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Nowadays, teachers have to educate children in the use of digital technologies. They have to meet new pedagogical imperatives: knowing how to manage and create information, communicate, participate in networks and exchange views. In order to do this, our pupils need new skills in order to become "global citizens", able to understand the cultural diversity surrounding them. The specificity of the iTEC project, on which our study is based, centres on the evolution of the school in years to come. An evolution which takes into account the principles of an education in collaboration and interculturality.

Keywords: Interculturality – collaboration – Social and civic competences – Pedagogical innovation – 21st-century competences – teaching practices – civilisational expertise -

¹ National Centre for Pedagogical Documentation

Introduction

The use of digital tools is presented as a given in modern educational systems. In France, it is therefore a question today of "*Bringing the school into the digital age*" and it is in terms of strategy, not only scholastic but also cultural and social, that this objective is expressed: "*a pedagogical imperative and a societal project*" (French Ministry of National Education 2013). This long term goal is part of a general movement focused on "*lifelong learning*" and on a series of "*key skills*" identified as such for the exercise of citizenship in the 21st-century. These stated objectives of the scholastic institution in relation to digital technology are part of an in-depth pedagogical reform and can be identified with social practices linked to the generalisation of digital practices. These practices in fact highlight the use of connected devices in all sectors of everyday life (TNS Sofres INRIA 2014²; IPSOS 2014³). By the same measure they question the potentialities of these devices for interindividual and intercultural communication, as well as the capacities for social construction of the knowledge that they involve. It is these two aspects, collaboration and interculturality, that will be addressed in this document.

And so, at a time when mobile terminals are becoming widespread and individualised, when everyday habits involve the use of mind-boggling figures and infographic material, educational questions point to the necessity of training the young in the use of these techniques, but also, or even first of all, of the reform of teaching practices. It's in this respect that pedagogical projects involving the use of information and communication technologies are promoted as "innovative", the promise of a new way of learning tying in with the principles of intercultural education, bringing the individual face-to-face with the unfamiliar: new knowledge and others. The iTEC research-action project (*innovative technologies for an engaging classroom*) is coordinated by the European Schoolnet organisation and funded as part of the European Commission's 7th Framework Programme for Research and Technological Development. It brings together 18 countries and aims, over a period of 4 years (2010-2014), to test learning scenarios inspired by the methods of design thinking and involving the use of ICTE (Information and Communication Technologies for Education). The skills of opening up to others and of collaboration are, amongst others, central to iTEC scenarios. We propose here to investigate this collaborative, and therefore intercultural,

² <http://www.tns-sofres.com///sites/default/files/2014.03.10-numerique.pdf>

³ www.ipsos.fr/ipsos-mediact/actualites/2014-03-14-print-tablettes-autres-ecrans-nouveaux-usages-moins-20-ans

dimension, in association with information and communication tools. Our problem is focused on primary and secondary teachers involved in this research-action project, and we will investigate their statements with regard to these collaborative and intercultural dimensions which are enshrined in the principle of the pedagogical activities proposed by iTEC. Our perspective is that of information and communication sciences, centred on the analysis of communicational systems. It has similarities with the didactical issues of interculturality raised by educational sciences.

Definitions

"Digital competence" is one of eight key skills of lifelong education and training mentioned within the reference framework of the European Work Programme, "Education and Training 2010" for citizens (EU 2009). This "digital competence" is implemented at local level by each member of the Union and shapes certain academic requirements; to quote the French example of the *Socle commun de connaissances et des compétences*⁴. *"Digital competence involves the confident and critical use of information society technologies (IST) at work, in leisure activities and in communications. The mastery of ICTs is a prerequisite: the use of the computer to obtain, evaluate, store, produce, present and exchange information, and to communicate and participate via the Internet in collaborative networks"* (EU 2006): the skills of communication, working in a network and collaboration are an integral part of this "digital competence". They are partially expressed in the certification benchmarks for the different levels of school and university teaching: B2I (Internet and computer user's certificate) and C2I (Internet and computer user's certificate for higher education). Versions of the latter are also available for certain professions, including teaching (C2I2e, for example, field B1 *"Working in a network with the use of collaborative work tools"*).

In the field of information and communication sciences, as in that of education sciences, "collaboration" is based on the reciprocity and interactions of a group working together for a common goal. From an organisational point of view, each element or sub-group can be allocated a particular task, collaboration here relying on cooperation. With its theoretical roots originating with thinkers on the activity, thinking on collaborative and cooperative work is associated with new questions linked to computer and digital instrumentation (Henri Lundgren-Cayrol 2001).

⁴ Common Knowledge and Skills Base

Intercultural competence is part of social and civic competences, included as is aptitude in an "exchange between cultures from which both (or several) sides should benefit" (Cuq 2003). In this, competence is a competence of communication. In education sciences, interculturality is rooted in an interactionist paradigm. Beyond a simple exchange between individuals from different cultures, intercultural education, on the one hand, tends to establish a common ground for exchange; and on the other hand, to create a potential for adaptation and understanding of these interactions by stepping outside of one's own cultural system in order to make it compatible with other prevailing systems. In this, intercultural education also aims at socialisation for diversity.

State of the art

The social and collaborative dimension of the construction and formalisation of knowledge has been largely reformed by the accelerated development of digital communication and information tools. Defined as an abundance of information, the interconnection of machines and horizontal functioning in networks, the Internet and the Web owe much to this approach and to its implementation processes (Cardon 2005). Self-proclaimed as a "social web" (O'Reilly⁵) the "2.0 web" has strengthened the promises of widespread communication and of "collective intelligence" inherent in the emergence of pre-digital projects such as the "Mundaneum" of Paul Otlet and of concepts such as that of the "global village" of Marshall McLuhan. As an extension of thinking on "intellectual technologies", thinkers on the Internet have largely weighed up the potentialities for exchange and sharing and the renewal of a possible "living together", linked to the development of connected technologies. In a schematic fashion, two opposite visions have been distinguished: the fusional communion permitted by the methods of cyberspace (Lévy 1997) and the warning pointing out discrepancies in access and benefits (Wolton 2003). The beginning of the millennium saw the surge in publications on the massification of internet user behaviour from a collective and community point of view (Rheingold 2003). This phenomenon and its practical implications have been described in a very precise way: we are thinking of the legal-economic methods of creation/circulation of information revealed in the model "commons-based peer production" by Benkler (2002), of folksonomies (Crepel 2008) and of the "fan culture" based practices analysed by Jenkins (2006). This theoretical and modelling thinking is echoed by many empirical studies, belonging to very varied disciplinary fields (information and

⁵ <http://oreilly.com/web2/archive/what-is-web-20.html>

communication sciences, sociology, philosophy, education sciences, management sciences, cognitive sciences and computer science...) which aim to question the coincidences between the promises of systems and the reality of uses and benefits, in particular for education. It is then a question of describing and formalising collaborative digital competence very precisely and of designing suitable training situations.

According to Lusting and Koester (1999), four approaches have been used to understand intercultural competences: the individual approach, the perceptive approach, the behavioural approach, and the specific cultural approach. Current research is at the crossroads between these diverse approaches. In fact, intercultural competence has no other alternative than to incorporate specific cultural mechanisms, viewed within the overall framework of cultural phenomena. According to Barette et al. (1993), it develops within a dynamic based on self-knowledge (knowledge of one's own culture, knowledge of one's habits, values and behaviours as well as what motivates them, the taking into account of one's prejudices, stereotypes and "cultural pattern". Next, it's a question of focusing on the knowledge of others within an objective of communication. From an interactionist perspective, intercultural communication and intercultural education are therefore an exchange between people representing different cultures (Hall, 1976). Intercultural competence has to be integrated into the context of the challenges of current sociocultural changes as digital technology allows more and more interaction, exchange and reciprocity as well as the recognition of certain values, lifestyle and symbolic representations to which individuals and society refer in their conception of an increasingly globalised world. These new challenges call for interactivity between beings, an exchange of knowledge, an awareness and divergence of viewpoints (Ouellet, 1991) and therefore for increasingly deeper collaboration (socio-constructivist vision of the development of knowledge). It is in effect within the framework of common production activities that collaborators negotiate shared representations. Based on the study of the ILET project: *"International Leadership in Educational Technology."* by Nikki Davis and Mi Ok Cho, *"Intercultural competence for future leaders of educational technology and its evaluation"*, we can define openness, flexibility, motivation, adaptability and taking a balanced view as being intercultural competences.

The question of collaborative and intercultural competences draws on a multiplicity of fields. Although it questions the real added value of dedicated technical systems, it also involves the identification of pedagogical situations and positions which allow them to emerge and work. This question closely affects the project of society and the scholastic institution, putting back to back the elitisation and dissemination of digital knowledge, a challenge summarised by the

Francophone concept of “*apprenance*” (Carré 2005), which can be compared to the broader Anglo-Saxon term, “*empowerment*” (Bacqué Biewener 2013).

The issue

Our intention here is not to deal with the collaborative and intercultural competences possibly developed by pupils within the framework of orchestrated pedagogical situations. Our approach aims to outline the representations of teachers involved in a defined pedagogical activity (iTEC), precisely focused on an objective of collaborative creation/production. We therefore seek to highlight the representations of these teachers as regards the implications of the situation for their practice, their position, and, from a holistic or ecological point of view, on the pedagogical system constituted by the interactions between individuals together, the learning spaces and times, and the tools employed. This, knowing that making available dedicated technologies for collaboration is not enough in itself to establish it, and, likewise, that making resources available is not enough in itself for the construction of knowledge. The iTEC scenarios (*learning stories*) are open and adaptable to each teaching level and context. They are implemented through a fixed number of activities (*learning activities*⁶), presented in the form of “modules” and tools, specifically created in the framework of the project ([TeamUp, Reflex](#)) or general public (Padlet, Bubl.us, Diigo...). iTEC activities require areas of skill from the teacher, collaboration and interculturality amongst others, and it is then possible to consider the changes necessary to implement them in terms of practices such as organisation and spatial layout.

Methodology

We offer here the support of a survey of an essentially qualitative nature conducted amongst a group of teachers and trainers involved in a European project (85 teachers, 29 of which were primary school teachers and 56 secondary school teachers, from 13 different schools). From a methodological point of view, our approach was focused in two areas: a case study in a class situation, involving a distanced observation based on a criterion grid and four semi-structured interviews with the teacher, a group of pupils, an advisor for ICTE, and the headteacher of the school. The objective of this case study was to outline the implementation of the pedagogical scenarios tested, both from the point of view of the objectives of the teacher and of the real learning situation and from the point of view of its possible degree of innovation (evolution of

⁶ <http://itec.aalto.fi/learning-stories-and-activities/>

pedagogical thinking and practices of the teacher). In the four years of experimentation, 11, case studies were conducted for France. These results can be put into perspective with the overall data collected at European level (McNicol Lewin 2013).

In a second stage, data was collected via an online questionnaire from 16 European coordinators of the project. The aim of this questionnaire was to study the contribution of iTEC in the construction of a learning environment able to help teachers acquire intercultural competences. The survey was based on the study of the ILET project: *"International Leadership in Educational Technology"* by Nikki Davis and Mi Ok Cho, previously referred to. This questionnaire tackles the way in which exchanges are made between coordinators and teachers, the personal motivation of these coordinators to participate in the project, and that of the teachers (in particular in relation to their "curiosity", their "desire to discover new pedagogical approaches", "to have contacts abroad", their "desire to innovate", and "exchange and communication"); finally, what type of training would they advise to develop "intercultural competences".

Results:

- **Collaboration/cooperation between pupils**

The results amongst all of the European countries participating in the iTEC project place great importance on collaboration in the sense that the type of pedagogical activities proposed for experiment constituted, according to the teachers questioned, additional opportunities to establish collaboration and group work: *"The impact of iTEC on students' collaboration skills again echoes findings from previous cycles (...), 90% thought there were more opportunities for collaborative work."* (McNicol Lewin 2013, p.57). Moreover, from the point of view of European teachers questioned, this work given to pupils involving a more systematic collaboration improved learning: *"The most common reason given to account for these improvements in all learning outcomes (...) was increased collaboration (...): The collaborative work helps them to progress from their starting points to a positive outcome, which enhances their independence, and their dependence on the group at the same time; they develop a better understanding of themselves in any work when working in teams. Now they understand the benefits of having different criteria and points of view, and are able to arrive at a shared understanding (Spain, teacher)"* (McNicol Lewin 2013, p.60). By contrast: European teachers according to whom the benefits of experimentation for learning were fewer, mentioned a lack of skills precisely relative to collaboration, amongst others: *"Among those who did not think their students' attainment had risen, a wider range of possible*

reasons were given, but these often related to student's lack of skills in critical areas such as creativity, digital literacy, collaboration, or independent learning." (McNicol Lewin 2013, p. 61). This high collaborative dimension in the pedagogical activities offered is found in the testimonies of the French teachers questioned: *"It introduced a faster class dynamic than usual. That's to say that the pupils cooperated a lot more quickly than in previous years. In two months, they were capable of working in groups, when normally it takes four months. It usually happens in January and here it happened in November. (...) Each group has higher availability because there are groups who are autonomous and others less so. Each time, we complain that we have a lot of pupils, but here we can work with groups of eight or ten pupils. It's really the basis of the project; that's really what has transformed my teaching."* (Primary school teacher). Incorporating the collaborative aspect into the daily activities of the class involves however, according to the teachers, the introduction of several facilitating elements, and in the first place, the motivation of the teacher for this type of pedagogical organisation and, above all, the trust they place in the pupils: *"There is less noise, it's more dynamic and this allows the class to be separated into different totally autonomous work areas. Afterwards, there are times of collective summary, but we should not hesitate to do that, especially as the pupils knew how to do it two years ago. They have not forgotten, I think, except that we no longer have this situation because it is more comfortable to put them in rows. At the beginning, the first sessions were noisy. We wondered if they were going to really work for three quarters of an hour or not. And now it works. You have to get through it, you have to accept losing a little of this time, they are capable of it (...)"* (Primary school teacher); *"You have to have ideas, and bounce off the pupils' ideas (...) You have to trust the pupils and then it doesn't matter if you don't manage it... (...). But all the same it's an approach (...) It's a position which is not easy."* (Secondary school teacher).

Enabling collaboration involves in the first place organising it and then the question arises of the groups which have to be created: iTEC activities involve the creation of groups based on interest in a subject, rather than affinities, and the allocation of roles within the group. Far from being additional or incidental, this advance preparation is completely necessary for any implementation of collaborative activities and competences. It is a condition also identified at other teaching levels, university, in particular, as it enables: *« (...) the breaking up of affinity-based micro-groups and their established leaders, giving students the possibility of getting to know others through work, of negotiating their place within a group, of experimenting and comparing different forms of teamwork organisation."* (De Lavergne Heid 2013).

Collaboration is not limited to intermittent group work itself: on the contrary, it feeds into all tasks involved in the pedagogical project. In particular, it profoundly alters search for information tasks, in advance and throughout the project: it involves searching for information together but also of validating and sorting this information together. In this respect, collaboration is organised around a shared creative objective: the drawing up of a common set of problems (scientific demonstrations, drawing up of specifications or a prototype...) and/or the creation of a final joint production (interactive map of local heritage, video tutorials...). This poses a certain number of pedagogical challenges, both in the collection of data, memorisation, classification and sharing of data and/or information, the identification of sources and their validation (documentary sources, collection of data *in situ*, the identification and interviews of witnesses or outside experts in the field), and in the allocation of these tasks in time and space (managing out of class and out of school time when data or information is collected at the weekend, for example, at home or during a family outing): *"Something not planned for that was however a little predictable, was all the work involved in collecting information and putting it online. Having already done it, I knew that it would be long, but here it was even longer. (...) it's one of the things that you have to do. (...) So it's not lost time in the end. I had the impression that the project was not making progress, we had nothing on the map, even the pupils felt it. It was at a standstill, we were no longer making progress. All at once, all the work paid off and it all happened"* (primary school teacher).

This type of thinking reflects a basic theoretical trend which aims to rethink Information Literacy models and skills, including interactions between digital and non-digital devices; as well as interactions between individuals and groups, present together or at a distance, in a synchronous or asynchronous manner (Thomas et al 2007; Mackey et al 2011; McNicol 2014). The different stages of information research activity and the processing of information were modelled traditionally, and arranged in the form of teaching content, apart from collective and instrumental cognitive modalities. It was not simply a question of injecting a dose of additional interaction, but actually of rethinking processes and stages in the light of what marks and redefines informational practice today: collaboration, social navigation and the creation/production/characterisation of information by the information seekers themselves and therefore, where we are concerned, by the pupils and their teachers (Spiranac Zorica 2010).

- **Collaboration/cooperation between teachers and pupils, and between teachers**

Collaboration is most often thought of as being between pupils, but it strongly involves the decentring of the teacher and by the same token, a collaboration between teacher and pupils: *"On principle you cannot make a mistake because here we are in the process of discovering"* (Secondary school teacher); *"You always have experts in a class. (...), especially when the teacher is really out of their depth (...). All the more so now I would say. (...) You pool ideas afterwards, and exchange views..."* (Secondary school teacher). Likewise, the collaboration thus implemented in the class seems to deeply pervade the practices of the teacher and alter their way of working, of preparing their lessons and interacting with their colleagues. The teachers questioned at European level on iTEC activities and on the use of the technological tools made available thus mentioned the collaboration between pupils, but also between the teachers involved (McNicol Lewin 2013, p.39 and 54). The French teachers also talked about this actual or proposed collaboration, but in any case desired: *"(...) I believe that results are better than when you are alone."* (Primary school teacher). This collaboration is related to the possibility of peer to peer learning and focuses, as do the learning objectives set for the pupils, on the approach followed rather than on the final result achieved: *"The aspect of explaining to your colleagues seemed really important to me. On the use of ICTE, you see lots of stuff, you only present wonderful things which seem unachievable to us, and you forget to tell colleagues to do "bottom of the range" stuff and how to do it. (...) for us, the question is how I do it in my class? (...) There it is, the well packaged thingamajig that acts as an example, but that's all there is. The proof is that there are at least two or even three colleagues who are going to pick it up in school, because this part of how to do it was thought about. (...) . I remember a course we did. (...) In fact, in the morning, we actually saw ten good things, but on leaving nobody knew what to do. So it's important to give a practical demonstration, to provide a little technical background so that everyone who looks at the website can say to themselves that they can do it."* (Primary school teacher).

- **Scripting: "added value" of the constraint**

The pedagogical activities proposed by iTEC come in the form of modules which can be implemented in the class one after another, or in a repetitive manner. This powerful constraint which the teacher involved in the experiment agrees to follow proves finally, in the words of the people questioned, to be a triggering factor for the analysis and modification of practices: *"The different activities of the iTEC project are those which we already carry out in our classes. After committing yourself to using them, it obliges you to extend your classroom practice. There are activities such as "collaboration", some colleagues sometimes don't do*

this type of activity in their class and so committing themselves to using them, means, I believe, extending our classroom practice. This gives you additional constraints of course, but in relation to the project, it motivates the pupils to help each other, and criticise also, with regard to what others do (...). Group work was important, it was done via the use of the different activities (...), We wouldn't have made so much progress in formulation and explanation. I can see a real difference due to the fact of having to make the video, of showing, of explaining, which the iTEC project requires us to do." (Primary school teacher); *"At the beginning we set ourselves an action plan, based on the number of sessions allocated. I presented it to them a little like that, in order to try and see where we were going, what steps we had to take... (...) So we followed the plan directly. (...) It's really interesting. Because, look, it doesn't give you any content, but it gives you an idea on how to organise what you need to get across, you know. That's it."* (Secondary school teacher). This aspect seems to us to echo the principle of the "resonance" of activities which are contextualised and make sense together, an important part of the principles highlighted by Catherine De Lavergne quoted above (2007).

- **Collaboration and learning space/time**

Including collaboration in an pedagogical project and devoting the use of technologies to it changes the relationships between people and the teacher/learner situation. This also involves a high degree of advance planning and division over time which is both very scripted and flexible, as well as a consideration of the space(s) in which the learning will take place. The classroom, thus envisaged as a socio-technical object (Quéré 1997, quoted by De Lavergne Heïd 2013), is regularly referred to in collected testimonies as an essential element for the successful running of collaborative activities, which would need to be reconsidered, whether the teacher has the material resources or not: *"The organisation of the space, it's important, I think, for learning as well. If they are arranged in straight rows for example, that won't work well..."* (Secondary school teacher); *"(...) telling yourself that you can turn the pupils towards the walls and turn ourselves around, that's really going to the two extremes. Personally, I got a lot from it."* (Primary school teacher). This type of remark is found at European level: *"That is also one major difference. In those lessons we tend to collaborate more often. We would like to do this a lot more, but in most lessons, there is no room for that"* (McNicol Lewin 2030, p.43). Reflecting on school architecture, from the general organisation of the buildings to the arrangement of the furniture in the classroom, is not new, however. It is nonetheless coming back in force at the time of "digital education" (De Gregori 2011; Nair Fielding

2005). And so, as we have seen, collaborative activities require a modification of learning times: they also involve, for the teacher, a consideration of the spatial organisation of learning areas, in order to enable this distribution of activities and tasks among the pupils and groups, in such a way that also takes account of distanced learning (outside the classroom and school time) enabled by connected devices (VLE, digital workspace, online collaborative tools...).

- **Intercultural competences in the iTEC project**

From the beginning of the iTEC projects, the teachers were very curious to discover new pedagogical approaches and to deepen their understanding of them. This initial motivation was gradually nurtured by the need to discuss things with the project coordinators and the desire to collaborate with other teachers.

At the end of the survey, we noticed that in order to adapt innovative pedagogical scenarios for their classrooms and to tolerate the ambiguity of "unfamiliar" situations, the teachers had to acquire new skills, in particular openness and flexibility. In fact, their openness of mind made them more receptive to the new scenarios proposed by iTEC and through that, they were able to seek to extend their understanding of innovative pedagogical fields. "The acceptance of new pedagogical approaches", "adaptability to new technologies", the creation of new contacts with teachers who have a different pedagogical approach, the active role of these teachers (situational research, conceptualisation in the classes of new pedagogical projects) in an unfamiliar environment are also characteristics of openness. This allowed these teachers, then in a learning situation, to broaden their interests and become involved by introducing their research into the everyday life of their class, with their own pupils.

The interaction with their peers, but also the fact of collaborating with culturally different teachers, meant that they had to adapt to diverse cultural situations, and therefore also to the discovery of pedagogical practices specific to each culture. This flexibility allowed them to "have contacts with abroad", "to learn new pedagogical approaches." and "to explore new learning processes", while adopting new pedagogical scenarios in their previously existing didactic schemes. By being more inclined to learn and interact with different people, and by avoiding rapid or stereotypical conclusions, their pre-existing behaviour was gradually transformed into behaviour appropriate for the specific nature of new technologies.

Despite everything, a knowledge of foreign languages, which would allow a fluid exchange between peers, is something that the teachers still need to acquire. Initiative-taking and openness to other cultures also needs to be developed.

The first results underline the essential nature of intercultural competences within the framework of such a project: they underpin the implementation by the teachers of real collaborative activities between schools and in the class. The availability of the teachers themselves for learning and the willingness to experiment with new pedagogical approaches are closely linked to intercultural competence. As part of this European project, such professional competences appear essential for a really beneficial pedagogical use of digital means of communication and collaboration.

Conclusion/discussion

The competences linked to collaboration and interculturality echo elements presented as essential functions of information and communication devices: in this respect they constitute an object of central reflection, in the field of information and communication sciences, amongst others. Their possible implementation in a pedagogical context needs to be part of an overall approach, however, which is in no means limited only to the tools that can be used, procedural tools and competences on which public benchmarks and policies are however almost exclusively centred. Orchestrated collaboration between pupils, and between teacher(s) and pupils, are thus subject to a certain number of structural factors: the constitution of groups, scripting, the consideration of learning spaces. And so, the objective of collaboration is likely to impregnate not only the use of a certain type of tool, but obliges us to rethink the different cognitive and practical steps of classwork and to integrate out of school learning. In this regard, methods of assessment should also be considered.

Communicating and exchanging is one of the particular features of digital technology, altering by the same measure our relationship with space and time. These specificities offer teachers the opportunity to use different communication technologies in their learning process (e-mail, video conferencing, virtual learning, etc.), but also of collaborating and exchanging views with the aim of developing new pedagogical practices. Via digital technology, this desire to enlarge the field of knowledge can and will be realised. The challenge will be to develop an educational technology which will take into account cultural differences which are becoming more and more significant, as these cultural differences can become a factor of incomprehension or a driver for the development of knowledge. The development of intercultural competences – which can be perceived as purely human aptitudes — are part of the digital education process. In that, intercultural competences are not the result of something, but they are part of a process of change of the individual's cognitive system.

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