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The Smartphone is One of the Externalizations of the Mind that Aspires to the Status of its Extension

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Abstract: Is the Smartphone (SP) an extension of consciousness or just an (other) externalization of the mind and an extension of the social? The concept of externalizing the mind more appropriately describes a series of processes that tend to be considered extensions of the mind. The human mind has evolved concurrently with various externalizations, such as utensils and language, as contributions to the development of the common environment of humanity: culture and civilization. Externalizations indicate the appearance of the human mind while the extensions take into account the possibility of passing to another level (the singularity of consciousness). SP is a handy tool that mediates the personal relationship with the world, benefiting from a level of integration into the global workspace of the mind. Externalization called the SP could be a bridge from the externalization of the mind to its extensions, making the ontological leap from the utensil status to that of "part of the mind". SP is a mediator of an environment: it mediates between the mind and a special social environment called the Internet (mediates access to cognitive support provided by society through the virtual world), which is gradually becoming another reality.

Keywords: *Smartphone; extension of consciousness; mind outsourcing;*

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1. Introduction

In this article, we look at the possibility that a smartphone (SP) represents a paradigm shift in human existence, mediating a form of transition to artificial intelligence (AI) or a change in the ontological status of the tool (utensil). Our analysis starts from the idea that only the part of the Phone is so important, but also the Smart part, and it brings to light the effects on humans, the use of different forms of artificial intelligence along with increased connectivity.

At the same time, we propose a paradigm shift in interpreting the research results that indicated the SP's negative influence on human cognitive capacities, shifting the emphasis on the degree of integration of SP into the existence of individuals. We discuss a significant mutation in the definition of humane, including in the area of normality the various existential integrations enjoyed by some technological devices today, especially among the new generations. Our proposal is an invitation to put into brackets the traditional axiological perspectives in order to free the behaviours manifested towards the SP from the closure generated by the definition as negative of changes that could actually announce the shift to a new dimension of the humane.

1.1 Preliminary issues

To what extent is the mind "in our head"? For the mind, the existence of the brain is a necessary condition; But it is not enough. A brain outside the world (in the social sense of the term) will not become a human mind. The reason is not only the lack of information provided by the world, but also the lack of special connections with the world, such as, for example, specific cognitive support from the field of externalizations.

In a reductionist form, the problem can be expressed in the form of the traditional question about the essence of the mind: is it the result of genes or of education? We tend to say that both are important and it is an *almost* correct answer. We say "close" because it misses the *effects* of *exposure to the world,* that is, the impact of the set of implicit intentions existing in the world, contributing to what we are. Mind is the common result of genes and of existence in the world, the latter including education and "exposure to the world." The discussion is about the reality of a common space of expressive or tacit intentions and its role for the existence of the mind, the most obvious example of a component of this space constituting being language.

In this article we operate with three concepts essential to the evolutionary path of the mind: *externalization, extension, and moving the mind* to

another support. If we think of externalization as precursors to the extensions of the mind and these, in turn, we imagine them as shapes that lead to changing the mind's support, we can assume that the existence of the brain could only be a necessary condition for the time being. The three concepts generate the conceptual framework necessary for the attempt to try to understand the place and meaning of SP, namely the relationship between it and the mind.

There is no clear delineation between the externalizations of the mind and its extensions: at times when we use the idea of expanding the mind in its weak sense without actually thinking it as part of it (perhaps the main difficulty is provided by the brain or the common place which is represented by the brain-mind identity generator couple) we are rather in the area of its externalization. Analysis of the SP's goal broadly shares this uncertainty.

The difference between *mind extensions* and *mind externalizations* seems to be a problem of conceptual clarification. But it could be part of the problem called *the singularity of the mind*, each of the two concepts indicating major but different leaps in the evolution of the mind: *the externalization* takes into account the appearance of the human mind in the current sense of the term while the extension indicates the transition to another level. The differences between the extensions of the mind and externalization are often subtle, under discussion being rather a personal terminological preference. The methodological prudence argument urges us to favour *externalization* to the *extension* when talking about mental processes (most often cognitive) that take place outside the skin and skull. The intentionality and the relationship between areas of consciousness (including "handiness", unconscious influences) are in turn arguments in favour of a prudent, gradual conceptual approach meant to help clarify things in relation to the enthusiastic approaches that tend to turn the mind into an octopus whose tentacles stretch across the entire world.

Externalizations happen every time in social environments, society being their mediator, which makes them possible. Writing, reckoning, painting, architecture, etc. are an integral part of the social environment, of the mediation that society makes between the person and its humanity. From the perspective of society, *externalization* is largely involved in the development of the common environment of humanity, covered by the concepts of *culture and civilization*. Insofar as mediating the encounter with the others *externalizations* are in the continuation of the evolution of society, this being is in fact the main pillar of the progress. One of the mediators (we will still see which of them) tends to get rid of traditional accounts, suggesting

the switch to something else unknown. Our fears may be unjustified: Throughout history, mediation has seen many radical leaps, and it's their intervention that brought us here. But if we think from the perspective of missed opportunities (eventually idealized), the anguish on this issue seems grounded. In terms of mediation, the danger seems to be the gradual expansion of what we have been accustomed to in the last few centuries to consider as being the essence of the person, the mind, in this environment. The term by which we indicate this suspicion of disorientation is the *extension of the mind. The extension of the mind* itself is not a problem that we could not handle, its gravity being given by what it seems to prepare: *moving the mind* (on another support); that is, the emergence of the artificial mind. This essential change of paradigm in the thinking of humanity that the *movement of the mind* projects is not equally important in the series of ontological problems which philosophy has overcome. The problem has been dealt with in philosophy or in science, in somewhat similar forms: Cave and Dihal (2018) indicated that there is approx. 3000 years of preoccupation for creations which, after the play of R.U.R. published by Karel Čapek (1920), we would consider to belong to the category of robots. Moreover, it is perhaps the most frequent explanatory theory in the area of religions: it is enough to agree with a possible equivalence between the *movement of the mind* and the dynamics of the *soul* in order to find significant resemblances. At the limit, contemporary anguish can be caused by this form of "soul survival" that can bring with it the *movement of the mind*, thus giving a possible scientific face to a religious prophecy.

1.2. The necessary time to understand

Challenging the existence of certain extensions of the mind has strong arguments, especially with reference to the current technological level. It is possible that the rethinking of the problem at another temporal scale will change the perspective: increasing technology-driven evolution of the society could lead to an unobserved shift from the weak sense of the extensions of the mind to the strong one. This is the gate through which SP enters the stage, both because of its technical characteristics and as a result of a permanent presence along with man.

Probably the SP has not yet crossed the ontological barrier of the utensil to reach another ontological status. But if it had, could we figure it out? What are the seeds that could show us that the SP has overcome the ontological barrier of the utensil by going towards ... towards what? Inevitably our existential judgments are dependent on the known world structure, risking a low applicability in the future. The sensation of the

permanence of their validity is generated by the continuous adaptations that our everyday knowledge has created in us. From the point of view of this, much of what was formerly the past has already become past, developing cognitive adaptations to it. This may be the most important epistemological lesson that the past can provide: we are able to adapt to the unknown that the future provides us because it is seated in the continuation of our knowledge, somewhat dependent upon it. However, this adaptation is often affected by retrospective bias, losing sight of the cognitive surprises that our future provides continuously. If we increase the timeframe in which we monitor changes, we may notice decisive changes (but to which we will adapt later, including it in constructing future normality).

Thus, we need to be careful about the temporal scale: switching to the extensions of the mind may be ongoing, and we are too caught up in this process in order to observe it. Even if we are referring to a leap in the evolution of humanity, if we think of it from the perspective of a present that might surprise us, it probably does not have / will not happen at once. Like all transformations in the evolution of humanity, it takes time. Surely it would not take a period similar to the Neolithic revolution or even the industrial revolution. But in the discussion is the possibility of transition through a period in which the future could only identify its radical change. If we agree with the necessity of this kind of historical distance necessary to sensing and understanding the change, then the question of whether such a change has taken place is as relevant as if we are living it now.

2. Is the multiplication of cognitive processes on other environments extension or externalization?

The fact that a mathematical computation can be done in mind and in other environments is proof of the existence of multiple realizability mental processes, constituting a source of ambiguity for the decision on the existence or absence of the extensions of the mind. If we think about primates, for example, we might consider that they already have a significant percentage of human mental processes, at least unconscious (not to complicate things by slipping to the question of the existence or absence of consciousness in primates). Are we justified in this case to think they have a mind? If we manage to teach them something, does that mean that we have extended our minds to their brains? Transferring mental processes to another person can be considered an extension of their own mind? Let us imagine that we are transferring much of our daily tasks to a secretary, showing him/her how to resolve them and delegating decisions that we

should take. Is this a step specific to the extension of the mind or to the multiplication of certain forms of organization of mental processes? We believe that learning is multiplication, namely externalization, not extension.

If the principle of multiple realizability shows that the hard on which the cognitive processes are rolled does not matter, suggesting the possibility of extension (at least of some) mental processes in other environments, it remains to be clear if the "soft part" also allows for such a mutation. Broadly speaking, the software consists of two essential parts: 1) *The architecture of the system* (we for the time being left aside that it is heavily dependent on the structure of the hard part). For humans, the similarities in organizing cognitive structures have two different sources: a) The transcendental part and b) The structural similarities mediated by culture (understood in the form of similar orientations in the environment / construction of reality). 2) *The actual software*, which has its predominant origin in the world (with individual updates and changes determined by personal experience), being a social creation.

If SP succeeds in supplementing certain brain processes (memorizing information, facilitating decisions, interpreting, communicating) can we consider that it is a part of the mind that benefits from this type of support? And if so, then whose mind is part: of the individual who uses the cognitive features or of the general one that has identically shaped those cognitive processes? An answer can cover both questions: if we admit that SP is a form of extension of the mind then we must consider it as part of the social dimension of the individual mind.

The concept of the *contents of the mind* could help us clarify the problem. We can think that there are two general types of *contents of the mind:* the ones that the mind generated by itself and those taken from the social environment in which it exists. Both types depend on the conditions of the possibility of the individual mind and the existence of social knowledge. In this context, we can ask ourselves to which type of contents the SP facilitated/ mediated brain processes belong to. If SP includes cognitive processes that are similar to some of the brain, replacing the functions of the mind, can we consider it to be an involuntary extension of the mind?

More accurately, it would be "an involuntary extension of some of the contents of the mind." The discussion is about the effect of collecting information about their own behaviours and what they say about the mind. The danger could be assimilated to the creation of another self (a decentralization of the individual, or a delocalization of the individual).

The idea of an extended consciousness in the social or individual sense that this term can have is argued by the adherence of contemporary

man to technology. If McLuhan's hypothesis (2003) is correct, technology being a form of extension of our nervous system or of mind extension, then the impact of technology, the joy with which it is embraced, reflects the sharing of this form of extension of mind. Arguments in favour of externalization and the analysis of the complex of externalization that SP makes possible should help clarify the problem.

3. Mind externalizations

We try to generate a proper context for understanding the role of the SP through the "second space of the mind ontology", respectively by the *mind externalizations*. The concept of *externalization*, as a prelude to the extension of the mind, we first used it in the article *The paradox of extended mind; from extended mind to extended consciousness* (Rotilă, 2016). In a simple description, by *externalizations of the mind*, we designate all structures intentionally created by man to serve as forms of support of thought. Externalizations should be understood as an integral part of survival strategies (individual or, most often, social). In a certain sense the human mind was born simultaneously with various forms of its *externalization.*

If we take into account only certain "parts of the mind" or some of its specific processes, we can identify examples of externalization such as mathematical computation (traditionally supported by forms of externalization: wax, blackboard, paper, etc.), written translations of language, etc., namely all forms of thinking that use "external supports". To understand the importance of externalizations, we can ask what the mind would be without its various externalizations: writing, art, architecture, etc. If we eliminate all derivative systems of intentionality, we remain with a mind / minds? Moreover, if we no longer use the air properties to transmit sound or visual signals, but we reduce the strictly direct physiological functions would we maintain within the characteristics of the humane? Before the environment we believe that the most important intermediary of thought is the body (this is why we prefer to maintain a discreet ambiguity about the concepts of mind, brain, body, consciousness, and relationships between them). Obviously, we can think of other forms of communication, but all will be behind the primary ones, so derived from them, taking over their properties.

For many examples provided by the literature for the extensions of the mind, we consider the concept of *externalizations of the mind* more appropriate. The human mind was born and developed using these externalizations. Externalizations are likely to begin with the emergence of

utensils, making them the first forms of putting ideas into the environment. Anthropologists suggest that the weight of stone utensils has made it necessary to place them in different places to be used when needed, thus also introducing specific types of orientation. The mapping of the world, that is, the emergence of map-like guidelines, insofar as it uses different indices placed by man in nature, is a form of externalization of the mind, individual and collective. The appearance of humanity is under the sign of a new relationship with the environment, its transformation through utensils bringing with itself, simultaneously, the establishment of an externalization of the mind. In a deliberate reductionist manner, we could postulate a law specific to neuro-anthropology: *the history of humanity is the story of the progress of mental externalizations.*

Externalizations could mediate the shift to the strong meaning of the mind's extensions. From this perspective, we might consider that the transition from the externalizations of the mind to the extension of the mind takes into account the singularity of consciousness, conceived as a form of leap to another form of human existence. For methodological rigor, we must not mistake *externalizations* for *extensions,* even if we do not have clear criteria yet to differentiate them. Externalizations are part of humanity, their most known faces being culture and civilization. Extensions of the mind may have the same character. However, the decision in this area is premature, the classification of such a transformation taking into account our predictive incapacity with regard to its future effects. However, two directions of evolution of this relationship are possible: either the mind extends to externalizations or increases the scale of externalizations, taking on more and more of the functions of the mind without becoming itself. Only in the first case we can discuss about extensions of the mind, the latter one being more about extensions of the "social mind".

Regarding SP, the key question is whether it is a bridge (one of the possible axes) of switching from externalizations to extensions. The discussion is about an ontological leap from the utensil status to that of part of the self. We do not think that this leap has been done. It may be about to happen, and we can already see its premises. Within these limits, the discussion about SP and the extension of mind is relevant.

Implicit intentionality means externalization. The concept of *implicit intentionality* is an expression of implicit externalizations, present in our everyday existence as a way of being. The utensil ensemble created by man, which we can define as a world, is the universe of cognitive externalizations. The door handle, the door, the seat, etc. contain all implicit usage guidelines, are specifically structured for use. Entry into the world is

not only mediated by the learning of language, but also by learning how to relate to everyday utensils, plus the specific ways of organizing reality (habitation models, transport, food, etc.). The purpose of the utensils and their method of use are part of the common "mental" area, constituting a meeting place. The utensil, as a way of symbolizing, takes precedence over language; we can reasonably assume that it appeared before it, preparing for its appearance and development. Before storing the information in narratives and in writing, it has been incorporated (namely externalized) into tools (utensils). Utensils and language are part of the "social mind", respectively, of the world of signs and symbols that constitute the environment of humanity, being both faces of externalizations.

3.1. Externalization of the task of thinking

Between the *extension of the mind* and the *extension of knowledge* there is a discreet difference, as its failure can cause ambiguous use of the term *extension of mind*. Knowledge is one of the dimensions of the mind, without exhausting its entire existence. Which means that, at the limit, we can speak of extensions of knowledge (of the cognitive dimension of the mind) without this being enough to talk about the extension of the mind. Although we share most of the proposals made by A. Clark (2008), as they open up a more appropriate understanding of what the mind means in order not to risk inappropriate use of the term *extension* regarding mind or its domains such as knowing, we limit ourselves to using that of externalization in this article. Under these conditions, to what extent do cognitive outsourcing coincide with externalizations of the mind?

What are cognitive externalizations? Knowledge is naturally directed to the outside, to the environment or to the world (the world is the natural environment of humanity). Much of the pattern of understanding is taken from the environment. Forms of relevance of knowledge to reality are part of cognitive ideals. Reality itself gains consecration in the world through knowledge. These are just a few clues to the forced theoretical separation between knowledge and the world, which can account for either some arbitrary differentiation or a form of presence of knowledge in reality / the world.

To what extent does the mind externalize its own contents to the world and internalize world-specific contents? Concepts should be considered in a correlative way: externalizations exist only to the extent that we allow the possibility of internalization. Both have a provisional character, participating in solutions designed to solve the (cultural) problem of the distance between the mind and the world. For example, from the

perspective of the externalization - internalization relation, it is difficult to indicate the status of the utensil. Their development in a spiral of common relationships could be the most effective explanatory solution.

Evidence provided by Barr, Pennycook, Stolz, and Fugelsang (2015) on externalization of the task of thinking does not change anything essential in relation to humane, but tends to rather indicate a change in social habits: accessing cognitive support offered by the society has shifted largely from the area of traditional social contacts into the virtual world. Instead of looking at what others are doing to decide (often to make a similar decision), people tend to look for their easy solution through SP, which most often mediates access to the common mental space called the *Internet*. The quality of the information might be different (the decision depending on a careful analysis of the cognitive role of the internet), but the reflex is the same: accessing collective solutions as a survival strategy. The study conducted by Barr et al. (2015) should consider two additional effects of using SP: a) reducing time dedicated to analytical thinking, or exercising it; and b) enhancing the effect of the network on knowledge: the tendency to appeal to a greater measure to common knowledge / resources existing in the network, this being a form of manifestation of cognitive economy. The potential positive effects of SP use become more evident if we introduce in the cognitive efficiency equation and the resource represented by the simple and rapid heuristics. From an evolutionary perspective, the ability to use the resources of the environment / world can realize an effective adaptation, increasing the chances of success. The use of the extension of thinking that SP mediates is part of the ability to use social network resources, that is, to use social cognitive resources. The unprecedented multiplication of information and increasing the speed of circulation could bring about a re-establishment of the hierarchy of cognitive powers mediated by SP.

3.2. Applications mediates externalizations

Based on the applications used in SP operation, which play the role of "mental processes" of monitoring (eg, motion monitoring), we can anticipate the expansion of development in this direction. One of the questions concerns the extent to which these applications take on monitoring tasks that are the subject of "internal processes" of the mind. On the answer to this question depends on adhering to one of the following options: either a) we are in the situation of an *externalization of mental processes* (the partial externalizations of the mind) in the SP area and the set of connections that define its existence; or b) we are in the situation of *an extension of the mind* in the area created by the hard drive on which the

application runs and the software it represents. We believe that option a) is the right one because (for the moment) the integration of these applications in all mental processes that are in continuous interaction (with unidentified rules), specific to the mind is missing. The fact that we monitor at certain intervals the information collected and provided by the applications is not equivalent to the role that such mental processes have in the whole mind. Relating to them is, to a large extent, dependent on their conscious targeting, on the specific intentionality of conscious guidance. They still do not have the status of support mental processes for *conscience,* namely *consciousness* (we do not know if they will not have it later). In addition, they lack the personal aspect, the individualization, the ensemble of the individual ways of integrating such processes. This suggests that, to the extent that we consider them as a component part of a mind, these applications are rather part of the "social area of the mind" constituted through externalizations.

Social will be any mind created by man outside human biology. Except different than the social that the human mind contains. Related to its "Creator", artificial intelligence, to the extent it exists (including SP), is social, not individual. If it does the leap to artificial consciousness, the social footprint will be obvious. From an ontological perspective, SP tends to gradually become a transcendental of humanity, something common to every human being, regardless of the country he/she comes from, the race to which he/she belongs, his/her language, etc. The specific SP icons fit into the same path of meeting the humane diversity into a (virtual) common space. For now, they effectively complement communication through traditional languages (they are closer to ideograms than letters), but it is not excluded to replace it on the whole. Replacement may take the form of a new language or that of mediation between the different languages (universal translator), in the latter variant making it possible the coexistence between the community specificity with universal communication.

Externalizations and extensions can lead to the emergence of "collective minds." As a form of externalization of mental processes, SP can also move to the extension of the mind (an intermediary of moving the mind on another support) and to the emergence of "collective minds." Crowdsoucing can be seen as an intermediate step towards the "collective mind". We consider that the use of the term *mind outsourcing* is more appropriate than *extended mind crowdsourcing* (EMC) (Whitaker, Chorley, & Allen, 2015), because it corresponds to both individual and collective externalizations.

3.3. Effects of externalizations

Referring to one of the SP effects indicated by Smith (2016)"shrinking the horizons of the discrete, individual self," we may wonder whether the accentuation of externalizations leads to a lowering of self. Externalizations are an adaptation to complexity that amplifies its complexity in turn (the progress of humanity can be seen as a spiral of complexity). In the paradigm of defending *the right to self* by protecting what tends to be considered extensions of the mind, we should have a verifiable process of identifying "self-transfer," or the losses the self may experience as a result of the new utensils.

Digital amnesia, understood as the forgetfulness generated by our confidence in the forms of IT of externalization of the mind, we believe it signifies confidence in this media, preferring to see in it an argument in favour of SP's level of integration into the *global workspace* of the mind (Baars, 1997, 2005). The global workspace of the mind, we understand something similar to Baars's The Global Workspace Theory of Consciousness, but there is an essential difference: integrating the externalizations of the mind into its workspace. The concept is in fact a complement to that proposed by Baars, integrating along with the unconscious and conscious processes that underlie the existence of consciousness the support that externalizations provides. This widening of the definition includes the reconfiguration of the cognitive schemes that it determines.

3.4. Empirical "se" (to) is one of the faces of externalization

There are forms of externalization that involve circumventing the task of deciding in certain respects, the best known being a "do what the world does" judgment. Philosophy has consecrated this way of "living how it is lived and thinking how it is thought" through the topic: empirical "se." In the space of struggle for the authenticity of existence, the "empirical" falls most often in the area of negative examples. The paradigm of understanding the role of the "empirical se", moving into the evolutionary purpose provided by the simple and rapid heuristics (Gigerenzer, Todd, & The ABC Research Group, 1999), respectively in the space of decisions to be taken under uncertainty conditions. In fact, we cannot assume that transactive memory demonstrates the existence of the extensions of the mind, as suggested by Sparrow, Liu, and Wegner (2011). Transactive memory is a standard example of externalization, indicating the placement of cognitive tasks in certain social structures. This form of social agglutination of knowledge justifies the use (yet) of the concept of "collective mind" in its

weak sense, which is based on forms of externalization of the mind. From the perspective of our concern for the utility of the utensil called the SP, using these structures gives us the opportunity to identify possible subrogations in the social roles performed by SP from the perspective of transactive memory and the empirical "se".

4. About the place and purpose of SP in the world

An analysis of the SP's place in the world could begin by finding that it hosts more and more of the information specific to affective and family life, moving it to an area of permanent use for multiple purposes. We are still trying to show some of the features of the SP that influence its utensil quality, focusing on the possible arguments in favour of an ontological leap.

4.1. SP the utensil (tool)

The understanding of the usability of SP is conditioned by a minimal outline of usability.

4.1.1. The utensil and usability

We believe that the utensil is a mediator of the relationship with the world and of the world view. A reference text on usability as a perspective on the world is that of M. Heidegger (1986: 63-88), starting from him discussing about the ontological place of the utensil and its relationship with Dasein. Usability and quality of Gestell are two essential features of SP that can guide our searches.

If we accept the quality of mediator of world perspectives of the utensil, we can reasonably anticipate that the increase in the complexity of the utensil causes an increase in the complexity of the vision that the new generations have on the world, SP enrolling in this paradigm. Obviously, we can also consider a loss from the perspective of direct contact with the reality that each individual has. Instruments tend to bring an extension of the senses, that is, a more efficient outlet on reality, and at the same time they are a closing opening.

The SP in question is the shift from usability, as a perspective of the humane, to seeing the world through a utensil (which seems to concentrate on it an overcoming of the maximum sense of usability), thereby preparing to jump to another role/purpose of that utensil, namely to another ontological place that it could occupy.

4.1.2. The ontological status of SP

The intelligence of the utensil. One of the dimensions that retains the attention is SP's intelligent utensils status. From the point of view of spreading and presence with the owners we can consider SP as the smartest tool so far. Intelligence does not lie in the autonomy of decisions but in the multitude of interactions they make possible, including of the mediation of sources of information.

In the discussion about the extension of the mind the subject is not both the current status of the SP as it suggests: the possibility of becoming an intelligent utensil with a considerable degree of autonomy. Only informatic and decisional autonomy will open up the possibility of moving from externalizations of the mind to its extension. However, once this autonomy arises, it risks to turn to independence, rapidly overcoming the status of extension of the mind and moving to that of its form.

Discussing the externalization of the mind in relation to cognitive processes based on utensils requires a preliminary clarification of the ontological status of the utensils. Perhaps such a continuous approach to fundamental human functions without such developments justifying the status of extensions, that of transfer of intelligence being more appropriate depends on the future of the utensil. In this paradigm, the direction of development would be that of a continuous shift of intelligence to the moment when the transferred intelligence becomes autonomous, the fundamental challenge being in fact the status of creator (of intelligence) as the destiny of humanity.

It can be noticed that the path leading to this ontological leap of humanity is characterized by an increasing coagulation of the creative capacities of the members of society, that is, an increase in the complexity of social interactions. In other words, along with the tendency towards the status of creator, we must notice the social changes that accompany this goal. SP is a utensil that aspires to come out of this ontological status, hoping to move into a region of ways that we consider to be specific to the mind.

If we accept SP participation in the birth / existence / development / use of artificial intelligence, it is natural to first inquire about the ontological status of artificial intelligence. If artificial intelligence is a form of extension of the mind (in the generic sense of the term, but we do not exclude the variant of "each mind") then does it share the ontological status of the mind? The ontological status of artificial intelligence can be thought of from at least three perspectives: a) Depending on its purpose: if

embedded in a utensil, the discussion about usability and its purpose opens up, the classification depending to a significant extent on the relationship with the humane. b) Depending on authority in terms of signification: man or intelligence. We can think of an ontological space in which the artificial intelligence becomes the source of its own meanings, thus deviating from the world specific to the humane and launching its own reality. c) Depending on its relationship with the humane, co-existence seems to be the most likely hypothesis at this time.

In the analysis of the ontological point of view of the SP does the function that it holds within mankind or the place that humanity grants matter? The approach should be separated in this case in the analysis of the causal role played by the SP's functionalities and in the investigation of its symbolic meaning. But in the human space the symbol has causal powers over reality.

Multifunctionality of the utensil. There is another approach that justifies the questioning of the SP status of utensil: its multifunctionality. Unlike the cellular phone, SP comes out of a specific destination area, namely communication, entering that of multiple uses. In fact, along with a series of new features, SP emphasizes and incorporates features that have already been visible in previous generations of cellular phones, being integrated into a trend of time that we can call the *utensil's multifunctionality*. The multifunctionality of the utensil brings into question the usability of such gadgets, namely the possibility of emerging new ontological reality. This approach is all the more justified as the gadget relies more on information processing that serves evolutionary joints (evolutionism being the relevant perspective from which we can discuss the ontological place of SP).

4.2. SP is not a medium but a mediator of a new medium

Taking into account Marshall McLuhan's formula (2003), "The Medium is the Message", our focus must be on the medium in which the SP participates. Defining the ontological state of this *medium* can help, for example, to clarify the direction in which humanity tends to develop. SP is not a medium, as suggested by Barr et al. (2015: 473) "Smartphones have undeniably become a medium with a very important message ...", but a mediator in the relationship with several communication media. McLuhan's paradigm must be overcome with regard to SP, moving from medium to mediator; if we take into account that, for example, McLuhan does not consider TV to be the new medium but the television, we are in fact in a situation of rigorous alignment of the device with respect to the

environment. However, the quality of mediator rightly justifies the discussions about the possible accession of the SP to the status of the extension of the mind. For the moment, however, we find that it tends to become the main support of daily externalizations and the mediator between the mind and some communication media. Defining the new environment that could be the bearer of a new message, namely of a way of social interaction, remains a challenge.

SP mediates between the mind and a special social environment called the *Internet*, an environment in which the mind has decided to store and use symbols in a new way. Adapting to the natural space properties in order to survive and communicate has been replaced by the creation of an artificial environment in which a leap of communication is possible and, hopefully, a form of survival. The reality of the internet, of computer networks is their artificiality, the quality of environment created by the man in which he gradually moves a good part of his existence. The traditional, mind-specific externalizations - tools, infrastructure, that is, what we call the *world* - are gradually being replaced by new types of externalizations adapted to this artificial environment. Viewed from the contemporary perspective, this passage does not have the character of a leap, of a radical rupture, seeming to be rather a gradual one. But it may be that by analysing things at the scale of history we find that we are the contemporaries of a revolution.

The *Internet* environment is gradually becoming *another reality*, aiming at a stand-alone existence based on two essential characteristics: an increase in human connectivity (based on a scaling of social networks) and a set of rules specific to a *new world*. This environment becomes another world, populated by existence that respects its specific ontological rules. The environment first became the message (McLuhan, 2003) for then to aim for an alternative reality. The environment is no longer the message, but *a reality*: a new context that shapes thinking in a new way. *The new reality* gradually changes human thinking and brings with it the possibility of a derived form of thought: *artificial intelligence*.

What is this environment? A possible starting point: the environment is *intersubjectivity* (in the historical sense of the term). In other words, the environment is a form of *realization* of the world, which tends towards autonomous existence and seems to be part of its destiny. We do not have to worry about rescuing the soul of every individual because there is a great chance of recovering a dimension of everyone's existence in this *new reality*, big enough to encompass all those who have been, all those who are and all those who will be. We started with our contemporaries: something of everyone's existence already exists in this new ontological

region of the world. For the time being as information about them, namely of the traces they leave, intentionally or not, in this dimension of the world.

Facebook accounts, personal information, behavioural patterns, personal interests, etc. are already the first steps taken by an important part of contemporaries to colonize (based on cloning forms) this *mundus novus*.

SP could mediate the transition to artificial intelligence in a way different from the one involved in the discussion about the extension of the mind: by participating in the provision of information (including implicit intentions) to structures that can make such a leap based on them. From this perspective, SP is already part of an extensive Machine Intelligence learning process, the Google project (n.d.) being just one of the examples. In this case, the SP status is that of investigation probe sent to the human area to decipher the algorithms responsible for intelligence (rattling in the pile of the stupid things people are capable of), using alongside intentional ones, the forced generalizations. So, it is a tool "with two different handles", one of which is accessible to those interested in gathering information about us. In the order of the utensils, the SP is an ontological leap, cumulating the tools status with that of tooling against the private information. The appearance of tools with two different masters is not only a legal or economic mutation, but also a radical change of paradigm in the human order; it mediates the ability to collect and store more and more information about each individual (still owner of such gadgets). This information has, in principle, an ambiguous status, the meaning of which is provided by the use given to them: they are used for manipulation actions, but can also be used to preserve parts of personal behaviours on different servers, generating the possibility of cloning our existence. The information can also be used to create / by a collective over-intelligence, thus contributing to the passing to a new stage of socialization: generating a collective identity in the intelligent sense of the term. The AI-related risks seem to be known by most of those who work at its birth, one of the proofs being that represented by Sample (2018): a common commitment not to participate in the creation of killer robots. The bottom fear is that robots will boost already visible trends in humanity.

4.3. Captivating attention

Our mind is not always connected to SP; that is, SP is not always under our attention. But, *being-under-attention* is a rarity in many brain processes; for each of them essential it seems to be a form of rapid accessibility (to which we can add the unconscious influences), which in the case of utensils we define it as a *handy placing*. Roye, Jacobsen, and Schröger

(2007) shows that the ringing tone of one's own phone activates involuntary attention, just like hearing one's own called name, a sign of its integration into the hierarchy of attention-taking elements. The resemblance must also be thought from the perspective of the level of integration that SP enjoys in the functioning of the mind. The SP *is at hand* for a growing range of additional functionalities additional to the mind, increasingly mediating the personal relationship with the world. Its presence within attention is steadily increasing, with some authors already indicating their negative effects on attention (Roye, Jacobsen, & Schröger, 2007), with the assumption of a supposed decrease in cognitive capacity on the first place. The SP is a window to the world that is continuously expanding, tending to capture some of the individual relational functions. This mediation comes on the background of an increase in transparency, its utensil quality gradually diminishing. In some cases, the SP interaction gets the face of a conversation that is getting closer to a dialogue. It gradually approaches a form of individuality, already surpassing the ontological state of the glasses on one's nose. In the Heideggerian horizon (Heidegger, 1986: 83-85), we can say that SP is a utensil the function of which is becoming more and more ambiguous: from the posture of *being at hand*, it tends towards the quality of *being for which*. The proof of the level of integration into the Dasein's existence of the SP tool is provided to us, for example, its outbreak (irritability) when it is not at hand (Heidegger, 1986: 73). In the study on wireless mobile devices (WMDs), Cheever, Rosen, Carrier, and Chavez (2014) indicated the possibility of a psychological addiction, experimentally demonstrated by the level of anxiety determined by the absence of WMDs. The key concept seems to be technological distractions, the maximum limit of the Nomophobia seems to be the discomfort or anxiety (a form of irritation) caused by the absence of the WMDs with which the person is used (King et al., 2013). Some authors have gone so far as to propose the classification of Nomophobia as Smart-Phone Addiction Disorder (Tran, 2016). Because these types of experimental results are interpreted from the perspective of normality based on pre-SP frames, we suggest the need for a change of perspective in order to reveal the strength of the links between the subjects of the various "affections and sufferings" and SP, respectively the place it tends to occupy in the existence of people. The anxiety indicated by Cheever et al. (2014) can also be understood in terms of the level of integration into the personal existence of WMDs, including the affective dimension.

4.4. Connector in online social networks

One of our essential theses about conscience is the dependence on the social network, this being a condition of possibility. An argument in favour of this idea is also brought by David Brooks (2014: 71) in a work of popularization of science, namely creating an image / narration of reality using the data provided by science: "a brain exists in only one skull, but a mind can only exist in a network. The mind is the result of the interaction between the brains ...". The development of social network analysis methods could provide some useful information on understanding the mind / consciousness.

If we accept that the mind is dependent on social networks, then we must observe that SP is one of the mediators of new forms of connecting people: online connections. We do not discuss here the qualitative aspects of this new type of connections, namely the influences that they might have on the traditional ones and the (possible) future development directions, but we only consider the fact that SP is a node of virtual networks, the latter contributing to the maintenance / reinforcement (but perhaps dissolution) of the real ones.

SP is a mediator of adapting to the complexity of communication. The desire to be an *all-in-one* of communication, specific to the creators of various types of SP, meets the need to connect the mind to the continuously multiplied communication channels. This need has its source in the dependence of the mind of social networks. Speculatively, we can advance the hypothesis of a similarity between neural connections and the rules of social networking development; it does not seem a dangerous hypothesis to suppose that social ties have neural correspondences (not in the strict sense of the term).

SP modifies the type of communication, satisfying a need created by network restructuring in the new social context generated by technological globalization. We may even think that SP is a necessary mediator of human relationships in a world whose complexity is steadily rising. Mirror neurons suggest a continuous unconscious monitoring of the social environment, coupled with automatic adaptations to it. It is possible that SP moves such mediators over an area of mediated awareness (by the technological device). We can consider that SP is a natural passage from *writing*, as the main mediator of the relationship between mind and reality, to the *device* (Gestell - M. Heidegger) specialized in mediating links in the new social context. In other words, we need to consider the possibility of being in the presence of

a passage from Otto's Journal (Clark & Chalmers, 1998) to a new mind extension mediator / consciousness mediator called SP.

4.5. SP is part of the adaptation strategies

Are the new technological innovations a direction in which we are forced to change or usability adaptation to ways of being specific to our minds? In the present case, SP's development directions are innovations that cause mind adaptations to them or SPs are adaptations of the technique to the ways of the mind? Depending on the answers to such questions, we can tell whether the technique pushes us to an exit from the human area or whether it is the destiny of humanity or a limitation of humanity.

We can also wonder to what extent the SP is an evolutionary adaptation to the new type of society. A positive response equates to admitting the participation of innovation in intelligent adaptations and to supposing that evolutionary theory admits intelligence-mediated adaptations, as far as their level of intervention is the social as part of multi-story selection. In a sense, this means admitting the existence of a similar publish or perish form of science, such as SP or perish (adapt to the complexity of communication or you will perish). Adaptation to technology can be considered as part of survival strategies, the success of the Western Social Model, based on the intensive use of technology, as part of relevant discussions.

Equally, the structure of consciousness is likely to change as we analyse it and change its living environment, influencing, in turn, its technological solutions. We cannot know for sure whether the change is generated by the study of consciousness or by the natural evolution of science and, above all, of technology. SP is an example of influence that the study of consciousness has on technology, many of its functions being technological adaptations to biological functions. If we admit that the history of science tends to show us that there is no knowledge without technological effects, then we are entitled to identify the influences that the growing research on consciousness / neuroscience has on technology. SP, as a practical and portable adaptation of the PC, respectively as *welcoming-the-mind*, can be thought from this perspective of the gradual meeting of the mind with technology, being the face of a two-way adaptation. The Machine Theory of Mind - ToMnet approaches (Rabinowitz et al., 2018), designed to build the Theory of Mind - ToM (Premack & Woodruff, 1978) correspondent in AI, respectively to facilitate the encounter between man and AI, is an example in this regard. Obviously, they would imply the ability of AI to have and express ToMnet.

SP can be regarded as a variant of adapting to the new status of intelligence, namely to its artificial form, both by mediating the communication between man and intelligence and by its contribution to the construction of artificial intelligence. The connections between the mind and these faces of artificial intelligence are in many cases thought to be forms of mind extension or, in the way we approach it, of its externalization. From the perspective of the extension / externalization of the mind, not so much *Siri* (as a connection attempt in the traditional, dialogical manner) is important, as the set of intercessions that the different applications bring to us (near our mind, more correctly), mediating the cognitive relation with the world.

Mediators have an ambiguous position in the collective mind, the joy of using them is often doubled by accusations of human impoverishment. From this perspective, we can ask whether the reduction of the sensory contact with the world is offset by the increase in the volume of complex information, destined for the higher levels of processing. In other words, to what extent do our gadgets provide us with a "readily digested information feed", generating bypasses of our sensorial part? Before I find out if I'm cold or not with a certain outfit I can know what the weather will be in the areas I expect to cross. Prior to the emergence of these mediators, I had to read the general (with a low degree of accuracy) weather forecasts valid for an entire region (they missed intra-regional variations), to recall some of the thermal experiences of previous years, to look out of the window to see how the world is dressed, etc. SP allows me to stop strategically thinking about a daily routine, taking a spare umbrella or a thicker coat as a spare, having the freedom to allocate (or not) "mental energy" to other cognitive and decision-making processes. We are not only provided with information but also with potential decisions. All of these examples indicate the role of potential mediator of the survival strategies the SP has.

4.6. Does the Internet and gadgets that mediate Internet access reduce our cognitive abilities?

The fact that "One can easily probe the depths of the internet, as opposed to one's own mind to retrieve information, thus limiting the use of effortful cognitive processes" (Barr, Pennycook, Stolz, & Fugelsang, 2015: 474) does not necessarily argue in favour of replacing individual cognitive processes with those specific to the Internet: the existence of an expert in the proximity of someone can have exactly the same effect of renouncing their own cognitive effort in favour of obtaining information from the person with recognized competencies in the field. The whole debate on

transactive memory shows the existence of similar social networking strategies. When we access the Internet, the information we get is not the result of proper cognitive processes that we have moved somewhere in that space, but of searching for information that others have stored there, its take-over still requiring our critical reporting to it. The Internet is an environment, its task being to mediate a specific access to information. Internet lies from this point of view as a continuation of library, radio, television, if we refer to contemporary history, and to continue society in general, if we consider a broader historical perspective.

Studies on the topic of impact of new technologies fail to provide the necessary information to address the issue of advantages vs. disadvantages. For example, Odgers (2018) states that "Today, more than 90% of US adolescents are online daily, and much of their time is spent with friends and family who share their offline lives with." The study shows that the negative effects of online activity tend to be related to poverty or belonging to social groups with problems from the offline, the online being in this case a kind of echo / amplifier of reality. On the other hand, we can indicate the findings of a study developed by Przybylski and Weinstein (2017) on 120,115 adolescents in the UK: "the evidence indicated that moderate use of digital technology is not intrinsically harmful and may be advantageous in a connected world." We still have significant room in order to explore the benefits and disadvantages.

The attempt to demonstrate the existence of mental extensions through the effects that SP has on users, demonstrating a reduction in cognitive capacity in case of individuals who frequently use SP (Barr et al., 2015: 476), faces the issue of social externalizations as an individual strategy (and as one of the foundations of society). At the same time, it must also consider the possibility of an evolutionary strategy based on energy efficiency, the externalization of decisions being an appropriate measure in the context of the very high energy cost of mental processes. If we accept the implicit hypothesis of decreasing individual cognitive capacities following the growth of technological resources capable of replacing mental processes, we are not clear whether such a strategy is an evolutionary one. Analysis can be begun by putting this strategy on the side of the skills to use the available tools, and of the benefits that such skills generate. In terms of effective strategies, the use of SP for communication (as part of the time dedicated to SP use) can be put in place, with the concern to increase the social network and the place the person occupies in the network, both of which are significant variables for personal success.

5. An alternative (or complementary) interpretation: the extension of the "society"

There is a second alternative interpretation to mind extension through utensils (the first one being that of externalizations): the extension of human society by introducing utensils into the network of personal relationships. In this variant we can consider that we are continuing the paradigm that the domestication of various animals has established. An assessment of the SP's protective cover can give us some clues about the ambiguity of its status: a utensil or a pet. The relationship with SP is in some cases similar to those with the pet, including affective dimensions. Noteworthy that SP itself represents the *genre*, possessing an object in this category leading to its personalization, its introduction into a specific social circuit and in the general circuit.

Such an analysis initially risks projecting SP in an area of ontological ambiguity. But it is already in an ambiguous situation, being both a mediator and the symbol of the relationships it mediates. The subject is, in fact, the behaviour of the human, namely his tendency to surround himself with created or trained identities that participate in the meeting of his needs. In such a variant, the mind is not extended, but the "social network", continuously increasing the number of entities with which the human can create and maintain relationships. To a large extent, it is only about giving a real face to the imaginary dimension of the humane, or some of the entities with which people have anyway maintained relationships in their desire to create symbols and to personalize them. In this context, we can assume that, from the perspective of the SP's impact, the mind does not change, but the characteristics of the social relations of the humane. This paradigm of inquiry involves the hypothesis of human desire to increase the complexity of its social relations by introducing new entities into their flow. Compared to the long tradition of animal domestication and idol imagining, the new entities have specific "life"/"mind" forms that correspond to existing or imagined personal needs.

5.1. The social changes its ontological status

Both in its existence and during its use SP mediates the relationship with others: in its applications we encounter the algorithms created by others, in accessing the Internet we are looking for the information posted by others, etc. It has to be thought from the point of view of the openness it brings with itself, and of the relationships it establishes. Rather than an extension of the mind SP is an extension of the social. But the social has

already a complicated status in relation to the mind. The basic idea is to change the ontological status of the society, which tends towards a self-contained existence or forms of autonomy. In other words, it is not the mind that is changing, but society. This type of change intervenes on the background of a complicated relationship between the mind and society.

SP, thought to be the environment of externalizations, is the result of society's existence (and of how it works), proving the level of complexity it has managed to achieve. The fundamental characteristic of SP is that it mediates an even greater increase in the complexity of social relations, thus participating in the modification of its ontological status. We can see that most of the utensils we analyse from the perspective of externalization of the mind mediate social relationships, contributing to **the increase of social intensity**. The operation of new technologies is based on trust: we could not drive on more and more complex motorways if we did not trust the behaviour of traffic partners and those who manage the system; we could not travel by plane if we did not trust the complex social system on which airlines are based. This growing level of trust in fact proves an increase in the complexity of the society, as if society would tend towards a stand-alone existence, to the status of a living entity in an understanding of the life that comes with it.

5.2. Does the "extension of society" cause a self-denial?

If we agree with a continuous projection of the person in the social and with the existence of a stream of externalizations, is there a risk of a self-denial? A possible answer is provided by the analysis of social networks: as long as it retains its central place in this extended social network, the self is gaining.

Quantification of the reflection, considering the strong side of the self, could suggest a path of self-loss in the absorbing flow generated by the increased complexity of the utensils. We would need an analysis of the quality of this type of relationship for a proper judgment. In addition, such an assessment should take into account the symbolic externalizations of the self ("My Phone!") And the relationship it has with them, wondering if they are part of the circuit of reflection.

This type of utensil offers a range of potentials, updated / used in varying degrees by different people. This suggests that part of the standardization that restricts the use of these tools is offset by differences in their use.

6. Ethical and legal implications

Identifying the ontological status of the SP has significant ethical and legal implications. Some authors considered that SP is an extension of the mind, having to benefit from the legal protection specific to the mind (or its elements) and to personal identity (Smith, 2016), under discussion being the right to own thoughts and decisions. The idea of violating self-limitations in the absence of adequate legal protection of SP (Smith, 2016) is wrong, at least for the time being: the mind has occurred and evolved along with its externalizations. Mind externalizations mostly belong to the intersubjective dimension, the "social mind" (understood as the social dimension of the mind). SP is part of the forms of externalization of the mind, the problem of self-protection becoming in this case the question of the protection that the externalizations of the mind should enjoy. The fact that these forms of externalization have an ambiguous belonginess, being both individual and social, additionally complicates the problem, hampering the arguments for belonging to individuality, but augmenting those about their moral role. Studies addressing the contribution of SP to reducing personal effectiveness or even forms of illness tend to make it a moral agent that is subject to restrictions in relation to certain dimensions of the human being. Apart from the fact that these studies most often fall into the error of judging the utensil based on occasional uses in the social space (to understand let's imagine the forks would have been forbidden on the grounds that they were often used as weapons) they tend to miss the relationship between the user's intentionality and the result of using the utensil.

To propose a level of legal protection for the SP similar to the one applicable to the mind may not yet be relevant for two reasons: a) in the case of SP, it is largely about externalizations of the mind, assimilated to others in the same category including from a legal point of view (eg writing in its various institutional forms); b) The mind is not subject to total protection against "legal invasion", interrogation and, in particular, the polygraph being relevant examples. Moreover, the upgrading of legal institutions according to the new data provided by the research of the mind philosophy / neuroscience is part of a rational approach specific to the knowledge-based society. In other words, we must expect that the discovery of new mental mechanisms that can provide explanations of our behaviours will be absorbed into the legal dimension of social existence. Considering SP as belonging to the private space, such as personal domicile, for example, could solve part of the problem.

At the same time, however, it seems weird to have copyright for the intentional creations of our mind, but to be deprived of any rights in the implicit constructions exteriorized by our minds. If cognitive patterns or problem-solving strategies arise in the interaction between the person and his gadget (for example, monitoring food, weight, movement, and other variables can lead to a set of effective recommendations that may take the form of a weight loss recipe) do they belong to the software developer or the gadget owner? The issue of participation in creation through this form of crowdsourcing remains open.

7. Changing cognitive demands of the world

To the extent that these can be demonstrated, cognitive shortcuts seem to be a form of mental processes outside the mind. But another approach is possible: the ***world is constantly changing its cognitive demands.*** Changing cognitive demands (to which the individual is subjected) is a feature of the world's progress, being one of the variables through which the history of humanity can be evaluated. Thinking from an evolutionist perspective, the world means precisely this type of change in cognitive demands necessary for survival, SP joining the mass of utensils that mediate the cognitive progress of the world in which the humane is inserted. Increasing the complexity of the world is a consequence of this type of evolution, along with its benefits, it also results in a continuous increase in the effort required for the optimal insertion in it, visible in the evolution of the duration of education. Progress brings with it cognitive costs of integration, technical solutions aimed at reducing these costs generating an evolutionary advantage in the new social context.

Perhaps speaking of a "social mind" is inappropriate, preferring to address the problem in terms of cognitive demands, cognitive complexity, the cognitive structure of the world. It could be a new form of talking about something old, namely about culture and the history of culture.

8. Cognitive economy

Analysing the effects of SP on the mind Ward, Duke, Gneezy, and Bos (2017: 141) affirms the emergence of the "Brain Drain" phenomenon by occupying limited cognitive resource capacity for purpose of attentional control. "The authors' argument can be reduced by: SP is always under our attention limiting our attention resources available for other cognitive functions We believe that the author's approach is one-dimensional, missing out the set of the effects of the SP. For example, reducing the availability of

cognitive resources in some areas is matched by the availability of other cognitive resources, which assume much smaller efforts and costs than before. It is the whole structure of the cognitive externalizations that SP mediates. You could complicate the picture of the negative effects of SP: it may not be the consumption of attention resources the one which is important, but the competition it makes in the setting of objectives, especially the short-term ones.

Thorton, Faires, Robbins, and Rollins (2014) shows that SP has negative effects on cognitive performance even when not used. From this perspective, we may think that, because "we are thinking of it," knowing what it could do in our place, the SP consumes from the cognitive resources. However, the very possibilities offered by SP can in many cases constitute more economical options for using available cognitive resources. It should be noted that Ward et al. (2017: 149) indicated that the mere presence of SP does not entail a cognitive cost, being dependent on the variable called *individual dependence on SP*. The issue may be relevant from the perspective of an ethical use of SP. If the analysis moves into the area of cognitive economy, a cost-benefit analysis that the SP brings along with it, balancing both the costs and the cognitive benefits of SP, is required. Obviously, as *individual dependence* suggests that there is a cost variability in individuals, we can also predict an uneven distribution of cognitive benefits at the individual level. Comparisons with people who do not use SP are equally necessary with the balance to be drawn between mental energy consumption specific to pre-SP and present-day periods.

Ward et al. (2017: 143) indicates experimental results demonstrating that the presence of SP adversely affects two measurable domains of cognitive capacity: working memory capacity and functional fluid intelligence. To the extent that the effects are demonstrated by replication (the results of a second experiment by Ward et al. (2017: 146-149) indicate the intervention of a variable called the degree of dependence on its own SP) we suggest to read the other facet of the results: the level and the way of connection that they highlight. Given that this is a tool that is used both in the professional and the personal environment, being a permanence of everyday life, the SP has a different status from that of the traditional tools. In the presentation Ward et al. make to the negative effects of SP, we tend to see the changes in the humane structure that it seems to mediate them, by announcing a new kind of transformation through which humanity could pass.

There are significant changes and, of course, a good part of them can be critically analysed by taking the negative side of the effects from the

perspective of the old humane paradigm. However, the axiological decision about the influences exercised by the SP depends on the future, on the subsequent finding of the effects generated by the changes it determines. Judging the future from the point of view of contemporary values is problematic because it assumes the attempt of current generations to prescribe the rules of behaviour for future ones. Except for some of the fundamental moral values, only religions have been successful in such an approach; even in their case the effects of the interpretations have limited the impact of the initial prescriptions. Society is alive, undergoing through continuous process of resettlement as part of evolutionary adaptations. Although the purpose of the research is to analyse the cognitive costs that SP brings with it, we consider relevant the final formula of the research conducted by Ward et al. (2017: 151): "One's smartphone is more than just a phone, a camera, or a collection of apps. It is the one thing that connects everything—the hub of the connected world. The presence of one's smartphone enables on-demand access to information, entertainment, social stimulation, and more." This suggests that the benefits created by SP may exceed cognitive costs.

Abramova, Baumann, Krasnova, and Lessmann (2017) attempted to identify the effect that SP has on learners' ability to learn, seeking solutions to make learning more effective in the new context. Their research has focused on the effect of "phubbing", which implies favouring its own SP in relation to traditional communication (Karadag et al., 2015), including the one present in reading. The approach we consider to be more appropriate is represented by the forms of integration of the SP in the ensemble of existence of individuals, including the education process, the example of the feedback application of the efficiency of teaching, indicated by students in the research (Abramova, Baumann, Krasnova, & Lessmann, 2017: 13), being just one of many possible. We can legitimately ask ourselves whether the disruptive effects of SP on education or the inability of the education process to adapt quickly to new media and forms of communication are in question. We also consider the concept of "phubbing" debatable, the social pathology that seems to correspond to it being the result of a reductionist approach, thus risking the effects found to be generated through research. The approach in terms of gain-loss could reveal a much wider process, inappropriate for current research patterns. It is sufficient to think that the subject which could be an exemplary model for "phubbing" is located in several dimensions of communication simultaneously, according to a pattern that tends to ubiquity. Even if the part of communication corresponding to the face-to-face presence seems to suffer, the overall level of communication

may be much broader, according to a new social model. The paradigm shift could come in this case both from another form of understanding of communication and from another way of thinking socialization, a mediated – inevitable one - by our new technologies. A society in which new communication media are simultaneously mediators and messages (McLuhan, 2003).

9. Conclusions

In order to generate the necessary context for understanding the SP purpose, we have operated with three concepts essential to the evolutionary path of the mind: ex*ternalization, extension and movement of the mind* to another support, emphasizing the importance of externalizations. In the case of externalizations, we considered the discussions on the ontology of the second space of mind.

Regarding SP, the essential question for which I have sought an answer is whether it represents a bridge (one of the possible bridges) of switching from externalizations to extensions, while the discussion is also about an ontological leap of SP from the utensil status to that of part of the self. We considered SP as a mediator of a new environment, this quality justifying the discussions about the possible accession of the SP to the status of the extension of the mind. A certainty is its tendency to become the main support of everyday externalizations and the mediator between environments and some communication media.

SP is a mediator of adaptation to the complexity of communication, thereby contributing to an increase in the intensity of the social, of the complexity of specific interactions, and to a change in its ontological status.

There is a pattern of alarming against the effects of technology generated by short-term prospects of phenomena and by the implicit intention of stabilizing the world. Changing the perspective can place such phenomena in the area of natural evolution of humanity by showing that this type of transformation is part of the evolution of mankind. For example, the shift from oral culture to written culture has also generated cognitive costs, resulting in a significant reduction in menses. Similar fears have triggered the emergence of print.

The most important argument we propose is the existence of a principle of cognitive economy, selected in an evolutionary manner, operating in all these cases. It is based on avoiding unnecessary costs, reducing losses and optimizing cognitive gains. The guidance to the world that corresponds to it could already be part of the survival strategies specific

to the new context. To the extent that SP enrolment in the evolutionary path variables is demonstrated, the analysis will shift to the impact that human creations susceptible to belongingness to AI have on the evolution of humanity, including the possibility that they constitute a moment / period of evolution.

Man's relationship with SP can be thought of as a paradigm of "symbiosis," relying on their mutual influence: SP moves closer and closer to the human way of being, while man changes his way of being depending on gadgets. We see the important role that SP has for the attention as an argument for changing the ontological place of this utensil that tends to become an integral part of human existence.

The SP standardizes certain categories of user behaviours (including cognitive ones) in order to help us understand the social dimension of the world. Standardization determined through education is now completed at a much wider level than the standardization of behaviours caused by the use of identical or similar applications. The transcendental dimension of the humane is emphasized by the penetrability of the SP and its applications.

The general nature of externalization forms, namely the fact that they are cognitive solutions accessible in principle to all members of society, distinguishes them from the status of extensions of the mind, understood in its strict sense. Mind extensions are *subject-oriented*, taking into account a personal way of cognitive and axiological organization of the world while externalizations are socially oriented; when it emerges, their focus is on a generic topic.

Is SP a form of mind extension? We do not know yet, because we need a wider temporal perspective. Clearly, however, it is the most extensive form of externalization of the mind, which could mediate the transition to the extension of the mind. SP is a utensil that aspires to come out of this ontological status, hoping to move into a region of the ways of being that we consider to be specific to the mind.

References

Abramova, O., Baumann, A., Krasnova, H., & Lessmann, S. (2017). To phub or not to phub: Understanding off-task smartphone usage and its consequences in the academic environment. In I. Ramos, V. Tuunainen & H. Krcmar (Coords.), *Proceedings of the 25th European Conference on Information Systems (ECIS)* (pp. 1984-1999). Guimarães, Portugal.

Baars, B. J. (1997). In the theatre of consciousness, global workspace theory, a rigorous scientific theory of consciousness. *Journal of Consciousness Studies*,

4(4), 292-309. Retrieved from http://www.wisebrain.org/media/Papers/BaarsTheaterConsciousness.pdf

Baars, B. J. (2005). Global workspace theory of consciousness: toward a cognitive neuroscience of human experience? *Progress in Brain Research*, *150,* 45-53. doi:10.1016/s0079-6123(05)50004-9

Barr, N., Pennycook, G., Stolz, J. A., & Fugelsang, J. A. (2015). The brain in your pocket: Evidence that martphones are used to supplant thinking. *Computers in Human Behavior*, *48*, 473-480. doi:10.1016/j.chb.2015.02.029

Brooks, D. (2011). *The social animal: The hidden sources of love, character and achievement*. New York, USA: Random House.

Čapek, K. (1920). *Rossumovi univerzální roboti* [Rossum's Universal Robots], Prague, Czech Republic: Aventinum.

Cave, S., & Dihal, K. (2018). Ancient dreams of intelligent machines: 3,000 years of robots. *Nature*, *559*(7715), 473-475. doi:10.1038/d41586-018-05773-y

Cheever, N. A., Rosen, L. D., Carrier, L. M., & Chavez, A. (2014). Out of sight is not out of mind: The impact of restricting wireless mobile device use on anxiety levels among low, moderate and high users. *Computers in Human Behavior*, *37*, 290–297. doi:10.1016/j.chb.2014.05.002

Clark, A., & Chalmers, D. (1998). The extended mind. *Analysis*, *58*(1), 7-19. doi:10.1093/analys/58.1.7

Clark, A. (2008). *Supersizing the mind. Embodiment, action, and cognitive extension*. New York, USA: Oxford University Press.

Gigerenzer, G., Todd, P. M., & The ABC Research Group. (1999). *Simple heuristics that make us smart*. New York, USA: Oxford University Press

Google. (n.d.). Publication database. Machine intelligence. Retrieved from https://ai.google/research/pubs?area=MachineIntelligence

Heidegger, M. (1986). *Sein und zeit* [Being and time]. Tübingen, Germany: Max Niemeyer Verlag.

King, A. L. S., Valença, A. M., Silva, A. C. O., Baczynski, T., Carvalho, M. R., & Nardi, A. E. (2013). Nomophobia: Dependency on virtual environments or social phobia? *Computers in Human Behavior*, *29*(1), 140–144. doi:10.1016/j.chb.2012.07.025

Karadag, E., Tosuntas, S. B., Erzen, E., Duru, P., Bostan, N., Mizrak, S., Culha, I., & Babadag, B. (2015). Determinants of phubbing, which is the sum of many virtual addictions: A structural equation model. *Journal of Behavioral Addictions*, *4*(2), 60-74. doi:10.1556/2006.4.2015.005

McLuhan, M. (2003). *Understanding media. The extensions of man*. Corte Madera, USA: Gingko Press.

Odgers, C. (2018). Smartphones are bad for some teens, not all. *Nature 554*(7693), 432-434. doi:10.1038/d41586-018-02109-8

Premack, D., & Woodruff, G. (1978). Does the chimpanzee have a theory of mind? *Behavioral and brain sciences*, *1*(4), 515–526. doi:10.1017/s0140525x00076512

Przybylski, A. K., & Weinstein, N. (2017). A large-scale test of the Goldilocks Hypothesis: Quantifying the relations between digital-screen use and the mental well-being of adolescents. *Psychological Science*, *28*(2), 204 – 215. doi:10.1177/0956797616678438

Rabinowitz, N. C., Perbet, F., Song, H. F., Zhang, C., Eslami, S. M. A., & Botvinick, M. (2018). Machine theory of mind. Proceedings of the 35th International Conference on Machine Learning. Stockholm, Sweden. Retrieved from https://arxiv.org/abs/1802.07740

Rotilă, V. (2016). The paradox of extended mind; from extended mind to extended consciousness. In A. Sandu, A. Frunză, T. Ciulei & L. Ghorghiu, *Proceedings of the 7th Lumen International Conference Multidimensional Education & Professional Development. Ethical Values* (pp. 451-459). Bologna, Italy: MEDIMOND

Roye, A., Jacobsen, T., & Schröger, E (2007). Personal significance is encoded automatically by the human brain: An event-related potential study with ringtones. *European Journal of Neuroscience, 26*(3), 784–90. doi:10.1111/j.1460-9568.2007.05685.x

Sample, I. (2018). Thousands of leading AI researchers sign pledge against killer robots. The Guardian, 2018, July 18. Retrieved from https://www.theguardian.com/science/2018/jul/18/thousands-of-scientists-pledge-not-to-help-build-killer-ai-robots

Smith, M. N. (2016). An iPhone is an extension of the mind. 2016, February 29. Retrieved from http://www.slate.com/articles/technology/technology/2016/02/apple_and_the_fbi_think_iphones_are_safes_a_philosopher_explains_what_they.html

Sparrow, B., Liu, J., & Wegner, D. M. (2011). Google effects on memory: Cognitive consequences of having information at our fingertips. *Science*, *333*(6043), 776–778. doi:10.1126/science.1207745

Thornton, B., Faires, A., Robbins, M., & Rollins, E. (2014). The mere presence of a cell phone may be distracting: Implications for attention and task performance. *Social Psychology*, *45*(6), 479– 488. doi:10.1027/1864-9335/a000216

Tran, D. (2016). Classifying nomophobia as smart-phone addiction disorder. *UC Merced Undergraduate Research Journal*, *9*(1), 1-22. Retrieved from https://escholarship.org/uc/item/0pq332g4

Ward, A. F., Duke, K., Gneezy, A., & Bos, M. W. (2017). Brain drain: The mere presence of one's own smartphone reduces available cognitive capacity. *Journal of the Association for Consumer Research*, *2*(2), 140-154. doi.10.1086/691462

Whitaker, R. M., Chorley, M., & Allen, S. M. (2015). New frontiers for crowdsourcing: The extended mind. *Proceedings of the 2015 48th Hawaii International Conference on System Sciences (HICSS)* (p. 1635). doi:10.1109/HICSS.2015.197

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