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Higher Education: The Impact of Innovation on Quality

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Abstract

Education is one of the key elements in developed societies, which tends to evolve along with them. In this way, and considering the countless technological and academic advances we have experienced in recent years, innovation in higher education is a reality. However, within this context, a number of questions arise regarding the possibility of directly linking innovation to the quality perceived by students in higher education. As a consequence, the premise of this article is to investigate the aforementioned relationship, determining which are the key aspects of educational innovation that have an impact on quality, showing some examples or practices in this respect.

Keywords: Innovation, Higher Education, Quality, New Technologies

1. Introduction

Innovation in teaching has been used to improve the learning process, as well as aiming to increase the quality, engagement, and retention of students. In this context, active methodologies used in the classroom can be a fundamental ally, as they aim to improve educational training by innovating the traditional way of teaching in the classroom (Serran et al., 2019)

Within the framework of Higher Education (HE), quality in services encompasses a system in which clients (students) and providers (Higher Education Institutions or HEIs) must be involved in order to achieve the satisfaction of needs and desires, seeking to maintain this relationship on an ongoing basis (Gill et al., 2022; Khashab, Gulliver, & Ayoubi, 2020; Tsiligiris & Hill, 2021).

According to Posselt et al., (2019), the growth of the education sector necessarily implies a direct increase in competitiveness among HEIs, which seek ways to differentiate themselves, developing new teaching methods and more efficient service processes, seeking to establish a better quality and lower cost relationship.

As a consequence, HEIs are realizing the need for curricular reforms in order to meet the demands of society, identifying that innovations are required for higher education in contemporary times. However, the implementation of innovation depends on collective work involving management, faculty and students across pedagogical, political, administrative and financial dimensions (Agarwal, 2018; Saykili, 2019).

To innovate, it is necessary to understand what innovation is and what its impacts are on the teaching and learning process, in order to avoid mistakes in discussions, planning and actions. This is because innovation is not only the insertion of technology, but goes beyond the technological resources and infrastructure of the educational institution (Averill & Major, 2020).

In this framework Carayannis & Morawska-Jancelewicz (2022) stress that it is necessary to assume innovation as a guiding assumption of educational practice. Therefore, university education has to be dynamic and attractive to the student, so that he or she engages in teaching.

However, innovation in teaching also aims at improving the quality of the services provided,

which is a direct variable based on the students' perception. This variable influence student satisfaction and engagement, as well as student retention in HEIs (Anthony et al., 2019). As a consequence, this leads to the following research question: What is the influence of innovation on the quality of teaching in higher education, and what are the main examples we can find in this respect?

In this context, this study aims to analyses the relationships between teaching innovation and quality in HEIs. The article presents a narrative literature review in which various aspects linked to the topic are analyzed, such as the definition of quality and educational innovation, as well as the impact of innovation on quality. In order to define precisely and practically this relationship, a number of examples will be described.

2. Quality in higher education

In the field of education, admitting the diversity, adaptability and variety of aspects that make up the definition of quality, Martínez, Cegarra & Cepeda (2015) draws attention to the factor of transformation as essential for a contextualized and critical understanding of the historical and social journey of the construction of the concept of quality.

Although some experts have recognized that, etymologically, quality can be defined as an attribute capable of distinguishing, marking, determining the nature of a given object, it has been considered that no absolute value can be attributed to quality in the field of education (Méndez & De la Torre, 2016; Purwadhi, 2019). This contemplates that it is not possible to apply it to the mere adequacy of ideas, processes and practices to previously established standards and norms, especially if the historical, economic and social context in which it is developed is taken into account.

Reinforcing this polysemic perspective and apparently based on the dimensions of quality, Harvey and Green (1993) pointed out five possibilities or alternatives for defining the concept in higher education, such as the following:

a) Quality can be defined as an exceptional phenomenon. This may occur if we relate it to the definitions of exclusivity and elitism. The same is true for the characteristics of excellence and surpassing established standards. We can also find in this framework, the satisfaction or conformity with a set of periodically determined requirements.

b) Quality can be conceived as perfection or consistency. This occurs when it is related to the perspective that specifications must be met exactly, which contrasts with the approach of quality as an exceptional phenomenon.

c) Quality understood as a fit for purpose or objective. In this context, the definition of quality is linked to the definition of conformity and to the achievement of a goal or purpose in conformity.

d) Quality is conceived as a cost-benefit relationship. In line with this premise, quality is associated with the perspective of accountability of all investments made directly in order to be able to appreciate the results in this respect.

e) Quality as an element of transformation. This premise is linked to the definition of transformation and change in order to achieve substantial improvement. However, this improvement can be of the student body, the teaching staff, the academic year or the whole institution.

The view of quality through dimensions was also used by Seyfried, Döring, & Ansmann, 2022), who associated the concept in higher education with the notions of isomorphism, diversity and equity. In this approach, isomorphism refers to the adequacy of higher education to a certain standardized level of performance. Diversity refers to the perspective of respecting regional, cultural, and economic differences of HEIs and their courses. Finally, equity refers to the incorporation of qualitative and quantitative indicators related to the institutional reality.

As a consequence, these aspects are configured as approximations to a notion of quality. However, they also mention that, in practice, there may be a combination between them. Furthermore, reviewing these dimensions, De Ferreira & De Raupp (2021) acknowledged that the socio-

historical context has been causing a minimization of the divisions between the terms, suggesting the possibility of considering these dimensions as a concrete whole.

Assuming other categories and aspects that facilitate the discussion on the concept of quality in higher education, Jungblut, Vukasovic, & Stensaker (2015) described this concept from two polarized dimensions:

- First: they conceived quality from the social point of view, which values the aspects that enable the ethical training and intellectual development of individuals, understanding education as a public good.

- Second, it considered quality to be associated with the market, viewing education as a commodity. This was done by assessing aspects that enable the development of skills for work, qualifying individuals for employment, and by comparison or ranking around what is particularly learned.

Although these dimensions can be perceived as opposing, Dar (2012) does not deny that the separation or the essence of these meanings of the term quality is only conceptual, hinting at the possibility of other types of dialectical relationship between the various facets of quality in higher education discussed by different authors.

According to Fotea & Guțu (2016), quality is a historical concept that changes over time and space, i.e. the scope of the concept is linked to the social demands and requirements of a given historical process. This statement reinforced the understanding presented by Fuller et al., (2016) of adapting the meaning of quality in higher education to the empirical conditions in which higher education develops.

In a similar vein, Giuffré & Ratto (2013) argue that, in education, the concept of quality is totalizing, comprehensive, multidimensional. Therefore, quality is socially and historically determined because it arises from a specific reality and a specific context. Accordingly, a critical analysis of quality must consider all these aspects, linking the technical and pedagogical aspects with the political-ideological ones.

Thus, considering the contextualized perspective of quality, there is a near consensus in the field of education on the polysemy of the term, resulting both from the subjectivity in the appropriation of the criteria or aspects that define it (strongly conditioned to specific historical, economic, social and political contexts), as well as from the infinity of different situations in which it can be applied, such as courses, institutions, teachers, the teaching-learning process, etc. (Ashour, 2020; Evans et al., 2021).

As a consequence, the concept of quality in higher education has been assuming different connotations in each context, following a trend also pointed out by Ashour (2020) in the field of production of goods and services.

With specific reference to the possibilities or paths to achieve the provision of quality higher education, it was also considered that their modification over time would depend on the debates and differences of opinion among the interest groups that collaborate in defining their criteria, giving shape and meaning to their significance. Ultimately, given the various possibilities for defining quality, it was understood that its meaning would emerge from the interests of those directly affected by it, changing over time, according to the reconfiguration of those same interests (Giuffré & Ratto, 2013)

Assuming this definition, the concept of quality in higher education can be regarded as abstract and not necessarily polysemous, since, due to the technical dimension of the concept, not all its possible meanings are expected to be valid simultaneously in a given context, but only one of them.

The review carried out can lead to the conclusion that the concrete content of what quality is can change in various directions, but ends up taking on one of its facets, depending on the strength and arguments of those involved in it. In this way, it is possible to deduce that the concept of quality seems to reflect quality better when it is seen as an abstract element (which takes on different forms or meanings in each context), rather than a polysemous one, which refers to the validity of all meanings at the same time.

The idea that the meaning of what is understood by quality in higher education is politically constructed was taken up by Frazer (2003). In the same line of argument, Alzafari (2017) stated that conceptions of quality are related to a subjective perspective of those who issue them, giving meaning to the concept from a single point of view.

Şen et al., (2012) also pointed out that different stakeholders promote different perceptions of quality in this field. Likewise, the multifunctionality and complexity of the concept may include in higher education the activities of teaching, research, extension, physical structures, academic environment, etc., as well as dichotomies between qualitative/quantitative, outputs/processes and effectiveness/efficiency. Taking these ideas as a reference, it was understood that preferences, beliefs, values and even personal or collective affinities and interests seem to permeate the definition of quality in higher education.

Reinforcing the political dimension of the concept of quality, as well as its direct relationship with the technical aspects that structure it, Lynch (2006) understood that the debates around the quality of education have taken into account a standard of reference defined from the perspective of capitalist states, fostering competition, rivalry and discrimination, in a clear process of reproduction of exclusions and social inequalities.

In this sense, assuming that this standard in the field of education is subjective, it is difficult to know the validity of the quality criteria chosen from a capitalist perspective. The evaluative processes derived from these criteria must also be dismissed, as they allowed institutions to be compared with each other, reproducing the differences and asymmetries between the governors and the governed, between people with more or less resources in a deliberate way (Lynch, 2006).

On the other hand, Tight (2019) analyzed the validity of the debate on quality in education, provided that two key elements are observed:

- First, that indicators of a quantitative and qualitative nature, even if they are not standardized, necessarily represent the whole reality to be evaluated.

- Secondly, indicators that make it impossible to compare institutions should not be used. Thus, avoiding the promotion of competition.

It is also interesting to note that the selection of certain criteria (oriented towards capitalist interests) would make the debate on quality itself unacceptable. On the other hand, if the criteria selected were different (those suggested by the author and based on a more socializing stance), then the discussion on quality in higher education would be valid (Lynch, 2006).

This discussion on quality in higher education has allowed us to highlight a third dimension of the concept of quality: the political dimension, which complements the first two already highlighted (technical and social dimensions). (Skolnik, 2010). The contributions reviewed so far on this third dimension suggest that it legitimizes and promotes adherence or affiliation to what is considered technically and socially good or adequate. Moreover, the political facet of the concept of quality has reinforced the understanding that the meaning of the term only ceases to be generic when it is appropriated through a clear specification of what it stands for.

In short, the specific content that gives shape, identity or meaning to the concept of quality came to be understood as quality criteria. These criteria were seen as the product of ongoing debates among various stakeholders affected by the meaning and consequent uses of quality in higher education. It was also considered that this meaning of quality would not be exhausted in itself, since, as a product of dispute, it would be susceptible to change whenever it lost legitimacy (understood as the strength of an idea in relation to others and not of a consensus around it).

On the other hand, even assuming the centrality of criteria for the meaning of quality in higher education, it was recognized that other elements, especially those involving the concepts of evaluation and regulation, appear in the literature as being imbricated in this meaning. However, there is another element that is essential for understanding quality in higher education, and

which is closely related to the educational community's perception of it, such as innovation in higher education, which will be discussed in detail in the following section.

3. Innovation in higher education

Interest in the subject of Innovation in Higher Education has been awakened by the inclusion of new information and communication technologies (ICT), allowing the development of conferences, articles, books and projects on the subject. In this way, we can appreciate various aspects and topics that have been analyzed in this regard, such as the inclusion of ICT in teaching practice, providing students with computers for the collection of notes and academic work, having computer laboratories to work with new technologies, replacing lectures with group work, and working in distance learning (Mora et al., 2020).

In line with this premise, a number of experts have proposed a series of reflections that aim to contribute to the current debate on the subject. Therefore, we have to take into account two main aspects: a) The concept of innovation in higher education is understood as the set of modifications that affect key points and constituent axes of the organization of university teaching, and b) These changes have been generated by the evolution of society itself, or by specific reflections on intrinsic conceptions of the mission of Higher Education in society.

As a consequence, if we take into account the first constitutive element of the concept, such as: "higher education is understood as the set of modifications which affect key points and constitutive axes of the organization of university teaching", we can consider that the pedagogical project of a course or of an HEI, from its creation to the modifications of the existing project, is the product of new demands of society, or of new governmental policies (Mizrahi & Drori, 2021).

In the same way, there has been an explicit statement of broader educational objectives which include (in addition to cognitive aspects) human and professional skills and competences. The same applies to the attitudes and behaviors demanded by today's society, such as ethics, politics and professionalism (Serdyukov, 2017).

In a similar vein, a new reorganization and flexibility of the curriculum has been observed in order to respond to the new demands of the pedagogical project or to the new educational objectives. The same has happened with the reconceptualization of the role of the subjects as curricular components, selected according to the educational objectives envisaged and as a source of information necessary for the professional to be trained (Kivunja, 2015).

Within this framework, we have identified the necessary integration of curricular contents and activities according to the educational objectives, overcoming the isolation and fragmentation of knowledge. However, this integration has been achieved by replacing the traditional methodology, based solely on lectures (master classes), with methodologies that favor the achievement of the different educational objectives, stimulate students to learn and allow them to participate in the learning process (Schmitt & Raufflet, 2015).

Likewise, the exploration of new technologies, based on computers, telematics and the Internet, has allowed the development of distance activities (outside the classroom), while stimulating the student's meeting with the teacher and classmates (Schmitt & Raufflet, 2015).

According to Bevitt (2015) another aspect that has also been modified by innovation has been the revision of the concept of assessment, understanding it as formative assessment, a feedback instrument that motivates students to learn, contributes to their integral development, accompanies them in their learning process on a continuous basis, and which, with the collaboration of classmates, the teacher and the student him/herself (self-assessment), manages to broaden and deepen their learning.

However, none of this would be possible without the change of perspective in relation to the figure of the teacher, as the role of lecturer and transmitter of information has been replaced by that of a pedagogical mediator, which allows the development of a relationship of partnership and co-responsibility with their students, also

encouraging teamwork. In this way, the training and preparation of teachers has also changed, so that they can commit themselves to innovation and take on new projects through continuous and in-service teacher training. This commitment to innovation has also allowed for reflection on their teaching activity, the exchange of experiences with other colleagues and dialogue between the different areas of study (Kunnari & Ilomäki, 2016).

There has also been a review of the infrastructure to support and back up innovative projects, including updated and computerized libraries, adequate laboratories, preparation of new learning environments (Porter & Graham, 2016).

If we take into account the previously mentioned second element of innovation: "Changes have been generated by the evolution of society itself, or by specific reflections on intrinsic conceptions of the mission of Higher Education in society", it is a known fact that for a long time the university system has focused mainly on the training of professionals, on the basis of curricula that have been modified, according to the characteristics of each environment, but without substantially affecting the original model. However, Lotz et al., (2015) argue that this situation has changed diametrically in recent years, as European society itself has been immersed in a series of changes, mainly caused by the new technological revolution in computing and telematics, which not only affects people's daily lives, but also fundamental sectors of university life.

In the so-called "Knowledge Society", people are bombarded with information from the furthest regions of the planet, rapidly disseminated through the Internet, specialized websites, media, international journals and other means. In this way, people have access to topics that were previously only found in scientific journals. This information, while updating us, leaves us with a feeling of helplessness in relation to keeping track of everything that is happening, even if we remain restricted to our area of expertise (Snellman, 2015).

But as knowledge is the raw material of academic work, particularly in higher education, it is necessary to move forward in reflecting on the consequences of the changes in society, which have been brought about by technology, and to identify the impact of these changes on academic work in the university. As a consequence, this work requires profound changes in the organizational culture of the institution (Snellman, 2015).

However, for these changes to take place, it requires (at the very least) a change in perception, openness to dialogue, intercommunication and partnership with the most diverse sources of knowledge production. It also requires a review and reformulation of databases and the information contained in them. As well as the implementation of new information and communication processes (Bertolin, 2018).

On the other hand, Karpov (2017) affirms that the current demands of the "Knowledge Society" provoke a crisis in the professional careers themselves, due to the demand for new skills and competences, such as teamwork, adaptation to new situations, application of knowledge and learning, continuous updating through research, openness to criticism, search for creative and innovative solutions, command of several languages, command of computers and computer processes, team management, dialogue between equals. However, this does not imply an omission or reduction of the technical competences specific to each specialty.

In the light of this, we can see that the demands in question have a direct impact on the university and its development, especially on the work of HEIs in training the professional required by today's society. This necessarily leads us to think about innovation in higher education.

Within this context, it seems indispensable to highlight those current governmental policies for higher education, regardless of the principles that led to them, have given room for proposals for innovation in teaching and research in different areas of knowledge, involving partnerships between organizations in the same field, considering their common objectives, or between organizations in different fields with similar objectives. Higher education and research in universities increasingly require interdisciplinary, cooperative and integrated knowledge, which can

only be achieved through innovation (Snellman, 2015).

As a consequence, innovation itself is indispensable in higher education, which inevitably leads us to analyses the impact of innovation on the quality of education, and which aspects of innovation are taken as a reference by teachers and students.

4. Impact of innovation on the quality of higher education

The democratization of higher education remains a political, social and educational challenge, which requires public policies that can offer greater opportunities for access and ensure that people complete higher education studies (Deshmukh, 2020).

However, in the last decades, higher education has undergone several modifications, there has been an increase in the number of HEIs, of undergraduate and postgraduate courses, the number of entrants and graduates. Educational services and offerings are growing as the population's consumption capacity increases, in the permanent search for an academic education adequate to the requirements of the market, and innovation in teaching is a determining element in defining the quality of HEIs (Maksymchuk et al., 2018).

Innovation in teaching is aimed at improving the quality of the provision of educational services, being able to list various innovative methodologies, such as the use of Active Learning Methodologies. Techniques such as gamification, simulations, as well as other forms of experiential learning represented an innovative alternative for teaching in Higher Education (Lumpkin, Achen, & Dodd, 2015).

Undoubtedly, the Internet has brought about a major change in learning methods. Students traded hours in libraries for online research, which has provided a more agile way of accessing quality and up-to-date expertise, with extensive online academic repositories, or access to large databases, representing the quality of HEIs (Lumpkin et al., 2015).

More recently, new information and communication technologies have also brought about an equally dramatic revolution in education worldwide as a result of the Covid-19 pandemic, which has forced institutions to provide online or distance learning in order to avoid contagion. In this way, distance or online teaching has established itself as a new way of acquiring knowledge outside the physical space of the university and the face-to-face contact with the teacher (Adedoyin & Soykan, 2020).

Despite the various tools that can be used both in the classroom and in individual study moments, it is not these that bring about a change in the quality of education, but rather the way in which the teacher and the student use them to their advantage.

However, at present, one can still find education professionals who are not familiar with the new technologies, either because of difficulties in learning how to use them or because of a lack of interest in improving their teaching methods. In these cases, students are left to use the advantages of these tools themselves in their studies. This can make a substantial difference to the quality of education perceived by students (Adedoyin & Soykan, 2020).

On the other hand, many teachers recognize that technology in education can be an important tool to complement studies when used with awareness and discipline. This implies an active involvement of both teachers and students in order to achieve the highest quality of the educational experience (Lumpkin et al., 2015).

As a consequence, HEIs and students who know how to take advantage of technology will have a great ally to improve their learning performance and the quality of education. However, there are other examples that denote the importance of the issue under analysis, some of which are described in the following section.

5. Examples

Currently, the education provided in HEIs follows various models of active methodologies, having in common the centrality and autonomy of the

learner, flexibility and curricular articulation. The teacher's mediation in the classroom, combining a variety of pedagogical-didactic aspects, now focuses on student motivation, and on teamwork, for the achievement of tasks of discovery and collaborative construction of knowledge, inherent to problem solving and project work (Lumpkin et al., 2015).

In this way, the teacher must pay attention to contextual, cognitive and interpersonal aspects, leading to citizenship education, to the personal and professional development of each learner and to the improvement of the perceived educational experience.

In this context, it is important to mention that every teaching methodology is based on a philosophical orientation, based on the concept of the subject to be educated, so that the higher education teacher must reflect on the evidence of his or her critical positioning, given that his or her vision and pedagogical action are not neutral. Despite the difficulties of analysis, as a participant observer, this strategy configures a process of self-involvement, with enquiry and research in the pedagogical action itself (Vlachopoulos & Makri, 2017).

As a consequence, we can affirm that innovation in university teaching methodologies has led to a break with traditional pedagogical practices, stratified over decades. The new models aim to replace fragmented memorization processes and the unidirectional transfer of knowledge, valuing self- and hetero-training, in a perspective of lifelong learning, adopting the analysis of reality as a point of reference (Vlachopoulos & Makri, 2017).

Another aspect to highlight is the influence of peers (both positive and negative) on teaching and learning processes. In this context, King & Boyatt (2015) have shown that peer work strategies are an added value, both in terms of participation in group and project work and in decision-making in complex real-life contexts. In this way, some authors have demonstrated the effectiveness of peer learning support systems such as peer tutoring and peer education/teaching.

Thus, new teaching strategies have been shown to be more focused on learning and on the development of learners' autonomy and competences, reinforcing the role of the teacher as a guide in the process of curricular flexibilization. Accordingly, the teacher must apply the dialectic model of learning in the classroom, considering students as the center of gravity of school educational projects, and as an active part in the committed construction of their learning, which implies collaborative work and commitment between teachers and students (Lumpkin et al., 2015).

Among the new tools adopted by higher education teachers, the use of digital portfolios, tutorial training spaces and e-learning stand out. However, their use may not bring improvements in the quality of teaching if teachers do not jointly define learning objectives and consider all the elements involved in learning (Alonso & Yuste, 2015).

However, this collaborative teaching work implies a contextualized management of the curriculum, according to the cognitive and cultural particularities of the students, throughout compulsory schooling and in continuity in Higher Education. The heterogeneity of educational contexts justifies the flexibility of the curriculum, which doubly influences the development of the learner and the teacher, contributing to the change of the intrinsic processes of teaching and learning (Alonso & Yuste, 2015).

According to the various active teaching and learning methodologies, the constructivist-based Problem-Based Learning (PBL) stands out, first applied in the area of Health and, later, in Psychology and Education. The basis of this learning lies in the creation of real problems, which students must solve in small groups or teams. These teams are guided by the teacher or a student tutor. While some teachers use PBL in a systematic and integrated way, mobilizing teachers of interdisciplinary content in each course, others use it occasionally, limiting problem solving to specific modules or units (Yew & Goh, 2016).

Likewise, the application of active teaching methodologies in Higher Education, combining PBL methods with the advantages of collaborative problem-solving work, developed among peers, to optimize the students' learning process, is

becoming more and more frequent (Yew & Goh, 2016).

These new teaching methodologies applied in Higher Education are based on the principle of autonomy, favoring reflective and critical pedagogical strategies, problem solving and team project work, promoting an open relationship in which communication becomes multilateral. Its use in Higher Education allows the development of conceptual and procedural competences, in an active and collaborative way, leading to autonomous learning and the application of assimilated knowledge in the analysis and resolution of new problems, placing the student in his or her professional environment (Alonso & Yuste, 2015).

It is therefore essential that the teacher is aware of the innovations that are emerging in teaching methodologies, investing in their training, with respect to their scientific, pedagogical-didactic and technological competence.

6. Conclusions

As can be seen from the evidence gathered, teaching innovation is a key element of quality in HEIs, especially if we consider the premise of higher education conceived as a service, in which students are the clients, and teachers are a key element in the whole process.

However, and in line with what has been said in previous sections, we cannot refer to innovation by simply talking about the inclusion of new technologies in educational institutions, but it has to be the way in which they are applied in the classroom, the role played by teachers in their interaction, the way in which they are introduced to students, and the resources available in the institutions, both for training and for academic research.

It is important to consider that today's students are part of the so-called "digital natives", who were born and have grown up with new technologies. Thus, the training of higher education teachers must take into account the changes in society, the contexts in which they operate and the profile of young people entering higher education for the first time. This is indispensable, since the emerging society in the present millennium requires training and research paradigms in all segments of education and, more specifically, in Higher Education, which have to be differentiated, innovative and actively mobilize all those involved.

Consequently, in order to generate a substantial improvement of quality in HEIs, one of the aspects to be considered is the role of the Higher Education teacher, which should be none other than guiding the student in problem solving in relation to real contexts of action. It is also important to mention that problem-solving, research, argumentation and problem-solving skills are developed and materialized mainly through dialogue, so that interpersonal relationships between teacher and student, as well as between peers, are crucial for innovation and for it to have a direct impact on the perceived quality of education.

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