Unlocking the Technology-Mediated Learning Process: Insights and Articulating Actions for an Institutional Approach

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Abstract

The institutionalization process of technology-mediated learning in a certain university is much more complex than simply installing a learning management system; performing some training workshops demonstrating the basic and elementary functions of the chosen platforms, and expecting that the effective use depends on the goodwill of professors. It is necessary to unlock the process through various joint actions and go beyond the pretentiously or doubtfully modern speech often empty when there is no attainment and application.

Keywords: creativity; e-resources; institutionalization; sustainability; unlocking processes

Introduction

In the year 2010 the European reform was completed which, among other things, required another way of teaching, with fewer master classes, more tutorials and directed work (Aunión, 2011).

The European Higher Education Area (EHEA) implies addressing the integration of new technologies in teaching tasks. The ECTS credit system requires replacement, at least partially, of the lecture classes by the integral education of the student, the pedagogy and the use of information technologies in educational applications (Frías-Navarro, 2010, p. 4).

In this paper I focus on analyzing the process of institutionalization of the practices of technology-mediated learning. The implementation of these practices in a particular university is much more than the installation of a learning management system (like Moodle), performing some training workshops demonstrating the basic and most elementary uses and afterwards, letting the usage depend on the goodwill of each professor.

Usually these training workshops are carried out by other universities who consider that they have the vocation to teach other universities (UAb, 2010). But they are wrong.

This is a common practice adopted by several institutions that have not worked (cake recipes) in any country, much less in Portugal, where peers tend to replicate the (good and mostly bad) practices of their trainers and selectors.

The paper draws on findings from the research “Implementation Strategies and Development of an Open and Distance Education System for the University of the Azores” funded by the European Social Fund. The main objective of this research was to observe the recent events related to likely paradigm shift in the educational area and propose to the UAC the adoption of solutions that can, at the same time, correct already implementations made, meet their internal demands and respond to these new challenges.

The technology does not seem to be a problem to leverage the support for education in the second decade of the 21st century. Portuguese universities are connected to high speed internet and students can access the contents via various means, using increasingly powerful devices with more features, greater collaboration capabilities and increasingly accessible (Roth, 2013). Worldwide different technologies are constantly emerging, which contribute to renew the working methods, enabling new approaches of interaction and methodologies.

According to Moran (2003), to educate with the support of virtual environments requires more dedication of professor, more support from a technical-pedagogical team, more preparation and monitoring. For students there is a gain of personalized learning, that adapts to their pace of life, especially in adulthood.

Is it possible to make quality education these days without the use of the latest technologies? Of course it is possible.

It would also be possible to write this text by hand or using outdated technologies as a typewriter or even some PC of the first generations.

The fact that we use the latest media does not imply necessarily in best quality. But responds to the expectations of other stakeholders, that is, of who is on the other side. And this reduces frustration (Roth, 2013).

Using new technologies in supporting education is a challenge that so far has not been faced with depth (Moran, 2003). We have done only adaptations, experiences, small changes. Most of the time, we just pave the cowpaths (Roth, 2011).

When we have paved over small rural paths we are using current technology to crystallize old models as we maintained, without questioning, the constellation of interests that defined this route as satisfactory in the past, but that's probably already obsolete today. The old route at the same time, does not take full advantage of the technologies now used, neither meets the interests of the current actors. Instead of embedding outdated processes, we must start again, because it is a paradigm shift, a revolution not evolution (Hammer, 1990).

The way passes by reviewing policies and postures that remain linked to the traditional rating system that perpetuates the exclusion, including new ideas (Roth, 2013).

Due to the lack of options (and even on the fringes of these) many graduates do not exercise their professions (related to training received) and launch directly into master's degrees, doctorates and teaching career. To Roth (2005), this ends up creating a dysfunction: professors who train professors (no prior experience) and thus perpetuate a model that increasingly alienates the academy of the labour market reality.

The pedagogical practice enhanced by years of prescriptive teaching, reinforces the vertical relationships and establishes the professor as a transmitter of information (even with good skills) while for the student is left the perspective of memory and reliable reproduction. This ritual of university classroom reveals a conception of knowledge, of human learning and consequently of society. Most of the professors do not make a strict reflection about their practices and, as a finished product of the processes that form them, repeats the same pedagogical rituals that they lived (Cunha, 1997, p. 81).

Often these same professors (without practice) are the ones that will carry out investigations, assessments or even develop trainings for professionals (with practice).

To this relationship of the application of theoretical knowledge to practice, Shulman (1986) introduces the concept of 'didactic knowledge of content' that precisely connects the domain of contents to the ability to understand them and to pass them on to others in an accessible manner.

Passing, in the words of Nóvoa (1988, p. 127), of the metaphor of Bernard Shaw to the metaphor 'who knows, does. who do not know, but dominates the teaching procedures, teaches' stage, according to Nóvoa, of valuation of educational sciences at the expense of academic and scientific contents of the disciplines.

The popularity of notebooks and the internet has greatly increased digital inclusion. The use of cell phones, ATM terminals and other contemporary technologies are part of the routine of all people.

Nowadays virtually every Portuguese institutions of higher education offer some oriented platform for e-learning and their own videoconferencing systems or from the Portuguese Foundation for Science and Technology (FCCN). (http://www.fccn.pt/en/)

All the technologies needed to access the same set of content through different media are available openly, in other words, without direct costs of acquisition associated (Roth, 2011).

The new students arrive at university digitally literate and often with greater familiarity and expertise than many professors. They arrive expecting a level of interactivity and often find nothing similar, which translates to disappointment and lack of motivation.

The few technological uses often are translated by not being sufficiently explored due to the reluctance of professors to use them. Many do not prepare adequately nor exploit the potentialities, not developing content and using the environments, such as Moodle, just as a file repository (Roth, 2007).

What changes in the role of the professor? It changes the relationship of space, time and communication with students. The space for sharing extends from the classroom to the virtual (Moran, 2003).

What is the difficulty to their adoption and institutionalization in terms of pedagogical use? People who do not want things to change are those who for some reason feel they have a disadvantage in changing.

One of the obstacles difficult to overcome that continues to persist, pointed to by Pouts-Lajus and Riché-Magnier (1998) is the state of numbness in which they are the majority of the professors, who present difficulties of accommodation to new technologies, not recognizing the educational utility. It is the so-called technophobia, the aversion to technical progress. They feel a great discomfort and even aversion by technological equipment, tending to avoid interaction, resisting the use.

To Cação (2003), some time is needed for professors to internalize this form of collaborative work and operate his personal transformation, integrating it in their pedagogical practices, overcoming resistance to change and to innovation. But Sá (2004) recalls that the European Union has been demanding the effective integration of Information and Communication Technologies (ICT) in education. There are also bets in the staff training since the current generation of professors would not be receptive.

My analysis shows that several projects have been and are receiving a ‘red light’ by lack of adherence of professors. This is a national issue, observed also in other European countries.

In this sense, any action that does not rely on the prior awareness, participation and agreement of the parties involved shall be subject to the low level of adoption seen in all universities.

The motivational workshops and/or training undertaken have not been able to achieve its goals. Many professors still demonstrate their resistance to self-sufficiency in informatics. Some are from the time when there was someone to type and format its texts, feeding databases, assemble electronic spreadsheets or even process statistical data of their researches (Roth, 2011).

Unsuccessful experiences and lack of appropriate training are factors that may explain the resistance of professors purely theoretical without basic culture in Informatics (fearing to expose their limitations), resistant to the use of technologies.

The resistance in receiving training and adapting is also part of the institutional culture of not knowing how to learn. Universities are full of avant-garde theories (for others), but they are the first not to use their theories of change (Demo, 2011).

Lifelong learning, for example, is one of the essential elements of European Higher Education Area (EHEA), to increase economic competitiveness. However it is a two-way street and also applies to professors, that is, it is related to learning at all levels and all stages of life, as well as to different ways of learning. And not just for senior students, as the UAC does.

(http://eacea.ec.europa.eu/llp/, http://www.alv.uac.pt/)

As writer Alvin Toffler points out 'The illiterate of this century will not be those who cannot read and write but those who cannot learn, unlearn and relearn'. By its very nature, media literacy education teaches and reinforces learning skills of current times (Thoman, 2004).

The reflections can be observed in all aspects of academic routine, because the vast majority of national cadres still gives lessons, although nowadays nothing is so didactically incorrect as the action of giving lessons, having a pretence of holding the knowledge, not committing to a program previously approved, including content to be developed (day by day), methods and forms of assessment (Roth, 2013).
They confuse quality with presentiality; lack of organization with autonomy.

It is the responsibility of the professor to choose between repetition and the dependency of your student or educate for autonomy, intellectual and social independence (Camas, 2006).

However, when the archaic oral tests - in all courses, not just in the traditional - and the personal assessments were still being used in courses designed and developed - wholly or partly at distance - for the community, it appears that in Portugal the emphasis remains centred on learning by memorizing the contents with no practical use whatsoever and destined for oblivion (Roth, 2013).

Innovate in education is to break the paradigm that dominates the educational situation, cultural vacuousness: It behoves us to advance, understand and use alternative forms of work in class to break in some way, in some situations with the traditional: repeat, memorize and obtain a score ten. It is not enough only to add technology to classroom, but become an aid to emancipate our professors and students, with and through technologies, for the country's social development (Camas, 2006).

Current needs are no longer focused on the accumulation of knowledge. To memorize the content is no longer important. The focus should be the ability to solve problems.

The Problem-Based Learning (PBL) is a student-centred instructional strategy in which they solve problems collaboratively and reflect on their experiences.

(http://en.wikipedia.org/wiki/Problem-based_learning)

The question is more educational than technological, because the pedagogy remains focused on traditional instructive proposals, not to mention that resists becoming technologically sound (Evans, 2001; Stoll, 2000).

Proposing changes in education have always been a very risky subject. The existing proposals are many. The resistance of the people involved, even bigger. The discussions around the proposals tend to polemicize, finding no common sense, not contributing to their implementation and thus not being relevant.

Halpern (1994, p. 10) says ‘It’s been said that changing a university is a lot like moving a cemetery. You don’t get a lot of help from the residents’.

We need to reinvent the form of teaching and learning (presentially or virtually), because faced with so many changes in society and the world of work, traditional models are increasingly inadequate (Moran, 2003).

The analysis of pedagogical and technological solutions adopted in different institutions, accompanied by the observation of formative and experiential experiences offered to trainers, as well as the strategies adopted to overcome resistance against the use of the technologies involved, can collaborate in the development of a model enabling the effective adoption of distance learning, that in imperatives interaction times should be called, as coined Pardal (2000), ‘education without distance’.

Paraphrasing him, the distance may be much more present in archaic regular (presential) pedagogical practices...

Considering that, it is possible to live together, interact and cooperate in a virtual environment; the distances can be transposed and transformed into proximity (Dias, 2004).

The world too has changed for professors. But this resistance shows its non-beneficial results in as much as the same ‘traditional’ people who will select the new professors, that is to say, the status-quo tends to remain because usually these people seek and form peers, who act and think in accordance with these rules.

Probably more significant changes will only be checked in Portugal through mechanisms of pressure, derived from the current situation where austerity, reducing costs and budget constraints have become watchwords.

In times of crisis, is investing in education a priority? Probably not.

Would it be possible to have more and better education for all, without further costs? Certainly!

To the extent that many European universities engaged in search of modernity and the students have a wide range of mobility, this can change the options of where perform the training. Even as these customers well or poorly serviced share their reviews on the internet producing, depending on the case, or a free positive marketing or a destructor negative marketing.

New processes of professor selection should arise, changing the current paradigm and requiring new skills. At the same time a greater staff turnover can be promoted by changing the current pattern facilitator of the permanence of retired professors who insist on staying active without adapting to new requirements.

However, the Portuguese universities are losing time, turned inward to their relative autonomy and a seemingly comfortable situation. But are threatened by unavoidable risks: the underfunding of the state; the growing strategic ungovernability and consequent loss of competitiveness; the decrease in the number of students and their consequences in funding; the inadequacy of trainings and consequent loss of social relevance and prestige; the constitution of the EHEA; and the competition of transnational education (Costa, 2004).

We need to reflect on the fact that the use of technology is the responsibility of individuals, and they will only be able to use it to benefit society if they are educated for such task (Lima, 2008).

In times where all universities may appear to be (on the internet) what they see fit, where the

offerings of courses through e-learning multiply exponentially and where the EHEA pasteurized and standardized the content, making equal different courses, how to stand out in chaos?

What is the perfect connection to do not get into the banality of similar offerings?

The answer comes from own question and applies to any endeavour, including educational, that want to highlight and/or start a new cycle of life: innovate, find a right concept, and establish a market differential.

In times of content sharing as one of the world largest exhibition showcases, where the courses offered in this way initially offered no degrees or certifications, some institutions follow the reverse path through MOOCs (Massive Online Open Courses). Universities edX (MITx, HarvardX, BerkeleyX, UTx), Coursera (33 universities), etc. are giving not just free samples, but complete courses - some with certification - to win customers.

(http://en.wikipedia.org/wiki/Massive_open_online_course)

We are facing all the possibilities (creative chaos) and if we cannot innovate with our own legs, we can at least observe best practices (from other universities and other professors), adapt them and adopt them.

Thus, we can finally see the power of demonstration effect and overcome the forces of inertia, prejudices and immobility.

The demonstration effect is not a panacea (solution to all problems) but can collaborate and contribute to those (professors) who are committed, interested and willing to see change, to see successful experiences as a model and inspiration for their own transformation.

But for those who remain outside the process, the experience will have no effect and will still be subject to criticism or questions.

You can't turn in favour of an idea without having a notion of it, just as it is impossible to criticize without knowing. To enter disarmed in the process is crucial.

The paper suggests several actions to assist the process. The effective use of education mediated by various technologies never took off at the University of the Azores (UAC) because in time of fat cows there were plenty of leftover funds. This question presents itself referenced as a priority since the previous management of the institution, speech that remains in the current situation.

The current pressure of the Ministry of Education and Science (MEC) and the EU towards e-learning must corroborate with the process, but these measures alone are insufficient.

Roth (2013) proposes the following best practices to be developed to assist the process of institutionalization:

- faculty awareness through events presenting success stories and good practices (from other universities and other professors) and gather the rectory, all departments as well as synergies found in the region (public and private), the association of immigrants and the local government that has among its objectives 'to boost scientific research and promote technological development and innovation to consolidate the knowledge society in the region' with vision 'scientific research, innovation and technological development as leverage for the future'.
- identification of benefits to students, professor, institution and region.
- identifying synergies and interests with all departments.
- infrastructure: existing resources and proposal of necessary resources.
- survey the indexes of UAC in the main performance rankings.
- review of the UAC website in search of a standardization of web pages (institutional,

administrative, departments, courses, professors, disciplines) and removal of courses offerings that remain (from previous years).

Good Portuguese examples of standardized websites are the University of Aveiro and the University of Minho that, by chance, are the domestic universities more technologically updated.

Several universities nowadays offer versions of their websites in Chinese (Mandarin). But the pattern is certainly to provide at least one English version.

The UAC website is its virtual presence, therefore it should allow contacts with all parts (sectors, departments, professors) without the emails being exposed and becoming targets of spam (unsolicited messages). Currently the exact opposite happens.

There are areas where it is impossible to make contact through the internet and in others the emails are exposed and mailboxes of the users are full (returning messages) or due to the high number of spam do not receive due attention.

The current version held by Morfose has a clean look, but suffers in not keeping the standardization in some departments (relevant in an institutional site) and do not present the same information in other languages.

(http://www.morfose.net/morfose/portfolio/universidade-dos-acores)

In addition to the most common options, represented by the most spoken languages worldwide, it can also contemplate the diversity of nationalities that have accessed the UAC at various levels of training as well as the diversity of nationalities that have migrated to the Azores and the cultural diversity of the EU.

• search for better visual identity of the website with Moodle and new systems to be tested: Schoology (based on the philosophy of social networks), MITx, etc.

Moodle allows the installation of multiple languages. Currently the UAC uses besides Portuguese, versions in English, Spanish and French. Probably these limited possibilities do not meet all students in mobility or immigration.

• training workshops for professors on topics needed for the project.

Some students in mobility have posted comments that professors of UAC develop their lessons only in Portuguese. Although this is a standard practice in all countries (adopt the official language) it is not the only option. In many universities of Spain and Poland, for example, higher education is offered entirely in English.

Without adopting any of the extremes, knowing the minimum of other languages facilitates the communication and integration of students that even conducting studies of Portuguese as a second language have not yet dominium over the language.

There should be a stimulus, in the spirit of lifelong learning, for all professors to acquire skills not only to computer and technology level to support education (classroom practices and/or distance), but also in languages that would meet the demand justified by students in mobility. This would facilitate the process and would be an asset in the process of internationalization of the university.

The offer of open language courses (not for free, just not linked to graduations) held by the Department of Modern Languages and Literatures is extremely small, infrequent and

insufficient. Courses are offered in German, Spanish, French, Italian and Portuguese as a foreign language; extensively with admissions only in September, or intensively, only in July.

- demonstration effect (correction suggestions of part of the website).
- publication of all disciplines of all courses (syllabus, bibliography, day-to-day programming) - can be in Moodle, but the contents must be updated in all semesters and the access must be released for visitors (what is not happening).
- demonstration effect (correction suggestions for a discipline).
- publication of materials used (pdf files of the materials sent to reprographic copies) without violating copyright (in this case it is preferable to use available sources on the internet and show the link, as well as the last date on which it was realized that was available).
- introduction of a discipline for all students; of basic training in distance education technologies (e-learning and video conferencing); initially the offer should be extended to all students of UAC, and later when the current population is reached, be limited to the first half of each new student.
- introduction of a training workshop for all professors; of basic training in distance education technologies (e-learning and video conferencing); initially the offer should extend to all professors of UAC, and later when the current population is reached, be limited to new professors or require prior training as a prerequisite for tendering.
- introduction of a training workshop for all professors of basic content production.
- establishment of a permanent office to support e-learning.
- creating an e-learning lab for experimentation and testing of new technologies as well as space to develop training workshops.
- research and experimentation on new technologies and methodologies.
- providing constant and updated offer of workshops for professors.
- active presence on social networks and more constant in the Universia portal.
- creating points of presence (PoPs) throughout the islands to allow monitoring of distance classes (reduces movement of students and professors); may be associated to existing ICT spaces of the regional government.
- evaluation of existing bandwidth conditions and/or that can be used.

Currently FCCN offers only 100 Mbps of bandwidth to UAC.

(http://www.fccn.pt/pt/rede-academica/entidades-ligadas/)

This value corresponds to less than is currently available to universities on the continent and is translated by bottlenecks in videoconferences and slow navigation.

Regardless of requesting an increase of available bandwidth (with the continent), can increase local connections (between the islands and points of presence), through its own structure or, preferably shared without costs of acquisition and/or maintenance, through partnerships with the regional government and data communication companies.

Videoconferencing and e-learning practiced internally, that is, only in the archipelago need not share the internet bandwidth available to the continent.

- development of part of the classroom content to distance disciplines.
- offering some disciplines in both options (classroom or distance learning).
- offering some disciplines totally at distance.
- offering courses in b-learning and e-learning (m-learning/x-learning).
- installation of the eduCommons platform.
- reserve of the subdomain ‘ocw’ in the domain ‘uac.pt’.
- demonstration effect (OCW/OER): publication at http://ocw.uac.pt.

- adherence to OCW Universia (and active participation with publications).
- sharing of content (OER) used in the disciplines.
- adherence to edX universities (UACx) and/or Coursera, Udacity, Canvas, CourseSites, Network OpenLearning, 10gen, openHPI, Venture Lab, Class2GO, Open2Study, & others.
- reserve subdomain ‘uacx’ in the domain ‘uac.pt’.
- exploration of necessary training that has not yet been attended in the region.
- search of a new model of sustainability (without relying on government resources and student fees): prospection, update, suggestion and trial of funding models suggested by Downes (2007).
- partnerships with the regional government and public and private companies of the region.
- partnerships with republican government and public and private companies of the country.
- European partnerships (public and private).
- international partnerships (public and private).
- participation in competitions/calls/applications for obtaining funds and internal and external resources (regional, national and European).
- participation in competitions/calls/applications for obtaining infrastructure (regional, national and European).
- pedagogic project of open courses (free of charge).
- presentation of a model of sustainability for open courses (free of charge).
- identification of local partners and sponsors to support the project.
- publication of open educational resources (OCW/OER) in http://ocw.uac.pt.
- reserve of the subdomain ‘open’ in the domain ‘uac.pt’.
- open courses (free) without certificate: publication at http://open.uac.pt.
- new model of sustainability for open courses (free of charge).
- formatting of basic open courses, with certification (edX).
- open courses (free) with edX certified.
- open courses (free) with UAC certified: publication at http://open.uac.pt.
- pedagogic project of an open university course (OUC) (free of charge).
- formatting of open courses, higher level, with certification.
- pilot project OUC: reduced number of vacancies (for the region) at http://open.uac.pt.
- evaluation of the pilot project OUC.
- OUC production: unlimited vacancies (for the region) at http://open.uac.pt.
- evaluation of production OUC UV1.
- OUC production: unlimited vacancies; publication at http://open.uac.pt.
- evaluation of production OUC UV2.
- offering courses in more than one language.
- partnerships with other universities (other countries) for offering dual (or more) certification - explore all the diversity of the region with an emphasis on migration more prevalent (Brazil, Ukraine and Cape Verde) and minorities.
- introduction of specific requirements in all public calls for recruitment of professors including pedagogical training for online teaching in higher education, proven through advanced training courses in this field; coordination of courses and/or participation in teams to develop new courses and programs of study under the e-learning scheme in higher education.
- production of multimedia content with emphasis on high-resolution video, hosting by FCCN and broadcast live over the Internet.
- formatting programs with the use of videos to publicize the activities developed in the UAC (the program 3810 of the UA was a good national example).

• creating a studio for the production of radio and TV programs.
• space on the channel grid of public TV (RTP presented the 3810 UA).
• creation of a radio and television university, broadcast live over the Internet.
• obtaining radio channels and digital TV, satellite and/or cable.
• events related to each step (to perform or performed).
• project results and publications.

It is necessary to leave the inertia and seek other sources of funding to ensure sustainability. But before this the institution needs to do their homework in various sectors including the lack of professional managers, invert the logic of the national stimulus spending spree at the expense of savings (resources must be fully consumed in the same budget year) and establish a crisis cabinet (team focused on troubleshooting and support for new projects)…

The effects of immobility are perceived on the difficulties of articulation to participate in FP7 calls that could allow obtaining a high-speed backbone, between all the Islands, connected to the network GÉAN (Roth, 2013).

The lack of attention and sensitivity to the local demands (regional), which does not always mean additional costs (contrarily, it could mean additional revenues) have been represented by a long process of internal professors disinterest in adopting effective technologies in supporting their educative actions, misguided collaboration protocols, lack of interest in attending all islands and opening up of spaces so that the counterparts occupy the space not serviced.

In recent years the UAC has missed the train in relation to various demands. And this applies to e-learning, the lack of fight against resistance of professors in the use of technology, proper attention to migratory diversity of Azores, support to students in mobility, the approximation of internal watertight areas, the invitation to participate in the OpenCourseWare (OCW) Universia and the participation in meetings that could improve your infrastructure, reduction the effects of insularity, effective presence in all the islands (without the need for new campus), reduction of maintenance costs, increased visibility, external projection and internationalization by finding new customers outside their area of physical presence.

Some professors even declare the uselessness of such attempts, by seeing the university as refractory or giving little importance.

It is only possible to innovate with people who think differently and are open to different proposals and implementations, not necessarily ignoring what is established. You do not get different results doing the same things and the same way.

I conclude by suggesting that offering distance courses in e-learning scheme or even sharing content through the OpenCourseWare (OCW) initiative is no longer enough to become a reference or even excel in a EHEA, which pasteurized offers, stimulated the mobility and where a same paid course coexists with an identical free one, without tuition and fees cost.

In a context of crisis and shortage of resources we must have common sense, perform a reading of reality beyond the immediacy, betting on innovation, creativity and heterodox solutions. Not just the doubtfully modern rhetoric, marked by the posture that tries to turn modern what basically remains archaic - regardless of the technologies available and underused - when the processes as well as curricula, which are the portrait of the university, are aged (Demo, 2002, p. 28).

It is necessary to institutionalize, something that goes beyond the speech often empty, when there is no adherence and implementation.

Institutionalize means legislating, defining and enforcing the following of rules and procedures.

On the regional level, the teaching mediated by technologies could contribute to promoting inclusiveness and help create a society based on equality, where justice, equality and interdependence ensure a better quality of life for all, without discrimination, where diversity is recognized and accepted as the basis for social coexistence by helping to build a more democratic and sustainable society.

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