

THE INTEGRATOR CHARACTER OF THE MORIN'S THOUGHT IN UNIVERSITY FORMATION

El carácter integrador del pensamiento de Morin en la formación universitaria

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Abstract

This theoretical study is deployed in two areas. One of them is that of the ideas of a leading figure of complex thought, Edgar Morin, from whom he reveals some of his considerations regarding integration, which are mostly implicit in his meditations. The other area is the university formation. What regard to it reflects on complex thinking and the elimination of characteristics that temp against its integrating character. The objectives of this work are: to argue the integrative character of Morin's thought and to criticize the actions that reduce the integrative character of the university formation. The methodology used is Documentary, consisting of the critical study of texts and the analysis of written information. Some of the results are: the revelation of the integrating character of Morin's ideas, the formulation of a definition of the academic category formation, and the critic of the reduction of the inherent integrative character of university formation. Among the conclusions are: the integrative character of Morin's thought has an objective basis; The distinctive feature of academic formation is that it is carried out from the conscience of the person involved and attention to affectivity in university formation strengthens its integrative character.

Keywords

Complex thinking, integration, formation, university, reason, affectivity.

Suggested citation: Varona, Freddy (2020). The integrator character of the Morin's thought in university formation. *Sophia, colección de Filosofía de la Educación*, 29, pp. 91-122.

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Resumen

Este estudio teórico se despliega en dos ámbitos. Uno de ellos es el de las ideas de una figura cimera del pensamiento complejo, Edgar Morin, de quien se revela algunas de sus consideraciones en torno a la integración, las cuales están mayormente implícitas en sus meditaciones. El otro ámbito es la formación universitaria, a propósito de la cual se reflexiona acerca del pensamiento complejo y de la eliminación de características que atentan contra el carácter integrador de la misma. Los objetivos de este trabajo son: argumentar el carácter integrador del pensamiento de Morin, y criticar las acciones que reducen el carácter integrador propio de la formación universitaria. La metodología empleada es la Documental, consistente en el estudio crítico de textos y el análisis de información escrita. Algunos de los resultados son: la revelación del carácter integrador de las ideas de Morin, la formulación de una definición de la categoría académica formación, y la crítica a la reducción del carácter integrador consustancial a la formación universitaria. Entre las conclusiones están: el carácter integrador del pensamiento de Morin tiene una base objetiva; el rasgo distintivo de la formación académica es que se realiza desde la conciencia del implicado y la atención a la afectividad en la formación universitaria fortalece su carácter integrador.

Palabras clave

Pensamiento complejo, integración, formación, universidad, razón, afectividad.

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Introduction

One of the most studied authors during the last years of the twentieth century and the first of the twenty-first is Edgar Morin, a French sociologist and philosopher born in Paris in 1921; author of a voluminous written work, has a prominent place in complex thought, with which it contributes to shaping its essence, establishes much of its basis and principles and gives consistency to many of its concepts, and outlines them. His great struggle has been guided by the purpose of getting humanity to think in an articulating manner (this does not mean that it denies the mode of thought that fragments and separates); such objective necessities that in the substratum of his ideas, there should be an integrating spirit, not always explicit in its considerations.

This type of thought, called complex, since the penultimate decade of the last century has caught the attention of many scholars of different specialties and already has a large list of authors and a abundant bibliography. Years before the word complexity had begun to vary its use, which was already broad, because it has several meanings, since it alludes to everything that is composed of different elements, as well as what is complicated, difficult, tangled, but also sets or unions of two or more things, from where other meanings take consistency. From the first meaning and throughout the second half of the twentieth century, this word became associated with a group of sciences that have, among other characteristics, the orientation to non-linear dynamics and self-organization. They

began to be called the ‘sciences of complexity’. But the extension of the use of the reference term, in turn, was due to the fact that it began to name a type of research approach (according to which the research interest is developed from the aforementioned new specialties) and this markedly philosophical mode of thinking, which relies heavily on such scientific knowledge. In this way, the open systems, the multiplicity of perspectives, the autonomy, the value of the affective for the scientific activity, and, among many other things, began to gain relevance (or to increase it), in opposition to forced fractions and reductionism.

It is in this theoretical scheme that Edgar Morin’s thought moves, sustained and driven, above all, by his interest in sowing in humanity the propensity to think through relationships and to set aside disjunction and reductionism. On this basis is erected the integrating spirit, mostly not explicit, that permeates his ideas and one of the causes of the interest his writings has generated. This spirit constitutes the core of the first part of this paper, where its existence is revealed immersed in various theoretical elaborations around scientific knowledge, culture, the future of humanity, morality, education, these universal and permanent themes in the passage of time.

The integrative nature that irrigates Morin’s thought is, in one form or another, in all his written work, which is numerous, made up of a considerable number of books, articles and other texts, also numerous, of it. For this work, only *Method*, consisting of six volumes, and *Seven complex lessons in Education for the future* were selected. This selection is due to the fact that in them the integrating spirit of his ideas, almost always implicit in them, offers great possibilities to think and create theoretical elaborations. In addition, there are substantial considerations that invite us to reflect on contemporary society and its future, as well as on university education, whose social value is growing. The revelation of the integrating spirit of the thought of Edgar Morin is not in itself the most valuable of this work, but its unveiling highlights the importance that it has for human life of the present times and those to come. For the development of humanity requires changing the fractionating and disjunctive way of thinking and opening the way to an integrative mode, which must be visible throughout society and culture, from which the university, and the formative work that takes place in it, is a part of.

The second part of this paper is devoted to this subject, that of university education, where, at the beginning, some considerations are presented in relation to the category of ‘specialized education’, a subject that is controversial and in need of greater attention from scholars of



these and other related subjects; this exposition opens the way for the development of ideas about university education, which is approached from the perspective of complex thinking and supported by the current great development of science and technology.

This highlights the fact that, at the beginning of the third decade of the twenty-first century, in the midst of accelerated progress, profound transformations and hitherto unthinkable creations, the demands for the training of university professionals are increasing, who can be better specialists if they are formed with an integrative vision; however, this is not always the case, because fractionation and reductionism still make themselves felt in it in various ways. For this reason, it is necessary to redouble attention to the integrative character that will sustain and promote it.

Such an intention has a marked importance not only for the present, but also for the future, and not exclusively for the upper house of studies and its graduates, because, in turn, it is valuable for society as a whole, since it attacks the disjunctive and reductionist character that is still present in university education, a trait contrary to the tendency to strengthen an integrating way of thinking, which is what today's society is demanding from the development of science and technology and its great further advances. This insufficiency can be observed, among other possible forms, in the overestimation of labor and the over-dimensioning of the rational, which causes the segregation and annulment of the affective. Both cases are, strictly speaking, manifestations of fractionation and, even more, reductionism. One of the greatness of the university is the breadth and variety of the formation it offers, although it is spread around certain cognitive purposes, aimed at the realization of specific social functions. To prevent university education from narrowing is to contribute to its optimization and to the survival of human diversity.

On this basis, the present work is developed with the aim of contributing to the solution of the following scientific problem: What significance does the integrative essence of Morin's ideas have in combating the reduction of the integrative character of university education? Thus, the idea to defend is that the integrative character of Morin's ideas offers basic arguments to fight against reductionism and disjunction in university education. In correspondence, this text has two objectives, one is to reveal the integrative character of Morin's thought through some of the considerations contained in his works: *Method* and *Seven complex lessons in Education for the future*; the other is to criticize the reductionist spirit in university education. The methodology used is documentary, consisting of the critical study of texts and the analysis of written information,



through which present-past-future are combined. The literature used is varied; a considerable part is recently published.

Finding the Integrative Character in Morin's Ideas

One of the most important works of Edgar Morin is *Method* (2002), in which he exposes theoretical developments that transcend the historical moment when they were written, and this happens because, as the author Botto assures (2018), can be used to explain features of today's society. In the book, Morin shows the inadequacies of mechanistic, linear and deterministic thought (typical of the classical scientific paradigm, which has prevailed in the sciences since the seventeenth century) and does so supported by the development of science, which shows that the fractionation and disjunction inherent in this mode of thinking are not sufficient to grasp, in their proper measure, the complexity of the present life. As the author Calvo Cereijo (2019) asserts, humanity is "dealing with science that comes out of simple situations, for a study of human processes that grow in complexity" (p. 324).

Morin (2002) highlights the separations that humanity has built over centuries and emphasizes the need to become aware of this and to reverse this situation; to do this he proposes to vary the way of thinking: not only from one angle, not in a simplified way, but from multiple perspectives, in a way that captures the complexity of life. Many of his ideas are valuable when used as a lens in conducting studies. They have been used in various specialties, for which many examples can be given: occupational therapy, psychology, political sciences, geography, pedagogy, as shown by authors such as Bellido Mainar (2016), Campero (2017), Martínez-López (2017), Rubio Terrado (2018) and Velducea Velducea et al. (2019). The essential category of his thinking is complexity. It alludes to the multiple and diverse links in which everything exists, looks at the whole and refers to the need to articulate.

We often use the verb «to articulate» from one of its meanings: to join two objects, or more, so that there is freedom of movement between them. Now, when using this word, one doesn't think so much about another of its meanings: organizing elements to achieve a coherent and effective whole. With these two meanings Morin (2002; 2003; 2006) uses the word; but from his texts it can be understood that his final purpose is not the articulation, but the achievement of integration, not with the sense of completing a whole with the missing parts, nor to merge divergent

aspects to arrive at its synthesis, but to achieve complementation, which is more than completing a whole with its parts.

This idea does not explicitly abound in his texts, however, in some reflections he makes it more or less explicit, as when he states that “the product of local selection, which is complementarity, therefore integration” (Morin, 2002, p. 74). With regard to this statement, it is worth noting that the term “complement” is to make each component contribute to the existence of the whole, and of the other components of it. With this clarification it is easier to grasp his integrative spirit that he makes explicit in the following words. “The fundamental problem, then, is to re-establish and question what has disappeared with dissociation: this relationship itself” (Morin, 2001, p. 22), that is, the articulation: Purpose that became in his thought a constant, a constant, which surpasses itself, because its aim goes beyond achieving the articulation of something for the first time; its final, supreme intention is the rearticulation and with it the arrival at the integration of what is separate and which was, at another time, articulated in a whole, which is to return to the previous state, but already at a higher level. Its purpose (in his own words) is “the search for a method that can articulate what is separate and re-unite what is disunited” (Morin, 2001, p. 28).

In correspondence, Morin (2001) states that it is “of first necessity, not only to rearticulate individual and society (p. 22). but also, to effect the articulation reputed impossible (worse, “outmoded”) between the biological sphere and the anthropo-social sphere.” (p.22) Thus, one of his first intentions is to link the natural and social sciences, an action he conceives as part of the reorganization of knowledge, which is where the integrating essence of his ideas begins to unfold, the crown of which is his conception of the human being as a trinomial: “individual-society-species” (p. 22), where none of these aspects is reduced, nor subordinated to the others or to one of them. The previous position corresponds to Morin's request (1999a) to exterminate in the 21st century the unilateral, fractional way of conceiving the human being, whether it be “by rationality (*homo sapiens*), technique (*homo faber*), utilitarian activities (*homo economicus*), compulsory needs (*homo prosaicus*)” (p. 27) and understand him as a complex being, full of contradictions, consistent understanding with his way of seeing the human being in a bipolarized way: each of the characteristics human has its antagonistic counterpart, and this makes it a complex being.

This way of apprehending the human being unfolds from two aspects that in the thought of Morin (2001) are articulated in its very



foundation. The first is given by the reflections around the opposition between two types of scientific paradigms: the one that fragments, separates and isolates to know and the one that unites and relates; however, its critique of the first, recognizes its importance and achievements obtained with its use, but he stresses that today the diverse knowledge and its development show that the vision that fragments is not enough because “the first concepts are no longer isolated, substantial or self-sufficient. They relinquish and relativize one another” (p. 104). He does not reject the simple, but condemns excessive simplification.

The other basic aspect of comprehending the human being is given by the links between the biological and the physical, of which he assures that they are in need of each other. He states that before dealing with biological complexity it is necessary to deal with the physical complexity, not just to be “an extraordinary physical complexity, not only that of an informational/communicational machine-being, but also that of cosmic connection and micro-physical connection, where life then, and only then, takes existence both autonomous and solarian.” (Morin, 2001, p. 417). This statement is due to the fact that Morin (2001) conceives the organization of life with an eco-dependent character, from where he emphasizes “the extreme fragility of its conditions of existence, the extreme quality of its organization which allows it to be informed and to communicate, and its extreme solidarity with all the physical phenomena on which it depends.” Thus, according to his opinion (2002), adaptation is not only the survival in given geophysical conditions, but also the constitution of “complementary or antagonistic relations with other living beings, in order to resist the competitions and to face the random events of the ecosystem in which we are integrated” (p. 70), that is, not only relinkage is present, but also integration and with it complementarity, a quality that determines its essence.

The purpose of integration also emerges in his reflections on knowledge, which he conceives as a multidimensional phenomenon, because, inseparably, it is physical, biological, cultural, social; because it combines energy, electrical, chemical, physiological, cultural, linguistic, collective, personal and impersonal processes which mesh in each other (Morin, 1999). This criterion has more and more supporters, although as Viguri Axpe (2019) points out, there is no shortage of those who only see scientific value in the knowledge resulting from the so-called hard sciences.

It can be understood that Morin (1999), with this positioning, does not look favorably on the separation between the natural and human sciences and the closure between them. He condemns the fact that

this phenomenon is seen as natural, without noticing that it is a way of mutilating knowledge and that it gives rise to a new obscurantism. One can think of the affirmation of the authors Vallejos and Coll (2017), that this separation exists where “the so-called humanities seem to be discredited and their usefulness seems not to be sufficient or far removed from the social needs of the moment” (p. 109), though fatally, sometimes contempt has not the slightest justification, much less discredit and futility.

Fractionation contrasts with one of the demands of the 21st century, pointed out by the author Rodríguez Torres (2016): have a high cognitive level that allows the knowledge to be articulated in an appropriate way, both for the solution of problems and for understanding life as a whole, for the realization of which it is essential to know how to relate new and previous knowledge, as well as making connections between different examples of a concept, resulting in increased capacity to organize an ever-expanding information base.

But for Morin (2001) the rearticulation of knowledge is not enough; it is essential that the subject and object of knowledge be re-linked: “The greatest progress in contemporary science has been effected by reintegrating the observer in the observation. Which is logically necessary: every concept refers not only to the object conceived but also to the subject conceiving”. In correspondence, he rejects the denial of subjectivity because he identifies with error, and questions the belief that error can be eliminated by the concordance of observations and the verification of experiences (Morin, 2001). In his ideas (Morin, 1999), the researcher is part of scientific research and should not be segregated from it. Thus, as the authors Escobar and Escobar (2016) argue, it is possible for the subject to express in scientific activity his individuality, his feelings and passions his human nature.

Morin (2001) believes that as objects are part of their physical reality, subjects must be integrated into their culture and society, but these two must be “integrated into biological evolution, which needs to be integrated into the organizational evolution of physis, which again refers to the observer-subject and so on” (p. 405). This path is followed by the author Campero (2017), who places the subject in a great mesh of relationships, where “it becomes possible to observe an integral trace of the subject himself and also to allow his own investigation” (p. 136).

Morin (1999) asserts that “knowledge, which depends on physical-bio-anthropo-socio-cultured-historical conditions of production and on systemic-linguistic-paradigmatic conditions of organization, is the same



thing that makes one aware of physical, biological, anthropological (...) conditions of knowledge” (p. 34).

In this case, where the spirit of complementarity is present, it ensures that the socio-cultural conditions of knowledge are, by their essence, different from the bio-cerebral, but are formed, preserved, transmitted and developed through brain interactions between individuals, therefore they are not isolated; and to isolate them is to go against these natural relationships. This spirit of integration extends it to the interior of culture.

Articulation between scientific and humanist culture

In the thought of Morin (1992) culture is a whole that includes society and of which the role of knowledge stands out. On this basis he maintains that contemporary societies are polycultural, as they are made up of types of culture, among them those he calls scientific and humanist. He conceives the latter as human-centered and with the purpose of clarifying its conduct and its relations with the world and society. He sees scientific culture as nucleated by science (only natural and exact ones). He opposes the epistemological separation that has been established between it and the humanist culture, where morality and knowledge communicate closely, unlike the scientific one, which is based on the disjunction between value judgments and reality judgments and is characterized by specializations, difficult access for those who are not part of it, and an exponential growth in its knowledge, which is confined to disciplines and expressed in formalized languages, suitable only for their specialists.

Morin (1992) condemns the rupture of communication between the two cultures and the fact that each one has developed its structure and emphasizes, in this way, that scientific knowledge “does not know itself: it does not know his role in society, it does not know the meaning of its future, it ignores the notions of conscience and subjectivity, and thus it deprives itself of the right to reflect” (p. 73). Such separation is illogical in these times, when science and technology have become a central factor on such a scale that scientific and technological activity is not the sole responsibility of those who carry it out; its impact forces all people to reflect on it and its consequences. Today, as stated by the author Corona Fernández (2019), what society requires is a critical reflection that breaks with this false idea and a struggle against schematism and the lack of creativity in the teaching of science.



The spirit of integration in ethical ideas and about the human community

The ideas of Edgar Morin that fit under this title (which expounds them, among other texts, also in *Seven complex lessons in Education for the future*) are the cause that, as the author Vallejo-Gómez (2017) says, Morin has been considered a planetary sociologist and a humanist.

With regard to ethics, one of the integrating objectives of Morin (2006) is the development of a self-ethics, which consists, firstly, in a reflection on ethics and, secondly, the perception of the human being. In this he includes the integration of the observer in his own observation and the reflection on himself to understand and correct himself, as well as to enhance the similarities between human beings and, on this basis, to enable fraternity, and relegate differences to the background, because they encourage hostility.

Morin (2006) considers that in science the excess of separation is bad, since it prevents relinquishing knowledge and “to know, you have to separate and unite at the same time” (p. 114). But if he sees that separation is bad in science, he finds it worse among humans because it facilitates the worries, uncertainties and anxieties of individual life. That is why he calls for a reversal of it through relinkage, which he sees as “a primordial ethical imperative, which commands the other imperatives relating to our neighbor, to the community, to society, to humanity” (Morin, 2006, p. 114), because it allows us to find answers to concerns and uncertainties and leads to the sources that make it possible to fight against anguish.

Related to the previous thematic core, the following questions take shape in Morin's thought (2006): how to understand? how to understand oneself? and how to understand others? He believes that the answers must lie in the conjugation of objective, subjective and complex understanding. The first is linked to the explanation, through which information providing causes and determinations is articulated. The second takes place between subjects and goes to inner feelings and motivations. The complex understanding encompasses the two elements above and is multidimensional because it does not reduce the human being to any of its features and tends to comprehend it with the diversity of its characteristics and in various dimensions: psychic, cultural, social, historical, as well as the singular and the global. He believes that reducing a whole to one of its components is an intellectual shortcoming, and that this is worse in ethics than in science.



In Morin's (2006) reflections on ethics there is a space for his ideas of anthropology, which "carries in itself the trinitarian character of the individual/species/society loop and thus makes us assume the human destiny in its antinomies and its fullness" (p. 176). It is worth noting that the word loop alludes to a cycle that returns and returns on itself endlessly, without end. According to Morin himself (2006), anthropoethics raises to the ethical level the awareness of the unity of all human beings in their diversity, of diversity in all that is unity, and gives value to the mission of safeguarding human unity and diversity.

With this position he establishes links between the ethics of the universal and that of the singular. The first points out that it has been drowned by closed community ethics and that it has been able to emerge in the great universalist religions, although it has been the victim of the monopolistic pretension of each one of them and their intolerance. Morin points out, moreover, that it has manifested itself in secular universalist ethics, in the Kantian imperative and in the (yet to be realized) idea of human rights. Morin (2006) says that it was an abstract idea "as long as our species had not been concretely brought together, in connection and interdependence by the development of the planetary era" (p. 176), which is for him a community of destination for humanity.

This community, in the words of Morin (2003), carries within it an awareness of human destiny and carries not only common dangers, but also a shared identity and insists on the need to be aware "that we are children and citizens of the land-homeland" (p. 268). This idea of the French thinker, according to researcher Huertas Díaz (2015), is a genuine orientation to form an associative thought that aims at eliminating feelings of exclusion and strengthening solidarity. Here is one of the most colossal values of Morin's thought.

It is significant in this case to highlight, as does Restrepo Zapata (2017), education from earthly identity, as long as it guides the learners to understand that any decision has repercussions and that it can affect humanity as a whole. This is why Morin (2003) stresses that "ethnic or national roots are legitimate provided that they are accompanied by a deeper rooted in the terrestrial human identity" (p. 268), one of humanity's greatest needs.

It is not surprising that the French thinker (2003) considers that "the thought that perceives nothing but the parcelarium, the fragmentary, the decontextualized, the quantifiable, is incapable of any global and fundamental conception" (p. 272) and that disjunction must be replaced by the wisdom of living together, which Morin (1999a) calls "symbiosophy" (p. 37), which is not to set all parts in opposition, but to link them, that is "to integrate them



into the concrete universe of the earthly homeland” (p. 37). It is an idea that increases its brightness when it says: “All cultures have their virtues, their experiences, their wisdom, at the same time, as their shortcomings and their ignorance” (p. 37). A valuable statement to study not only the types of culture, but also to delve into the depths of the role that the academic has in them.

The integrative nature of ideas about education of the future

Morin's (1999a) ideas on this topic are related to the integration of cognoscente in his knowledge as a principle and a continuing need for education. This requires an understanding of the fact that, for the execution of education, there are bioanthropological and sociocultural conditions that allow the formulation of questions about the world, the human being and knowledge. He considers questions towards students to be very important in teaching. It is worth mentioning the affirmation of the author Álvarez Nieto (2017) that in academic activity the recognition of uncertainty is accompanied by the awareness of inaction and the avoidance of simplifications, fictitious facilities and gross inconsistencies. In turn, it is worth taking into account the idea of Ruiz Lara and Torres Soler (2016) that the stimulation of curiosity, imagination and the discovery of the hidden, impel the student to want to investigate.

With regard to the education of the future, two considerations stand out in the thought of Morin (1999a) that demonstrate the integrative character of his ideas. One of them is the urgency of overcoming the type of education, according to which it is taught “to separate, compartmentalize, isolate and not to bind knowledge” (p. 18) this is why the body of knowledge becomes a kind of unintelligible puzzle and the interactions, the feedback, the contexts, the complexities become invisible and the inability to organize, contextualize and globalize dispersed and compartmentalized knowledge increases, to thus “the great human problems disappear for the benefit of technical and particular problems” (p. 18). With regard to these ideas, it is opportune to mention the opinion of Álvarez Del Valle et al. (2019), that in the light of complex thinking, the integration of knowledge, skills and attitudes becomes vigorous, which is true, but one cannot lose sight of openness in the design of integration, for integration, for example, can be trapped within the framework of one specialty (scientific or academic) and thus closed to the other; hence the importance of openness.



The other of these two ideas is to build for tomorrow an education that relinks knowledge of the natural sciences and those of the human sciences, to clarify the multidimensionality and human complexities and to take care that the idea that “the unity of the human species does not erase that of its diversity, and that of its diversity does not erase that of unity” (p. 25). It is not to lose sight of the dialectical relationship between unity and diversity, for as he says: “We must conceive of the unity of the multiple, the multiplicity of the one” (p. 25), which is to preserve human diversity.

The idea of the relationship between education, the natural sciences and the human sciences invites us to reflect on the work of universities, especially if we are looking for an integral formation of students; to this can be added that, as the scholar Vega Cárdenas (2016) points out, most of Morin’s work, particularly *Seven complex lessons in Education for the future*, serves as a guide to inspire the necessary changes in education systems and to training full-fledged professionals capable of living adequately in the coming society. To all this can be added the statement offered by the Cuban philosopher Guadarrama González (2018) that if researchers and professors keep in mind the thought of Morin, they can avoid epistemological reductionism. The integrating spirit of Morin thought is thus an incentive in the aspiration to reinforce the integrative character of university education.

The Integrative Character of University Education: The Validity of Edgar Morin’s Thought

The importance of science and technology is growing steadily, and in turn the value of those involved is increasing, including university professionals. They have a prominent place because of their high level of expertise and their participation, often decisive and irreplaceable, in the various scientific and technological processes; with the increase in their importance, at the same time, the value of university education is growing.

Regarding the ‘formation’ category and its use in the academic sphere

It is opportune to specify the meaning of the word ‘formation’, which is used in many contexts and has several meanings; in the case of the university level it is related to the preparation of a senior specialist, suitable for performing certain tasks and doing so with high quality.

The word formation proceeds from to form; its earliest meaning was to give form, which was then enriched with the meaning of nurture, training, educating; through these two ways relations are woven with academic action. Venegas Renauld (2004a) points out that the reference word has among its meanings, to in-form, from the idea of information, that is, to incorporate data, ideas, information, from which a network of links with school work is also constructed and invites us to bear in mind that the term “instruct” has among its meanings, to inform. At the same time, this author says that there is another meaning of the word “to form”, which is to acquire, in a person, development, aptitude or ability in the physical or moral, with which formation rather than forming, gives another idea: to form. This clarification seeks to emphasize that the active character of the person being formed is not simply an ideological result of the moment, but that the word itself carries that meaning in its path.

In the academic context, the category of “formation” is complicated, not only because the word is polysemic, but also because of the number of different criteria that exist around it, although there is no shortage of texts where it is used without a minimum definition, so its meaning must be deduced from the objectives pursued with it or from the content of the writing itself; this is the case with Duarte Díaz and Valbuena Ussa (2014). Not infrequently, as in the article by Bizquerra (2005), it is understood in relation to the fact of equipping people with knowledge that prepares them for some specific social function, while in others, for example, that of Cuervo Ballesteros (2017) and that of Pérez Guzmán (2018) is related to the development of general professional or human characteristics, such as knowledge, handling of emotions, communication, but with the express purpose of their use and manifestation in concrete actions. In other works, among them that of Álvarez (2017), it is conceived closely related to culture and society and is associated with the work aimed at shaping the natural capacities and faculties of individuals to ascend to the generality.

When someone is asked what his or her formation is, it is very common that he or she answers with reference to the his/her studies, the diplomas and the recognition he or she has obtained, that is, he or she is associated, first and foremost, with the academy and the preparation he or she has obtained. The author González Rivero (2016) assures that the deepening in the literature specialized in this topic has allowed her to appreciate that the word formation has a long history as a category in philosophy and other specialties, especially pedagogy (where its use is very frequent), however, “extensive studies on it are limited as it is generally



alluded to in a faint way or as a trait that does not need further explanation” (p. 153). This is a condition of the reason why, as she herself states, “it is generally assumed in view of its more superficial characteristics” (p. 154) there is not enough theoretical clarity, it is used from different perspectives and “a theoretical development on the subject cannot be generally found” (p. 154).

González Rivero (2016) affirms that in the study of the category of “*marras*” in the academic field two perspectives are distinguished; one extends from the outside of the subject in formation and the other from within it. She asserts that many scholars assume the first variant, from where formation is conceived as an influence that is exerted on a subject (which becomes its object) and that it is conceived as a process or system of actions to act on a subject and realize a formative purpose. The other perspective, that of interiority, is, according to González Rivero, recent, scarcely studied and with little theoretical development, although it clarifies that the fact of considering the subject as an essential element of formation has long roots. The author points out that the guiding idea of this variant is that formation is “a kind of function proper to the human being, which is cultivated and can be developed: the evolutionary function” (p. 163) and points out that, although there are different criteria in this respect, from this angle, in the general sense, formation is conceived as the incessant appropriation that the human being carries out throughout life. In keeping with this latter modality, she emphasizes that in the formation process the will of the person being formed is decisive, his “decision and self-assessment to be involved or not in his own transformation” (p. 166).

Regardless of the value that each of these perspectives has, it is worth noting that both separately show a fractionating perception; the two exist in dialectical relations. Formation is an interior-exterior-interior process, it is a creative exchange between the subject and the external to him, from where he takes what he wants, and incorporates what he selects, either by his own decision or by external action (influence, insistence, obligation). It is not that formation must be of our own free will, it is that, in its realization, our own will and convictions are decisive, in connection with the external world: it is taken from it and carried to it continuously; hence the cardinal role of persuasion, of the guidelines, of the guidance.

With regard to the above, it is worth emphasizing that formation is not self-formation, because although the decisive role is played by the subjective component of the person being formed, that is, his will, decision, perseverance, conscience. In formation the external influence and

the dialectical interplay between the subjective and the objective is important, if not the subject is embedded in itself; hence the valuable role of the formator and not only as a guide, but also as an impeller. The teaching-learning process is quite important, but more attention needs to be focused on learning.

In the academic context, the category of reference refers to a process in which the historical, the social and the philosophical are present, hence its breadth. This characteristic, while certainly making it very complicated, also gives it great theoretical possibilities and a wide and diverse practical scope. When used in the academic framework it is related to other categories no less complicated and controversial: education and development.

In the above-mentioned framework, these three categories are dialectically related because they allude to a process in its complexity; when used separately it is for the purpose of theoretically specifying. Thus, with the category of education, it is possible to refer to the shaping of existing traits, qualities, principles, with the intention of changing them or creating others; therefore, molding, forming. In the meantime, the category of training emphasizes, highlights, that something new is created, superior to what exists, in which there is development, but also molding; that is, in the fact of formation, there is education and development. It is worth opening a parenthesis and with it a remark about the author Venegas Renault (2004), and that is that she places the beginning of the pedagogical use of the word "formación" in the framework of the concept of education during the Renaissance, "in a slow process of differentiation" (p. 30) and relates it to the work of the thinker Erasmus Rotterdam (1466-1536). The links between the two categories should therefore not be surprising. Education and development are implicit in formation; only with a rigid and limited vision is formation conceived in the academic context as forming something static, that does not change, that does not develop in some way.

A clarification is timely: In the light of empiricist and positivist currents, the word "form" tends to be reduced to relations that can be generalized by the verification of a regularity verified in the facts. Venegas Renault (2004a), assures that with this philosophical influence on modern sciences the word 'form' is replaced, "by substantive and non-verbal terms, such as "structure", with a meaning of regularity, associated more with the aspect of static structure than with dynamic functioning" (21), thus it can be found in geology and in the military universe, which alludes to structure and with it, to a particular order, to a composition or organization.



The strong educational burden that the category of formation carries at the academy level, leads some authors, as happens with Ferrada-Sullivan (2017), to a reflection that begins around formation and takes a course that leads directly to education and places it at the center of analysis.

Generally, when the category of formation is taken into account from an academic perspective, it is associated with the teaching-educational process and is seen as a part of it, which, according to some authors, such as Ramos Serpa (2006) and Zabalza (2011), can be understood by areas: political, economic, legal, and professional formation: teaching, medical, legal; in all cases linked to the acquisition of new knowledge and the rearrangement of existing ones, as well as to skills and abilities. In correspondence, Vázquez Alonso (2014) and Velásquez Jiménez (2016) associate with it the knowledge of the specialty that is taught and the skills that professionals must have. In general, in the use of this category there is no lack of attention to the educational and didactic aspects, although the degree of attention may be greater or lesser, depending on the interests of the person studying it, that is, the research purposes and possibilities of researchers.

In the universe of criteria and specificities around formation, seen from an academic perspective, there is an essentially integrative variant, socio-formation. In the work of Vázquez et al. (2017), it is noted that the core of this modality are the social and environmental challenges, as well as the needs for personal self-realization and its intention is for people to learn to identify, interpreting, arguing and solving problems in a collaborative way, with an ethical life project, as well as developing their entrepreneurial capacity. The breadth of this spirit can be seen in the text of the authors Balladares et al. (2016) who understand training as a task involving more than one teaching discipline at the same time.

There are other integrative variants that go beyond the limits of what is strictly academic. One of them is the one that has the purpose of forming (and developing) in the person his status as a citizen; thus is spoken of citizen formation, which in the words of González Rivero (2019) is a “a systematic, intentional and continuous process of socialization, whose purpose is to promote in the person his status as a citizen” (p. 343); this is to develop in human beings the capacity to participate fully in society, that is to say, to become a social actor, a purpose which goes beyond the limits of preparing them to participate actively in the destinies of their community. This type of formation has in its foundations the “critical, reflective and creative attitude to carry out transformations around human well-being” (p. 343). It is noteworthy that citizenship formation,

which includes not only knowledge but also the full development of the personality, is “a concept that does not have sufficient studies” (p. 348), to which it can be added that this is the case with the category of academic formation, although this statement seems exaggerated and categorical.

Another integrative and extremely broad view is the so-called human formation, the purpose of which is to form human beings, that is, to form characteristics in human beings that make them better, to humanize them, to make them ascend to higher scales in the process of humanization; in the voice of Pacheco González and Pupo Pupo (2017) “it is based on the goal of forming human beings” (p. 52).

After a review of various understandings on this subject, it can be said that formation as an academic category is a system and, at the same time, a process, where there are relationships of various kinds, which can be observed in stages and levels, always nuanced by concrete historical-social conditions and by the links between the external action of each individual and his spiritual universe (rational capacity and affectivity, with the results of each and their mutual links), although its identifying feature is that, in it the determining role is the consciousness of who is being formed and his/her subjectivity: convictions, aspirations, purposes, ideals, which are impulses to overcome obstacles, reach goals and surpass them.

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University formation in the light of complex thinking

In speaking of formation in the academic context and as has been said in various ways throughout this text, it is impossible to ignore or underestimate unprecedented scientific and technological development; but such a link is much stronger when it comes to university education. As is well known, its results are professionals, who will work in various areas that are crucial for society, many of them linked to science and technology. It is not difficult to understand that the quality of professional performance depends to a large extent on how the formation was conducted, its breadth, depth and scope. For this reason, integrity, a key feature demanded by the aforementioned development, is of great importance. For reaching it, the perspective achieved when assuming the reflections and suggestions from Morin are extremely valuable.

In this sense, it is opportune to emphasize the recommendation of Hernández and Figuerola (2016) that in the university formation an integral optic must prevail, that is deployed through the conjugation of external and internal actions (with the determining role of the subjecti-

ve component of the one being formed and with the widest attainable amplitude). It is good to remember, as González Velasco (2019) points out, that when these tasks are carried out with a reductionist vision “the classroom does not cease to be seen as a closed space” (p. 38). It should be added that, as a result of this perspective, closed professionals are also responsible for reproducing these characteristics, since they are the result of a narrow, one-sided mentality, and these are not the professionals needed by today’s society; today formation must be integrating.

Professional knowledge and skills are not enough for university graduates to succeed in their profession, because if today’s society requires mental openness and flexible rationality, in summary: an integrative outlook also needs to have professionals who meet these requirements; hence the importance of education being more and more comprehensive, which cannot be understood as superficial, nor as generalizations. This conception demands a complex and ductile vision, which, taking into account the potentialities of individuals, their initiatives and autonomy, aims, as emphasized by the author Castellanos (2016) to “the integration of knowledge, skills, motives and values that are expressed in an efficient, ethical and socially committed professional performance” (p. 148) together with autonomy, flexibility and the ability to take on dizzying changes, to transform themselves in line with the changes in society and to be able to make them always move towards a better future.

A strategic line for this type of training, as Escobar and Escobar (2016) say, is to provide meeting spaces “that the one may converge with the other, the unique with the multiple, the individual with the group, and subjectivity may be enriched by the relational objectivity of all with all for all” (p. 96). It is necessary to transform thought and, in the words of Ruiz Lara and Torres Soler (2016), it is also necessary to create spaces that foster it and open the way to creativity.

In the light of complex thinking, when the formation of university professionals is designed, it is opportune that the people to whom the action of the formation is to be directed towards be placed at the center of attention. This modality avoids the presence of utopian aspirations, centered on the professional conceived as an object and not as a concrete historical-social subject; it also encourages him/her to be active in this process and to participate from the spaces where he/she lives, but this also avoids, as Castellanos (2016) remarks, the imbalance between the real context of formation, the individual and the curriculum.

There are several features that characterize the curriculum when conceived from complex thinking, González Velasco (2017) points out

the following: disciplinary integration, retroactivity, recursivity and re-introduction, openness, flexibility, dialogical character, great social and humanist sense, which is why it is important to pay attention to the personal and social dimensions, to the values, the culture and the planetary consciousness, proposed by Morin. This conception is based on the objective of forming men and women with their own criteria, autonomous and, as Maldonado emphasizes (2017), with sensitivity to the natural and social environment, so that they are able to solve the problems that arise. Most of which will concern humans. The purpose of this type of curriculum is to train human beings and is therefore, in itself, human formation.

It is not superfluous to emphasize that this way of conceiving formation urges the present human society, especially with regard to the development of critical and creative thinking, and university education cannot be exempt from this. This purpose is favored when the university is a space for open dialogue, driven by emancipatory objectives. And here the spirit of integration is the vigor to go forward and the compass that marks the way; then its opposites and negators are the fractionation and overestimation of some aspects to the detriment of others. Bias has a negative influence on creativity, as demonstrated by a study carried out by Cabrera Cuevas and De la Herrán Gascón (2015), two researchers from the Autonomous University of Madrid. However, in order to carry out this work, it is essential to educate formators with a complex thinking, which means, among other things, that they oppose arbitrary fractionation and propose integration and complementarity.

Here is a sample of the methodological and guiding value of Edgar Morin's thought in every work of formation, including university formation, where there is still division, which is observed not only in the separation and isolation of characteristics, properties or purposes, but also in the persistence of overestimation of some of them, which is a reduced way of understanding them. Reductionism is the result of fractionation and separation.

The Work Component of University Education. A Look Through Complex Thinking

In the works of Balladares et al. (2016) and Velducea Velducea et al. (2019), it can be observed that in university education there is a tendency to prioritize the teaching of subject contents and to relegate to inferior levels the development of cognitive skills and abilities. This modality is favored by



the growing relationship of university institutions with scientific and technological knowledge, including consumption, production, dissemination and storage. Such knowledge and the resulting products are disseminated in society and, many, become objects of trade. Such characteristic has facilitated the existence of a business outlook towards university institutions and has intensified the claim that they respond to market demands, which is why, as the author Brower Beltramin (2014) points out the way of attending them as if they were one more company or an appendix to the industry continuously spreads. and there is no lack of scholars, such as Restrepo Zapata (2017), who stress the desire for vocational training to meet the demands of companies and the market and like Bermúdez-Aponte and Laspalas (2017) who highlight training in terms of the market and think that “teachers must behave like entrepreneurs or sellers” (p. 113). Fortunately, however, there are scholars, such as Brower Beltramin himself (2014), who think differently and think that this position is a distortion of the essential meaning of university education.

It should be made clear that one of the central objectives of university education is to train students in work related skills. There can be no doubts or misgivings about this. This purpose is not wrong, not harmful, not evil. What does prove to be harmful is that such training is reduced to that objective, not only because it is subordinated to commercial mandates and to the satisfaction of the requirements of possible jobs and the market for them, but also because it attacks the inherent breadth of the university and its formative work.

The formation in the labor component is an extremely complicated and demanding task, and it must not be underestimated, nor overestimated. If one follows Edgar Morin’s logic, the crux of the matter is that the professional is not just a worker. If university education is limited to certain qualities, its mission, which is to train a competent professional and a human being, is mutilated in the historically attainable integrity, that is, in its multiple social relations and not only in its work relations. If a component of the training task is attended solely or preferably, others are relegated to lower levels, or excluded.

If a utilitarian approach prevails, in which the student specializes in solving specific work situations, the university will become a mechanism that generates graduates with instrumental abilities for specific purposes. The overestimation of the labor component consists not only in the fact that knowledge is conceived solely according to the profession, but, as can be seen in the text of Aguilar Astorga (2017), that it becomes something enclosed in itself and, therefore isolated and insulated. Accor-

ding to Rodríguez (2017), the training of professionals capable exclusively for work is typical of the nineteenth and twentieth centuries and is therefore a residue of the past.

According to the authors Navia-Antezana and Hirsch-Adler (2015) and Picazo et al. (2018), there are experiences that show that the social component is sometimes better valued (as a desirable feature of a good professional) than the technical or cognitive component. This shows that there is no shortage of those who recognize that individuals trained in purely practical aspects do not, after all, possess the social and human skills that are also very necessary for successful work. But what is striking is that in such circumstances there is also the risk of going to one extreme and with it succumbing in the arms of another kind of reductionism.

There are scholars, such as Ciurana and Regalado Lobo (2017), who worry about the reduction, the reduction that is observed in the overestimation of the purpose of training professionals with high qualifications to meet the technical standards in an efficient way, with the ability to adapt to and obtain from technological change optimum results and that which occurs when the focus is on meeting the demands of the labor and techno-industrial market, such as when this objective is overstated and other very important aspects of the life of an individual and of society remain at a lower level, for example, the development of critical and creative thinking and the training of men and women as citizens, able to live actively in the community to which they belong. In all this work the enrichment of the spiritual universe must not be forgotten, for which the study of philosophy, ethics, aesthetics, history, art, artistic literature and mother tongue is invaluable.

An university graduate who only has excellent work qualities is not enough. One of the great tasks that teachers have today is to enable students to learn to orient themselves in the enormous amount of information available and to understand that this is a means to achieve an end: to know, with increasing depth, nature and the human being, with the results of his creativity. In correspondence, teachers face the challenge of motivating students to investigate the roots of phenomena and to learn to value knowledge not only in its intrinsic value, but also in function of the human being.

University education must shape all the abilities and faculties of students, not only to meet the economic or political demands of the moment, but to advance on the path of human improvement, which, while corresponding to what is achievable under the circumstances, at the same time constitutes an incitement to progress to higher levels.



The rational and the affective in university vocational training

The changes that humanity is undergoing have not been able to eliminate the technocratic and pragmatic mentality, according to which the most important thing is technology and the solution of practical problems, purposes that are neither perverse nor erroneous, as long as they are not absolutized. According to this type of thinking, the professions exist only to solve such problems and the route that is conceived as suitable to satisfy this requirement and to do so with thoroughness, is that of the exclusive use of rational capacity, because it is conceived that it is through it that the objectivity and scientific purity of knowledge is achieved, that is its ultimate end. Here there are two types of reductionism: the professions only serve to solve practical problems, and rational capacity is worth exclusively because nothing else arrives at objectivity, therefore the subjective is excluded (assessments, beliefs, opinions).

The high level of attention to the labor component of university vocational training is accompanied by the exclusive estimation of rational capacity. We share the criteria of the author Martínez (2015), who emphasizes that this way the basic role of affectivity in human life is forgotten. It is worth mentioning the exploratory study carried out by Professor Curiel León (2018) at the University of Havana, with which she observed that in teaching, the object of her study, the mastery of the conceptual system of each subject and discipline was emphasized, less attention was given to the affective level and that there were training needs in the teachers related to self-knowledge and affectivity.

That fact is not unique to the University of Havana, not even to Cuba. Many teachers from all over the world and at all levels are worried about the predominance of the intellectual approach and the relegation of affective aspects to inferior or null planes, among them Fernández et al. (2009), Castañeda Serna (2014), Barrantes-Elizondo (2016) and Ojalvo Mitrany and Curiel Pawn (2018). However, this interest and the assertion, with gained authority, of the Spanish philosopher José Antonio Marina (2005), that the literature on emotional education is very broad. With regard to university education, the number of texts devoted to studying these issues is not notoriously abundant, not only the emotional, but also the affective in its integrity. This statement, which is limited to the world of the Spanish language, can be verified with a bibliographic search that covers various journals, from any country, in which there may be studies of related thematic universes. This assertion does not deny the



existence of profound and current works, such as those of Frago-Luzuriaga (2015) and Curiel et al. (2018), although it is notable, as can be seen in the text of León et al. (2019), the privileged attention on the rational.

With regard to university education, it is necessary to increase theorization around the affective, especially at present, because at the present time the high houses of study are marked by tensions resulting from internal and societal transformations and demands, largely due to advances in science and technology, where the scant attention to the affective and the Manichean polarization between the affective and the rational stand out.

The above statement does not mean that the number of scholars who recognize that in affective bonds there is a great potential to make the teaching-learning process more effective; examples are Maldonado-Torres et al. (2018) and Goicoechea Gaona and Fernández Guerrero (2014). The latter recommend that “all the affective dimensions that have been forgotten by traditional scientific and philosophical discourses” be taken into account” (p. 45), to which it is worth adding that it is essential to take this idea into account, because formation is not a cold endeavor.

It is urgent to strengthen the affective component and to do so as an intentional process to promote the proper expression of emotions, feelings and passions and to encourage self-knowledge. In university formation one cannot do without reasoning or the rigor of intellectual discipline, but a balance between the rational and the affective is necessary.

The presence of both, in a balanced manner, is important. And this is where the problem lies, because there has been a favored party or one that has gained more attention: the rational one. It is necessary to emphasize the affective component and to attend to it in a specific way. It is necessary and convenient, as can be understood from the text of Bisquerra Alzina (2005), that university professors know the work that is done regarding the affective, are encouraged to apply the results in their daily formative work, not only as teachers, but also to write about their considerations and experiences in this area. Affectivity, affective manifestations, are not exclusive to women, nor to the humanities. There is as much masculine affectivity as feminine, and mathematics, physics or engineering can provoke the affective as much as a poem or a play; each one with its specificities.

It is not superfluous to return to Morin (1999) and to emphasize that he emphasizes the need to understand that reason and affectivity exist in close relationships and that there is no reason to observe them separately or to conceive them as opposed. Nor is it superfluous to



emphasize the attention it gives to the belief that rejection of affectivity eliminates the possibility of making mistakes, to which it points out that while holding such a creed one does not think that, if certainly the affective can suffocate knowledge, it can also strengthen it. It is also appropriate to emphasize that the observation of the links between the rational and the affective also leads him to affirm that if it is true that “the faculty of reasoning can be diminished and even destroyed by a deficit of emotion; the weakening of the ability to react emotionally can become the cause of irrational behaviors” (p. 5). And it exposes with ostensible energy a principle of the struggle against the simplifying and disjunctive scientific paradigm and, in turn, in favor of its opposite, that other, the integrator and complex, when it asserts that “hatred, love and friendship can blind us; but it must also be said that already in the mammalian world, and especially in the human world, the development of intelligence is inseparable from that of affectivity” (p. 5).

In the specific case of university students, and from a perspective of practical utility, it is worth emphasizing that the intelligent handling of one’s own and others’ emotions, can be a tool that contributes to the fulfillment of our goals, which are more competent and integrally formed. It is intelligent who directs his affectivity with intelligence and it is affectionate he who expresses his intelligence with affectivity. It is of great value to know how to lead affectivities towards a goal and achieve it. Feelings, emotions and passions can stimulate optimism and entrepreneurship. Life in society can be more comfortable if one knows how to recognize the affectivity of other human beings; knowing how to interpret it (with gestures, expressions of the face, tone of voice) makes it easier to put oneself in the place of the other, have empathy and improve human relations and, in turn, face the challenges of the present and the future. It is worth bearing it in mind, and not only in the positive, but also in the negative; this is a way to understand what needs to be strengthened or transformed and in what direction.

With regard to the relations between the rational and the affective, it is worth referring to a theoretical body called neuroeducation. In this light, as can be found in the writings of Mora (2015), it is recognized that emotions and feelings are essential pillars for the teaching-learning process (and, by extension, also for university formation) and that emotions are an engine that each one carries within ourselves, that moves us to want to be alive in interaction with the world and with ourselves, which is an unconscious reaction that favors survival, although in human beings it becomes conscious.

Close to these criteria is another, which can be found in the work of Bueno Torrens and Forés Miravalle (2018), and is that learning is consolidated much more and can be applied to new situations when it manages to mobilize emotions and reasoning, as well as that, in order to learn, one has to stimulate the ability to want to know, because the significant, motivation, emotions and, above all, pleasure are very important.

If one thinks in correspondence with the complex vision of Edgar Morin, one can understand the basic links between reason and affectivity, as well as the methodological value of the unfolding of an apprehension that integrates both human faculties or at least, that it does not separate them and, even more, that it does not oppose them. The integration of these human capacities represents the strengthening of human possibilities and must be used within the framework of university education so that it is more optimal, and humanity has professionals trained in an integral manner, which is a way of helping to solve current and future problems.

In order to be truly valuable, university education must correspond to the characteristics and needs of society. With this affirmation, which is a principle of its functioning, we must today fight against arbitrary division and separation and reductionism. The current development of science and technology highlights the need to transform thought in order, as Edgar Morin emphasizes, not to escape from the complexity of life, but to understand and assume it, to apprehend existing links (visible and hidden), establish others, and open the way to integration.

Conclusions

The spirit of integration that sustains and runs through the thought of Edgar Morin has an objective basis: the need to transform the thinking of humanity to correspond to the characteristics of today's society, which in turn requires the rearticulation of all that has been separated over the centuries, such as the various knowledge and scientific and academic specialties. For the thinker, integration is a process of complementarity, the course of which is human improvement achievable within a historical framework.

There is a coherence between Morin's suggestions and the characteristics of his thinking in terms of articulation and integration, because they form an interrelated mesh, both in their manifestation and in their spirit.

The integrative essence of Edgar Morin's thought is valuable for university education, first of all because it can be constituted as a theoretical support to preserve the universal nature of this academic level and to



end the mentality that divides and reduces, which is felt in many conceptions and facts, such as the overestimation of the labor component and the schematic division between the rational and the affective.

The integrative character of Morin's ideas offers two basic arguments for carrying out the great reintegration task, one being that fractionation takes place not only in the separation and isolation of characteristics, properties, purposes, but also the persistence of overestimation of some of them; the other is that, in order to strengthen the integrative character inherent in university education, the tendency towards overestimation must be curbed, as is the case in the strictly professional sphere, and, in turn, it is necessary to pay more vehemently and systematically attention to the balance between the rational and the affective. University education must not be biased in favour of any of these human qualities.

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Document reception date: December 5, 2019

Document revision date: January 5, 2020

Document approval date: May 5, 2020

Document release date: July 15, 2020