Integrating New Technologies in Human-Driven Professions: How Can Tourist Guides Leverage Digital Transformation?

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Abstract—**Qualified tourist guides are professionals in cultural, technical, and scientific mediation and they work mainly in public spaces, museums, and historical monuments. The digital transformation of the 2010s has revolutionised the approach to knowledge and has led to a change in the role of qualified tourist guides. By this we mean the explosion of Wikipedia and social networks, as well as the introduction of multimedia in museums. The effects of the current health crisis (Covid) have added to all this and imposed profound changes and irreversible developments. Our reflection is about, on one hand, the way in which the qualified tourist guides can rely on digital technology during a tour and, on the other hand, the new skills that student guides must acquire during their scholarship. We seek to understand where and how digital technology can be an ally of qualified tourist guides without replacing them. We will rely on the professional degree of qualified tourist guides (in French: *guides-conférenciers*), prepared in our Gustave Eiffel University, as well as on our connections with the National Federation of Qualified Tourist Guides, to analyse the digital approach of future professionals in the sector.**

Keywords – Tourist Guide; Guide-lecturer; digital tools; cultural mediation; museums.

I. INTRODUCTION

Since 2010, the tourism sector has been facing a profound digital transformation and has also hit the shock of a health crisis. This is particularly true for qualified tourist guide's profession. We propose to analyse the evolution of the profession of qualified tourist guides, or in French *guide-conférencier* [1], in the global context of digital transformation and Covid pandemic. After an introduction (Section I), we explain our scientific positioning (Section II) and we give an overview of human mediation (Section III). Then, we outline the use of digital new tools in the mediation (Section IV). Finally, we analyse the future of qualified tourist guides facing the Information and Communication Technology (ICT) (Section V) and we give

a conclusion (Section VI). Observing our students over the last few years and following the experience of a qualified tourist guide, we realised that it became necessary to re-think the profession of tourist guide by integrating digital tools. Through their master's dissertations and their internships, our students reflect on how to integrate digital tools in their job. We intend to analyse their approach of this subject during their studies and also after, when they will start to work. We want to understand in which way digital technology can be an ally of a qualified tourist guide and will try to provide an overview of the current situation.

The decree n. 2011-930 of August 1st 2011, relating to persons qualified to conduct guided tours in museums and historical monuments [2], has modified the status of the qualified tourist guide. From now on, the law recognises only one professional figure that groups together the four professions that existed until 2011 (regional guide-interpreter, national guide-interpreter, guide-lecturer of the Cities and Countries of Art and History, national lecturer): the qualified tourist guide or in French *guide-conférencier*. Obtaining the professional license, which is valid throughout France, is subject to the validation of a professional bachelor's degree or a master's degree if the following courses units have been validated: tourist guide skills, professional practice, and modern foreign language. The professional bachelor's degree is characterised by its multidisciplinary approach. The bachelor's degree proposed at the Gustave Eiffel University, for example, focuses on three fundamental aspects: history of art, cultural heritage and general knowledge; practical aspects with guiding techniques and oral mediation of the public; professional aspects of communication, marketing and occupational integration. The aim is to provide students with tools allowing to deal with any type of situation and being able to practice their profession independently or in collaboration with tourist offices and other tourist or cultural establishments, as well as connecting and networking with

professionals of the National Federation of Qualified Tourist Guides [3].

The profession of qualified tourist guide is in constant evolution. It requires constant adaptation to the various audiences and the context or subject of the visit. This is especially true with the arrival of new technologies in the 2010s, which have revolutionised the approach to knowledge and have led to a change in the role of the qualified tourist guides. Three stages in the evolution of the profession of qualified tourist guide allow us to better understand its link with the evolution of the Information and Communication Technology (ICT). The first one is about the operating mode of the mediation of the public in general and is related to the evolution of public's expectations. The second is more specific to the content of the tourist guide's presentation, which has evolved with the availability of online information. The last stage combines the two previous ones, gathered in the digital solutions developed in the field of public mediation.

In the following sections, we will detail these three stages in order to understand how the profession of qualified tourist guide must evolve and adapt to the new socio-cultural context. We will analyse the context of the professional bachelor's program of *Guide-Conférencier* at Gustave Eiffel University, and more specifically the relationship of future guides to the digital world. These analyses will be carried out using an information and communication sciences approach.

II. SCIENTIFIC POSITIONING: CONVERGENCE BETWEEN LINK, MEANING ACTION AND KNWOLEDGE

This communication associates two teacher-researchers, one in information and communication sciences, the other in computer science, a research engineer working on cultural heritage and a qualified tourist guide, teacher in the same University. They constitute a large part of the supervision and teaching staff of the *Guide-Conferencier* professional bachelor's degree at Gustave Eiffel University. This work is placed in a perspective of research-action and transdisciplinarity, with the construction of knowledge for action starting from new uses of socio-technical devices.

Our scientific position is in the field of information and communication sciences, within a research team: DICEN-IdF (Information and Communication Devices in the Digital Era). We therefore have an approach that integrates the dimensions of communication (exchanges, interactions), uses and production of data and the use of socio-technical devices. We position according to F. Bernard [4] insisting on the convergence of link, meaning, action and knowledge.

Our work is mainly action research, in particular to analyse activity situations, with the dimension of social constructivism: construction of social reality by the actors. We thus integrate the "situational and interactionist semiotics" approach proposed by A. Mucchielli [5] with the dimension of feelings, emotions and the body as social media, as proposed by F. Martin-Juchat [6], which is particularly important in times of health crisis.

From a methodological point of view, we are depending on the context, in situations of "participant observation", but more often in "observer participation", by being very involved in the follow-up of students in professional situations or in professional activities (all range of touristic and cultural structures).

This double positioning, which is also a positioning of theoretical reflection and strong practical involvement, allows us to be particularly proactive in a reflection on the employability of new graduates and the evolution of this profession of mediation for the development of cultural and tourist heritage in the territories. In an approach of economic and territorial intelligence [7], we insist on the reliance (links, interactions) to participate in the resilience of territories, in the double context of digital transformation and health crisis. As in the idea to search for new ways in Competitive or Economic Intelligence [8].

Reliance and resilience by insisting on the informational and communicational stakes of activity situations, to improve the added value and employability of the qualified tourist guides for a better adaptability to meet the expectations of new audiences, and to be much more active in their stays and visits and much more sensitive to the authenticity of the territories and to personalised experiences.

III. OVERVIEW AND EVOLUTION OF HUMAN MEDIATION

The scope of intervention of a qualified tourist guide is very vast and covers the whole of the French cultural and natural heritage.

In France, qualified tourist guides are the only ones allowed by law to conduct visits and lectures in museums and historical monuments (except for curators and teachers, to a certain extend). We, therefore, chose to focus on museums and historical monuments where the digital element is increasingly important.

The functions of the museum, as we recall, are exhibition, conservation, scientific study and animation. Museums bring their collections to life and offer different approaches to reading them for different types of visitors. Animation acts as a driving force in the museum institution and can take various forms: educational activities, guided tours, lectures, concerts, workshops, events and demonstrations of all kinds [9]. Consequently, mediation approaches, whether human or digital, are based on the knowledge of the public's expectations. In fact, the *modus operandi* of mediation professionals has evolved to adapt to the expectations of the public by moving from the simple discourse (from "saying") to action (to "doing"), with the rise of performative and participative interventions. As Stéphanie Airaud reminds us, "The mediator's discourse proposes to go beyond the guided tour to play on the springs of aesthetic experience. Embodied by the lecturer for an audience, this speech uses taste, sound, imagination, fiction, the illusion of image and word to invent a performative maieutic. It therefore seems possible to move from saying to doing" [10]. We consider here "*dire*" (say) as an oral transmission of a discourse on the artistic works, and "*faire*"

(do) as the creation of a situation, a space for play and the advent of a form. Many guides and lecturers then invented new forms of mediation, in which the public more easily speaks up during debates, physically invests the tour framework in artistic forms (dance, poetry, meditation, etc.) or playful forms (photo rally, treasure hunt). The most important thing is to become an actor (or "spect-actor") of a new type of participative visit.

The discourse of tour guides has also evolved with the increasing access of the public to information. From the mid-2000s onwards, Wikipedia revolutionised public access to online information. As its diversity and reliability grew, tourist guides gradually lost their status as knowledge holders. They questioned the content of their discourses and sought to offer more reflection and perspective in addition to the raw information. Since the explosion of social networks in the mid-2010s, the youngest users now rarely consult traditional media and instead lock themselves into information loops. For these audiences, the discourse of the qualified tourist guide has evolved further with the return of popularisation content combined with increased vigilance on discernment since the explosion of fake news from 2016.

IV. DIGITAL, NEW TOOLS FOR MEDIATION IN THE MUSEUM AND PUBLIC SPACE: THE THIRD STAGE IN THE EVOLUTION OF THE TOURIST GUIDE PROFESSION

Our reflection here is about the way in which the qualified tourist guide can rely on digital technology during a guided tour. We therefore exclude the use of digital technology for communication and marketing purposes [11]. The same applies to creative content of a cultural and immaterial nature which excludes *de facto* human mediation (eEducation/EdTech, video games, digital publishing, digital press, 3D animation, virtual reality, augmented reality, music, audiovisual, radio, television, cinema).

We will try to show how digital can be a complementary tool for guides without trying to replace them. The Covid 19 pandemic and its many lockdowns have proved the need of human relationships and interactions in education and leisure activities. Hence, the importance of closely associating and balancing the level of intervention of the digital world and the human in the mediation with the public. We can define three levels of intermediation in which digital takes a more or less important place.

In 100% immersive mediation, the public wanders through spaces with a high level of scenography which use interactive digital tools in different contexts and for different purposes and where guides do not have a lot of opportunities for their intervention. The first type offers immersive exhibitions of digital creations on artistic themes, such as the *Atelier des Lumières* [12] in Paris. The second type offers a tour combining immersive content and varied interactive digital content with the aim of facilitating the understanding of a subject. This is the case of the *Château d'Auvers sur Oise* [13] focusing on 19th century art. In a constrained tour, visitors wander from room to room interacting with various contents and operating modes. It should be noted that this type of mediation can be very useful for people with motor or visual and hearing disabilities.

Finally, the third type makes use of new technologies as an innovative positioning in terms of product, which enables it to stand out in the cultural offer of a destination. This is the case of the *Hôtel de la Marine* in Paris [14], which opened in 2021 and offers an immersive tour within highly planned environment and constrained pathway using various devices to enhance the visitor experience.

Some cultural places offer interactive or immersive contents while allowing the guide to intervene at key moments in the visit. This is the case at the *Cité des Sciences* in Paris [15], where permanent and temporary exhibitions are accessible on their own or with a guide. In this case, it is necessary for the guide or scientific mediator to be aligned with the imposed scenography by becoming familiar with contents and operating modes of the digital tools in order to integrate them into his tour and its discourse. Consequently, he must be a specialist in the subjects covered in order to be able to deliver the necessary information, answer to certain questions from the public and achieve an optimal customer experience.

The third level of intermediation takes place in environments with lesser scenography and leaves much more opportunities to the guide to integrate digital technology into his visit. This is the case of the *Sainte Chapelle* in Paris [16], which has a freely accessible interactive digital table offering 3D reconstructions of the place and its surroundings during the history. It is large enough for a dozen people to gather around and can easily be used during the visit to support the guide's presentation. Augmented reality offers a significant cognitive support in understanding and reinforcing the content delivered by the guide. Here again, the guide must be familiar with the contents and functionalities of the tool in order to be able to integrate them perfectly into his tour scenario. Similarly, the *Conciergerie* in Paris offers its visitors *histopads* [17], which provide 3D reconstructions of the site, also in augmented reality, accompanied by written information. These can easily be integrated into a tour in which the guide will find in this tool an ally enabling him to evoke the atmosphere of a place that is now not so furnished and decorated.

In these places, the digital visit materials are very often designed and produced without taking the guide into account, not involving them into the creative, design and planning process. Even if, for some museums, guided tours represent a less important part in terms of attendance than the self-guided tours for which these tools are designed, we can only encourage a dialogue in which museums consults its guides or mediators for the selection of digital tools and the drawing up of specifications for the contents and operating methods. The objective is to meet the needs of the public in a guided tour situation and to offer the guide a better appropriation and a more relevant integration of the tool in his visit according to contents and operating methods that are adapted to his visit.

The emergence of digital technology must be integrated into a perspective of human interaction to encourage the

creation of new services. The 100% immersive intermediation, in particular, forces the actors of cultural and scientific mediation to a new approach of service definition and guides more precisely to an in-depth reflection on how to give a new added value to their profession.

Despite the interest and progress brought by the variety of digital tools, we do not think that 100% digital is the most relevant approach in terms of services, public mediation, and product. In the same way that we have integrated the hybrid into professional, medical or relational perspectives, human mediation must remain at the centre of these approaches, and this is why we propose to integrate the expertise of qualified tourist guides into the design of digital tools. In the graph from Figure 1, we show the difference between opportunities of mediation and easiness of mediation according to the degree of digitization:

- The opportunities (dotted line) exist as soon as there is at least one digital tool, and they decrease with the intervention of immersive content and scenography

- The easiness for the guide is optimal when he has more variety of choice of digital supports as he is not forced to use the one and only available which may not be relevant for his visit.

Easiness starts to drop as soon as the content is immersive (histopad for example with its predetermined immersive scenario), and collapses in an immersive scenographic environment.

Note that the difficulty of mediation also depends on the complexity of the scenario of the digital tool, which the guide should manage and be comfortable with to integrate it in his visit.
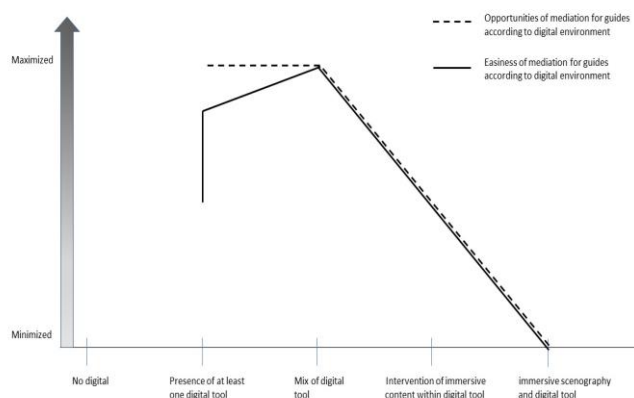

Figure 1. Difference between opportunities of mediation and easiness of mediation according to the degree of digitization.

V. FUTURE TOURIST GUIDES-FACING ICT

The digital media present in the museums are designed to accompany an individual visit and provide in-depth information that the visitor must be able to use independently. The mediation offered by the museum is not necessarily intended to use these media either. At the same time, within the framework of our bachelor's degree, we have noticed that until now future qualified tourist guides have not shown a significant interest in new technologies, but this is changing very quickly with the renewal of generations. The profession of guide is still largely perceived in a purely interactional reading without measuring the interest and need of the integration of new technological tools. The relationship with digital technology is still limited to treasure hunts or to a complementary communicative role, which may raise questions about the employability of future tourist guides, particularly regarding the acquisition of new segments of the public who are increasingly equipped with tools and applications that can be used to carry out a tour otherwise perceived as basic. Furthermore, appropriating new technologies would allow guides to position themselves in the market of 3D reconstructions and 100% immersive, thus ensuring the continuity of the profession. A qualified tourist guide, in addition to his cultural background and knowledge of the various audiences, could show and additional knowhow in technical skills that would be useful for the design of digital products offering progressive interpretating frameworks required by the different stages of a well-prepared visit.

To fill this gap in the integration of qualified tourist guides in the design of public mediation projects, Gustave Eiffel University encourage a close collaboration between touristic sites and guides to involve them in the creation of digital tours. For example, in 2018, a student of our professional degree developed a tour of the Gallo-Roman site of *Le Fâ (Barzan, Charente-Maritime)* using geocaching [18]. The visitors were offered to walk through the site on their own with the aim of finding caches according to an itinerary planned by the management and the guide. The scenario of visit foresaw that the guide would be near strategic caches to offer additional information on the history, archaeology, the site, etc., and to answer to visitors' questions. This twofold interpretative approach responds to the issue of the types of discourse explained in part 2: to propose a framework of information completed by exchanges in the form of questions.

Gustave Eiffel University and IFIS [19] are currently setting up exchanges between student guides and students of the Tourism and New Technologies professional degree in order to allow exchanges on each other's practices, and also to help our future guides to integrate an ICT dimension into their end-of-study projects in order to better prepare themselves to accompany publics who make increasing use of tools, applications and digital practices.

Some students from the *Guide-Conférencier* degree are currently working on a project for a guided tour of the Louvre Museum in Paris in the form of a treasure hunt using digital tablets. They are preparing specifications for the developers to work together on the content, ergonomics and functionalities of the application in order to make this treasure hunt fun, by integrating immersive and participative solutions. The didactic content will be provided by the qualified tourist guides who will be positioned at strategic points to offer additional information and answer questions.

VI. CONCLUSION

We have traced here, although in a synthetic way, the evolution that the profession of tourist guides has undergone over the years and with the arrival of digital technology.

We have shown how much the new uses of digital technology condition the evolution of this profession of mediation facing of audiences that are increasingly using digital technology. To ensure the sustainability of their profession, guides must know how to adapt to this new context and give added value to their interventions. All these developments in the digital transformation take on an additional significance in times of the Covid pandemic, which reminds us how essential and necessary human interaction is. This new perspective has moreover imposed a major reinvention of the profession of qualified tourist guides, notably towards new remote services now integrated into their service offer. It is therefore not a question of putting ourselves in opposition to digital media, but rather of learning to use them so that they become our allies.

Starting from this initial analysis, we wish to conduct research among the students of our professional bachelors' degree to better understand their approach to digital technology and to propose an educational pathway that meets the requirements of the market. Secondly, we would like to develop collaborations between guides and computer scientists to make the tour app even more effective [20] [21].

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