



CONVERGENCIAS Y DIVERGENCIAS EN LOS FACTORES DE IDENTIDAD INSTITUCIONAL PERCIBIDA POR DOCENTES/INVESTIGADORES Y ESTUDIANTES DE UN CENTRO PÚBLICO DE INVESTIGACIÓN

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RESUMEN

El estudio investigó las percepciones de identidad institucional entre docentes/investigadores y estudiantes en un Centro Público de Investigación (CPI) en México durante la pandemia de 2019 a 2022. Utilizando la Teoría de la Identidad Social, se exploró cómo los individuos se categorizan dentro de la institución y cómo esto influye en su sentido de pertenencia y productividad académica. Utilizando un análisis cuantitativo de respuestas de 151 docentes/investigadores y 146 estudiantes, se identificaron percepciones compartidas como satisfacción, lealtad y prestigio, así como visiones distintas, incluyendo el compromiso con el desarrollo regional y la comprensión de la visión institucional. Los docentes/investigadores destacaron factores como Marca, Compromiso y Conocimiento, Áreas de Visión y Oportunidad, mientras que los estudiantes enfatizaron el Compromiso con el Desarrollo Regional. A pesar de las limitaciones en la recolección de datos debido a la pandemia, los hallazgos revelaron una fuerte conexión y satisfacción con el CPI entre ambos grupos.

Palabras clave: identidad institucional; centro público de investigación; docentes; investigadores; estudiantes de posgrado.

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CONVERGENCES AND DIVERGENCES IN INSTITUTIONAL IDENTITY FACTORS OF TEACHERS/RESEARCHERS AND STUDENTS' PERCEPTIONS FROM A PUBLIC RESEARCH CENTER

ABSTRACT

The study investigated institutional identity's perception among teachers and students at a Public Research Centre in Mexico, from 2019 to 2022. Utilizing Social Identity Theory, research explored how individuals categorized themselves within the institution and how this influenced their sense of belonging and productivity. Through a quantitative analysis from 151 teachers and 146 students, the study uncovered both shared perceptions, such as satisfaction, loyalty, and prestige, and distinct views, also understanding of institutional vision. Key factors identified for teachers included Brand, Commitment and Knowledge, and Vision and Opportunity Areas, while students emphasized Commitment to Regional Development. Despite challenges in data collection due to the pandemic and in sampling, findings revealed a strong connection and satisfaction with PRC among both groups. However, teachers exhibited a more critical stance on the opportunity areas compared to students. Study recommended regular evaluations of institutional identity to enhance community engagement and academic productivity.

Key words: institutional identity; public research center; teacher; researcher; graduate students.

Introduction

This article emanates from a doctoral study that has been realized in a Conahcyt's (National Council of Humanities, Science and Technology as its acronym in Spanish) Public Research Centre (PRC), in pandemic times between 2019 to 2022, during a political and social transition that have had special affectation in the way of working of science and technology educational institutions who were dependent of federal government.

PRC are institutions whose main work is knowledge generation through carrying out scientific and technological research activities. These institutions have different origins and lifetime, but they were grouped to form the System of Public Research Centers (SPRC) from the 90's (SCPI, 2022), to share common objectives such as: dissemination of science and technology, promotion of local and foreign technology, the linking of science, technology and the productive sector to address societal problems, the strengthening and promotion of a scientific, humanistic and technological culture of Mexican society.

In addition, PRC's individually, have been through evolutionary processes during the time, for example, the PRC object of this research is located at northwest of México, and it started its activities as a civil association with majority state participation, during the 80's, and becoming part of SPRC in 2000 (CIAD, 2022), by transforming their processes, way of working, customs, results' indicators, among others.

All these changes were not only observed in the way of working, but directly affected the staff, as they had to adapt to different rules, regulations, work and teaching styles, which has been reflected in their behavior because of they feel lack of belonging to this new institution, and this could potentially have affected their work environment and their academic productivity (Conacyt 2, 2019).

In addition to this problem and combined with disagreement due to union problems (Córdova, 2019a; Frecuencia Laboral, 2019 & Jaquez, 2019) and unusual situations caused by Covid 19 pandemic (ORH, 2020), we sought to know the perceived institutional identity's degree between PRC's teachers and researchers, and we included too PRC's graduate students to this study.

Theoretical Framework

Social Identity

Through the "Social Identity Theory", which is considered as the most influent perspective in social psychology area to explain intergroup relations, this theory born in the 7th decade of past century by the hand of Tajfel & Turner (1979), whose considered the motivational and cognitive factors of human endeavor; they tried to explain the intergroup hostility appealing to the identification degree that people have with their ingroup. This identification has a relationship with three issues that authors considered fundamental into intergroup relationship: categorization, identity and social comparisons.

First, we should begin with the idea that social categorization is a resource that human being uses to simplify the environment where they interact with other people. With a single phrase they can refer to several aspects of a person or social group, in that way we can categorize people just by analyzing their religion, nationality, academic studies, social status, etc. The Tajfel (1984) research refer that when a person belongs to a particular group, he or she tends to perceive that the ingroup people looks similar, in other words, it generates a social identity, while, by other side, ingroup outsiders were perceive different.

A person, as a part of a group, sees the need to strengthen and maintain a positive social identity as a member of their ingroup, because ingroup membership generates in this person stability, affiliation, security, comfort, integration, among other aspects. To achieve that positive social identity, it is not enough to belong to the same group, but it is reinforced when the subject compares himself with the outgroup. Tajfel & Turner (1985) research revealed that positive social identity increases the more positively the subjects of the ingroup compare themselves with the outgroup members. For this purpose, authors conclude that the more identified individuals feel with the ingroup, the greater the rejection of the outgroup.

This tendency to favor the ingroup (Ingroup favoritism) and minimize the outgroup is explained by Tajfel et al. (1971) with the so-called "minimal group paradigm", which led to determining the minimum conditions for rejection between groups to occur. In context, we will begin with the theory of social identity of Tajfel & Turner (1985), which states that people are

inclined to classify themselves and other people into different categories depending on their activity, origin, religion, academic studies, tastes, race, age, etc., which is understood as the fact that the different types of groups are formed by individuals with affinities who frequently join together to improve their self-esteem (Asforth & Mael, 1989), creating links acquiring a type of membership, a belonging that defines them as part of that community (El Zaatari & Maalouf, 2022).

Furthermore, identification with groups is the perception that people have of belonging to them, which is why they feel they have the right to intervene directly in errors and successes of the group's decisions. This group identification exists even if, as a member, one does not agree with the person who has the leadership of the group, since there is cohesion and interdependence among the associates (Asforth & Mael, 1989).

Institutional Identity

Likewise, Ashforth & Mael (1989) also refer to institutional identity as to the perception that people must belong to institutions (El Zaatari & Maalouf, 2022), which gives them the right to intervene directly in errors and successes of the group's decisions, therefore they feel like actors capable of deciding the direction the institutions is going to take (Stratton, 2023).

Regarding the institutional identity conception, there are many elements to analyze. Some authors point it out as a sum of everything related to the organization, like image, brand, values, productivity (Balmer, 1998); others suggest that it has its roots very attached to the history of the organization and its members, its myths, beliefs and routines (Moingeon y Ramanantsoa, 1997; Van Riel y Balmer, 1997); and there are authors who describe it as the most important thing, what can be most distinguished from the organization (Waeraas & Solbakk, 2019), the soul of it (Balmer, 1998).

On the other hand, institutional identity is also defined based on the cohesion and feelings that it awakens among people involved, which is assumed to be something collective, as an understanding that is shared about values and characteristics that employees perceive to be distinctive features of the organization (Hatch & Schultz, 1997).

Furthermore, although one could believe that institutional identity is designated from the beginning and is perdurable (Balmer, 1998), this is not always true, since it must adapt to new times, new people, new situations. This means that there is not stability of identities over time since changes occur constantly (Stratton, 2023).

Similarly, we can also find multiple identities, which refer to the idea that organizations can develop different identities depending on the types of audiences that will interpret them (Leitch & Motion, 1999). As an example, we can take a university which is made up of different schools such as: law school, business, engineering, mathematics, social, etc., and it is common for teachers and students to identify themselves by the school to which they belong, even more than by the university, this being where it can be said that multiple identities exist in the same institution (Waeraas & Solbakk, 2019).

Additionally, about higher education institutions (HEI), universities, PRC's, there are organizations that have personnel dedicated to management, administration, teaching and research, by one side; and, by the other side, students, and all of these people have a different vision of what the identity of the same institution is, since their approaches vary according to their customs, values, history, in addition to the different situations and experiences that they had been pass through (Christensen y Askegaard, 2001).

Regarding the vision of the people involved in the academic institution, Eldegwy et al. (2018) point out that students like to know and create a total vision of their institution and form a sense of belonging according to their own experiences within their life on campus. That is why the importance that its workforce must have for the institution, that they must be twinned with the identity of the institution, its values, its commitment, since this favors the student's feeling of identification with their university (Takaki et al., 2005).

On the other hand, when investigating factors that teachers and researchers consider to feel satisfied and with a real belonging to their institution, in a study carried out in Peru with 180 professors belonging to 3 universities, a correlation was found between the satisfaction they showed with their institution, with their professional performance, participation, work environment, and commitment to institution, in addition to feeling valued in the work they do (Duche et al., 2019).

Study's general objective: To know convergences and divergences in the perception of institutional identity observed by teachers, researchers and students of a Public Research Center.

Methodology

Based on a transversal quantitative study, using an ex post facto non-experimental design (Kerlinger & Lee, 2002). Firstly, from the literature consulted, two scales were created, one aimed at teachers and researchers, and the other at students (Salazar et al. 2023; Salazar, Laborín & Álvarez, publication in process). A lot of articles consulted were empirical studies that used interviews and/or scales about different aspects of institutional identity; the reader can find all details about them in the articles referenced above.

Subsequently, through intentional non-probabilistic sampling, scales were sent via institutional e-mail for self-selection participation (Wilson, 2014), ending with the collaboration of 146 graduate students, and 151 teachers and researchers, representing 37.85% and 44.41 % of their respective universe (Table 1).

Table 1

Participants' sex

Participants	Teachers/Researchers	Students
Women	77	98
Men	74	48
Total	151	146

Both scales had questions, whose answers were in Likert scale of 7 elements. The value of the answers of scales came from “totally agree”, which was represented with number 7, to “totally disagree”, represented with number 1. That's why the reader will see in results the medias with medium and high values, between 5.80 to 6.13, representing the medium to good impressions that teachers, researchers and students have of their institution. We preferred to show the resulted medias instead of frequencies because we wanted to focus on the perception that participants had about their institution. Regarding the participants' ages, the following was found:

- In teachers and researchers' group, ages ranged between 30 to 74 years old, with the average age being 51 years old. The highest frequency of participation was found in people aged 50 and 55 years old, with the least participating being people aged 30 to 35, 46, 58, 59 and from 68 to 74 years old.
- Of students' group, participants ages were between 23 to 60 years old, with an average of 34 years old. The most participatory people were those aged 25, 27, 28 and 31 years old, and the least participatory were those aged 39, 43 to 45, 47, 48 and from 53 to 60 years old.

Subsequently, we analyzed both scales with the Statistical Package for Social Sciences Program (SPSS)-26 through sequential statistical analysis, finding the two scales with high reliability:

- a) 0.987 of Cronbach alpha for the 112 items of teachers and researchers' scale.
- b) 0.992 of Cronbach alpha for the 108 items of students' scale.

Both scales were suitable for measuring the perception of institutional identity of teachers/researchers (Salazar, Laborín & Álvarez, 2023) and students (Salazar, Laborín & Álvarez, publication in process). In both referenced articles, the reader will be able to see all procedures that we used to find the results we exposed in this manuscript, like the way we obtain the data. As an example: before we collect data, we made pilot tests with people with similarities characteristics like the participating people; in those pilot tests we found technical mistakes, and written errors, that we corrected and then we did the pilot tests again, which turned out to be suitable for be used with the participants.

Factorial analysis is also a data dimensionality technique that seeks to reduce to a minimum the items capable of mostly explaining the information collected (De la Fuente, 2011) from teachers and researchers' scale; we found four dimensions that explained the 60.994 % of variance. In Table 2, you can observe dimensions, factors, quantity of items for each factor and the Cronbach alphas of each factor.

Table 2

Dimensions and correspondents' factors, with quantity of items and its Cronbach alphas of Teachers and Researchers' Scale

Dimension	Factor	# items	Cronbach Alpha
Institutional image	Reputation	6	0.915
	Satisfaction	6	0.931
	Image	5	0.921
	Loyalty	3	0.925
Institutional mission	Inst. Commitment	8	0.939
	Support for students	7	0.883
Prestige		16	0.969
Opportunity areas and vision		9	0.933

About the students' scale, we found two dimensions that explained the 59.80% of variance, and, in Table 3, the reader can observe the dimensions, its factors and number of items that were part of each factor, and the Cronbach alpha of each factor.

Table 3

Dimensions and correspondents' factors, with quantity of items and its Cronbach alphas of Students' Scale

Dimension	Factor	#items	Cronbach Alpha
Commitment and	Loyalty and satisfaction	13	0.976
Institutional image	Commitment with regional development	7	0.954
	Support to students	7	0.957
Reputation and	Reputation	7	0.941
Prestige	Prestige responsibility	3	0.857
Responsibility			

Through the maximum likelihood method and Varimax rotation, this being a rotation method used to minimize the number of variables with high factor loadings that best represented the factors (De la Fuente, 2011), because we needed strong items to be sure that they represented the groups' perceptions, whereby, there were selected questions with factorial loads higher than 0.60 (Hair, 1999).

The common concept of convergence, according to Stayton (2015) is the similarity between two or more items, attitudes or opinions, and divergence is its antonymous, and is defined as dissimilarity or difference between two or more items.

Therefore, the convergence and divergence discussed in this article occurs based on the results collected through surveys applied to teachers, researchers and students of the PRC, and subsequently processed and analyzed through the maximum likelihood Varimax in SPSS 26 program, from which the groupings explained in previous articles (Salazar, Laborín & Álvarez, 2023; Salazar, Laborín & Álvarez, publication in process), and where the similarities in certain factor and differences in others.

Similarities and differences in factors found in the grouping of items by SPSS 26 programs are the topic to be analyzed in this article.

Limitations

This study had two limitations. The first limitation was to collect the data in pandemic times. This was because it was impossible to be collected it the way it was planned: selected groups of each coordination, face to face interviews on their campuses. As a result of the Covid-19 pandemic, plans had to be modified, and it was decided to collect data by sending the scales by institutional e-mail to the entire universe of possible participants for self-selection participation, with the barrier that people do not pay much attention to this type of exercises. Due to the low participation, the invitation to participate was sent four more times, so study was prolonged.

The second limitation is that results of this research cannot be generalized, since non-probabilistic convenience sampling was used (Wilson, 2014), which can produce biases. However, when results offer valuable data about the PRC, although they cannot be replicated, they can serve other PRCs or HEIs, as an example in their decision-making.

Results

A comparative analysis is observed between the two groups of participants, where it can be identified that there are differences and similarities in their perception of the identity of the institution.

Among the study's findings analyzed by SPSS-26 program, convergences are shown between factors satisfaction, loyalty, prestige, reputation, commitment and support for students (Table 4).

Table 4

Affinities between factors resulting from teachers/researchers and students' scales

Factor	Teachers/Researchers		Students	
	Mean	Standard Deviation	Mean	Standard Deviation
Satisfaction	6.16	0.93	6.13	1.18
Loyalty	6.55	0.78	6.13	1.18
Reputation	6.23	0.79	5.80	1.25
Commitment and support to student	5.95	0.89	5.92	1.24
Prestige	5.98	0.98	6.12	1.13

By observing the means in Table 4, we can see very similar values ranging from medium high to high means which indicated that they were located in same ranges (Very agree), in both scales, finding four exceptions with values between 5.80 to 5.98, in ranges of just agree, with the lowest score of 5.80 in reputation factor of students, which means that students only agree with the position that their institution has compared to other similar ones in the region.

About reputation factor, we could say that it contains the answers to questions about the idea that both groups have of the way in which the community sees their institution, with questions around the recognition, positioning and respect of the PRC both locally, nationally and internationally, also on the quality of its academic programs, services, teaching, including furthermore, whether institutions are a development factor for the region. In addition, teachers and researchers made a very highly evaluations to the institution, and students did it a little less highly, where the question that resulted in the lowest average was the one that referred to the quality of management and PRC administration.

Concerning to the other convergencies' factors that we see in Table 4, satisfaction was define as sum of values that represent the organization, which should be originated from the people perceptions (Da Silva & Syed Alwi, 2007), and this factor was composed of items referring to the participants' perceptions of being pleased with the institution, which meets the expected expectations and therefore they observe a personal connection with it and prefer to be working and/or studying at their institution than in some other. Both groups show high averages, which means that there are very positive perceptions in this regard.

Regarding loyalty, Da Silva & Syed Alwi (2007) mentioned that it's the behavioral response based on psychological processes such as evaluation and decisions making that result from institutional commitment. This factor is made up for reagents that have to do with the commitment that people feel towards their institution, which is why they recommend it, trust it, and perceive themselves as very similar to it, its mission and vision. This factor obtained the highest average in the entire table, which denotes that teachers and researchers are very committed to their PRC and highly recommend it.

In relation to the commitment and support for students' factor, groups responded to questions about whether institution and its staff are willing to respond, are friendly and help students, also about whether they provide students with a supportive environment and care about their needs, and if there is a commitment to the institution from the board members and managers. This factor showed almost the same means between both scales, although they were not the highest scores, they are at good acceptable level.

The last factor referring to convergences is prestige, which is made up of items that talk about the way in which peer institutions rate the PRC on the topics of: quality of programs offered, institutional, academic, management and administration quality, work and academic climate, social innovation, reputation, institutional achievements, local and regional positioning, whether its success depends on its type of research, teaching quality, school quality, academic programs and services offered among others. In this section, students rated the highest: "strongly agree" with the institution prestige, by the other hand, teachers and researchers indicates that they only "agree" with its prestige.

Regarding the divergences in factors such as vision, opportunity areas, brand and commitment and institution knowledge we can see their medias and standards deviation in Table 5.

Table 5

Divergences between factors resulting from the teachers/researchers' scale and students' scale

Factor	Teachers/Researchers		Students	
	Mean	Standard Deviation	Mean	Standard Deviation
Brand	6.07	1.00	Not applicable	Not applicable
Commitment and institution's knowledge	6.03	0.90	Not applicable	Not applicable
Vision and opportunity areas	6.27	0.90	Not applicable	Not applicable
Commitment with regional development	Not applicable	Not applicable	6.23	1.10

With respect to divergences in factors found, Table 5 shows high medias in the four factors. Dissimilarity being the way of grouping items that the SPSS-26 yielded, where what the questions in teachers and researchers' scale ask, is not related to what items on the students' scale question. For example, on the students' scale, questions are about the students' perception around the commitment that the institution, teachers, researchers and board members perceive with the regional and community development. By the other hand, teacher and researchers' scale is asked if they know the institutional vision and mission, if they see neglected opportunity areas, in addition to containing questions about brand, image and institutional logo.

There were three sets of items from the teacher/researchers' scale and only one from the students' scale, which did not coincide with each other. These groups refer to:

Factor of Teachers/Researchers' Scale named Brand: about this concept, Gray et al. (2003) mentioned that is very important that institutions could have a good positioning in relation with their peers, so that students can compare and chose the option that best suits them. This is why institutions must promote the characteristics that more define their brand, such as quality of teachers and researchers, quality of academic programs, cultural integration, graduate prospectives, institution's services, among others. This is a factor that has items that questions the impact of the research carried out at the PRC, its articles, papers and presentations, the standardization of its quality and safety systems, the quality of its services and whether its heritage is an emblematic part of the institution's brand, among others.

In terms of the Teachers/Researchers Scale's factor Commitment and Institution's Knowledge which was defined by Dennis et al. (2016) as a bond between reputation and institutional values, with the strength of the attachment that people perceive towards the institution. About this factor, teachers and researchers were questioned about their perception of the place that the PRC has carved out in the community of researchers, around the knowledge they have within PRC's history and traditions, and whether board members and coordinators are sensitive to the institution's history, also about the recognition that teachers have in the community, the attractiveness of academic values and whether the institution provides students with a sense of community.

On regard to the concept of the third factor of Teachers/Researchers' Scale, Vision and Opportunity Areas, authors like Puusa, Kuittinen & Kuusela (2013), pointed out that institutional identity is a social and symbolic construction which changes through the time and from different situations, we can relate that concept to the vision implicated people have about the future of the institution. Other institutional elements of change are the opportunity areas which come from updates in science, technology, academic innovation, among other. In this factor, the items asked to the teachers and researchers were aimed at pointing out the areas in which they saw that institution needed to pay more attention, such as: training of human resources, research, interdisciplinary work, generation of links with social, productive and academic sectors, private initiative, giving greater emphasis to innovation and knowledge transfer and raising awareness of social networks.

Finally, the only factor of Students' Scale, named Commitment to Regional Development, which refers to a moral agreement that came from a bond that arises from the fact of being born and/or having roots in the territory, in addition to a natural drive to the improve our own community, caused by the strength of the attachment one has with it. Such reasons urge institutions to seek to meet the expectations that the community has of them (Dennis et al., 2016). Commitment to regional development is the only factor on the students' scale where different questions were grouped, where the items asked whether the training of human resources and research carried out by the PRC contributes to the town's development, also on clarity of PRC's institutional identity, the impact that articles, presentations and papers

by students and teachers have on the community, the commitment that PRC maintains with region and whether it is a research institution with social impact.

Discussion

In relation to the PRC studied, it is first confirmed that it has a comprehensive institutional identity, although it also has multiple identities as it is made up of two large groups, those that work and research on regional development, and those that focus on science, for which both teachers, researchers and students, primarily feel that they belong to one of these two groups (Ingroups), although they know well that they are both part of the outgroup that is the PRC (Tajfel & Turner, 1979; Waeraas & Solbakk, 2019).

Regarding the institutional identity perceived by students, as referred to by Eldergwy et al. (2018), through their experience and observation, are devising and creating that identity, through the commitment they see on part of their directive, teachers and researchers towards institution, also in actions that are carried out to help students in their needs, in addition to loyalty of all staff and graduates, who represent and recommend their PRC in their daily work.

It should be noted that the objective of this study indicated the desire to know coincidences and differences between the perceptions of the groups of teachers/researchers and students of a PRC, finding that:

Both participating groups revealed that there is a very important connection with their institution, that they are pleased with work and study that is carried out, which is manifested in development and academic productivity that are observed. In addition, they experience full belonging to the institution (El Zaatari & Maalouf, 2022).

Likewise, students, teachers and researchers agree in their appreciation for quality of services offered by PRC, indicating that in addition to using them, they recommend them in the community.

In a similar way, they were enacted on perception of the commitment that the institution and its board have regarding their willingness to help students.

These actions, in addition to the commitment that institution has with community, have generated its good image in different areas where they coexist, such as academic, social, business, industrial and government, where they affirm that the people who represent the PRC, whether they are teacher, researchers or students, are highly regarded for their knowledge and because they enjoy the prestige that the institution has earned over the years.

On the other hand, regarding the differences in perceptions, teachers and researchers are more skeptical than students when it comes to the opportunity areas that institution must address; on the contrary, student body focuses mainly on actions carried out by institution's board and staff, and in this way judge the knowledge and commitment they have with it.

Concerning the institution's image, teachers and researcher observe and recognize the PRC's impact in the community, but students analyze the good or bad image that the institution reflects to compare it with others and decide which may be the best option for their academic development. Things like the ease to finding a good job for graduates, the institution's position in comparison to peer institutions in study plans, research, teachers and academic's quality, the community impact, between others.

Conclusions and recommendations

As a conclusion we can said that both scales to evaluated the perception of institutional identity in teachers/researchers and students, are suitable for the purpose for which they were created. Results showed the connection that participants had with their institution, their feelings of belonging, the satisfaction with the work their developed, the quality of study programs, between others, and all of this is reflected in the good institution productivity results, that consisted in the quantity of published articles and books, courses, research, among others.

We also realized that this kind of evaluations can be used to find failures and successes that people from inside perceived about their institution, and that can be an important information because it can show the possible causes of some attitudes, situations, lack of motivation, loss of enthusiasm that teachers, researchers and students could be experimented. All of this can help the institution's decision making to improve their people work and study's conditions.

Finally, as a recommendation, it would be advisable that evaluations of institutional identity perception be carried out regularly, as they are a very useful tool to know the degree of identification and belonging towards your institution, from staff and students, which that can potentially help in making decisions to improve the work environment, relationships with students and academic productivity.

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