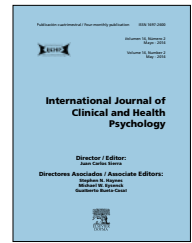


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THEORETICAL ARTICLE

The “impact factor style of thinking”: A new theoretical framework

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Abstract Over the last few years, university policy in developed countries has placed too much emphasis on assessing publications on the basis of the impact factor. Any scientific material that has not been published in a journal indexed in the Journal Citation Reports is academically irrelevant. Hence, researchers strive hard to publish in such journals. Failure to achieve this means not having a successful career or receiving any academic recognition. A thorough analysis of the effects of this phenomenon on the researcher community leads to the conclusion that the overestimation of the impact factor is likely to cause disappointment among many researchers. Researchers only have two options: adopting a politically correct behavior, that is, following the “impact factor style of thinking”, or accepting the futility of their research regardless of its relevance. This is an example of the involvement of university policy habitus obsessed impact index. O policy impact index is accepted, or is doomed to academic ostracism, and exclusion from participation in all university policy.

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PALABRAS CLAVE

Índice de impacto;
Estilo de
pensamiento;
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Pensamiento
unidimensional;
Estudio teórico

Resumen En la cultura política universitaria de los países desarrollados se ha hecho en los últimos años demasiado énfasis en la valoración de las revistas con índice de impacto. Toda publicación que no sea incluida en una revista con índice de impacto es académicamente irrelevante. Por ello, los investigadores centran todo su esfuerzo y recursos en publicar en dichas revistas. Si no lo hacen así, no tendrán ni carrera profesional ni reconocimiento académico. El análisis de esta realidad concluye que esté exagerado el énfasis de los investigadores en la sobrevaloración de la cultura del índice de impacto, lo cual ha podido generar desilusión y desencanto en muchos investigadores. A estos investigadores sólo les quedan dos opciones, o hacer lo políticamente correcto, que es tener un “estilo de pensamiento índice de impacto” o condenar a la inutilidad.

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dad organizacional todo su trabajo, por importante que sea. Todo esto constituye un ejemplo de la implicación del *habitus* de una política universitaria obsesionada por el índice de impacto. O se acepta la política del índice de impacto o se está condenado al ostracismo académico y a la exclusión de la participación en toda política universitaria.

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The impact factor is a quantitative measure that is widely used to establish a hierarchy between the relevance of some scientific publications compared to others. Recognition of university research activity and excellence is mainly based on rating publications according to quantitative criteria. Any material that does not have an impact factor is not only academically irrelevant but also politically useless. There is a lot of controversy about the political and academic use of the impact factor. Some authors consider that it is “unsuitable” (van Paan, 2012), has “little credibility” (Baum, 2011) or is a “source of frustration” (Laufer, 2013), a “perverse incentive” (Calver, Lilith, & Dickman., 2013) or a “highly polemic metric” (Buela-Casal & Zych, 2012) that should be “abandoned” according to Vanclay (2012) and “eliminated” or at least be the subject of a moratorium according to Misteli (2013). Others consider that it is “not yet replaceable” (Brody, 2013) or that it is “appropriate” (Moed et al., 2012) to assess the quality of journals. Moreover, Pudovkin and Garfield (2012) consider that the impact factor is an informative measure of the visibility of a journal and its frequency of use and argue that there is no other better measure in “accuracy, transparency of calculation, ease of use and interpretation”. In short, the academic impact factor policy has some shortcomings. This led to the San Francisco Declaration on Research Assessment, better known as DORA, which recommended not using the impact factor (<http://am.ascb.org/dora/>). There seems to be some agreement to go beyond the index factor as it is currently used”.

The purpose of the present study was to lay the foundations for a new framework for research on how the academic impact factor policy strongly influences what researchers think, do and expect. To better explain what the “impact factor style of thinking” is exactly, the article is divided into the following sections: organizational or institutional perspective; the science market; one-dimensional thought; the article as a literary genre; and finally, the consequences of the impact factor *ethos*.

The impact factor style of thinking

A style of thinking or intellectual style is a process that involves giving preference to a certain way of thinking and focusing attention, time, psychological energy and financial resources on achieving politically valuable publications. When this theoretical and practical approach is applied to the impact factor it leads to the “impact factor style of thinking”. This style of thinking implies making a strategic use of psychological and financial resources, acquired

knowledge, group thinking and organizational variables to achieve academically valuable and profitable publications. We propose the following characteristics of the “impact factor style of thinking” in order to conceptualize and evaluate this phenomenon.

Organizational or institutional perspective

- Acceptance of the impact factor philosophy is an “*institutional fact*” of a university education policy aimed at developing assessments and ratings and determining how financial resources should be allocated. Therefore, as a “fact” of educational and organizational policy, the impact factor strongly influences what researchers feel, think, do and expect from their studies and publications.
- *It establishes a hierarchy of rankings.* After all, the impact factor is a statistical number that contributes to building a reality. It establishes a hierarchy or order of publications, researchers and institutions (see, for example, the Shanghai Ranking or the multidimensional or user-driven higher education ranking concept of the European Union (Bengoetxea & Buela-Casal, 2013)). The numbers used to quantify the impact factor and the discourse of the policy of university research and quality create the social reality of research “excellence”.
- *It generates rankings that create elites.* The influence of the impact factor on the process of building and disseminating knowledge creates elites that legitimize knowledge. The social organization of scientific quality establishes hierarchies that, in turn, control the subsequent process of assessing who has “excellence” and who does not. Doctoral programs with a label of excellence are a good example of this (Olivas-Avila & Musi-Lechuga, 2012b).
- *It legitimizes hierarchies.* Even though the impact factor erodes the motivation of researchers, it is legitimate. It agrees with the rules, values, beliefs and practices of the democratically established university policy. Institutionalizing the organizational cultural legitimacy of the impact factor implies considering that it legitimizes a hierarchy of scientific values.
- *The impact factor is the message.* The impact factor of the journal where a researcher publishes is the academic, political and social message. Unfortunately there is nothing else apart from other indicators related to the impact factor (e.g., citations, cumulative impact factor, etc.).
- *Manifestation of the organizational style of thinking.* The university impact factor *habitus* leads to a certain style that applies to thinking, motivation, epistemic curiosity, research and dissemination of results.

- *Organizational socialization*. The development of the impact factor style of thinking takes place in the organizational socialization process of a way of acquiring knowledge and publishing research outcomes. Newcomers are subjected to an occupational socialization process, that is, they learn to behave and think according to political correctness if they want to be considered worthy of merit and respect.
- *Fetishism*. The impact factor has sometimes even become a “fetish” (Balaban, 2012) that is inappropriately used in scientometric comparisons. It makes politically and economically profitable academic science visible in publications.
- *It forces researchers* to adopt certain practices that make them more likely to publish in impact factor journals. This limits research to a rational calculation of what researchers must do to be politically and economically profitable and valued.
- *Recognition of an organizational need to publish*. The pressure to publish—the politically correct and academically necessary thing to do—is intrinsic to the irrational use of the impact factor. Researchers who wish to obtain organizational and economic rewards must achieve certain standards by publishing in impact factor journals.
- The imperative of *publishing fast*. The impact factor forces researchers to publish fast and prevents them from devoting time to thinking, reading and giving existential meaning to their data. The impact factor seems to be a shortcut that replaces the process of thinking about one’s own research subject and the methods used.
- *It is an incentive to publish and “forget” to teach*. Assessing teachers using the impact factor implies neglecting and marginalizing time devoted to preparing classes, interdisciplinary training and reading. It does not encourage creativity or critical thought.

The science market

- *Academically profitable knowledge*. The academic organization imposes a utilitarian and pragmatic way of thinking upon its members. This implies reproducing schools of thought that are constrained by the impact factor. The assumption is that the only thing that is politically, economically and academically profitable is the impact factor and that nothing else is worthy of academic value.
- *Commodity*. The process of building knowledge with an impact factor is an academic commodity. The value of information and scientific knowledge can be bought and sold. Using the impact factor as a commodity amounts to commoditizing knowledge.
- *Knowledge-based economy*. The philosophy based on what is politically and academically valuable implies an economic cost. This leads to the exploitation of research work in the name of building knowledge. This academic capitalism—or cognitive capitalism—implies a willingness of researchers and institutions to pay irrational prices to publish in journals that supposedly have prestige, merit and quality.
- “*Dispositif*” (Foucault, 1977), power and economics of the impact factor. The concept of *dispositif* of the impact

factor policy is embedded in legislative discourses, administrative provisions and organizational determinants of the power game. The exercise of power establishes a general policy of truth. In this case, the impact factor is the truth.

- *Academic neocolonialism*. More and more countries are adhering to the imperative of a university impact factor policy. At times of financial crisis or in countries with few resources, too much money is wasted on journals, which follow the ruthless market logic. Spending money trying to publish in impact factor journals is also a new way of controlling the production, dissemination and use of knowledge.
- *Ideological injustice*. Journals with the highest impact factor are controlled by economic power. This implies that rich countries will always have a competitive advantage and impose their vision of the world, of science and of the power games.

One-dimensional thought

- *A style of thinking that depends on the organizational field and is sensitive to the context of the impact factor*. Researchers who adopt this style orient their thoughts and actions toward one single goal. Their cognitive style and motivation are resources or instruments used in order to publish articles in impact factor journals.
- *Styles of thinking are loaded with value*. The cognitive and behavioral commitment to publishing in impact factor journals is an organizational imposition of a cognitive style that is loaded with value and merit. The aim is to prioritize a practical way of thinking oriented toward meeting the administrative requirements of educational policy.
- *The impact factor style of thinking as “mental software”*. The organizational impact factor culture establishes an individual and collective “*mental software*” shared by all those involved in trying to achieve it (see, for example, Olivas-Avila & Musi-Lechuga, 2012a, 2013, 2014). This impact factor style of thinking is characterized by doing what is organizationally and politically correct and positively valued. Whoever controls the impact factor watches the minds of researchers.
- *The impact factor as a generator of unreflective thought*. The organizational culture of the impact factor leads many researchers to overrate the organizational usefulness of publications, regardless of the social benefit of reflective thought. The fact that an article is published in an impact factor journal does not imply that it is relevant for solving real problems.
- *Standardization of the impact factor leads to one-dimensional knowledge-building practices*. The standardization brought about by the impact factor amounts to building uniformities and choosing non-conflictive rules and styles of thinking. In impact factor terms, thinking means “thinking academically”.
- *Social comparison and pressure toward uniformity*. The assessment system based on the impact factor promotes social comparisons between researchers and institutions. This leads to uniform thinking and standardization of epistemic motivation, which is determined by the impact

- factor. Any researcher who does not publish in impact factor journals is academically “ill” or already “dead”.
- *Conservative thought and adaptive planning style in search of recognition.* Researchers seek what is psychologically useful, academically desirable and economically profitable. This implies being at the service of whatever is politically correct and organizationally valued.
 - *Self-fulfilled prophecy of the impact factor policy.* Academic policy controls researchers’ expectations and establishes the organizational style of thinking. This amounts to imposing a self-fulfilled research prophecy model. Any researcher who wishes to obtain the rewards associated with the impact factor has to publish with that goal.
 - *The impact factor as a goal strongly influences the research and publication process.* It could be argued that the struggle to publish in impact factor journals determines the thinking process and its purpose. Thinking about the impact factor amounts to conducting research on whatever is needed to achieve it.
 - *It hampers creativity and limits scientific plurality.* The organizational limitations set by the impact factor promote only one way of thinking on how to publish and assess scientific merit. Authors conduct research and publish materials on the basis of the impact factor. Everything else is irrelevant.
 - *Ritualistic thought that limits creativity.* The organizational impact factor culture leads to a struggle that can become a behavior lying halfway between conformity and ritualism. The researcher becomes a “slave” to the impact factor and prioritizes it over creativity and reflective thought.
 - *Institutionalization of invisible colleges or knowledge networks.* An invisible college is a relatively informal community of professionals who conduct research on the same topic, share a certain interdisciplinarity, exchange information, control publication tools and form a type of social network to share knowledge and facilitate the publication of their research. Its only goal is to publish in journals with an impact factor and therefore control the style of thinking.
 - *The Matthew effect* (Merton, 1968). Whoever has more chances publishes the most. This may be because, individually or as a group, the authors 1) publish really important articles due to the presence of very good researchers; 2) have an influence on publication resources (e.g., editorial boards); 3) have financial resources to afford the translation of articles mainly into English; etc. The Matthew effect has psychological consequences that are not always positive.
 - *Social and organizational conditioning of information seeking behavior.* Information seeking behavior refers to the process of screening and selecting relevant information to satisfy a need and achieve a goal. Researchers individually or collectively interact with information sources to select the databases that they consider to be useful, relevant and appropriate.
 - *Fuzzy index terms.* Researchers use lists of terms to search for, select and use bibliographic information in the various databases. They no longer need to make intelligent choices; technology does it instead. Only knowledge that is included in databases is considered; everything else is irrelevant.
 - *Index terms, reading and breadth of knowledge.* Searching in databases has consequences on information seeking behavior. First, it contributes to quasi-thoughtless searching. Second, index terms—also known as keywords, descriptors or tags—promote a strategic and opportunist reading of the abstracts of documents found and retrieved.
 - *The issue of credibility and intellectual impostures* refers to knowledge that is plausible, trustworthy, accurate, impartial, objective, culturally relevant, useful and so on. These characteristics are compromised by the urgency to publish, which can lead to *intellectual impostures*. This refers to publishing materials in impact factor journals even if they are socially useless and irrelevant.
 - *Quantity prevails over quality of published studies.* The assumption is that quality is determined by the impact factor. However, this is incorrect. The quantity of publications in impact factor journals prevails over their quality. However, as Buela-Casal (2003) rightly argued, it is possible to assess the quality of articles but this should be done well, assessing quality instead of just dissemination and impact.
 - *Poor practices in the publication of studies.* First, there is self-plagiarism, that is, the duplicated or partial publication of the same data and theoretical frameworks (American Psychological Association, 2010; Cronin, 2013). A second aspect to consider is the fact of including several authors or unfairly arranging their order even if some of them have not contributed at all to the research. Third, there is the fact of overrating data that bias results toward positive conclusions. Good examples of this include publications on Positive Psychology (Fernández-Fíos & Novo, 2012; Pérez-Alvarez, 2012, 2013).
 - *The salami publishing style* (Moed, 2005). This consists of copying and pasting relevant tables or charts from a study that has already been published and publish new articles with the goal of increasing productivity. This is an extreme although very frequent manifestation of the effort to publish as many papers as possible. This style is directly encouraged by the current political context.
 - *Bite-size science.* This refers to the process of publishing articles that are short and easy to read as fast as possible, as it is useful to develop personal impact factor statistics.
 - *Liquid modernity and liquid style of thinking.* Many social and organizational processes have become volatile and transient. There is no certainty of political knowledge building other than what is stated by relevant authorities. Acceptance of academic rules about political correctness ensures that the liquid mind of the researcher is manageable and easy to manipulate.
 - *Liquid personality and quantification of narcissism.* We consider that the fact of quantifying the quality of research published in impact factor journals generates a technology of narcissism; that is, any author can find a fast and quantifiable self-assessment of his/ her published studies that is also politically correct and valued.
 - *Perceived organizational injustice.* Many researchers in the university culture of Spain and other countries feel that the assessment system used is unfair. They consider

that they deserve to be assessed positively in official competitions for faculty positions, where merit is assessed by quantifying publications in impact factor journals. The “impact factor pressure” can lead to an organizational tyranny in which researchers always end up losing.

- *Minimalistic narrative style.* This refers to the fact that studies must have a pre-established structure and a limited length. Style guides and editorial boards determine that studies must have a certain number of pages and a given structure that cannot be changed. This minimalistic writing of articles prevents any possibility of critical thinking and in-depth analysis of topics.

The article as a literary genre

- An article is a *discourse* that is the manifestation of a professional practice. This is reflected in textbooks, research studies, conferences, scholarship offers and journals. The construction of an academic discourse creates a personal identity and a political framework. Disciplinary identities use the discourse, the content and the disseminating tools to differentiate themselves from the other disciplines.

- A scientific article is a so-called scientific text that constitutes a *discourse to communicate knowledge in a society*. According to this framework, the impact factor seems to be more favorable to so-called natural sciences than to social sciences, which are currently underestimated.

- An article is therefore a *conditioned literary genre*. A literary genre is considered to be a communicative text that can be recognized as such by the members of an academic or professional community. To write an “academic” or “scientific” article, one must follow a certain style that implies a series of structural, textual, discourse and contextual limitations (Hartley, 2012; Perestelo-Pérez, 2013).

- *Publication style as a manifestation of a style of thinking.* Among other manuals of other professional organizations, the Publication Manual of the American Psychological Association is a good example of the organizational conditioning of the way people think and work. Conditioning how to write implies limiting what people can think, read and write. Publishing is a priority and “the scientific literature is our institutional memory” (American Psychological Association, 2010).

Consequences of the impact factor ethos

- *Ethos of science and publications?* The *ethos* of science is composed of a set of values and rules. The activities of researchers are sometimes subjected to a delicate balance between the impact factor style of thinking and responsible research behavior.

- *Epistemology of virtue, philosophy of science and the impact factor as a goal.* The agent of knowledge building is active and builds epistemic information (i.e., scientific information) based on certain values, beliefs and expectations. The fact that the intellectual or cognitive virtues of the knowledge building process are constrained

by the personal and organizational impact factor imperative can be pathological for the philosophy of science.

- *It erodes intrinsic motivation and promotes extrinsic motivation.* This reality leads to an exclusive concern for the impact factor in itself and its consequences regarding the standards that justify the administrative policy. The goal to achieve is conditioned by factors that are extrinsic to scientific curiosity (e.g., the political value attributed to the impact factor).

- *It wears down mastery-oriented motivation and promotes performance-oriented motivation.* The impact factor hinders mastery-oriented goals and encourages performance-oriented goals. The former are characterized by thinking in order to gain knowledge, understand and criticize. By contrast, the latter are benefitted by the impact factor. Regardless of whether one has something to say or not, what is really relevant is publishing in journals with an impact factor.

- *It promotes the avoidance of failure.* Conducting research amounts to publishing in journals with an impact factor. Anything else that is done in the research context is useless, irrelevant and devoid of organizational value. Thus, researchers who do not adapt to the impact factor philosophy are marginalized. The reason is not that they do not work but rather that they do not do what academic and political authorities expect them to do. Their serious and reflective work is not recognized so they avoid participating in the political impact factor game.

- *It restricts epistemic cognition.* Focusing on the impact factor promotes epistemic cognition oriented toward skills that achieve not what epistemic curiosity may evoke but what academic organization requires and justifies. That is, researchers have in mind the “fetish mythology” of the impact factor imposed by university bureaucracy.

- *It conditions the need for epistemic or cognitive closure focused exclusively on the impact factor.* The impact factor is the beginning and the end of any research process and the closure of curiosity. Anything that does not imply striving to achieve it is politically useless and irrelevant.

- *It can damage the internal life of researchers.* The organizational pressure to publish increases stress levels among researchers and leads them to marginalize their teaching and to often choose to publish mechanically and thoughtlessly. The reason for this is that nothing other than the impact factor will be considered worthy of merit and value.

- *Tiredness of the impact factor policy.* Every now and then there is news about certain researchers who have falsified publications or not conducted ethical and responsible research. Some authors artificially increase or manipulate their impact factor statistics (Olivas-Avila & Musi-Lechuga, 2013, 2014). In addition, Randy Schekman, Nobel Prize laureate in Medicine in 2013, bitterly complained in an article in *The Guardian* (9 Dec. 2013) about how *Nature*, *Cell* and *Science* are damaging science by “selling themselves” to the impact factor. Perhaps too many journals that are at the service of the impact factor become luxury “instruments” to buy minds, make money and, on too many occasions, lie to or fool almost everybody.

Discussion

The impact factor style of thinking (see, for example, Sternberg, 1997) is characterized by the following: depending on the organizational field; seeking certainty in what is psychologically, organizationally or economically profitable; adapting to political correctness; and finally, focusing one’s professional career on a personal interest in the impact factor, which leads to an “unhealthy fascination” (Pendlebury & Adams, 2012) and a “fatal attraction” (van Raan, 2005) among researchers. Institutions and organizations “think” and tend toward what is “identical” and uniform, which generates a one-dimensional style of reasoning. The obsession for the impact factor implies that the interest in political and academic recognition marginalizes researchers’ motivation to promote knowledge. In the struggle for interpersonal recognition, minds are controlled by rewards through the “expectations” of observing the impact factor rules (Leydesdorff, 2010).

This reality leads to a regulation of thought by the impact factor goal. The motivation to publish in impact factor journals determines the purpose of thinking, which in turn controls the thinking process. This motivation acts as an epistemic provider or scaffolding of *what to study, how to do so* and *for what purpose*. The cognition of the research team leads to cognitive uniformity among its members, which leads them to interpret the impact factor similarly and strongly influences the intrapersonal aspects of creative motivation. According to the propulsion model of creative contributions developed by Sternberg and Kaufman (2012), the “redirection” of research work is oriented toward political correctness and usefulness.

In this organizational and institutional reality, the means of publication –the journal with an impact factor –is the message. The concept of *habitus* (Bourdieu, 2001), which could be conceptualized as *impact factor habitus*, refers to specific research practices, discourse styles and publication strategies. This implies process of socialization of merit in the search of what Willmott (2011) called “journal list fetishism” for publishers, researchers and politicians. The strive to publish in quality journals with an impact factor (Harzing, 2010) can create “incentives for intellectual prostitution” (Frey, 2003). The analysis of citations becomes a normative and legitimizing policy of the thinking process as the construction, evaluation and dissemination of knowledge. Unfortunately, it leads to marginalizing working time, creativity and everything related to critical thinking.

The academic *habitus* contributes and makes it possible to increase the impact factor of a journal. This has become an industry in itself and leads to the “commercialization of sciences”. The concept of *habitus* is similar to that of “*dispositif*” (Foucault, 1977), organizational *script* or organizational field. These concepts generally refer to a political-administrative impact factor apparatus (i.e., *dispositif*) that makes it possible to distinguish between what is administratively useful and what is not.

The one-dimensional impact factor style of thinking usually implies searching for data in an automatic and therefore almost thoughtless way. The various models used to conduct research and search for data –which will not be described in the present article –generate a partial, biased and incomplete reading of the literature. The goal is to

publish short and quick reports, that is, the *salami style* (Moed, 2005) of publishing as many articles as possible in impact factor journals. This amounts to implementing the “liquid world” theory about what to publish and for what purpose. The imperative of developing personal impact factor statistics generates a “technology of narcissism” (Wouters & Costas, 2012). Some authors are obsessed with counting how many of their articles have been published in impact factor journals using mechanisms such as *ResearcherID*. The studies of Olivas-Avila and Musi-Lechuga (2013, 2014) provide good examples of this, as some researchers even count articles or reports that do not qualify as such. This is a manifestation of an eagerness to look more productive than others, even if it is a fraud and a lie. Moreover, some authors may publish many articles and even have many citations but such articles may in fact be read by few people (Buela-Casal, 2010). This necessarily generates an “impact fever” and “impact worship” that is manifested in the impact factor myth syndrome.

There is an organizational tyranny regarding the impact factor style of thinking. This tyranny forces researchers to having one-dimensional thoughts, emotions and actions. The academic impact factor imperative is characterized by focusing on proving one’s skills or competences in the form of the impact factor. The strive for knowledge is influenced by political correctness and political and academic conservatism. In short, the only style of thinking is the impact factor style of thinking in the epistemic culture of university teaching in many developed countries.

Conclusions

Based on all the above-mentioned points, it is justified to talk about the “impact factor style of thinking”. The challenge is to explore to what extent the impact factor style of thinking is present among researchers and how it affects the quality of scientific production and teaching at the university. We consider that the current emphasis on politically overrating publications with an impact factor in university culture can be detrimental. Although it may have positive effects, it also has very serious negative consequences. Researchers’ efforts to publish in impact factor journals are only positive for those who adhere to the politically correct way of thinking, acting and planning their career. Any professional researchers who lie outside the one-dimensional thought of the impact factor policy and style of thinking are automatically sentenced to marginalization, ostracism, lack of recognition and institutional oblivion. Conducting research to solve problems is worthwhile and positive. Having research outcomes published in impact factor journals is a matter of university policy. Despite this, there is epistemic curiosity and an intrinsic motivation to work without considering the restrictions of the impact factor policy.

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