come from learning and evaluation activities.

4.2 DOMAIN LEVELS

The domain levels are different degrees or ranges of complexity in which competencies are gradually developed, going from the simplest to the most complex. The complexity is determined by the number and type of relationships among the elements, factors, or components of a system. It relates to breadth, depth and familiarity. All these aspects are considered in the new taxonomies of learning.

As one advances from one domain level to another, there are increases in the challenges that one must face, in the types of knowledge employed, and in the ways to connect them. For example, at the highest levels, one demonstrates the ability to solve situations by connecting diverse types of knowledge with a deep level of comprehension and conceptualization.

Traditional taxonomies such those of Bloom (1956) or Gagné (1977) are more general, focused on content, and do not address in detail the complexity of learning outcomes, considering axes with great importance today such as metacognition, articulation of knowledge, and innovation.

The new taxonomies, even though they rely on verbs, no longer considered as central.

Although Anderson et al. (2001) present a revision of Bloom's taxonomy, it is necessary to start a new phase along these lines, considering the skills, advances in metacognition, the role of the self, and the challenges of the knowledge society.

At present, there are various approaches or models to deal with development levels that transcend traditional taxonomies, such as the Biggs approach, the Marzano approach, and the socioformative approach. What follows is a synthesis of each of these three approaches to development levels.

4.2.1 DOMAIN LEVELS PROPOSED BY BIGGS

In the taxonomy of Biggs (1982), called SOLO, proficiency levels are determined by the degree of structural organization of learning tasks and outcomes, considering the progress from incompetence to competence.

In the SOLO methodology, complexity is addressed in quantitative and qualitative terms. At the quantitative level, increasing detail in the student responses is considered. However, at the qualitative level, the articulation of answers in a structure is taken into account.

- Level 1. Pre-structural. Irrelevant response or no response to the task. Understanding is absent.
- Level 2. Uni-structural: Focuses on one aspect of the task. Understanding is partial and literal.
- Level 3. Multi-structural: Several correct aspects of the task are addressed but without making the connection among them. Understanding of the whole is absent.
- Level 4. Relational: All the relevant and important aspects of a task are addressed and linked together. There is understanding of the whole.
- Level 5. Extended Abstract: Goes beyond the task and reconceptualizes it with a general principle. Addresses other aspects that are not related to it but enrich it.

Below, there is a list with some verbs for Biggs' levels of domain:

Table 7. Some verbs for Biggs' levels of domain

Prestructural	Unistructural	Multistructural	Relational	Extended Abstract
• Without verbs	• Identifies • Follows a simple procedure	• Lists • Describes • Makes a list • Combines • Does algorithms	• Compares • Contrasts • Explains causes • Relates • Applies	• Theorizes • Generates • Hypothesizes • Reflects

With these verbs, both learning outcomes for training process and the rubrics for evaluation can be developed.

4.2.2 DOMAIN LEVELS PROPOSED BY MARZANO

Marzano and Kendall (2007, 2008) propose the following domain levels with the idea that learning is a product of one's interaction. They address six levels of processing and three domains of knowledge.

The levels of processing are based on a cognitive system, a metacognitive system, and a self-system.

- Levels of Processing:

Cognitive System:

- Level 1. Knowledge/Retrieval
- Level 2. Comprehension
- Level 3. Analysis
- Level 4. Utilization

Metacognitive System:

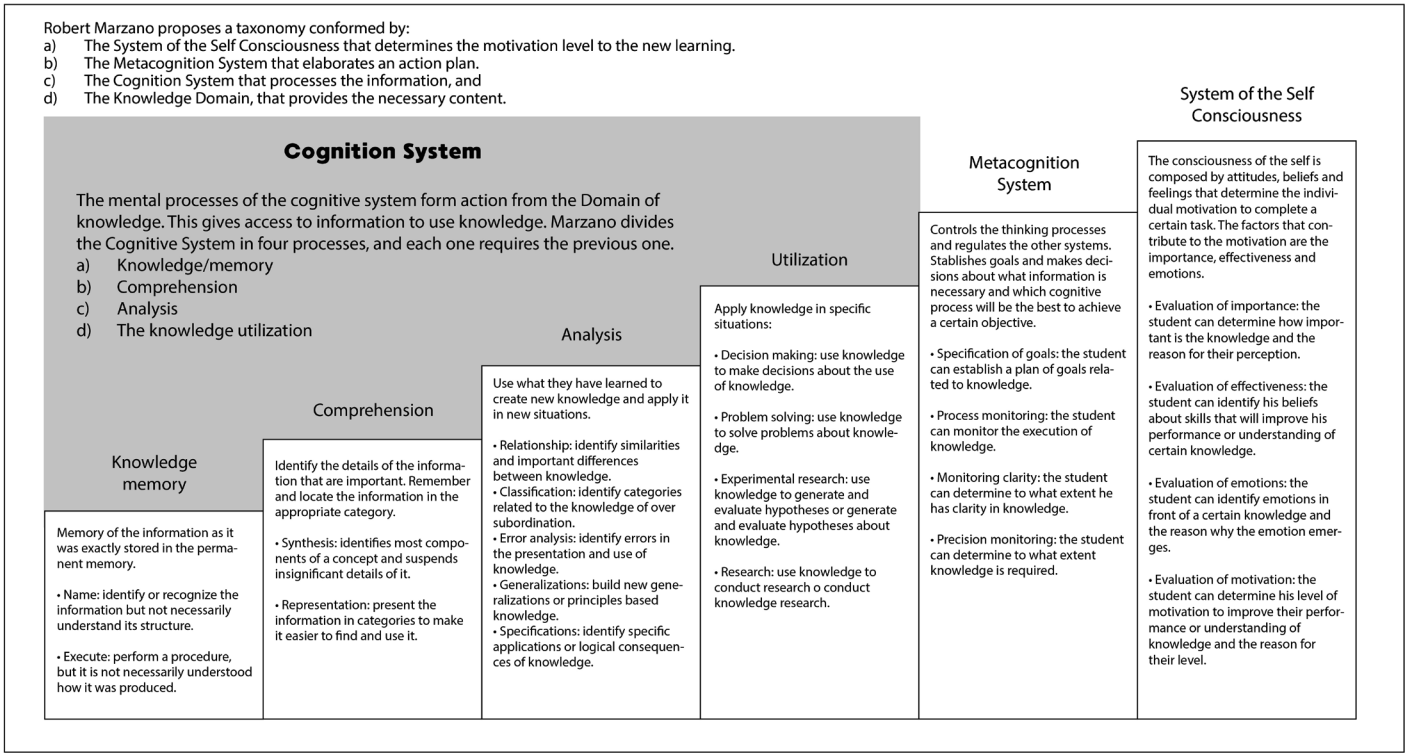
Level 5. Metacognitive System

Self-System:

Level 6. Self System

- Domains of Knowledge:
  1. Information: organization of ideas (principles, generalizations and specific items (terms and facts).
  2. Mental processes: they refer to thought processes such as writing, reading, etcetera.
  3. Psychomotor processes: they are physical activities related to the mental processes.
  4. The six processing levels are given in the three domains of knowledge described.

Figure 1. Marzano's Taxonomy



Knowledge Domains

Information: the organization of ideas, such as principles, generalizations and details (such as terms and facts). Principles and generalizations are important because they allow more information to be stored with less effort by categorizing the concepts.
Mental processes: Complex processes can be aligned, such as writing, and simpler processes that involve a series of activities that do not need to be performed in a specific series of steps.
Physical processes: These depend on the learning area and the complexity of the activity. They appear in activities such as those that occur in the reading process (eye movement from left to right) to those that appear in movements to perform physical exercises that require strength and balance.

• VERBS FOR LEVELS OF DOMAIN PROPOSED BY MARZANO AND KENDALL

Below, there is a list of some verbs for the domain levels proposed by Marzano (2001) and Marzano and Kendall (2007, 2008) to be used as a guide. It is important to follow the original source with details on the use of verbs.

Table 8. Some verbs for the levels of domain by Marzano and Kendall

Knowledge/retrieval	Comprehension	Analysis	Utilization	Metacognitive System	Self-System
• Name • Execute	• Summarize • Represent	• Relate • Classify • Analyze • Generalize • Specify	• Make decisions • Solve problems • Investigate	• Specify goals • Monitor processes • Monitor clarity • Monitor accuracy	• Evaluate importance • Evaluate efficacy • Evaluate emotions • Evaluate motivation

With these verbs, both learning outcomes for training process and the rubrics for evaluation can be developed.

4.2.3 DOMAIN LEVELS PROPOSED BY THE SOCIOFORMATION

The socioformation proposes five development levels to measure and evaluate competencies in education as well as in society and in organizations: Pre-formal, receptive, operative, autonomous, and strategic (Tobón, 2014a). The levels represent how people confront and solve problems in context through knowledge management. In this sense, they are consistent with the challenges of the knowledge society.

The levels vary in aspects such as strategies to solve problems, attitudes, and domination of concepts. On the operative level, students learn to solve simple and familiar problems. At the strategic level,

however, they learn to solve non-routine and unfamiliar problems with articulation of knowledge and creativity. Problem solving and articulation of knowledge in interdisciplinary and trans-disciplinary processes are the key features of the socioformative proposal.

Table 9. Meaning of levels

General and concise meaning of the domain levels proposed through socioformation				
Pre-formal	Receptive	Operative	Autonomous	Strategic
Pays attention to problems with general ideas, without notions or clear or relevant procedures.	Receives simple information in order to identify problems through notions in a basic way. Records problems and applies a procedure in a mechanical way.	Solves simple problems in their key aspects with comprehensio n of the information and domination of essential concepts. Completes activities and follows the rules.	Reasons through and solves problems with different variables. Has own criteria and employs reliable sources. Seeks effectiveness and efficiency. Evaluates achievement of goals and establishes action to take in order to improve. Has responsibility and self-motivation.	Applies creative and mainstream strategies to solve problems. Confronts uncertainty and changes in strategy. Acts on the basis of universal values.

• VERBS OF SUPPORT FOR DOMAIN LEVELS FROM THE SOCIOFORMATION

In the application of the domain levels of socioformation, some verbs such as the following are useful:

Table 10. Verbs of support for domain levels from the socioformation

Preformal	Receptive	Resolutive	Autonomous	Strategic
Adresses Abides Attends Codifies Enumerates Enunciates Explores Reads (without comprehension) Memorizes Names Observes Reacts Repeats Rotulates Points out Follows	Searches Cite Define Calls Describes Determines Identifies Inquires Manipulates Operates Organizes Receives Recognizes Recovers Registers Relates Reproduces Summarizes Concentrates Selects Undelines Tolerates	Applies Characterizes Categorizes Compares Comprehends Checks Conceptualizes Controls Accomplishes Diagnoses Differentiates Executes Elaborates Uses Implements Interprets Works Motivates Plans Processes Solves Sistematizes Subdivides Verifies	Analizes Contributes Argues Self-assess Self-manages Autorregulates Co-assess Comments Contextualizes Critics Exemplifies Assesses Explains Formulates Hypothesizes Infers Integrates Improves Meta-assesses Monitors Plans goals Reflexions Regulates Relates Gives feedback Theorizes Values	Adapts Advises Helps Co-creates Composes Creates Empowers Generates Innovates Inter-valuates Judges Leas Personalizes Predicts Proposes Projects Re-builds Re-creates Sinergies Transfers Transforms Transversalizes Tutorizes Links

These verbs in themselves do not allow to identify a level of domain. It is required to describe the complete action and the context. Therefore, they should only be used as a general orientation (Tobón, 2014c).

First of all, verbs are important to build learning outcomes at the different levels. The verbs are also used to elaborate evaluation rubrics (learning maps), they orient in front of descriptors, which must be in each box of the rubric.

Reference:

Tobón, S. (2014). Proyectos formativos. Teoría, metodología y ejemplos. [Formative projects.Theory, methodology, and examples]. Mexico D.F.: Pearson.

The verbs described help:

1. Write the learning results in the different educational levels.
2. Prepare the indicators and descriptors for checklists, estimation scales and rubrics, among other instruments.
3. Orient around the planning of learning, teaching and evaluation activities.
4. Assess progress in domain towards levels of greater impact and quality.

Considerations regarding the use of the verbs of the socioformative taxonomy:

1. Verbs should be taken only as an orientation, and not mechanically, as has tended to happen with traditional taxonomies.
2. The verbs above all show actions that make it possible to understand and identify the most consolidated level of domain in an organization, program, team or person. They do not show an exact level.
3. In the writing of the learning results, in addition to the verb, it is necessary to place the context or reference condition that helps the integral evaluation (Tobón, 2014c).

4.2.4 DEVELOPMENT LEVELS BY DIMENSIONS

Next, the domain levels of socioformation are presented considering the essential dimensions in problem solving, such as the application of procedures, the application of concepts and the application of attitudes. This is different from what has been traditionally done to focus on the contents of this knowledge. In the socioformation contents are not the center of the knowledge but its application articulated in the resolution of problems of the context.

Table 11. Domain levels of socioformation considering the essential dimensions in problem solving

Dimension	Preformal	Receptive	Resolutive	Autonomous	Strategic
Application of procedures	Applies some tool in a problem without relevance or understandi ng	Applies tools mechanically in the problems with some clear ideas.	Applies relevant tools and with understandin g in the resolution of problems, achieving the proposed goal.	Applies procedures in solving problems with argumentatio n, achieving efficiency and effectiveness.	Applies adaptive, creative or innovative procedures in solving context problems, strategically addressing change and uncertainty.
Application of concepts	Applies pre-concepts or general ideas. Problems in the problems.	Applies relevant notions and propositions in the problems following relevant sources.	Applies key concepts in the problems based on relevant and rigorous sources.	Applies argumentatio n and theorization in the problems based on reliable and rigorous sources with his own criteria.	Applies in problems the articulation of knowledge from different areas and fields, with flexibility and addressing the change.
Application of attitudes and values	Acts on problems following rules for fear of punishment.	Acts on the problems by following the rules mechanically .	Acts on problems with the attitude of achieving their resolution. Follows the rules and understands their function.	Acts on problems with self-motivation for effectiveness and efficiency. Follows the rules by conviction.	Acts on problems with commitment and responsibility, applying the universal values and assuming the consequences of their actions. It promotes working with commitment and responsibility.

Reference: Tobón, S. (2014). Proyectos formativos. Teoría, metodología y ejemplos. [Formative projects. Theory, methodology, and examples]. Mexico D.F.: Pearson.

Below, there is a comparative analysis between the three main taxonomies to address domain: Biggs' theory, Marzano's theory and the socioformative theory. All have a series of advantages and emphasis that managers, teachers and human development professionals must understand clearly and take into account when considering management processes and talent development.

Table 12. Comparative analysis between the three main taxonomies

Aspect	Biggs levels	Marzano levels	Socioformation levels
Emphasis	Levels of complexity regarding the structuring of learning outcomes in a task.	Three domains of knowledge that occur in six levels of processing.	Resolution of context problems through the articulation of knowledge.
Advantages	-Builds superficial learning and deep learning. -It has few variables or dimensions in interrelation. -It easily allows the evaluation.	It addresses the main axes of learning, with various relevant variables, integrating metacognition and the Self.	-It is a simple approach, with few dimensions. -It focuses on processes of action against problems of context. - Cross-cutting. -Integrates complex thinking.
Applications	People and teams	People and teams	Organizations Programs Teams People
Relationship with the knowledge society	It does not directly address the knowledge society. Promotes deep learning to apply general principles in the phenomena and transcend tasks with creativity and new elements.	It does not directly address the knowledge society. It seeks that people take ownership of knowledge with meaning and self-regulate in the approach to situations in the context.	Directly promotes knowledge management in organizations, programs, teams and people to solve problems in the local and global context through collaborative work. At the levels, processes of the knowledge society are evaluated explicitly.

4.3 ADVANTAGES OF SOCIOFORMATIVE TAXONOMY WITH RESPECT TO OTHER TAXONOMIES

The socioformative taxonomy to guide the processes of human talent management has the following advantages:

1. It does not focus on the levels of difficulty (Bloom), nor on the levels of thought or the information domains (Marzano), but on the process of dealing with problems of the context, considering the degree of appropriation and articulation of knowledge needed to Address this process.
2. Considers the main challenges of Latin American society regarding the development of talent as self-assessment for continuous improvement, problem solving, diligence, creativity, linking, mainstreaming and collaboration, elements that are not the end of other taxonomies .
3. It integrates the approach of complex thinking, with which the different levels show the progress in the development of this, going from a simple and reductionist scope to a systemic and complex state.
4. It allows to assess progress in achieving goals not only for people, but also for teams, organizations and programs.

4.4 SUGGESTIONS TO WRITE LEARNING OUTCOMES

The learning outcomes are the specific goals that are expected in the formation and give account of the most outstanding achievements that are expected in human formation. It is recommended that they be few and focused on the essentials. They can refer to behaviors or activities that people perform.

The following are a series of suggestions for writing the learning outcomes taking into account the socioformative taxonomy:

1. Consider some of the 10 basic processes described in Chapter 3 on action (motivation and commitment to achieve goals, conceptualization, problem solving, etc.).

2. Start with an observable and evaluable domain verb, such as: plan, execute, argue, describe, socialize, etc.
3. They should be able to be achieved through a set of learning, teaching and evaluation activities, in a given time.
4. It is necessary that they have a reference or context to facilitate the didactic planning.

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CHAPTER 5

SOCIOFORMATIVE CURRICULAR MANAGEMENT PROCESS AND EDUCATIONAL QUALITY

CONTENT

INTRODUCTION

Traditionally, the curriculum has the following problems: 1) it tends to be assumed as the set of study programs; 2) it is emphasized above all in the design and little in the implementation and continuous evaluation; 3) resistance to change is almost not managed; 4) is disarticulated from the processes of training of teachers and managers; 5) there is difficulty in implementation because it usually has many details and remains ideal, without considering the situations of the context; 6) it is tended to seek short-term results when cultural transformations are often required to achieve the goals that are sought: and 7) it focuses on students leaving aside the training of other educational actors.

From the socioformation, curricular management is a permanent process in every training institution, and focuses on transforming the practices of mediation and evaluation looking for the various educational actors (students, teachers, managers, families and community) learn to work collaboratively in the improvement of social conditions to ensure coexistence, inclusion, quality of life and environmental sustainability. This requires a continuous evaluation process to identify achievements and aspects to be improved, complemented with concrete support and follow-up actions to achieve the established goals.

5.1 EDUCATIONAL QUALITY

Currently, a conception of educational quality that is closer to the information society predominates than to the knowledge society, assuming it in two complementary ways: 1) level of cognitive achievement measured through tests, such as PISA tests, tests TIMS, tests for admission to universities, tests applied at the end of bachelor degrees, etcetera; and 2) the fulfillment of a series of indicators that evaluate aspects such as lag, dropout, titling rate, employability, etcetera. In addition, it must be demonstrated that the training processes correspond to the needs, through diagnoses of the environment.

This is how many educational programs comply with a whole series of quality indicators and even have certifications or accreditations, but they

do not have an impact on the integral formation of people or on their social projection. This is because they do not focus on relevance and to transform the environment. The quality models that follow do not have a clear shared vision of training for the knowledge society in accordance with the challenges of Latin America; generally, they tend to focus on cognitive and administrative management processes, leaving aside the vision around the socioeconomic development and the talent of the people.

That is why a new concept of educational quality is proposed from the socioformation, understood as the collaborative process between different social actors to support, advise and accompany organizations, teams and people in the resolution of problems and the improvement of the conditions of life, in order to achieve sustainable social development, integrating the knowing to be, knowing to know, the knowing to do, and the knowing to coexist, from the continuous strengthening of the ethical project of life and complex thinking. In this sense, from the socioformation an educational program has quality when it obtains that the students learn to solve environmental problems and work to reach the sustainable society, applying the universal values and the work coordinated between all.

5.2 SOCIOFORMATIVE CURRICULUM

It is the set of concrete actions taken by managers, teachers, families, and students regarding integral education and the development of competencies through identification, interpretation, reasoning, and problem solving in each context (personal, family, community, social, political, economic, cultural, recreational, scientific, and environmental-ecological), with expertise, continuous improvement, and a commitment to ethics (Tobón, 2013a).

Therefore, a socioformative curriculum is not a syllabus or an agenda of subjects based on competencies; rather, it consists of the concrete facts that demonstrate active engagement with problems of a context through collaborative work and making connections with different forms of knowledge: to be, to do, to know, and to coexist.

The socioformative curriculum starts from an ongoing diagnosis of internal and external context to identify problems to be solved in the present and in the next 5, 10, and 15 years. This is not limited to the educational process of students, but also incorporates the training of everyone involved in education: politicians, directors, teachers, families, the community, and students.

The educational process is through flexible training itineraries based on projects and connecting other teaching strategies such as: conceptual cartography, case studies, the metacognitive strategy MADFA (before, during, and after instruction), the Kolb's method, metacognitive mediation, constructive reflective workshops, etcetera.

5.3 SOCIOFORMATIVE ACTION RESEARCH

In the socioformation, different research methods are applied. However, emphasis is put on educational action research, considering the contributions of authors such as Elliott (1997, 2002), who approaches it as a method of systematic and qualitative research of transformation of educational practices and the formal documentation of said practices.

In the socioformation, educational action research is interpreted as formative action research, as the emphasis is focused on changing formative practices starting from the very stakeholders who are involved in the process.

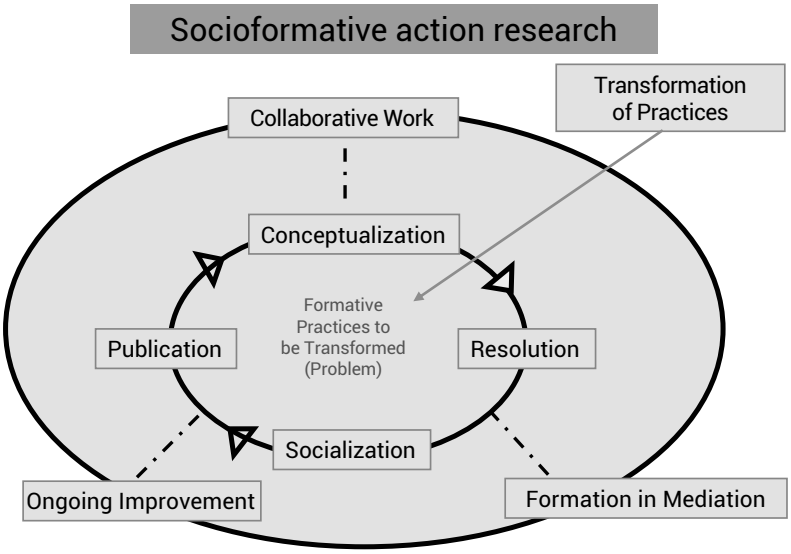
In this sense, socioformative action research consists of the teachers, administrators and students themselves diagnosing and understanding the formative practices that they perform, transforming them with specific actions, and then systematizing them and having a dialogue to motivate and guide others through this same process (Tobón, 2014a) by following the principles of research and working collaboratively from beginning to end.

The implementation of socioformative action research occurs through collaborative work and the use of relevant, valid, and reliable tools. It is applied in educational institutions as well as in social and business organizations with all the stakeholders of the formative process (managers, teachers, families, the community, and students).

An analysis of formative action research as applied in socioformation is shown in the Figure 2. First, the formative practice to be transformed is identified, conceptualized, and then transformed (solves). The experience is

socialized and finally published to support further research in the area. All this is done through collaborative work with the diverse actors involved in the formative practice to be transformed, with the goal of ongoing improvement.

Figure 2. Socioformative action research analysis



Additionally, in the transformation of any formative practice, some punctual goals are set in keeping with socioformation, and the actions of mediation are applied.

Table 13. Key steps in socioformative action research	
1. Implement Teamwork	Plan and execute the collaborative work necessary to carry out action research starting from the diagnosis of the formative practice to be transformed and going up to the discussion and publication of the transformation, highlighting the links between strengths and support actions among those involved.
2. Identify the Type of Formative Practice to Be Transformed	Identify through experience, observations, and/or analysis of the literature, identify the formative practice that is expected to be transformed while considering some socioformative reference points at the general level.
3. Conceptualize the formative practice to be transformed	Interpret and form arguments about the formative practice to be transformed while making connections with any necessary contributions of socioformation. Coherently integrate the theoretical and methodological contributions of other approaches and educational models if necessary.
4. Establish research questions or specific Goals	Determine in detail the questions that will guide the study to transform the identified formative practice, even though they may change or new questions may arise during the investigation. Interpret and explain the formative practice to be transformed based on the relevant socioformative frame of reference from step 3.
5. Make a diagnosis of the formative practice to be transformed	Diagnose in detail the formative practice to be transformed. This practice is described by observing and recording facts as well as the support of some tool

Table 13 (Continued). Key steps in socioformative action research	
6. Plan formative practice transformation activities	Plan activities to transform the selected formative practice, taking the socioformative conceptual framework developed in step 3 into account, along with contributions from other educational approaches if necessary. Consider the diagnosis applied in step 5. It is suggested that each activity and all evidence of transformation of the formative practice be described.
7. Carry out activities and document the entire process.	Implement the planned activities from the previous step and document the process with a qualitative (and sometimes quantitative) record of the activities done and achievements reached in the transformation of the formative practice, which is the focus of the research.
8. Analyze the results achieved.	Interpret and form arguments about the results of the transformation of the educational practice while taking the conceptual framework explained in step 3 into account. Compare and contrast the transformation process of the formative practice based on the study of published literature relevant to the area in order to determine points of agreement, points of disagreement, and suggestions for further research in the area.
9. Discuss the results of the transformation of the formative practice with the Involved Stakeholders.	Present the results of the transformation process of the formative practice to the stakeholders involved in order to assess the progress made and strengthen commitment to the process.
10. Publish the Research	Publish the research as an article or book. This should be complemented with a video, blog, or multimedia material, etcetera. Discuss the research with the community and aim to make it the basis for further research.

5.4 SOCIOFORMATIVE CURRICULUM MANAGEMENT MODEL

The socioformative curriculum management model consists of the successful implementation of actions in the classroom that will lead to an integral education and the development of competencies in students so that they can live in the knowledge society, with a basis in the ethical life project, entrepreneurship, collaborative work, and knowledge management, all through coordinated actions among various educational figures: politicians, managers, teachers, students, families, and the community (Tobón, 2013a).

To do this, 12 key processes are carried out, following either the order proposed in Figure 3 or another order depending on the work needs of a given educational institution. The 12 processes follow a systemic model with input actions, processing actions, and output actions.

Each of the 12 processes has a process of targeting (goals are set), planning (activities are formulated to implement), performance (activities are carried out, taking adaptation to context and uncertainty factors into account, along with any necessary changes), and a discussion (outcomes and results achieved in the process are shared). This is exemplified in the Tobón's book (2013b).

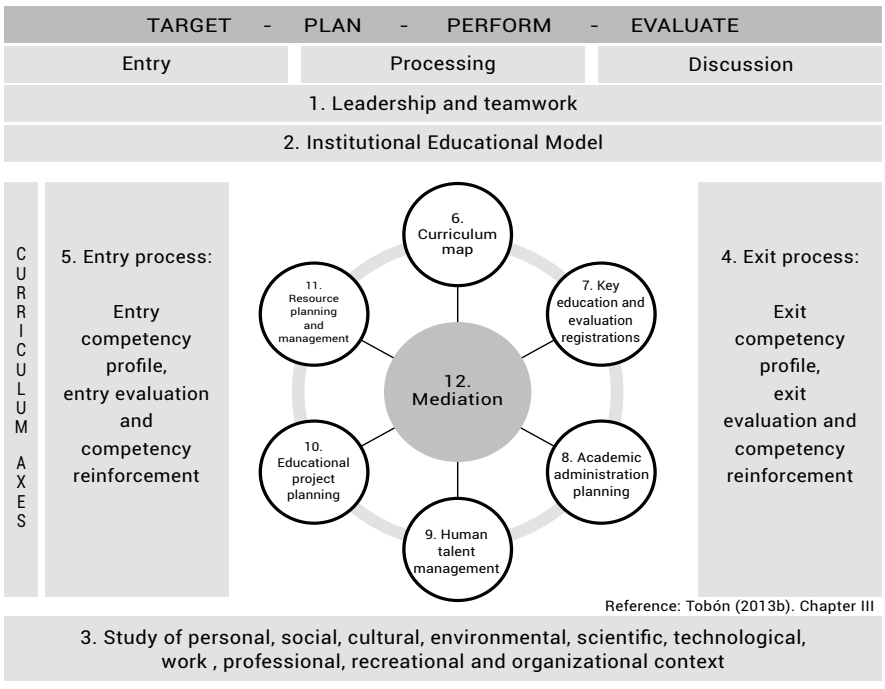
The 12 processes are implemented through collaborative work, starting with a leading team. All members of the educational community must be involved in the process to achieve an effective transformation, aiming for the curriculum to come alive with students in the classroom and not stay only on paper as so often happens.

It is not necessary to address all the processes. Each educational institution can decide which processes are the most crucial and must be implemented or improved in order to successfully educate citizens for the knowledge society.

In the Figure 3 there is a summary of the 12 proposed processes is shown in Figure 3. Collaborative work is an ongoing process and is based on the distribution of roles, members and stakeholders complementing each other's strengths, and continuous improvement by way of diagnosing accomplishments and areas for improvement.

The study of context is also ongoing and never ends, as this is what allows the continued implementation of actions for improvement and generating creative and innovative education proposals at the educational institution.

Figure 3. Summary of 12 proposed processes



• PROCESS 1. COLLABORATIVE WORK IN CURRICULUM MANAGEMENT

Curriculum management based on socioformation is an ongoing collaborative work. This is its main feature relative to other approaches, which, despite also addressing collaboration, do so considering it as a step or as part of forming a team. In socioformation, it is not enough to form a team to lead the process of transformation. Rather, it is necessary for everyone involved to contribute whatever is in their power to meet the expected goals.

Product: Record of involvement of all actors of the institution in the implementation of actions for improvement and innovation in the educational process.

Table 14. Key activities of the proccess

Activity	Description
1. Forming a Team to Lead	Form the leading curriculum management team in a formal manner and with institutional support and leave a record with the team's activities and allocation of weekly hours.
2. Identify the actors in the process and have them commit to the change	It consists of determining the role of all education actors in the implementation of the curriculum with the students so that it does not remain only on paper.
3. Aim for all actors to contribute on implementing Improvements in the Educational Process	Raise awareness and commitment in all education stakeholders so that they contribute proactively on implementing improvements.
4. Guide the Implementation of the Other Processes	Guide and manage the quality of the other processes of curriculum management, aiming for them to be carried out appropriately.

• PROCESS 2. EDUCATIONAL AND TEACHING MODEL

This consists of generating a shared vision of education to be achieved for the students, considering the challenges of the knowledge society, with the participation of the different actors of the educational institution. To do this, one must keep the nature and identity of the institution in mind, as well as legal standards. Sometimes the educational model is there, but there is an absence of a shared vision or of an effective implementation of such a vision. The leading team must ensure that the educational model is applied. The essential components of the socioformative educational model are described in Table 15.

Product: A document with the educational model adapted to the program, considering the shared vision and actions to implement it in the framework of the challenges of the knowledge society.

Table 15. Key activities of the proccess

Activity	Description
1. Diagnosis of the Educational Model	Determine the achievements and actions to be improved in the construction and implementation of the educational model that must be followed in the formation of students, with consideration given to the possible resistance to change.
2. Shared Vision	Ensure that all members of the educational institution possess a shared vision of the education to be achieved by students and the minimum actions to take in diverse educational environments.
3. Construction or Adaptation of the Educational Model	Create or adapt the educational model following the shared vision of the education that is to be given at the educational institution, considering the regulations in force in the area and the policies of the region or country.
4. Implementation of the Educational Model	Establish actions with the various educational actors to effectively implement the educational model using actions to overcome resistance to change.

Table 16. Key Components of the socioformative educational model (taken from Tobón, 2014c)	
Key Aspect of the Institutional Educational Model	Description
What kind of person is to be formed?	• Describe what kind of person is to be formed at the institution and with what participation in society, the economy, and the environment.
For what kind of society is such a person meant to be formed?	• Describe the characteristics of the society for which teachers, directors, and students are to be formed. (It can be described today's society and the society that is expected in the future.) • Indicate in general terms what type of community outreach is expected at the educational institution and some possible strategies to achieve it.
With what approach or approaches to education is such a person to be formed?	• In a synthetic way, describe which approach or approaches to education will generally guide education at the institution. • Describe specific guidelines to take into account, following from the educational approach of reference.
With what educational principles should such a person be formed?	• Describe some basic guidelines to consider in the process of learning, teaching, and evaluation for the guidance of teachers, administrators, and students. • Indicate some guidelines about additional educational courses as well as the role of extracurricular activities in formation.

Table 16 (Continued). Key Components of the Educational Model.	
Key Aspect of the Institutional Educational Model	Description
What is the role of teachers?	• Describe general guidelines about the role of the teacher in the educational process, based on the educational approach or approaches that are followed.
What is the role of students in the educational process?	• Describe the general guidelines regarding the role of students in the educational process, based on the educational approach or approaches that are followed. Consider the connections among activities that students do with teachers, and with independent and autonomous learning activities.
In what settings will the educational process occur?	• Describe the educational modalities and guidelines for each setting: Education in person, virtual education, distance learning, etcetera. Indicate whether a program can have various modalities or not and the passage of students from one modality to another.
How should the basic structure of the education programs be?	• Describe what basic curricular structure the education programs should have to guarantee meaningful learning through competencies. For example, whether it is through subjects, modules, projects, preparatory courses, etcetera. • Indicate the minimum required aspects that must be taken into account in designing an educational program. • Describe the general guidelines to be considered in the micro-curriculum with the objective of ensuring that competencies are developed in the students. • Describe the general curriculum quality management model and the teaching process model, establishing how often the educational programs should be reviewed at minimum, how the quality of instruction will be evaluated, with what reference points the quality will be evaluated, and who will evaluate it. • In a general manner, determine the policies to promote human teaching, directive, administrative talent in order to solidify the academic area. The specific processes to manage human talent are not described in detail here; that is left for process 10 of curriculum management.
How will the link to society be achieved?	• In a general manner, describe the actions to be carried out with social, environmental, technological, and business organizations. • Indicate how actions to serve society are linked together using the education processes of competencies.
What will be the guiding principles of the research?	• Present the key guidelines concerning how to conduct research on the program on the part of students and teachers while seeking coordination with the education process.

Pedagogical Principles

From the socioformation, a series of principles is applied within the educational model to guide the integral education of students.

Figure 4. Socioformation principles

• PROCESS 3. STUDY OF INTERNAL AND EXTERNAL CONTEXT

This process is essential for the remaining processes and consists of determining problems to solve in education within the educational institution (internal context) as well as problems that students must learn to solve in external contexts at the local and global level, both in the present and in the future (within in a period of 2 to 10 years, approximately).

It is suggested to conduct the study of the internal and external context by beginning with the review of documents with primary and secondary sources. If necessary, continue by consulting experts who know the challenges of education in the field in detail. If the information is insufficient, continue by the application of surveys to the different education actors: professionals, business-people, community leaders, teachers, students, and graduates.

The study of internal and external context is considered in all curricular processes continually. This means that it not only can be used to determine the exit profile, as so often happens today, but also is the basis for setting up a curriculum map, educational projects, the evaluation process, and the educational activities with students. It needs to focus on identifying problems of context with consideration given to the life cycle of the students to be educated, since that is the challenge of education today in order to be able to develop citizens for the knowledge society.

Product: A document with a summary of the study of internal and external context that describes the key problems of today and the future that need to be solved by the students as well as by the syllabus itself.

• STUDY OF INTERNAL CONTEXT

This consists of identifying internal problems concerning the education offered at the educational institution or in the study program (in the event that such a program exists and is active), with consideration given to the educational model from process 2 and the educational policies on a regional, national, and international level.

Table 17. Elements to identify in the study of internal context

1. Level of student and teacher desertion.
2. Level of studies finished with the degree conferred.
3. Level of studies finished without the degree conferred.
4. Academic performance average.
5. Subjects or modules with greatest rates of failure.
6. Rate of employability of graduates.
7. Average time taken by graduates to obtain their first job.
8. Fields, Subjects, or elements of the current program that increase employability.
9. Fields, subjects, or elements that are perceived as having little educational value.
10. Satisfaction of students with the current program.
11. Satisfaction of graduates with the current program.
12. Satisfaction of teachers with the current program.
13. Satisfaction of Directors with the current program.
14. Recommendations from students, teachers, directors, and graduates to improve the program.

Source: Tobón (2014c)

• STUDY OF EXTERNAL CONTEXT

In the study of external context, the problems that are necessary for students and graduates to learn to identify, interpret, argue, and resolve in the present as well as in the future (during the next 3-10 years approximately) are determined (Tobón, 2014c). To identify the problems, primary and secondary sources are taken into account first. If they are insufficient, it goes on to the consultation of experts; and, finally, to the application of surveys to different education actors, depending on the needs and challenges that there may be.

Table 18. Key Elements to consider in the study of external context

1. Identify the problems of external context most relevant to help to form enterprising people to construct and live in the knowledge society.
2. Consider the areas of emphasis of the program or profession as well as the interrelation between disciplines in an interdisciplinary and transdisciplinary framework.
3. Determine the challenges of external context in the present as well as in the future (the next 3-10 years approximately) on the basis of reliable sources.
4. Identify the challenges of external context through the consideration of the local, national, and international atmosphere.
5. Determine the challenges of external context with the aim of aiding those involved in improving and innovating with regard to the study program. One does not conduct a study of context only to leave a study program exactly as it is.
6. Review work offers published in different media to identify trend in the workplace and professional world.
7. Review documents concerning competencies pertinent to the program that have been established in other projects. In the program, competencies already formulated in other projects pertinent to the educational model can be revisited and adapted to the objectives set for the program.
8. Review scientific and/or academic articles about research trends in order to incorporate them into the program being designed via competencies.

Source: Tobón (2014c)

• PROCESS 4. GRADUATE PROCESS

The graduate process consists of ensuring that the students that enroll in the program possess the necessary competencies to live in the knowledge society, being capable of solving the problems that arise, using collaborative work, enterprising, a solid ethical project of life, and knowledge management through different media.

The graduate process contains the following key activities within socioformative curriculum management (Tobón, 2014c):

1. Determine the essential competencies that students must demonstrate as they advance in their education and when

they complete the study program (graduate profile). These competencies are both specific and generic. In the case of a program for elementary education and for intermediate or higher education, basic competencies are also determined. Competencies are established according to the problems identified in the study of internal and external context as well as regional, national, and international educational policies.

2. Establish the reinforcement measures that must be carried out with students who have difficulty in the development of the competencies expected for the graduate profile.
3. Propose actions to support students in their enterprising process and in the connection to society, the professional world, and the world of science.

Product: A document with the exit profile for the study program, with a description of the competencies to be developed, the actions to strengthen the development of these competencies if necessary, and the key activities to ensure that graduates are enterprising and have a connection to society and the economy.

Table 19. Graduate profile structure

Program:	
Specific Competencies:	
Competence 1.	
Competence 2.	
Competence 3.	
Competence 4.	
Competence 5.	
Competence 6.	
Generic Competencies:	
Competence 1.	
Competence 2.	
Competence 3.	
Competence 4.	
Competence 5.	
Competence 6.	
Actions to reinforce competencies at the end of the propaedeutic cycle	Actions of social and / or labor-professional link in the propaedeutic cycle

Source: Tobón (2014c)

PROCESS 5. ENTRY PROCESS

The entry process consists of ensuring that the students possess the competencies necessary at the beginning to be successful in developing the competencies of the graduate profile. It also contains any reinforcement measures that may be necessary to implement to support any students that need them.

The entry process should be conducted with the following key activities (Tobón, 2014c):

1. Determine key competencies that students must possess at the beginning of their education to succeed in the study program. These skills can be basic, specific, and/or generic. The competencies are established with consideration given to the graduate profile of the program and the problems that students must be able to solve as they are formed.
2. Plan reinforcement measures that need to be taken for those students who have weaknesses, gaps, or difficulties in their competencies upon entry into the program.
3. Carry out the reinforcement measures with support from teachers, peers, and other significant figures.

Product: A document with the study program entry profile, with the description of the competencies that the students must possess upon entry into the education program, along with the possible reinforcement measures if necessary.

Table 20. Study program entry profile

Name of Program:	Prerequisites Established by Law to Enroll:		
Competencies	Description	Essential Criteria	Key Evidence
Basic Competencies			
Basic Competence 1			
Basic Competence 2			
Specific Competencies			
Specific Competence 1			
Specific Competence 2			
Specific Competencies			
Generic Competence 1			
Generic Competence 1			
Entry Profile Evaluation			
Reinforcement Measures			

PROCESS 6. CURRICULAR MAP

It consists of preparing a graphical map organizing the educational projects by school term, course, or grade with the aim of achieving the level of education of the graduate profile established in process 4.

Key Activities:

1. Establish the total time and academic periods of the program.
2. Formulate the educational projects as set out in the educational model and the regulations in force.
3. Aim for the educational projects to enable the complete development of the graduation profile.

4. Determine the educational projects with flexibility.
5. Establish certification requirements for the program.
6. Have at least one elective educational project within the educational process.
7. Socialize and agree on the curriculum map with the academic community or the people responsible for creating it.
8. Product to achieve: Curriculum map with academic periods and educational projects (with its duration).

Table 21. Some key components of a curricular map

Problematizing Node	Period 1	Period 2	Period 3	Period 4	
Problematizing Node 1	Educational Project 1.1		Educational Project 1.2	Educational Project 1.3	
Time	Time		Time	Time	Certification Requirements: Comprehensive Evaluation of Competencies
Problematizing Node 2	Educational Project 2.1	Educational Project 2.2			
Time	Time	Time			
Problematizing Node 3	Educational Project 3.1		Educational Project 3.2	Educational Project 3.3	
Time	Time		Time	Time	
Problematizing Node 4 **Professional Practice**			Educational Project 4.1		Integral Practice Project 4.2
Time			Time		Time
Total Time by Period	Time of Period	Time of Period	Time of Period	Time of Period	Time of Period

PROCESS 7. EDUCATION AND EVALUATION REGULATIONS

This process refers to constructing or improving the regulations that must be followed in the process of educating and evaluating students.

- Some types of regulations are:
- Key regulations for admission, retention, and certification.
- Key regulations concerning the recognition of previous studies.
- Key regulations concerning competence development.
- Key regulations concerning the competence evaluation process.
- Key regulations concerning practices.
- Key regulations concerning scholarships, awards, and incentives for academic work.
- Regulations concerning work with graduates

The necessary actions to properly enforce the regulations for training and evaluation are added to this.

The regulations are determined based on the institutional educational model, the study of internal and external context, the exit profile, the entry profile, and the curriculum map.

Product to Achieve: Document with the education and evaluation regulations prepared with the participation of the academic community or directors of the institution.

PROCESS 8. PLANNING OF ACADEMIC ADMINISTRATION

In this process, the policies and activities are determined to implement the educational model of the institution and the curriculum map, considering aspects such as research, quality assurance, and community outreach.

Product to achieve:

Document with the minimum actions for academic administration, which essentially consist of quality assurance, research, and community outreach.

Table 22. Components of academic administration

Administration Area	Key Components
Quality Assurance Adminstration	• Self-evaluation process. • Institutional and program accreditation process. • Quality certification processes.
Research Administration	• Research areas and people in charge. • Student participation in research areas. • Types of research. • Agreements with other organizations. • Patent regulations. • Publishing regulations. • Minimum structure for research projects. • Financing for research projects.
Community Outreach Administration	• Priority areas in the execution of projects working with society. • Minimum structure for projects working with society. • Financing for Social Projects. • Participation of principals, teachers, and students working on projects with society.

PROCESS 9. PLANNING AND IMPLEMENTATION OF EDUCATIONAL PROJECTS

- Description

It consists of planning, carrying out, and discussing educational projects with students through following the curricular map, educational model, and the study of internal and external context, all within the framework of compliance with institutional regulations and academic administration policies in order to meet the specifications of the graduation profile.

- Outcome to Achieve:

A document with the summarized plans of each of the educational projects of the curricular map.

- Methodology:

The planning of educational projects must be flexible and focus on getting students to learn to solve problems concerning knowledge through collaboration in a creative and cross-disciplinary manner. In planning, the basic aim is to establish the general areas of work, the evaluation process, and key resources to be used.

The key components of the educational projects are described in Table 22. In planning, a general problem can be posed and then be made concrete with the same students. Of the elements described in the table, the competencies to develop, the problem of context, evidence, and activities are essential. Other aspects can be worked on during the development of the project itself. This way, there is greater flexibility and the implementation can begin in less time with the students themselves benefitting from it.

Table 23. Key Components of Educational Projects

Element	Explanation
Title	This is the title established on the curriculum map.
Time	The number of working hours is indicated (It can also be in credits)
Competencies to Develop	The competence or competencies of the exit profile that help to shape or develop the learning unit or module are indicated. These may include basic competencies, specific competencies, and generic competencies.
Previous Competencies Required	The previous competence or competencies that students must have to pursue a learning unit or module are described.
Problem or Problems to Solve	One or various general problems approached in the learning unit are described. Consider the study of context and the curricular map. This description can be specific or general. A problem of context is the challenge of going from a given situation to an ideal or expected situation in a particular environment that is meaningful for students.
Essential Criteria	Essential criteria of the specific and generic competence or competencies that students must achieve in the learning unit or module are described. The criteria are the education goals with which the activities and evaluation are guided.
Key Evidence	Evidence that students must display to certify their education in one or more learning units is described. Evidence is a concrete and tangible outcome that demonstrates development of competencies. A small portion of evidence is recommended.
Knowledge	The different types of knowledge are the processes that students must learn to solve problems of context. They are divided into concepts, procedures, and attitudes.
Activities	The key activities are described. Activities are concrete actions that will be carried out in the learning unit to meet the criteria and yield the established evidence.
Resources	Some essential resources to mediate education within the learning unit or module are described. The resources are the means to carry out activities, such as equipment, relevant literature, materials, physical spaces, etcetera.

Taken from: Tobón (2014b)

PROCESS 10. MANAGEMENT OF HUMAN DIRECTIVE, ADMINISTRATIVE, AND TEACHING TALENT

- Process description:

This process consists of ensuring that the directors, administrative staff, and teachers have the competencies needed for the position, considering the challenges in educating students, institutional goals, public education policies, and criteria or quality indicators may be part of the field.

- It comprises the following actions:

1. Identifying the competencies required by teachers, administrative staff, and directors to meet the challenges of education.
2. Selecting the most competent professionals for each academic or administrative process.
3. Evaluation of staff performance.
4. Ongoing staff training.
5. Promotions, pay, and improving the quality of life of staff members.

- Product to Achieve

A document with the profile of competencies for each of the work positions at the institution and the actions of selection, evaluation, training, promotions, pay, and staff quality of life.

PROCESS 11. RESOURCE MANAGEMENT

- Process description

It consists of searching for, storing, maintaining, adapting, creating, and employing means or supplies to carry out the activities for the different curricular processes and to ensure the development of the expected competencies in the students.

The resources are divided into the following types: Physical spaces, equipment, materials, relevant literature, and monetary resources.

- Product to achieve

A document with the essential resources to implement the education process and the actions required to manage these resources

Table 24. Types of resources to be employed

Resource	Utility	Actions to search for them, adapt them, or create them	Type of maintenance or updating

PROCESS 12. MEDIATION OF INTEGRAL EDUCATION

Process description:

In the process of curriculum management, the plans and study programs must be applied correctly and effectively in the classroom rather than remaining only in speech or on paper. To achieve this, it is important to follow a gradual process of implementation, sharing experiences among teachers and generating peer to peer evaluation among themselves as well as ongoing evaluations made on the part of the directors and the students themselves in order to achieve continuous improvement.

Mediation based on socioformation pertains to concrete actions that teachers and other significant figures (parents, peers, and community members) take in order to educate students holistically and help them to develop necessary competencies for personal advancement, improvement in their quality of life, social life, socio-economic development, and environmental sustainability.

Mediation is based on applying specific actions in each class or session to achieve comprehensive education while considering current and future challenges, working at the local level with a global vision to make an impact on solving problems of context with a commitment to ethics. The main actions of mediation are described in Table 25

It is a two way process and it involves ongoing training of teachers, directors, families, and community members as students advance in their education.

- Product to Achieve:

A document with the minimum actions in order to mediate comprehensive education and development of competencies in students, including the evaluation process.

Table 25. Key actions for mediation

Action 1. Sensitization The process by which students are successfully motivated in their education and continuous evaluation and thus focus on the activities and complete them.
Action 2. Conceptualization It consists of ensuring that students master fundamental concepts with knowledge management, through the use of strategies such as mind maps, concept maps, diagrams, metacognitive analysis, etcetera.
Action 3. Problem solving It is enabling students to identify, interpret, form arguments about it, and solve problems of context.
Action 4. Values and ethical project of life It consists of enabling students to be active in life seeking personal fulfillment, quality of life, social interaction, and environmental sustainability while applying universal values.
Action 5. Assertive communication It consists of enabling students to express themselves cordially with clear messages and respect for the rights, feelings, and opinions of others while achieving a particular objective.
Action 6. Collaboration It is the process by which it is intended for students to work and be educated through mutual support and joining strengths to achieve a common goal.
Action 7. Creativity and innovation It consists of ensuring that students contextualize, adapt, transform, or generate strategies, processes, and/or outcomes to solve a problem with impact.
Action 8. Interdisciplinarity It is enabling students to solve problems by connecting knowledge from several areas, fields, or disciplines coherently.
Action 9. Resource management It consists of ensuring that students learn tools to search for, manage, maintain, adapt, create, and use the resources necessary for education and problem solving in context.
Action 10. Metacognitive evaluation It is enabling students to demonstrate their performance in the face of problems with evidence and to implement continuous measures for improvement based on reflection.

5.5 LIFE CYCLES

In the socioformation curriculum management, plans and study programs must address not only the challenges of external context, but also the vital growth needs of people so that they can develop into whole human beings. In this sense, it is crucial to understand human life cycles in order to take the goals of each life cycle into account amid the challenges of education at every curricular proccess.

According to Tobón (2014a), a life cycle is defined as "a phase or period in the development of human beings which links biological, psychological, and social aspects within a specific geographical and cultural context. It involves a process of socialization through language in which people face the challenges of local and global contexts and seek to satisfy their different needs (such biological, psychological, knowledge, enterprising, and social needs)" (p.).

Life cycles are characterized by the following aspects:

1. Life cycles can vary as socio-economic conditions, culture, and the surrounding environment change. In this sense, they are not static or the same in humans in all societies in the way that stages of psychological development were traditionally addressed.
2. Life cycles are based on a bio-psychosocial conception of human beings while traditional psychological development was studied primarily by psychologists. Currently, this is a transdisciplinary field of study in which multiple disciplines are involved: psychology, sociology, anthropology, education, biology, ecology, economics, medicine, nutrition, etcetera.
3. In every life cycle, human beings seek to achieve certain goals either implicitly or explicitly. These goals are psychological, social, economic, educational, biological, etcetera., depending on socio-economic trends and changes as well as hereditary tendencies (Feldman, 2007; Papalia, Olds, & Feldman, 2010; Rice, 2007).

5.6 TYPES OF LIFE CYCLES

Although there are variations in life cycles across different research, a summary of each cycle is presented below with reference to Tobón (2014a).

Table 26. Goals of main life cycles

Life cycle	Approximate Period	Some Goals of the Cycle
Prenatal Life Cycle	From conception to birth.	1. Whole body development 2. Protection 3. Affective stability and bonding with the mother and family
Infancy	Up to 2 years of age	1. Have protection and affection from family 2. Learn to be independent in personal locomotion. 3. Learn to communicate with people in their circle through oral language. 4. Learn to express basic emotions. 5. Express one's interests. 6. Have motivation to do things by oneself such as personal hygiene. 7. Explore the nearby environment and understand the objects around them.
Early Childhood	3-5 years old	1. Have a secure attachment bond with the whole family. 2. Act within the framework of a gender role. 3. Get to know the nearby surroundings and ask questions about oneself, others, parents, the home they live in, the neighborhood, school, etcetera. 4. Construct notions of situations and nearby objects in order to identify them. 5. Act creatively in games. 6. Learn to make friends with peers through play. 7. Learn to correct mistakes. 8. Dream about some occupation or profession, developing the capacity for imagination and creativity.

Table 26 (Continued).

Life cycle	Approximate period	Some goals of the cycle
Intermediate childhood life cycle	6-11 years old	1. Strengthen the bond of attachment with family. 2. Develop a stable friendship bond with fellow students. 3. Learn to work with focus, that is, doing activities with concentration and finishing them. 4. Develop reading, writing, and arithmetic to live in society. 5. Solve problems based on notions and propositions while applying relevant strategies. 6. Expand the learning of rules to live in in society. 7. Express oneself assertively: say things with respect and kindness. 8. Visualize oneself with greater clarity in an occupation or profession.
Adolescence life cycle	12-18 years old	1. Achieve stable and warm friendships with peers in different contexts. 2. Achieve identity as a person: Who am I? Where do I come from? What am I going to do in life? 3. Have a bond of affection, support, and respect with family. 4. Get to know and regulate their sexuality. 5. Be clear about an occupation or profession to follow. 6. Solve problems with logical processes, concepts, a high degree of abstract thinking, and relevant strategies. 7. Have a healthy lifestyle.

Table 26 (Continued).		
Life Cycle	Approximate Period	Some Goals of the Cycle
Youth life cycle	19-40 years old	1. Have intimacy; namely, develop intimate, close, and trusting relationships with others based on respect. It is not necessary for others to be present to have a friendship. 2. Have a profession or occupation valued in society. 3. Get a job or have one's own business. 4. Develop job stability and develop in the world of work. 5. Have satisfaction in a vocation. 6. Maintain the healthy lifestyle achieved in adolescence or develop it.
Maturity life cycle	40-65 years old	1. Have generativity, that is, creativity and enterprising in projects. 2. Develop a full sense of self and feel the achievement of personal fulfillment in all aspects of life. 3. Achieve the establishment of a stable family. 4. Remain up to date in a profession or vocation or change vocations when one does not feel satisfaction with a current one. 5. Achieve expertise and leadership in an area, and have social recognition for it. 6. Find new points of reference at work or in the business world. 7. Maintain a healthy lifestyle or develop it.
Older Adulthood life cycle	Over 65 years old	1. Have a full acceptance of self and life. 2. Reflect and find meaning in existence and death. 3. Having a health care program with continuous checkups. 4. Enjoy life (trips, parties, social gatherings, etcetera.). 5. Support others in enjoying life and achieving personal fulfillment.

5.7 PROPAEDEUTIC CYCLES

In socioformation, a propaedeutic cycle is defined as "an educational phase in which students have extra activities to reinforce the development of competencies in the same cycle and achieve success in developing

competencies in the next cycle. These extra activities are actions that are not in traditional education programs and students should do them with the support of their teachers, learning resources, family, and social context" (Tobón, 2014a, p.).

A cycle is a phase or stage that changes or is adapted within the educational system and consists of coordinated actions to achieve comprehensive education and the development of competencies in students while considering the needs of the life cycle in which they find themselves. In this sense, a cycle may be, for example, preschool or higher education.

The concept of cycles is not enough in education, as they have been implemented in various educational reforms and have not achieved the expected results of the development of enterprising and ethical citizens. That is why adding a propaedeutic cycle in a connected manner has been proposed in socioformation. This is not an additional, initial, or preparatory course for education. It is a systematic set of activities that are performed at the beginning, during, and at the end of the cycle to effectively achieve the goals set in development and to ensure that students succeed in the current cycle or subsequent cycles.

In the curriculum management based on socioformation, propaedeutic cycles are implemented with the aim of linking them with other cycles that come before, simultaneously, or after. In this way, students have continuity in education to allow progressive development of their skills, especially those that are essential today such as communication, collaborative work, knowledge management, research, and mathematical calculation. A propaedeutic cycle lasts more than a year and goes up to four or five years at maximum. Sometimes it can go longer.

5.7.1 MOST RELEVANT PROPAEDEUTIC CYCLES FROM THE SOCIOFORMATION

From the socioformation, a series of guidelines for the most relevant propaedeutic cycles in education today is proposed. These cycles are described in Table 27 (Tobón, 2014a).

Table 27. Propaedeutic cycles in basic education

Propaedeutic Cycle	Duration	Emphasis
Preschool Between 3 and 6 years old	3 years	- Learns to relate to others, solve conflicts, and find meaning in existence through play. - Follows external standards in activities. - Uses play and resources of context to solve problems that arise. - Develops notions of things, objects, and situations from the immediate reality to locate them in their context.
Early Elementary School Between 6 and 9 years old	3 years	- Establishes friendships with classmates, playmates, and neighbors based on respect. - Explores possible areas of talent based on interests. - Identifies achievements and recognizes possible errors in one's performance, which are corrected. - Understands and solves problems of context through written communication, mathematical calculation, and collaborative work. - Applies concepts and propositions to solve problems of context.
Late Elementary School Between 9 and 12 years old	3 years	- Performs activities and solves problems with focus. This means planning one's work and working with dedication and concentration toward achieving a goal. - Develops one or more areas of talent in any field and thus is motivated by it. - Solves everyday problems based on reading comprehension, writing texts, and the application of mathematical tools. - Solves everyday problems using notions and propositions of natural and social sciences.
Middle school Between 12 and 15 years	3 years	-Develops an identity as a person, with interests, values, commitments, and relationship with others. -Builds and applies concepts of mathematics, literacy, natural sciences and social sciences in solving context problems with creativity. -Manage knowledge through the use of relevant sources to solve context problems. -Has a sense of challenge to solve complex context problems (articulate different variables and fields).

5.7.2 PROPAEDEUTIC CYCLE FOR HIGH SCHOOL EDUCATION FORM THE SOCIOFORMATION

In this propaedeutic cycle, what is sought, above all, is students to be enterprising with a strong commitment to their personal development and a contribution on solving social problems (See Table _ (Tobón, 2014a).

Table 28. Propaedeutic cycle for high school education

Propaedeutic Cycle	Duration	Emphasis
High School Average age: Between 15 and 18 years	3 years	- Develops an identity as a person with a vocation, some areas of talent, and a responsibility for his welfare, social harmony, and environmental sustainability. - Acts on the basis of universal values such as respect, responsibility, honesty, and equity. - Applies concepts and tools from different disciplinary fields to solve problems of context. - Makes creative projects in various fields of society by applying essential disciplinary knowledge and managing knowledge through rigorous sources. - Plans, implements, and discusses projects through collaborative work by connecting knowledge from different disciplines with clarity in their objects of study, characteristics, limits, and problems of the discipline. - Plans and executes research projects in a vocational field by integrating elements such as problem formulation, establishment of methodology, analysis of information processing, application of statistics, presentation of results, and analysis.

5.7.3 PROPAEDEUTIC CYCLE OF TECHNICAL EDUCATION

The key characteristics of technical education and a bachelor's program are presented below (Tobón, 2014a).

Table 29. Propaedeutic cycle of technical education

Propaedeutic Cycle	Duration	Key Education Goals
Higher Technical	Up to 2 years	1. Develops a vocation and commitment to perform in a technical area. 2. Seeks the continued development of competencies to perform in the technical field and thereby carry out the activities in the area. 3. Acts with autonomy and flexibility in the technical area, delivering results within the set time. 4. Understands and uses information contained in books, manuals, and articles for activities and to solve problems competently. 5. Writes technical reports on activities carried out or problems solved while following the spelling rules of the language. 6. Plans, executes, and discusses activities to solve problems in the relevant area of work with creativity while applying some techniques to systematize information.

5.7.4 PROPAEDEUTIC CYCLE OF TECHNICAL EDUCATION

The key characteristics of technical education and a bachelor's program are presented below (Tobón, 2014a).

Table 30. Propaedeutic cycle of technical education

Propaedeutic Cycle	Duration	Key Education Goals
Technology	Up to 3 years	1. Performs in the field of technology with a vocation and commitment. 2. Seeks the continued development of competencies to perform in the technology field and solve increasingly complex problems while following quality standards or criteria. 3. Acts with autonomy, flexibility, and coordination in the area of technology while considering the process goals and basic strategic planning. 4. Solves problems creatively while managing and understanding information from multiple sources. 5. Prepares reports on activities and projects implemented. 6. Plans, executes, and discusses projects to solve problems in the relevant work area creatively while using some techniques to systematize information. 7. Generates activities and projects related to technology to solve problems in the workplace by applying the principles of science. 8. Applies improvements to processes by applying research tools.

5.7.5 PROPAEDEUTIC CYCLE OF PROFESSIONAL OR UNIVERSITY EDUCATION (BACHELOR'S PROGRAM)

The key characteristics of technical education and a bachelor's program are presented below (Tobón, 2014a).

Table 31. Propaedeutic cycle of professional or university

Propaedeutic Cycle	Duration	Key Education Goals
University professional, or Bachelor's Program	Up to 3 years	1. Acts in the professional field with a vocation, looking to strengthen their profession. 2. Manages the actions necessary to develop and continually strengthen professional competencies. 3. Acts with autonomy, flexibility, coordination, creativity, and innovation in problem solving. 4. Manages the continuous improvement of quality of life in the professional field. 5. Prepares reports on activities and projects implemented based on sources in their discipline. 6. Plans, executes, and discusses projects to solve professional problems with creativity and innovation. 7. Manages projects to solve varied and novel problems creatively with high impact on the context. 8. Manages and leads the planning, implementation, and sharing of professional projects. 9. Apply various research methodologies to solve problems in the professional area. 10. Articulates knowledge from various disciplines to solve professional problems with impact.

5.7.6 PROPAEDEUTIC CYCLES OF HIGHER AND TECHNICAL EDUCATION FROM THE SOCIOFORMATION

The key characteristics of technical education and a bachelor's program are presented below (Tobón, 2014a).

Table 32. Propaedeutic cycles of higher and technical education

Propaedeutic Cycle	Duration	Key Education Goals
Specialized Formation	Up to 1 year	1. Seeks the continued development of competencies with emphasis on a professional field or area. 2. Implements actions to solidify the professional area in which one works. 3. Leads projects with high levels of competence and scientific foundation in an area. 4. Applies research methodologies to improve or innovate in professional performance.
Propaedeutic Cycle	**Duration**	**Key Education Goals**
Master's Program	Up to 2 years	1. Acts in situations and problems and faces uncertainty with strategies. 2. Presents project reports following the style guidelines in the field 3. Writes articles, manuals, and/or presentations to communicate the processes and results of research conducted. 4. Works in an inter-and trans-disciplinary manner in accordance with the requirements. 5. Critiques theoretical and methodological models and proposes improvements. 6. Conducts pure and applied research.
Propaedeutic Cycle	**Duration**	**Key Education Goals**
Doctorate Program	Up to 3 years	1. Works with a high degree of diligence and perseverance in scientific research and manages publications in indexed journals. 2. Applies the ethics of inquiry established in the relevant area to studies. 3. Publishes articles in indexed and peer reviewed journals of the highest quality. 4. Works in a trans-disciplinary way to generate scientific knowledge. 5. Adapts and improves research methodologies. 6. Coordinates research teams in an area and creates impact through publications, communications, and developing new researchers.

5.8 CURRICULAR METACOGNITION

Curricular metacognition refers to the process of continuous improvement of the curriculum based on individual and collective reflection of the people responsible for managing it in each of its processes: politicians, directors, teachers, families, the community, and students. We suggest that curriculum management teams employ a series of questions concerning curriculum management to put metacognition into action and thus achieve quality. An example of metacognitive questions is presented in Table 33.

Table 33. Examples of metacognitive questions to manage the curriculum and ensure quality.

Phase	Questions	Achievements	Actions for Improvement
Orientation	Is there a shared vision of how the curriculum should be commensurate with the challenges of the knowledge society? Are there clear and relevant curriculum management goals with their respective evidence? Has collaborative work with distribution of roles and the joining of strengths been implemented?		
Planning	Are the actions to achieve the goals of curriculum management relevant and feasible? Have actions been planned to generate educational change and overcome any resistance among different actors? Are there actions to address uncertainty during curriculum management?		

Table 33 (Continued).			
Phase	Questions	Achievements	Actions for Improvement
Performance	Are activities being implemented in accordance with plans, the processes of uncertainty, and adjustments required for the context? Is the achievement of the goals of curriculum management becoming apparent? Is the resistance of education stakeholders being addressed effectively and relevantly?		
Communication	Is there evidence of the achievement of the proposed goals? Did collaborative work contribute to achieving the goals? Is there evidence of change in education processes that is commensurate with the challenges of the knowledge society? Is the educational community clear about the curriculum management activities carried out and progress made in improving educational processes? Is there clarity about the path ahead to continue educational change? Is there commitment to continue the process of change?		

5.9 CURRICULAR SELF-ORGANIZATION

This complex thought capacity consists of aiming for a system to have an identity or its own characteristics (autonomy) to achieve a goal based on changing relationships with other systems (dynamic dependency). This has the following implications on curriculum management as approached from the perspective of socioformation:

1. The curriculum is an educational project that must be geared toward developing ethical and enterprising citizens (goals).
2. The curriculum must seek its own identity, that is, it must have characteristic elements that differentiate it from other institutions while considering the institutional educational model, national and international educational policies, and challenges of context.
3. The curriculum must be worked on independently, responding to the challenges of the institutional context and community. It must not be a mere mechanical application of content, goals, and external policies.
4. The curriculum must be based on changing relationships of dependency with the challenges of the contexts of society, the economy, environment, the professional world, and research (dependency dynamic). This is key to achieving its continued development and improvement.
5. Starting from relationships with external systems, the curriculum must be renewed in aspects such as the profile, the curriculum map, and policies for education and evaluation.

5.9.1 CURRICULAR HOLOGRAMATIC

This complex thought capacity refers to determining how the whole model is present in each of the parts of a system (Morin, 1995). In socioformation, it is intended that the whole model is in each. For example, work is done so that the institutional educational model (whole) is put into action in every class session (part).

Suggestions to apply this skill:

1. Plan curriculum maps (parts) while following the institutional educational model (whole).
2. Plan and implement educational projects (parts) while following the reference points of the institutional educational model (whole).
3. Mediate the education of students through solving problems of context (part) while applying the reference points of the institutional educational model (whole).

5.9.2 CURRICULAR RECURSIVITY

This complex thought capacity consists of addressing the problems of context while considering their multiple causes and effects, as well as the impact of the effects on the causes themselves. The impact of various factors on these relationships is also analyzed. This has the objective of transcending linear causality because the cause acts on the effect and the effect acts on the cause.

Suggestions to apply this skill in curriculum management:

1. The various factors involved in education should be considered, such as the role of the media, parents, the social evaluation of teachers, the role of the directors, the curriculum, teaching strategies, the evaluation process, resources, etcetera. Formation cannot be addressed from a single factor.
2. Evaluations of education (effects) must lead to implementing improvements in teaching and evaluation activities (causes). The achievement of this requires feedback to teachers, directors, parents, and students.
3. It is necessary to make the curriculum flexible, taking considering the challenges of context and continually providing feedback about them.
4. The development of ethical and enterprising students (effect) leads to improved curriculum processes (causes) due to a better assessment of the school and its teachers, who are more committed to the process.

5.9.3 CURRICULAR DIALOGIC

This complex thinking skill consists of:

The antagonistic principles must be united, seeking their complementarity to understand the complex phenomena and generate change and innovation. In the curricular management there are several pairs of antagonistic principles; among others: direction and flexibility, and professional orientation and scientific orientation. The dialogic principle invites us to seek the complementarity of these principles as a basis for a complex approach to the curriculum. Therefore, it is necessary that there is a basic and common address for all, with a logical sequence of a number of training projects so that the program has an identity. But you also need to have flexibility; that is, that students can configure their studies according to their expectations, time facilities and goals.

Likewise, it is necessary to unite and seek complementarity between professional training and scientific training, which is achieved when research training is promoted in a transversal way in the curriculum, work is based on problems and projects, and emphasis is placed on the creativity and innovation.

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